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KEY TO DATES AND PAGES.

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ON

CANCER OF THE COLON.*

BY

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THE colon is one of the sites where, when malignant disease develops, operative treatment can effect a great deal. It therefore has urgent claims to careful consideration.

In itself, cancer of the colon is only a relatively common condition. At St. Mary's Hospital, during 1924, no more than 12 cases were admitted to the practice of all the surgeons. The general practitioner can scarcely expect to see more than one case in two or three years. Considering such facts, it is amazing that he recognizes the disease as early as he does, for the diagnosis is by no means always easy. Vague symptoms may suggest, but the most modern investigations may be unable to prove, its presence. There is nothing for it but an exploratory operation—not to be advised lightly at the time of life when malignant disease prevails—or a waiting policy of careful observation. Decisive symptoms will eventually make their appearance, but by this time effective treatment may not be simple to carry out, and perhaps may be impossible.

Some Difficulties in Diagnosis.

I need not remind you that the scirrhus growth tends to encircle the bowel and call attention to its presence by attacks of obstruction. This is the commonest clinical picture. Yet it is not always easy to recognize.

A youngish woman had several attacks of abdominal pain lasting a few hours only, spread over eighteen months. She never called in her doctor until the subsidence of the attack, when a most careful examination failed to reveal any clinical objective sign. One day the pain persisted. Her doctor was able to feel a distended caecum. The diagnosis was made, but the growth of the ascending colon had spread beyond the bowel and was irremovable. It had, in fact, become adherent to the right kidney and perforated into the extraperitoneal tissues, where it had given rise to a small abscess.

Recurrent attacks of pain in the abdomen, accompanied by constipation, need careful investigation, especially if there has been a gradually increasing trouble with the bowels. These patients often come to us complaining of indigestion and pain after food. It is due to the peristalsis which is called forth by the entry of food into the stomach. They say that their appetite has failed. Sometimes there is a call to stool after each meal—a very suspicious occurrence. Aperients always give them excessive pain, and they notice very often that there is much rumbling from wind within the bowels. The examination of the abdomen between the attacks of pain may throw no light on the condition. During the attack careful palpation will reveal the characteristic elastic feel of a distended caecum, which will appreciably harden and relax under the hand. This is the only part of the large intestine which can ever be felt to contract. The caecum always bears the brunt of the pathological process when an obstruction is situated

in the large bowel, for reversed peristalsis seems to force the intestinal contents back against the ileo-caecal valve. The caecum distends more than any other part; it is the usual part to rupture in a neglected case and the first to necrose from bacterial infection.

In about 40 per cent. of cases a tumour is felt. This tumour is not always the growth itself, which is of quite small bulk, but a mass of faeces impacted above the constricted area. Such tumours disappear after the bowel has been emptied with an enema. The disappearance of a lump in this way does not remove the suspicion of a new growth being present. Further observation and examination are required before a diagnosis of simple faecal impaction can be confidently made. The commonest site for carcinoma to grow is somewhere in the sigmoid loop, and the normal situation of this part of the bowel is in the pelvis. By rectal examination the finger can not infrequently detect through the thin rectal wall a growth of the sigmoid colon. This examination should never be omitted, for by it not only is a growth in the rectum excluded, but a growth which is sometimes hidden to x-ray examination is definitely revealed. The following two cases are interesting as showing how difficult diagnosis may be.

CASE I.

B. C., a girl aged 23 years only, suffered from a number of attacks of abdominal pain spread over eighteen months. They were of short duration, and only once was she laid up. The pain came on after food. She suffered from nausea and lost her appetite. In the worst attack she vomited, and the pain was referred to the epigastrium and the right iliac fossa. Her bowels were regular all through. Her doctor in this attack found tenderness in the right iliac fossa. Appendicitis was diagnosed, and a month later she came into hospital. There were no physical signs at this time, and, because of this and the fact that she had complained of cramps of the right leg, cystoscopy, pyelography, and renal x-ray examinations were performed. No indication of renal disease being discovered, appendicectomy was performed. Externally the caecum and appendix looked normal, but on cutting open the latter its mucosa was obviously inflamed. She went home, and a month later had an attack of acute obstruction. She was operated upon and a ring carcinoma of the transverse colon was found. I am glad to say I was able to resect this and reconstitute the alimentary canal. It is interesting to note how the pain was referred to the distended caecum, which was tender, so that appendicitis was simulated, and the colitis, always present above a growth, had extended to the mucosa of the appendix, so misleading me even after it was removed. The condition, too, occurred at an exceptionally early age.

CASE II.

H. W., a woman aged 30, about to be married, had an acute attack of pain in the left hypochondrium accompanied by vomiting, and was admitted to hospital with a temperature of 101° and a pulse of 118. She was rigid and tender over the affected area, and also in the renal angle behind. No lump could be felt. She had had a very minor attack of similar nature two months before. She said she had always been constipated. A perinephric infection was suspected, but the leucocyte count was only 11,600; cystoscopy showed no abnormality, nor did examination of the urine. The attack gradually subsided, and then a barium enema revealed an obstruction just beyond the splenic flexure. This proved to be a carcinoma, which was excised and the bowel continuity restored.

This case illustrates another clinical point—namely, the liability to local infective attacks. The surface of the growth is ulcerated and gives access to organisms which, penetrating the wall of the bowel, set up a local inflammatory process. The general condition of a patient with a stenosing scirrhus growth is often strikingly good. The condition remains latent until mechanical obstruction

* Delivered before the Isle of Thanet Division of the British Medical Association on October 11th, 1925.

causes abdominal symptoms to arise. In excluding cancer of the bowel no reliance at all can be placed upon a healthy aspect, a clear complexion, youth, or an absence of wasting.

But there is another type of growth—the fungating variety, which projects as a cauliflower growth into the lumen of the bowel, but shows little tendency to encircle it and sometimes none to obstruct it. These tumours always ulcerate, and the infection which takes place plays the most important part in the production of symptoms. There is no constipation, but nearly always diarrhoea. The general symptoms are pronounced. There is the wasting and cachectic appearance of toxic absorption and an irregular temperature. Such growths are quite likely to be diagnosed as a simple colitis.

CASE III.

C. M., a country denizen aged 60, suffered for two and a half years before admission to hospital. He complained of pain under the left costal margin, aggravated by food, vomited occasionally, and for the last eight months had had an irregular temperature. In the left hypochondrium was felt a tumour. The abdomen was not at all distended. The caecum could not be felt. An irremovable malignant growth was found at the hepatic flexure. An anastomosis was made between the transverso colon and sigmoid. He died two weeks later, and *post mortem* the growth was found to be of the cauliflower type, without the slightest tendency to surround the bowel, although it was of large size.

It is well known that attacks of diarrhoea occur in growths of the large bowel. Moynihan asserts that a growth of the right half of the colon causes diarrhoea, one of the left half constipation. My experience agrees with this statement, but I think the picture would be more complete to add that diarrhoea may occur in addition to the constipation when the growth is left-sided. The diarrhoea is much more upsetting to the patient than the constipation, which he is apt to lay little stress upon in recounting the history of his illness.

The pelvically situated tumours often give rise to another symptom—irritability of the bladder, so that prostatic disease is simulated. During the last three and a half years 28 patients suffering from carcinoma coli have been admitted to the surgical unit wards at St. Mary's Hospital. Of these 6 had urinary symptoms. At operation the growth in these patients is found to have formed adhesions with the bladder.

A bleeding from the rectum may come from a growth low down in the colon. Even should haemorrhoids be present, without a careful inquiry into the recent health of the patient the haemorrhage should not be attributed to them, for occasionally they themselves are due to a low growth blocking the venous channels above.

Clinically, then, cases of growths of the colon may be divided up into: (1) only vague abdominal symptoms, short-lived attacks of abdominal pain; (2) those obviously suffering from chronic obstruction; (3) cases of acute obstruction, the natural ending of groups (1) and (2); (4) those suffering from pronounced general symptoms with irregular temperature and very often diarrhoea.

X Rays in Diagnosis.

The value of x rays is very great. In every suspicious case a barium examination should be carried out. Radiographers are agreed now that the enema gives more information than the meal. But a warning must be given

against overestimating the reliability of the method. A growth may be present yet remain unrevealed. This is particularly the case when the growth is in the sigmoid colon, which lies folded up in the pelvis. The malignant stricture may easily lie concealed behind another part of the loop. Again, if the affected bowel lies with its axis in the direction of the rays, the defect in the shadow will not be seen. At the Portsmouth meeting of the British Medical Association in 1923 I showed the skiagrams of such a case.¹ They are not uncommon. Lockhart-Mummery² goes so far as to say that negative findings are useless, and A. F. Hurst at the same meeting said that he had met four cases where a growth was found, though an enema failed to show the slightest abnormality of the colon. The opposite error, the supposed demonstration of a growth which does not exist, is less common. At Portsmouth I called attention to such cases. I have met but three, in each of which a persistent spasm near the splenic flexure mimicked a growth (Fig. 1). Curiously, these patients on exploration had pelvic tumours, suggesting that the spasm above might be of a protective nature.

I would not like to over-emphasize the fallacies of x-ray examination. In many instances this method affords the best and clearest evidence of the existence of a growth at a time when removal is possible.

Sigmoidoscopy in Diagnosis.

When a growth can actually be seen through the sigmoidoscope, it is the best of all evidence of its existence. Sigmoidoscopy should therefore always be carried out. There exist, however, a number of cases where a growth low down in the sigmoid cannot be seen. This is because the tumour becomes fixed in the pelvis. Ever so lightly though it may be, it yet prevents the bowel from straightening out by air inflation, to allow of the passage of the instrument. The procedure has to be abandoned, but the very fact that this must happen is in itself suggestive.

The Occurrence of Multiple Growths.

The colon is one of the few places in the body where multiple malignant growths may be met with. The lower growths are generally supposed to be implantations from the primary orally situated one.

CASE IV.

I. S., a male aged 44, had a characteristic history of colonic growth. A faecal lump could be felt in the left iliac fossa, and, through the rectal wall, a small growth in the pelvis. At the operation a sigmoid growth was pulled up out of the pelvis for excision. Whilst doing this another growth was felt a little higher up. In all, four growths were discovered, the uppermost being just beyond the splenic flexure. A large excision was performed with good result.

The specimen, now in the St. Mary's Hospital Museum, is interesting in that all the tumours are of the same size. It is not possible to say which was primary.

CASE V.

W. W., a male aged 58, had a demonstrable growth in the sigmoid colon, both by rectal palpation and x rays. At operation the growth was excised and a caecostomy performed. He died a month afterwards. No faeces had passed per anum. Pus had discharged ind. *Post mortem* a leakage was found at the bscess spreading up to the region of the a large carcinoma of the ascending colon at operation. I had excised the implantation tumour.



FIG. 1.—Radiogram showing barium enema of a case where, even under pressure, the gruel could not be made to flow past the splenic flexure. There was no growth here. Obstruction due to spasm. At operation growth found in sigmoid flexure.

CASE VI.

F. B., a lady aged 63, had a caecostomy performed by her doctor for acute obstruction. After admission to hospital a growth was demonstrated by x rays at the lower end of the sigmoid. The caecostomy had nearly closed. Operation revealed a large growth fixed to the pelvis and irremovable. There was also a typical annular carcinoma of the transverse colon. This was removed by Paul's method and a permanent transverse colostomy left.

This last case, where the lower growth was so much the larger, leads one to speculate whether, by antiperistalsis, implantation orally cannot take place as well as caudalwards.

A Few Points in the Surgical Treatment.

The greatest decision which has to be made in every case is whether radical excision or a palliative drainage without or within the abdomen should be carried out. Hepatic metastases and peritoneal implantations, of course, negative any radical attempt. But local extension and the enlargement of near-by lymphatic glands stand in another category. A number of successful cases have been reported where a part of some neighbouring viscus has been removed and lasting cure resulted.

With regard to glandular enlargement, no information of any reliability at all is given as to the cause of the induration or increase in size by examination on the operating table, for infection from the ulcerated growth may be equally as responsible as carcinomatous invasion. Experience has shown that, in an otherwise suitable case, the carcinoma is often confined to the nearer enlarged lymphatic nodes. Thus we get the rule that it is sufficient to excise the affected region of the bowel with a moderate amount of the lymphatic drainage area.

The next great rule is that reconstitution of the continuity of the large bowel after excision of a growth should never be done in the presence of obstruction which cannot be relieved by enemata or aperients. This rule must be strictly adhered to, except sometimes when there is a growth of the caecum and an ileo-transverse colostomy is performed. The danger of leakage at the anastomotic junction in this case is very much less than when a union is made between two parts of the colon.

When such obstruction exists a two-stage operation becomes necessary: either drainage first and excision afterwards, or excision *plus* drainage first and reconstitution second. The most universal type of drainage operation is the caecostomy recommended by Sir Harold Stiles.³ This drainage operation has much to recommend it. Unless the tumour is in the ascending colon, the faecal fistula is away from the site of the subsequent operation, which can be performed through an uninfected region of the abdominal wall. On the other hand, when the growth is beyond the splenic flexure, a caecostomy does not always drain the bowel above the obstruction, so that conditions within the abdomen are not so favourable at the second operation. From this point of view a transverse colostomy is much more effective, but does not close as readily spontaneously. There are drawbacks whichever course is followed, and I am not prepared to lay down which is preferable at this stage of my experience; I have had good results from both methods. When a caecostomy has been made as a preliminary to a removal of a growth at the hepatic flexure, on the whole it is best to excise the caecostomy with the caecum, lower end of ileum and colon, to beyond the growth at the same time. This requires careful technique to minimize the soiling which must inevitably occur, but I think it best. In one patient I removed locally an hepatic flexure growth, performing an ileo-transverse colostomy, and leaving the caecum and lower distal end of the ileum to

drain through the caecostomy wound. The patient lived four and a half years before a recurrence caused his death, but the mucous fistula was rather a nuisance to him and the caecum prolapsed through the opening. In an old lady in whom I could only do a palliative ileo-transverse colostomy for a large hepatic flexure growth, I made a caecostomy to drain the secretion of the doubly excluded caecum; the same prolapse occurred. I was forced to remove the prolapsed portion under a local anaesthetic.

This brings me naturally to another very serious factor in all colectomies—namely, the gravity of infection from the bowel contents. Operations upon the stomach can be carried out and some soiling with gastric contents is harmless, but in colectomy it is necessary to take great precautions to diminish infection from this source. Death from peritonitis must be reckoned with as a result of the operation. Fortunately the resistance of these patients to infection from the bowel seems to be abnormally high.

As to the method of joining up the two ends of the bowel,

many surgeons now carry out an axial union. This seems to me the preferable way if a safe technique be adopted, for it allows a wider resection to be done and yet permits of suture without tension. Lockhart-Mummery asserts that after axial anastomosis leakage occurs because of the poor blood supply of the antimesenteric margin, which can be avoided by oblique section of the bowel ends. I have had the best results by performing an anastomosis by a method I described two years ago.⁴ The principle of this is to avoid the two non-peritonealized mesenteric angles from coming into apposition. It is here that union is likely to be imperfect, as all experiments on animals have shown,⁵ and it is an axiom in intestinal work that at least one surface of the viscus to be sutured should be covered with peritoneum. By slightly rotating the bowel ends before suture around their own longitudinal axes in opposite directions, peritoneum at least on one side of the suture

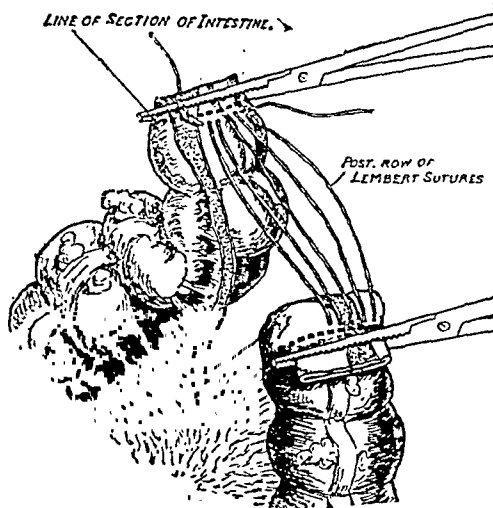


FIG. 2.—Axial union of the colon, showing how the posterior row of Lembert sutures is inserted after clamping the ends of the colon in such a way as to avoid bringing the mesenteric angles in apposition. The line of section after completion of the posterior part of the stitching is shown. Union is then effected by a through-and-through suture and an infolding Lembert suture in front.

line will be present all round the circumference. The method is shown in Fig. 2. In Figs. 3 and 4 are shown radiograms of a growth of the descending colon before and after excision by this technique.

Paul's method of excision, by which the growth is brought outside the abdomen, removed, and the two ends of bowel left to discharge on the surface, has fallen into disfavour with most surgeons, but I have found it to be an excellent method in properly selected cases. The operation can be done when acute obstruction is present, provided the distension of the bowel is not too great and the patient is equal to the prolongation of the operation beyond a simple drainage, which the greater intervention necessitates. The advantage is that the growth is removed at the earliest possible moment and the drainage is instituted at the best possible place, whilst there is no danger of intra-abdominal infection from leakage at a line of suture. After this operation, when the spur has been broken down by the use of a clamp, I find that closure can only be done satisfactorily by opening the peritoneum and withdrawing the adherent loop. I have not been able to close the fistula by the extraperitoneal method.

Growths at the lower end of the sigmoid are a difficult problem to deal with. Sometimes abdomino-perineal excision is the only possible operation. This is a formidable undertaking. When a short stump leading into the rectum can be retained, the method of Rutherford Morison is satisfactory. The growth is excised and the upper end of the bowel invaginated into the lower. The operation may present difficulties of access. The floor of the pelvis lies at the bottom

of a narrow cavity, and soiling is somewhat difficult to avoid. Nevertheless, most gratifying results can be obtained.

As to the most suitable incisions for these operations, it may be accepted that the paramedian is the best for growths in the transverse colon or sigmoid. For growths in the

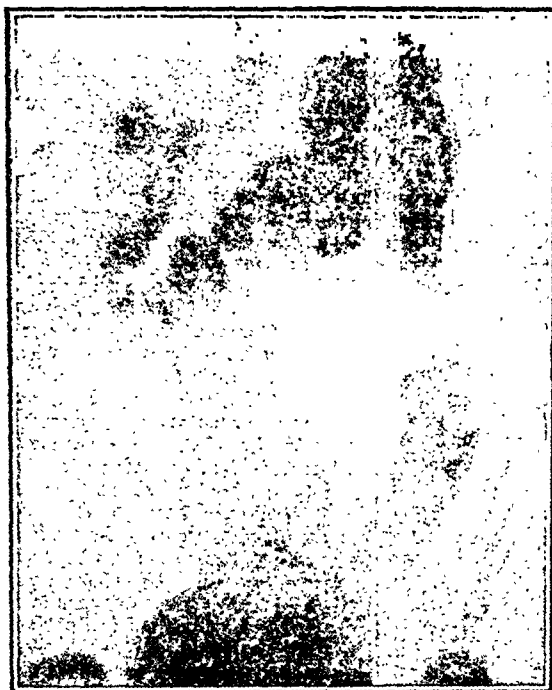


FIG. 3.—Growth of descending colon, showing the defect in the shadow.

flexures or lateral parts of the colon the oblique incision, also advocated by Rutherford Morison, gives good access. It is much better than a vertical one through the outer part of the rectus sheath.

I have only spoken of radical extirpation of the growth. This is possible in a little more than one-third of the patients coming to St. Mary's Hospital. When the condition has advanced too far for excision, great relief may be afforded by relieving the obstruction, preferably by a short-circuit, perforce by an artificial anus. The rule about short-circuiting is that care should be taken not to exclude entirely the portion of the bowel between the ileocaecal valve and the growth. Such an isolated segment of the bowel will gradually dilate and ultimately burst.

The Results of Operative Treatment.

It is generally accepted that the surgery of cancer of the colon gives results better than those which can be obtained in some other regions of the body. Those who would like to know what can sometimes be effected in advanced cases should read Grey Turner's interesting book *Some Encouragements in Cancer Surgery*. Körte, in 1913,⁶ collected the records of 434 cases. Of these, 61.3 per cent. survived the operation and 38.3 per cent. lived over three years—that is, one-half of the survivors of the operation were in a fair way to being considered permanently cured. Paul⁷ reported 46.66 per cent. of three-year cures. R. T. Miller⁸ found that of those patients surviving excision 28 per cent. were alive after five years. But he points out that a considerable number of recurrences take place after the five-year period, so that the ultimate results must be less favourable. This is rather the impression I have got from my own cases. Kuttner⁹ gives the final results as only 10 to 12 per cent. cured, whilst Majerus¹⁰ reports that of 43 radical operations 8 patients were alive three years afterwards—that is, 18.6 per cent. Amongst his cases one recurrence took place at four years and one at eight, so that the final recovery figure would more nearly agree with that of Kuttner.

The early impressions obtained as to the success in surgery of cancer of the colon have to be modified somewhat in the light of further experience. But the answer as to whether surgery in this condition is justified is undeniably

that it is. Survival over three years is common, and up to five years not infrequent, and this in a disease which is quickly fatal once obstruction has come on. Many victims are at the time of life when they cannot expect to live for many years. They get immediate relief and prolongation



FIG. 4.—Radiogram taken seven months after removal of growth. Axial anastomosis by rotational method. Same case as Fig. 3. Note how mobilized splenic flexure has been lowered to effect the junction.

of life in comfort. Gloomy as the outlook of a carcinomatous patient is, when the disease attacks the colon there is indeed hope in surgery.

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SAVE THE WOMEN AND CHILDREN.*

BY

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FROM time immemorial it has been the proud tradition of Englishmen, wheresoever scattered over the face of land or water—in the presence of danger, to rally to the cry, "Save the women and children." Such a cry has become part of our common language. Let it be the slogan of the medical profession.

Every year some 700,000 women in this country pass through the pangs of labour, and of these 3,000 never leave their beds again except in a coffin. Such is the appalling sacrifice made by our women in the performance of a physiological act, and in that of the primary object of their sex—the provision of healthy citizens for our nation. Most of these women were in good health up to the time of their pregnancy or confinement; most of them were young and had very many years of active and useful life before them.

Since 1900 the infant mortality, after the first month, has fallen from 154 to 69 per 1,000 live births. The general death rate of all persons at all ages has fallen. The death rate from all causes of women from 15 to 45 has fallen, but the maternal mortality, and the infant mortality at birth

* The substance of an address to the Metropolitan Counties Branch and to the West Dorset Division of the British Medical Association.

and during the first month of life, would appear to have remained stationary. During the last twenty years the maternal mortality has kept at about 4 per 1,000 births. The prospective mother, therefore, is seriously handicapped in comparison with other members of the community.

If we examine certain tables in the Registrar-General's report dealing with the causes of death we find those due to the results of child-bearing come third on the list; and if we examine the table dealing with the causes of death during pregnancy, labour, and the puerperium we find that sepsis comes first, toxæmia second, and hæmorrhage third, and that these three account for the very great proportion of lives lost. In other words, most of the women who died last year as a result of child-bearing ought to be alive to-day. If 3,000 women died, how many, escaping with their lives, had their health ruined, were rendered sterile, or suffer from some other disability? How many of them will have to submit to some operation, with a certain percentage of deaths? In the case of the children also, how many of those who survive their birth are during its process injured for life? Apart from such a mortality, there is every year added to the community a vast number of women who have to bear the burden of ill health and suffering, and numbers of unsatisfactory children who, instead of being an asset to the nation, will be a source of nothing but trouble and expense. Truly the slogan of the medical profession should be "Save the women and children."

Such a serious maternal and infantile mortality must be prevented. The Bible teaches us that we should be importunate, and it is only by all of us, in season and out of season, preaching the doctrine that these lives should be saved that, in the end, they will be saved.

I will deal with this subject under four headings: (1) Educational, (2) Ante-natal, (3) Intra-natal, (4) Post-natal.

EDUCATIONAL.

The medical student, the pupil midwife, the medical man, and the laity all have to be educated in the subject under discussion. A medical student in the past was badly educated in the subjects of midwifery and gynaecology. The amount of time he was required to give to the study of midwifery was deplorably short of what it should have been. That the teachers are not entirely at fault is obvious, since they have not had the facilities to teach midwifery and gynaecology. The responsibility for this inefficient teaching in the past must rest with the various examining bodies, who have had it in their power to prescribe what rules and regulations they deem right. Medical men in the higher ranks of the profession have failed, until recent times at any rate, to realize that the science and practice of midwifery is as important to the general community as that of medicine and surgery, and as a fact even more so. This is reflected in the regulations of the Royal Colleges, which do not insist that there shall be a definite proportion of medical men familiar with the teaching and practice of obstetrics on their councils.

The majority of students when they go into practice are not going to operate, and yet before they can sit for their final examination in surgery they have to spend three months in the out-patient and six months in the in-patient surgical department. The majority of students are, however, going to practise midwifery. The General Medical Council has made a regulation that after January 1st, 1923, a student must have obstetric and gynaecological experience in the wards, must be signed up as having attended regularly all the departments of the maternity and gynaecological units for three months, and must have attended five labours conducted by a teacher or member of the staff of a lying-in hospital or of the maternity department of a general hospital before attending the remaining fifteen. This wise action of the General Medical Council will, I am sure, lead to a great improvement in the practice of midwifery, because the future practitioner will be taught by this experience to realize within what limits normality lies. He will thus be able to diagnose better impending or present dangers and difficulties, and he will, moreover, not be tempted to interfere when he should hold his hand. The medical student is allowed by the Conjoint Board to sit for his examination in midwifery a year before his final examinations in medicine and surgery. This has led to

generations of students regarding midwifery and gynaecology as unimportant subjects from an examination point of view. Moreover, however willing a teacher may be to instruct his students, he has not had the proper facilities. More maternity beds are required, either in the general or lying-in hospitals.

There is a great danger of pushing the scientific education of the average student too far. Our students have now so many subjects to master that they are apt to forget that there are such things as wards with patients in them. What the student requires is more practical teaching at the bedside, at any rate in midwifery. He should be able to diagnose most of the emergencies of pregnancy and labour just as easily as he is taught to diagnose most of the medical and surgical emergencies.

Then the education of pupil midwives is still far from satisfactory. How important it is that the midwife should be well educated is, I think, shown by the fact that some 70 per cent. of the pregnant women are attended by midwives. There should be more post-graduate courses for midwives. All local authorities would be wise in encouraging the midwives practising in their districts to attend such courses, and should give grants for the purpose.

The education of the laity is already taking place through the medium of various voluntary societies dealing with mothercraft and infant welfare. The approved societies are bestirring themselves, and, more and more, married women are getting to know about ante-natal supervision, and to expect it.

ANTE-NATAL.

Labour, which is a physiological act, just as much as defaecation and micturition, in the vast majority of women only becomes pathological when they have been deprived, by their attendant or because of their own carelessness or ignorance, of ante-natal supervision. Medical students and pupil midwives should be taught that pregnancy is for women a normal state of health, but that since she is harbouring a child her metabolic functions may be stressed, and so she requires careful supervision.

Ante-natal supervision and treatment can abolish all the catastrophes of contracted pelvis; it can, by reducing the number of difficult labours, minimize the dangers of manipulation and infection. It is fair to say that it can practically abolish eclampsia. It can in many cases prevent women, the subjects of organic disease, such as that of the heart and kidneys, from being worse as the result of their pregnancy. It can ensure a greater percentage of births of live and healthy children. It can prevent an enormous amount of suffering and disability and many deaths which are attributable to childbirth. In the report of the Scottish Departmental Committee it is stated that in the histories of 10,000 gynaecological cases it examined, 2,800 had relation to previous pregnancies and labours.

By ante-natal supervision such conditions of local infection as oral and nasal sepsis, sores and boils can be treated, themselves undoubtedly in many cases the source of puerperal sepsis. And yet the majority of pregnant women in our country have no ante-natal supervision of any kind. Nevertheless, the public is getting to know more and more concerning the benefits of ante-natal treatment. After all, ante-natal supervision is a very real aspect of public health. Medical students should spend at least three months studying the normal pregnant woman, so that when they go into practice they may be able to detect, early in labour, any sign of abnormality. It is because, in the past, the average medical student has not been sufficiently grounded in the normal results of impregnation that he fails, when he goes into practice, to realize as well as he should what may be left to Nature, and in what circumstances he should lend her his assistance. As a result he may be tempted to interfere with Nature when he should not, and so we have, perhaps one reason why the maternal and infantile mortality and morbidity would appear to have remained stationary during the past twenty years.

Next we come to pupil midwives. The Central Midwives Board by its latest regulations proposes, as far as it can, to remedy the lack of ante-natal training by stipulating that these pupils shall have more ante-natal experience. Midwives must be taught to insist, as far as they are able, that

all their patients should have ante-natal supervision, either at an ante-natal centre or by a doctor.

Lastly, as to the role of the laity in regard to ante-natal treatment. By propaganda pregnant women must be taught that such supervision is not only imperative but their right. The medical profession must never cease its efforts until every pregnant woman realizes the importance of such supervision. There are so many ante-natal centres now that most women, when they cannot afford to pay a doctor his fee, can obtain free advice. The officers in charge of such centres should communicate, when necessary, with the doctor or midwife who is going to attend the patient. At present this practice, I am afraid, is not followed nearly as often as it should be.

Research work in the physiology and pathology of child-bearing should be encouraged in every way possible by grants from the Ministry of Health and other authorities; but if pregnant women do not take advantage or are not persuaded to take advantage of ante-natal supervision, of what use is this research work? We cannot compel all pregnant women to submit to ante-natal supervision, human nature being what it is. Can we persuade the majority of women to do so? I have given much thought to this question, and it seems to me that the majority of pregnant women may practically be persuaded to do so. If the payment of the maternity benefit was made conditional on the woman presenting a certificate to the effect that she had attended an ante-natal centre, or had been examined by a medical practitioner, during at least the last month of pregnancy, I am certain that the present maternal and infantile mortality and morbidity would be appreciably diminished. The highest maternal and infantile mortality rates in England and Wales are found in districts in which there is least ante-natal supervision.

Ante-natal supervision must include not only attention to the health of the individual, not only the detection of abnormalities which for the moment do not trouble her, such as a contracted pelvis or malposition of the child, but an inspection of the home in which the confinement is to take place. For though an environment of dirt and squalidness is not such a menace to normal labour as we might suppose, yet if the labour should chance to be abnormal then the scales of recovery are heavily weighted against the woman. Especially is ante-natal supervision important to primigravidae. Apart from the fact that none of them have had a trial labour, and the attendant, therefore, has no previous history as a guide, eclampsia, the evidence of which can be detected by an examination of the urine and certain premonitory signs, occurs 70 times out of 100 cases in first pregnancies, and has a death rate of 23 per cent. in women and 50 per cent. in the infants. I take it that all medical practitioners to-day are in full accord as to the value of ante-natal supervision—nay, as to its absolute necessity. Some of them, nevertheless, are perhaps not so whole-hearted on this question as others, because in their own particular environments the provision of such a protection for every pregnant woman, or even for the majority of pregnant women, seems hopeless. I would like, however, to stress this aspect of the case. If ante-natal supervision is neglected by the general practitioner, it will certainly not be by the Ministry of Health, the medical officers of health, or by the ante-natal clinics. It is up to the family doctor to see that this essential part of his family work is not taken out of his hands. None can help him in this respect except the Almighty, who, as we have been taught from our childhood, is prepared to help those who help themselves.

NATAL.

What relation have the circumstances attending the birth of the child with the subject we are discussing? The environment of the patient may not be of such importance as, on the face of it, one would expect. Some of the worst cases of puerperal sepsis occur in women who have never been submitted to an internal or any other examination. It is true that large numbers of women pass through a normal puerperium in spite of much and repeated manipulation at their confinement. But these facts cannot be taken to indicate, as many would have us believe, that the environment of the patient is of not much importance, that puerperal sepsis is mostly autogenous, and that the

best thing for the woman and child is to terminate labour as quickly as possible after the first stage by the use of the forceps and by the untimely expression of the after-birth. Experience and statistics, which, as Moynihan has remarked, sometimes tell the truth, prove entirely the contrary.

It is possible that women whose normal habitat is that of dirt and neglect are more immune to the invasion of the bacteria of puerperal sepsis, and as the majority of labours are normal, and attended by midwives, the incidence of puerperal sepsis in their case is not so great. But supposing such women are subjected to operative measures, then the results, if they could be collected, would be infinitely worse than those following such operative measures in more favourable surroundings. There can be no better indication of the great necessity for more maternity beds. A doctor when he has a poor patient suffering from some severe medical or surgical complaint is able to send her at once into a hospital or infirmary. But not by any means can he do so in the case of a woman in difficult labour. He may try to get her into hospital, but there may be no maternity beds available, and he has to proceed to operate upon the patient. It may be impossible for him to obtain proper assistance. He cannot obtain a sterilized outfit unless he provides such himself. Moreover, in better surroundings the doctor has, in many cases, the relatives to contend with. In what other condition necessitating medical or surgical treatment is a doctor expected to exercise so much skill or devote so much time for such an inadequate fee? The public must be educated in this respect.

The remedies for this state of affairs are more maternity beds; the provision by the local authorities of sterilized outfits for labour, the setting up in each district of a panel of medical men, to be paid by the local authority if the patient cannot pay, who have had special experience in midwifery practice and upon whom the doctor can call for assistance if he wishes. Even if the local authority has not the funds for such assistance, as a commercial proposition such a panel should appeal to the approved societies.

Although it is true that some of the worst cases of puerperal sepsis are autogenous, it was proved conclusively that 75 per cent. of the cases of sepsis dealt with at the British Congress of Obstetrics and Gynaecology held in London in April, 1925, were associated with repeated internal examinations, and injuries resulting from operative midwifery. And what about the after-results? Men in charge of gynaecological departments can answer this question.

POST-NATAL.

From the post-natal point of view the question must be studied in two aspects—the immediate and the remote. It is an acknowledged fact that a large percentage of the diseases peculiar to women, resulting in a certain number of deaths and a great amount of suffering and disability, owe their origin to the fact that the patient has given birth to a child. It is deplorable to think that the results of a physiological act should in so many instances result in some pathological condition; that a woman who does her duty by providing citizens for the nation should be thus handicapped, as against one unwilling to do her duty. Think of the number of women whose health is ruined for life as a result of child-bearing. In the year 1920, 5,413 women died, and six out of seven who died under the age of 35 in the United Kingdom died from causes incidental to child-bearing.

And, lastly, as to the immediate post-natal supervision and treatment. This is the most difficult question of all, and, in a way, the most important, since the medical profession is nowadays entirely in accord with the importance of medical education, ante-natal supervision, and intra-natal care. It is when we come to discuss the disease of the immediate post-natal state that the difficulties arise which are, to many men, insuperable or apparently insuperable. Of all the deaths attributable to childbirth, puerperal sepsis claims by far the largest number of victims. As someone has remarked, there are two things known for certain about puerperal sepsis: one is nothing, and the other is that the medical attendant will be blamed. There is a certain amount of truth in this statement. The

bacteriology up to a point is known; the streptococcus is practically in all cases the *fons et origo*, but it may be that there is a special variety of streptococcus peculiar to puerperal sepsis. What do we know about the predisposing causes of puerperal sepsis; of the immunity of the normal pregnant woman; of how to assist this immunity; of how to recognize if this immunity is failing? What increases the virulence of the organism which has been lying harmless on the vulva or in the vagina of a woman up to the time she gives birth to a child? Why does a method of treatment appear to be specific in one case and absolutely useless in another? We cannot answer these questions. Reports which are issued from time to time leave no doubt in the mind of the reader that puerperal sepsis is frequently due to lack of ante-natal supervision, to faulty technique at the time of the confinement, or to careless nursing. But, after all, such reports deal with comparatively few cases. Granted that in the cases dealt with such a conclusion is justified; some men never wear gloves, never trouble about or cannot obtain sterilized outfits, have a large percentage of operative midwifery in their practice, and yet from their statements do not appear to get more puerperal sepsis than their very careful fellow practitioners. No one would be rash enough to contradict the statement that the more care that is taken the less likelihood there is of infection.

The plague of puerperal sepsis must be dealt with here and now. The Divisions of the British Medical Association should hold meetings and discuss the question, and the Divisions should appoint representatives to attend a joint meeting of the Association further to discuss the question. Research work should be organized by some competent authority; and here I think perhaps the crux of the whole question lies. Any man, or body of men, engaged in research must have all the information it is possible to obtain. Much of this information can only be obtained by a new and thorough system of notification. The present state of notification is absolutely hopeless. Fothergill collected the statistics of notification in 204 areas. In 93 of these areas the total deaths from puerperal sepsis were more than the total notifications of puerperal sepsis. He also reckoned that in these 204 areas there should have been thirty times as many notifications as deaths. There were only twice as many.

There are many reasons why at present notification is in such a hopeless state. The term "puerperal fever" required by the notification is one that makes many practitioners hesitate to notify, so are those of "puerperal sepsis" and "puerperal pyrexia." Such terms to the lay mind are apt to convey the impression that the illness is due to the doctor or midwife. It takes a lot of courage to make such a notification. The relatives know of it, the medical officer of health knows, and he, indeed, may be practising in the same neighbourhood. In many cases the man is apt for these reasons to attribute the rise of temperature to influenza, constipation, and so forth. A vast number of cases are only mild in nature, and the medical attendant persuades himself that his diagnosis was correct, and that the patient never had puerperal fever. As long as puerperal fever is considered by the laity to be due to bad midwifery, notification will remain a farce. Again, there never has been, perhaps there cannot be, any exact definition of what is really included in the terms "puerperal fever" or "puerperal sepsis." Many a general practitioner does not know whether he should notify a particular case or not. Doctors do not hesitate to notify tubercle, small-pox, scarlet fever, measles, and so on; they know they will not be blamed.

And then, what good comes of notification except for statistical purposes? In the case of the midwife, it is true that she is carefully supervised and has to conform to certain regulations of the Central Midwives Board which deal with the preventive treatment for other patients; but the medical profession is not concerned in these. If a doctor notifies a case of puerperal fever, does he by right obtain any assistance? None whatever. All his report does is to swell the statistics of the medical officer of health.

A new definition is required for purposes of notification. What is required is a term comprising a state of the patient, quite easily diagnosed, and one which practitioners will be willing and ready to notify, and which can be notified

at once, irrespective of whether it is due to sepsis or not. Such a term as "fever during the puerperium" might fill the bill. As it includes any febrile condition occurring in a puerperal woman, and does not involve any theory as to its cause, it would not arouse any suspicion of incompetence in the attendant, and would not necessitate any delay until a complete diagnosis could be made. It is most important that cases of puerperal fever should be identified at the earliest possible moment if the patient is to have the best chance, and the diagnosis is often most difficult in the early stages. Moreover, an early diagnosis means less danger of the disease being communicated to others. The doctor is often called in too late. There would be no need to make a diagnosis of puerperal fever or of any other disease, but simply to notify the case if the temperature was 100.4° or over for more than twenty-four hours.

A large number of the infections in puerperal fever are of a mild nature; yet very many of these mild infections are followed by ill health and sterility, which might have been prevented if appropriate advice and treatment could have been obtained. Also, such mild cases have a danger peculiarly their own, since infection of other patients is perhaps more likely to occur, and it is known that the virulence of an organism may be very greatly enhanced by transplantation from one patient to another. If a medical practitioner could notify without running the risk of blame, and if, having notified, he could obtain appropriate help, then notification would not be the farce it is to-day. Such a notification as I suggest would mean more clerical work for the practitioner, and many objections could be advanced against it. But the advantages that would accrue to him personally, and the immense advantage that would accrue to the community as a whole, would outweigh all the disadvantages. Naturally he would be paid for the certificate. He should then have at his disposal the services of an expert opinion, of a bacteriologist, and of a bed in a hospital or infirmary to which, if he liked, he could send his patient; or if not, then he should have the services of an anaesthetist and a trained nurse. Cases of puerperal sepsis require nursing of the highest standard. How often do they get it? How often does the general practitioner have both to give the anaesthetic and perform the operation? In each district there should be a panel of doctors who have special knowledge of midwifery, and who could be called upon to assist or give advice in any case. There should also be a panel of trained nurses.

The question of more beds is a very important one. The Ministry of Health favours the establishment of small maternity homes in which the local practitioners can attend their patients. Such homes are very desirable for normal cases, especially for patients whose surroundings are unfavourable. But something more than this is wanted. There should be beds especially for difficult labour and sepsis in the puerperium, and these beds should be under the charge of experts in midwifery. All this would cost a lot of money, but, money or no money, something drastic has got to be done in the near future; and it is more than likely that the approved societies would find that helping to finance such a service would save them a large sum of money. It is true that the practitioner might object to sending in his reports to a local medical officer of health, who might be a neighbouring practitioner. He might be afraid of the patient getting hold of his report and suing him for negligence. But such difficulties can be overcome. He could notify the temperature to, and, if necessary, request assistance from, the county medical officer of health, while the consultant who is called in could make the report on the case and forward it direct to the Research Committee.

The medical press has lately been the seat of a somewhat acrimonious discussion concerning the responsibility, if any, of the medical profession with respect to puerperal fever. It is no use our sitting down and accusing one another of this and of that. We must all of us, experts and general practitioners, join together and work harmoniously in a great endeavour to improve matters. Is it likely that we shall obtain any advantages from such disputations? On the contrary, the medical profession, unless it is careful and wide awake, may find itself in the cart, to use a modern expression, with respect to the measures which may be

insisted upon by the Government in an attempt to limit the incidence of puerperal sepsis.

It is obvious from the writings and speeches of public health officials, as also from those of the laity, either personally or combined in the form of the approved societies, that a great movement is taking place to insist that the present deplorable maternal and infantile mortality and morbidity ought to be, and shall be, diminished. If, therefore, the medical profession itself does not take up the question seriously and now, it will wake up one morning to find that all kinds of rules and regulations have been made that may seriously affect its position. Let us all do our best; it is no use cursing each other; this will not improve matters; this will not save a single life. The general practitioner, apart from the patient, is the most seriously concerned. By insisting on ante-natal supervision, by linking up with the county health authorities, by welcoming the assistance of obstetric experts, bacteriologists, trained nurses, and voluntary societies, by reporting at once cases of fever during the puerperium, by giving willingly all the information he can to those constituted to receive it, the general practitioner is bound to be the chief instrument in the reduction of the maternal and infantile mortality and morbidity.

THE IDENTIFICATION OF FIREARMS AND PROJECTILES

AS ILLUSTRATED BY THE CASE OF THE MURDER OF
SIR LEE STACK PASHA.

BY

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(With Special Plate.)

On November 19th, 1924, Sir Lee Stack Pasha, the Governor-General of the Sudan and Sirdar of the Egyptian Army, was shot while returning from the War Office in Cairo about 1.30 p.m., and died on the following day. His aide-de-camp, his chauffeur, and a native policeman were wounded, but recovered.

This was the culminating point of a series of political crimes which, commencing with the attempted murder of Captain Combe in November, 1919, accounted for thirty attempts at murder, of which twelve were successful. Of these, seven took place in November-December, 1919, seven in 1920, two in 1921, and thirteen in 1922. If we exclude the attempt on Mr. Amber in February, 1923, and the stabbing affair at Heliopolis in the same year, the political significance of which is doubtful, no further cases of political murder occurred until the Sirdar case in November, 1924.

The action taken by the British Government and the political effect of this outrage are foreign to the purpose of this article, and I shall confine myself to the study of the crime from its medico-legal aspect, to the exclusion of all other considerations.

The Sirdar died on November 20th, and a necropsy was performed the next day, when the following injuries were found:

1. A wound of the left hand from a bullet which entered on the internal aspect at the base of the little finger and made its exit on the back of the hand at the base of the fourth metacarpal bone.
2. A wound of the left foot from a bullet which entered in the middle of the sole and passed to the outer side of the foot below the ankle, from which position it was extracted before death.
3. A wound caused by the entrance of a bullet on the outer side of the right pelvic bone just below its crest. The bullet passed upwards and inwards through the muscles of the abdominal wall to the level of the right lower ribs. It was slightly deflected to the left at this point, entered the abdominal cavity, and passed through the gall bladder and liver. It made its exit on the left upper diaphragmatic surface of this organ, causing a ruptured wound $1\frac{1}{2}$ inches long. It continued its course through the diaphragm, entered the chest at the level of the xiphisternum, and was found in the tissues of the anterior mediastinum under cover of the fifth left costal cartilage and immediately above the heart. There was no damage to the stomach or intestines or any haemorrhage within the peritoneal cavity.

The bullet extracted from the body was a 0.32 automatic bullet, the tip of which had been cut in a cross-shaped manner with the object of converting it into a "dum-dum" or expanding bullet. Death was due to shock and haemorrhage, the direct result of the bullet wound of the abdomen.

The aide-de-camp, Captain Campbell, received a bullet wound in the right side of the chest, probably from the same bullet which struck the Sirdar's hand. The chauffeur, March, received a bullet wound of the right leg just above the knee, and a native policeman received a bullet wound of the right hip region. An examination of the car showed that it had been struck five times on the right side, the direction of fire being from before backwards.

The reconstruction of the crime from the above information is not difficult. The assailants were waiting on the right side of the road and began to fire just before the car reached them; the first shot probably passed through the forward door of the car and entered the chauffeur's leg, passing upwards towards the thigh. The next shot probably struck the Sirdar's hand, smashed the stick that he was holding, and was deflected into Campbell's chest. The latter then in all probability pulled the Sirdar down into the body of the car, and as he did so the Sirdar's foot was raised as he overbalanced and a bullet was received in the sole. Finally, while in this position another shot was fired at him, striking him in the right hip and passing across his abdomen to the left side of the chest.

MATERIAL OBTAINED FOR INVESTIGATION.

Nine empty cartridge cases were found at the scene of the crime. These were all 0.32 inch automatic pistol ammunition, and from an examination of the extractor and other marks it was shown that three different types of automatic pistols had been used.

Six bullets were obtained from various victims; all of these were 0.32 inch automatic pistol ammunition with a heavy cupro-nickel jacket. Five of them had a cross-shaped incision in the tip to convert them into expanding bullets.

An examination of the projectiles showed that at least three different types of weapon had been used—namely, (1) a weapon of the Colt type with six left-handed rifling grooves, (2) a weapon of the Browning type with six right-handed grooves, and (3) a weapon of the Mauser type with four right-handed grooves.

Wholesale arrests followed the crime, and though certain of the actual murderers were arrested not a shred of evidence was obtained, in spite of all the efforts of the investigating authority. Fortunately a native named Helbawi, who had served a term of penal servitude for a previous attempt on the life of Sultan Hussein, was liberated from prison about this time, and decided to turn secret agent. With his history he had no difficulty in getting into contact with the suspects, and soon learned that two of the gang were young students named Enayat. From his knowledge of the psychology of the native he advised that the best plan to follow was to frighten these young men into flight, and to suggest that they should make for Tripoli. The object in suggesting Tripoli was to have them arrested in territory under the Frontier Districts administration, where they could be held without the formalities required in the other parts of Egypt. He believed that in these circumstances the younger Enayat could be induced to confess and thus implicate other members of the gang.

Helbawi was successful in his efforts, and managed to scare the Enayats into flight. They were arrested on the train while making for the frontier, and with them were secured four automatic pistols and a quantity of ammunition; these were forwarded to my department for examination in order to ascertain if any of them had been used in the crime.

Examination of Material.

The weapons were of the following brands and calibre:

- 1 Colt automatic pistol 0.32 inch.
- 1 Süreté automatic pistol 0.32 inch.
- 1 Mauser automatic pistol 0.25 inch.
- 1 Libia automatic pistol 0.25 inch.

The barrels of the weapons were first examined chemically and found to be free from the decomposition products of

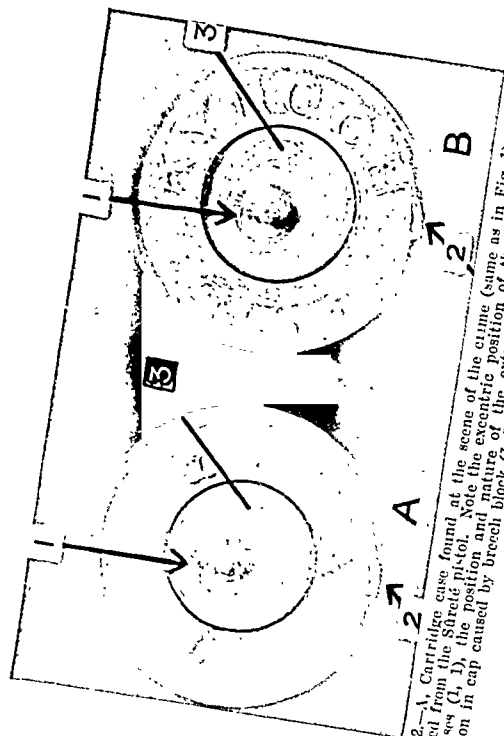


FIG. 2.—A, Cartridge case found at the scene of the crime (same as in Fig. 1). B, Cartridge case fired from the Sûreté pistol. Note the eccentric position of the depression in the cap in both cases (1, 1), the position and nature of the depression in the cap in depression in cap caused by breech block (2, 2), and the circular depression in cap caused by breech block (3, 3).



FIG. 3.—A, Cartridge case found at the scene of the crime. B, Cartridge case fired from the Colt pistol. The characters of the extraction marks (indicated by arrowheads) are identical.



FIG. 4.—A, Cartridge case found at the scene of the crime. B, Cartridge case fired from the Sûreté pistol. The scratches (1, 2, 3, 4) on the surface of the two cartridge cases are identical.

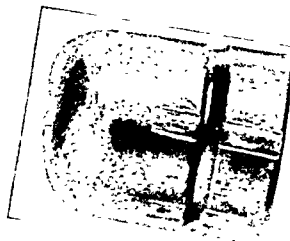


FIG. 5.—The bullet taken from the foot of the Sirdar.



FIG. 6.—Cast of rifling marks from the bullet taken from the foot of the Sûreté (above) and from a bullet fired from the Sûreté pistol (below).

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FIG. 8.—A, Bullet seized in the
B, Bullet from the victim. (Side view.)
The manner in which the nicked jacket has
been incised is the same in both bullets.



FIG. 6 AND 7.—Comparison of a bullet fired from the Colt pistol
with the bullet which caused the death of the Sirdar. Arrowheads
point to vertical scratch groove caused by a fault in the barrel
of the pistol. The ordinary rifling grooves cannot be seen.

Colt bullet.

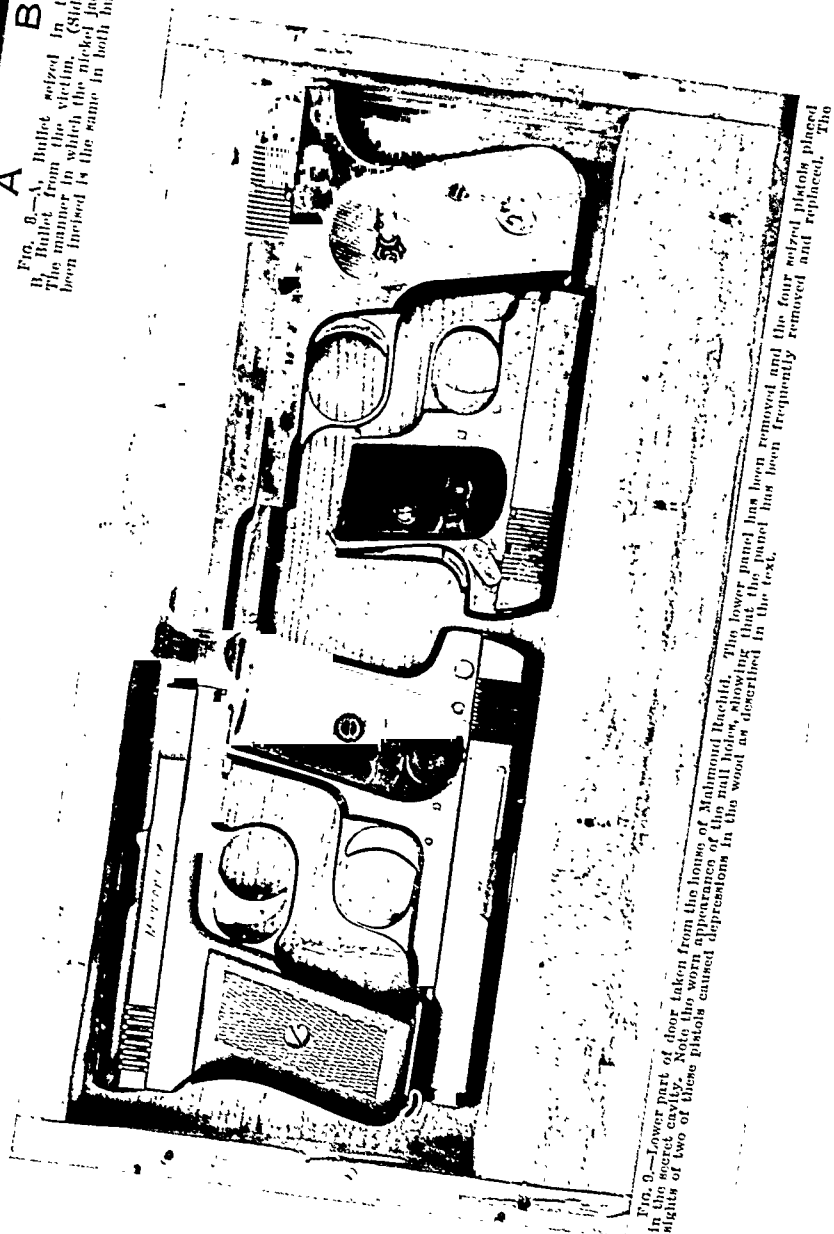


FIG. 9.—Lower part of door taken from the house of Mahommed Lucifid. The lower panel has been removed and the four seized pistols placed
in the secret cavity. Note the worn appearance of the nail holes, showing that the panel has been frequently removed and replaced. The
nails of two of these pistols caused depressions in the wood as described in the text.

powder. All four were clean, well oiled, and well cared for, but the Sûreté pistol had a trace of rust at the muzzle which might be expected to obscure the identification marks on bullets fired through it. The empty cartridge cases found at the scene of the crime and the bullets extracted from the various victims had now to be compared with cases and bullets fired from the seized pistols.

NATURE OF THE INVESTIGATION.

Before proceeding to the actual comparison it may be as well to indicate briefly the nature of the investigation.

When an automatic pistol is fired the empty case is automatically thrown out of the chamber and a new cartridge slides forward into its place. In this automatic charging and ejection of the cartridge several things happen which leave their imprint on the cartridge case. The cartridge is forced up the magazine, its nose is directed towards the chamber by means of metallic guides, the breech-block strikes the base and forces it into the firing chamber. The firing-pin strikes the cap, and on the explosion taking place the breech-block moves backwards by gas pressure, the extractor hook catches the rim of the cartridge case, and it is pulled backwards with the sliding mechanism until it reaches a bar of metal jutting from the side of the slide. The cartridge case strikes this bar on the side opposite to the extractor hook, and as the hook continues its backward pull the case is thrown out. This occurs with a considerable amount of violence, and we may expect to find certain marks on the cartridge case from each operation, the extent of the marks depending on the violence of the operation. The empty case is therefore examined in detail under a low-power microscope or with a watchmaker's eyeglass for any marks which may have resulted from these operations. On the surface there may be cuts or scratches caused by irregularities in the breech or in the slide: these may be absolutely characteristic and imprinted on every cartridge, and when found may prove that the cartridge case was used in a certain weapon.

The mark of the extractor hook on the edge of the cartridge must be looked for. This varies considerably in cases fired consecutively from the same weapon, in depth, length, etc., but if a number of cartridges are fired the characteristic marks will become obvious. The surface of the base must be examined for the mark of the ejector bar, which often leaves a most characteristic depression. Finally, the position of the depression in the cap, whether central or to one side, and the character and depth of the depression, must be noted.

When a weapon is seized it has to be decided whether the empty cases were fired from that particular weapon. After the preliminary examination already described a number of rounds are fired from the pistol, using several different brands of ammunition, including, if possible, several cartridges of the same make as the ones found. The weapon is fired into a roll of cotton-wool or rags (backed by a sandbag), the object being to obtain the bullets for comparison without distorting them, as well as the cartridge cases. The empty cases are collected and examined in detail as outlined above to observe whether any particular mark found on the seized case is reproduced on the fired cases.

The cartridges may be marked in such a characteristic manner that there can be no doubt of their identical origin, as in Figs. 1 and 2, in which there are scratches on the case of a particular kind, a definite extractor mark on the rim, and a firing-pin which strikes to one side. In other cases the marks may be absolutely different, and at once prove non-identity. A great many cases occur, however, in which the marks are ill defined and the matter becomes more difficult. In numbers of instances the marks from cases fired consecutively through the same pistol have no resemblance whatever, simply because they are ill defined; they are, however, in the same position on the cartridge, and this must always lead the observer to make further experiments and obtain new samples.

It is never safe to say that a cartridge case was not fired from a given pistol unless the marks are quite different, and a case which bears no marks at all may quite well have been fired from the same pistol as one which leaves well defined marks. In general, however, though it is unlikely that all marks will be equally good, it is usually possible to obtain definite information from the marks of the firing-pin, extractor,

ejector, or breech-block on the base or rim, or from grooves or scratches on the surface. In weapons of the same manufacture the marks are of the same general nature, but in every weapon there are individual differences which enable it to be definitely identified in the usual case.

The cartridge cases having been examined, it is necessary to make a close comparison of bullets fired from the seized weapon with those found in connexion with the crime. It is as well to fire half a dozen rounds from the weapon before it is cleaned. It is then cleaned and a further series of rounds fired, using if possible similar makes of cartridges and others of different make. The bullets are then collected, labelled, and examined in detail. The weight, length, and diameter are ascertained. The projectile is then fixed in some sort of an instrument which enables one to examine its surface under a low power, and at the same time to turn it round.

On every bullet fired from a pistol or revolver there will be found certain marks. The most prominent of these consist of a series of grooves, sloping either to right or left, which are caused by the lands in the barrel of the weapon. The number and direction of these grooves are first noted, the pitch is then ascertained, and the width of each groove and space between the grooves. In between the grooves and at different parts of the surface of a fired bullet there are found marks and scratches of various kinds. Some of these are caused by slight faults or patches of rust in the barrel, others are caused by metallic fouling. The former are constant, the latter vary from shot to shot. Each individual groove and space between grooves is now minutely examined under the microscope for some individuality. It is obvious that in weapons of the same manufacture the number, direction, width, depth, and pitch of the grooves will be the same, but in every weapon certain individual differences are usually to be found in one or more grooves. There may also be definite characteristic marks between the grooves.

It should also be clearly understood that a slight difference in calibre of the bullet and a difference in the charge of powder may make a considerable difference in the markings. If the diameter is slightly altered the smaller bullet passes through the barrel without definite grooves being cut into the surface, and even when bullets on measurement appear to be of the same diameter one will frequently be better marked than another.

RESULTS OF THE INVESTIGATION.

Having now outlined the method of procedure, let us compare the cartridge cases and bullets found in the Sirdar case with cases and bullets fired from the pistols seized with the Enayats accused of the crime.

As no 0.25 inch bullets or cases were found at the scene of the crime, attention may be confined to the Colt and Sûreté pistols, for they are of the same calibre as the ones used in the crime.

Empty Cartridge Cases.

(A) Three of the empty cartridge cases discovered at the scene of the crime were found to be marked by a series of scratches on the surface, the ejector bar had caused a deep nick in the edge of the base, the firing-pin had struck towards the side of the cap, and the breech-block had caused certain curved marks on the smooth surface of the cap. Cartridges fired from the Sûreté pistol showed an exactly similar condition, every one of these characteristic marks being produced on every case fired from this pistol. Figs. 1 and 2 show these in detail and leave not the slightest doubt that this Sûreté pistol and no other was the one from which three of the shots were fired.

(B) Three other cases bore extractor and ejector marks characteristic of a Colt pistol. These were compared with a series of shells fired from the seized Colt and were found to be identical. Fig. 3 shows the mark of the extractor hook in both cases. All Colt pistols cause a somewhat similar mark by the extractor hook, but in each case there are slight differences. In this instance twenty-four Colt pistols were used as controls, and in no instance was an exactly similar extractor mark produced.

Bullets.

(A) The Sûreté pistol was rifled with six lands with a right-handed twist, and bullets fired through it show six well

marked right-handed grooves with a considerable degree of scratching between them. The bullet taken from the foot of the Sirdar had six well marked right-handed grooves of identical width and pitch, but with much less scratching between them (Fig. 4). Fig. 5 shows a plasticene plate on which the rifling marks of both specimens have been impressed. For comparison the plates have been superimposed and the identical nature of the grooves becomes at once apparent. However, in view of the lack of any characteristic fault or detail, I considered it unjustifiable to give a decided opinion on the matter, although there was obviously the strongest suspicion that the bullet had been fired from this pistol.

(B) The Colt pistol was rifled with six lands with a left-handed twist, but the barrel was in a bad state and the lands worn so that bullets fired through it did not show clearly marked grooves. It had, however, a fault in the muzzle end of the barrel which produced a scratched groove in every bullet fired through it. This lay between two of the normal grooves and was broader than those grooves. On comparison with the bullet taken from the chest of the Sirdar the same peculiarity of marking was found, and on minute examination of the two bullets the details of marking were found to be identical (Figs. 6 and 7). It could be stated with absolute certainty that the bullet from the chest of the Sirdar had been fired from the Colt pistol.

Tips of Bullets.—A comparison of the tips of the bullets seized with the Enayats with those extracted from the victims showed that the method of cutting the tips was identical. In each case the tip showed a saw cut which penetrated into the lead and a file cut above which increased the width of the saw cut. Fig. 8 shows the identical nature of the cuts.

The cartridge cases found at the scene of the crime were branded FN, SFM, and AEP, and the cartridges seized with the accused persons were of the same three brands.

From this examination it could be stated:

(1) That the ammunition used in the crime and the ammunition seized with the accused persons was of the same manufacture and calibre.

(2) The tips of the bullets had been treated in exactly the same manner to convert them into expanding bullets. The instruments used for this purpose were of the same nature.

(3) The marks on the cartridge cases and bullets proved conclusively that both the Sûreté pistol and the Colt pistol had been used in the crime, and that it was the latter which actually caused the death of the Sirdar.

The presentation of this report put an invaluable weapon in the hands of the police, for they knew then with absolute certainty that they had caught the right men and had sufficient evidence to convict them. As a result confessions were obtained from both Enayats which incriminated several other people, and eventually eight persons were definitely implicated in the crime (excluding the driver of the taxi in which they escaped).

The houses of these persons were searched, and in that of Mahmoud Rachid (an engineer) a number of tools were found, including a quantity of saws, files, and two vices, which were examined, with the following result.

The vices had pieces of zinc fitted to the jaws to prevent the teeth of the jaws marking an object held in them. In these pieces of zinc a longitudinal depression was observed which had been made by clamping a body of a size similar to a 0.32 cartridge. In this groove traces of copper were found. It must be clearly understood that, although this depression and the copper fragments could readily be caused by clamping a cartridge, it could as readily be caused by clamping any other cylindrical brass or copper object. On taking the vice to pieces a certain amount of dust was found in the joints, and in this dust numerous bright metallic particles were observed. This dust was examined for nickel, cupro-nickel, and lead, for if a bullet were clamped in the vice for the purpose of cutting the tip one would expect traces of nickel and brass in the dust as well as possible traces of lead. The analysis proved the presence of traces of copper, zinc, and nickel in the dust. The combination of these metals is an extremely suspicious circumstance, but it must be kept in mind that ordinary brass may contain

traces of nickel, and that a mechanic may quite well have traces of all of these metals amongst his tools.

Saws.—None of the saws contained traces of copper, nickel, or lead on the teeth.

Files.—There were fifty-three files in the box, varying in fineness from rasps to key files. Brass was detected on several of these files.

It will be observed that all the tools required for cutting the bullets were present in the box. The tools were of the same nature as those actually used for cutting the bullets. The dust contaminating the tools was the same as the dust that would be produced by cutting the bullets. There was therefore a strong presumption that the tools were used for this purpose, but the available information was not sufficient to enable one to state conclusively that they were so used.

In the meantime Shafik Mansour (a lawyer, and one of the accused) stated that they had been in the habit of concealing the weapons in a secret receptacle made by unscrewing the bottom panel of a door in the house of Mahmoud Rachid. A further search of Rachid's house was made, and a door was found in which the lower panel was seen to have been tampered with. This was forwarded for examination.

It was found that the panel had been originally fixed in position by two nails on one side and four nails on the bottom. In addition to the nails, glue had been used to fix the panel permanently. The panel had been removed and the nails on the side replaced by screws. The bottom nails had been left.

On examination of the wood around the cavity in the door under the panel it was seen that the nail holes in the bottom were ragged and irregular and around them there was a series of smaller and larger punctures and scratches. These marks were caused by numerous attempts to replace the panel in position after removal. In carrying this out it was necessary to force the nails in the lower edge of the panel into the nail holes, and as it was difficult to get all the nails in at the first attempt various scratches and punctures were made in the wood. About thirty of these punctures could be counted around one nail hole. Many of these were distinctly old, in others it was impossible to give any opinion as to the time when they were made (Fig. 9). There were a number of hammer marks on the panel which were probably produced by knocking the panel tight. The condition of the nail holes indicated that the panel had been removed and replaced a considerable number of times. The inside of the receptacle in the door showed a number of indentations in the wood, and it could be shown that certain of these indentations exactly corresponded with marks produced by the fore-sight and back-sight of the Colt pistol. If the pistol was placed in position in the cavity both sights exactly corresponded in position with the marks in the wood. These impressions were found in different parts of the receptacle, and indicated that the weapon which caused them had been placed in the receptacle in four different positions. Twelve sets of these marks were to be seen. There were many other marks caused by hard substances being forced against the wood, and several of these corresponded with the sights of the Mauser pistol. There were many others, however, which could not be attributed to any of the pistols seized, and the presence of certain impressions of a milled surface strongly suggested that other metal objects, possibly other weapons, had been concealed in this receptacle. The dimensions of the cavity were 33.5 by 12.5 cm. and this space (shown in Fig. 9) accommodated the four seized pistols comfortably.

From the above examination it could be stated that the panel of the door had been removed and replaced a considerable number of times, extending over a long period; that the receptacle under the panel had been used for holding certain articles which caused scratches and indentations in the wood; that certain of these indentations corresponded exactly with the sights of the Colt pistol seized in the case, and that others corresponded with the sights of the Mauser pistol, suggesting that these two weapons had been secreted in the receptacle.

At the subsequent trial the eight accused persons were found guilty and condemned to death: seven of them were actually executed and the eighth had his sentence reduced to penal servitude for life.

SPECIFIC ANTITOXIN IN THE TREATMENT OF SCARLET FEVER.*

BY

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I wish to record some of the results which I have had, during the past few months, in the treatment of cases of scarlatina with specific streptococcus antitoxin, and shall confine my remarks to the results in cases treated within the first few days of the disease; not because good effects are only to be looked for in cases treated thus early, but because the results in cases receiving the serum within two or three days of the onset have been so striking as to leave with me no doubt of the very great value of the treatment. In such early cases the attack has been completely aborted, and desquamation and complications prevented, or greatly diminished; so much so that the quarantine time could be reduced by some 50 per cent.

In cases not coming under treatment until the fourth day of the disease or later the results are much more difficult to estimate, and it will require a much longer time—many months—before definite conclusions can be formed regarding the beneficial effects on the general course of the disease, and the power of the serum, when first given comparatively late, to prevent secondary complications and sequelae or to reduce their severity. I shall hope to report more fully at a later date.

Since 1885 it has been known that haemolytic streptococci were to be found in the throats of patients suffering from scarlatina in the early stage. In 1895 Marmorek prepared an antitoxic serum in the horse by injecting cultures of this streptococcus. This antitoxin was used in the treatment of cases, but the results appear to have been indefinite. In 1902 Moser similarly prepared an antitoxin from the use of which he believed he obtained beneficial results, but other observers employing this serum failed to confirm this. In 1905 Jockmann published a review of the work done along these lines, and examined the claims made that the haemolytic streptococcus so frequently found in the throats of scarlatina patients was the causative agent of the disease. He came to the conclusion that a good case had not been made out, and that this streptococcus was not the causative agent but a secondary invader. Work on the subject then lapsed and no important advance appears to have been made for some twelve years.

In 1917 Schultz and Charlton, experimenting with serum from convalescent cases of scarlatina, found that this serum, when injected into the skin of acute cases of the disease, while the rash was well marked, caused complete blanching of the rash in a small area at the seat of injection. They also found that the serum from some healthy individuals produced this result, whereas the serum from cases in the early stage of scarlatina did not possess this power. This was a great step in advance, but was not so recognized at that time. In 1923 Mair,¹ repeating these experiments of Schultz and Charlton, explained this reaction thus:

"Scarlet fever is apparently a general toxæmia and the rash only a manifestation of the toxin uniting with the tissue cells causing a capillary dilatation with swollen papillae. The serum injected neutralizes the toxin in the tissues and causes the disappearance of the rash. The negative reaction of the sera of acute cases of scarlet fever is simply due to the fact that antitoxin has not yet developed."

In 1919 Dochez, Avery, and Lancefield devised a new method for the differentiation of biologic types of haemolytic streptococci. This led to a further study of the haemolytic streptococcus so constantly found in the throats of scarlatina patients. Reports by Dochez and Bliss, Tunnichliff, M. H. Gordon, and Stevens and Dochez led to the conclusion that this haemolytic streptococcus was a specific type.

¹ Drs. George and Gladys Dick succeeded in producing experimental scarlatina in a volunteer by swabbing the throat with a pure culture of a haemolytic streptococcus from a case of scarlatina (1923). It was now established

beyond all reasonable doubt that this haemolytic streptococcus was the specific causative agent of scarlet fever.

The Dicks also demonstrated, in 1924, that Berkefeld filtrates of media in which the specific streptococcus is grown contain a toxin, and that this toxin, in suitable dilution, injected intradermally, produces a positive skin reaction (the Dick test) similar to the Schick test with the diphtheria toxin.

Dochez of New York described, in January, 1924, an antitoxic serum which he had produced in the horse by adopting a most ingenious method. In order to protect the streptococci from the phagocytic action of the leucocytes of the horse he injected liquefied agar subcutaneously into the horse's neck, and, when the agar had cooled and solidified, living *Streptococci scarlatinae* were injected into the agar. Thus protected the organisms survived and produced toxin which was taken up by the blood stream. After a course of immunization of six months the horse was bled and the serum tested in cases of scarlatina.

Employing this antitoxic serum, Blake, Trask, and Lynch obtained very good results in the treatment of cases of scarlatina, a single intramuscular injection of the serum in early cases being followed by prompt disappearance of the rash and symptoms of toxæmia and a very rapid convalescence without complications. They found also that the serum, injected intradermally in cases with early scarlatina rash, caused complete blanching of the rash at the seat of injection (Schultz-Charlton reaction). They also demonstrated that the toxin circulating in the blood of acute cases of scarlatina is completely neutralized within a few hours after the injection of Dochez's serum. They showed this by bleeding the patient immediately before treatment and obtaining positive Dick skin reactions in susceptible individuals, and by again bleeding at frequent short intervals after the injection of Dochez's serum. Even in some very toxic cases the Dick tests were negative as early as four hours after the administration of the serum.

In April, 1924, the Dicks reported the production of an antitoxin in the horse by a different method. They employed for immunization increasing doses of Berkefeld filtrates of media in which the specific streptococcus had been grown. This antitoxin also gave good results. Quite recently Messrs. Parke, Davis and Co. have put on the market an antiscarlatinal serum prepared by immunizing horses with injections of both the living organisms and of toxin. It is claimed that this serum is both antitoxic and bactericidal.

Ferry, Pryer, and Fisher report results in thirty cases of scarlatina treated with antitoxic and antibacterial serum in Detroit. In twenty-two of these the fever and symptoms promptly subsided and recovery was rapid. In five response was somewhat more tardy, but the results were good. In three cases the course of the disease did not appear to be influenced by the serum. Unfortunately the duration of the illness at the time the serum was first administered is not given in any account of this series which I have seen. This, in our experience, is an all-important point.

Last June Dr. Dochez was kind enough to send me a supply of his serum for trial in cases of scarlatina here. It was whole serum and the dose recommended was 30 to 40 c.cm. by intramuscular injection. Later he had sent on to me further supplies of serum prepared, by his method, by Messrs. Eli Lilly and Co., of Indianapolis. This serum was concentrated (by methods similar to those generally employed in preparing diphtheria antitoxin), the dose being reduced at first to 20 c.cm., and in the later supplies to about 10 c.cm. I have also, during the last few weeks, obtained supplies from Messrs. Parke, Davis and Co.; this product also is a concentrated serum.

Belfast has during the past few years experienced extensive outbreaks of scarlatina of fairly severe type. While the case mortality has not been very excessive (in 1,700 cases in Purdysburn Fever Hospital last year it was 3.3 per cent.), the incidence of complications—arthritis, severe adenitis, rhinitis, otitis, etc.—has been high, and the duration of detention in quarantine has been long. Although there have been many mild cases which could be released from isolation after four or five weeks, the average duration of

* A paper read before the Ulster Medical Society on December 3rd, 1925.

illness at the time of discharge from hospital was last year over six weeks. The "return-case" rate (taking a period of forty-two days) was 2.7 per cent. The case mortality in 800 cases in the first six months of this year was 2.1 per cent.

Such was the type of scarlatina in which we were able to test the results of this new treatment. The first supply of serum which I received from Dr. Dochez consisted of twelve bottles of 40 to 45 c.cm. each. I concluded that the best use to make of this for test purposes was to give it to cases of more than average severity who were admitted early in the attack. It was therefore given mainly to patients with intense rash who were not more than three days ill. (Some of it was given to advanced cases of very severe septic type; but that is another story.)

This serum was whole serum (unconcentrated) and the dose recommended by Dr. Dochez was 30 to 40 c.cm., according to severity. It was given intramuscularly. We started with this dose, but the results in the first few cases were so good that we attempted to conserve our very limited supply and to spread it over a larger number. In some cases in young children one bottle was divided between two, and in other instances two bottles were divided among three cases.

Fourteen early cases were thus treated with an average dose of 32 c.cm. The results were good, exceedingly good. In all fourteen cases there was a very rapid disappearance of the rash and of all toxic symptoms. Six were treated on the second day of illness, seven on the third day, and one early on the fourth day. Of the six treated on the second day three showed no desquamation, and three had fine powdery desquamation, only to be found by careful search. One had slightly enlarged cervical glands—they were just palpable—in the third week. There were no other complications. Of the seven cases treated on the third day, two had no desquamation, five had slight desquamation; three had mild cervical adenitis, two had slight joint pains—in one case confined to the shoulders for one day only, the other had pains in several joints for some five days; this patient had a history of having had rheumatic fever two years previously. The one case treated on the fourth day had mild desquamation, but no complications. In all these cases the fever subsided very rapidly. It has been customary in the reports of cases treated with this serum in America to lay stress on the critical fall of temperature; personally, I do not attach very much importance to rapid fall of temperature, as in my experience such changes in the temperature charts are common when any form of serum is used. In thirteen of the cases in this series the temperature had reached normal, and remained there, by the fifth day from the onset; in the remaining case it did not finally come down till the sixth day. As a rule the temperature was down to normal, and stayed there, in twelve to forty-eight hours after the administration of the serum. Three of these fourteen cases developed urticarial serum rashes, but in none did this give rise to any serious discomfort. No attempt was made to discharge these cases from hospital before the ordinary time, as we were anxious to watch them far into convalescence.

I was very greatly impressed by these results and eager to make further tests, but it was several weeks before I was able to secure further supplies. As they came to hand they were used in the same way, and we are now able to obtain the serum in quantity. The results continue good.

Up to the present we have treated 140 cases by this method. Many of the later cases have been discharged from hospital after periods of isolation very much shorter than had ever been possible before. In the last few weeks we have released from isolation over twenty cases whose quarantine time, from the onset of illness, varied from seventeen to twenty-four days. The cases thus early released had, of course, come under treatment very early in the attack.

I shall mention a few cases which may be taken as typical of the series.

CASE I.

A man, aged 29, was admitted on the second day of illness. He had a vivid general rash, very acute throat affection, and the temperature was 103°. He was given 10 c.cm. of concentrated serum. The temperature fell to normal the following day, and so

remained. The rash had completely disappeared in thirty-six hours. The throat symptoms rapidly subsided, but the fauces remained bright red for several days. There was very slight powdery desquamation, confined to the shoulders, on the ninth day, none elsewhere at any time. There were no complications, and he was discharged on the twenty-third day from the onset.

CASE II.

A boy, aged 13, was admitted on the second day with intense rash and very acute throat affection; he was very toxic and delirious, with a temperature of 103.4°. He was then given 10 c.cm., and this dose was repeated some twenty hours later. The symptoms subsided rapidly; the temperature fell to normal on the fifth day, and he had no further fever and no complications. There was slight desquamation on the abdomen only. Convalescence was rapid, and he was discharged on the twenty-first day from the onset.

CASE III.

A child, aged 3, was admitted within twenty-four hours of the first noting of illness. He had then well marked general erythema, and vivid rash with very acute throat affection, and the angular glands were already enlarged. He was given 10 c.cm.; forty-eight hours later there was no trace of rash and only slight redness of the fauces. There was no desquamation at any time and no complications. On the ninth day he had an urticarial serum rash, which was visible for two days. Thereafter he remained well, and he was discharged on the nineteenth day.

We have had several such cases in young children, the type in which it is so common to have throat, nose, and ear complications, necessitating long detention in hospital.

CASE IV.

A junior medical student, aged 18, was admitted on the second day of illness. On the first day he felt slight sore throat on rising in the morning, but attended his classes that day. In the evening he had very sore throat, and severe headache. The following morning he had acute inflammation of the throat and nausea, and the rash was noticed late in the afternoon. He came into hospital that night. Forty-three hours from the first indication of sore throat he was given 10 c.cm. of serum intravenously. He had then very intense deep-coloured erythema, with well marked general rash, very inflamed throat, was moderately toxic, with a temperature of 103°. Two hours after the serum was administered the temperature had risen to 103.6°; but it then fell steadily, and was normal in thirty hours. The erythema had gone, and the rash was much faded twenty-four hours after the serum was injected. Traces of rash and slight pigmentation could be seen for another two days. There was considerable redness of the fauces for five days. He was then feeling quite well. There was no desquamation, no complication, and no serum rash. He remained well, was discharged on the seventeenth day from the onset, and returned to his classes in the university on the eighteenth day. He had passed through a sharp attack of scarlatina and only missed thirteen days' classes. This was the only case in which we have given the serum by the intravenous route; in all others it has been injected intramuscularly.

These results are exceptionally good, but they are typical of those we have had when it has been possible to administer the serum well within the first forty-eight hours of illness. Every hour appears to count, and when the case has advanced into the fourth day or later the effect on the rash and throat symptoms is much more gradual, desquamation is more marked and general, and cervical adenitis, though always mild, has been observed in many cases.

The following may be taken as typical of cases first treated later than the third day.

CASE V.

A girl, aged 6, was given serum on the fourth day of illness; she then showed very intense rash and very acute throat. The temperature fell to normal by the sixth day, but the throat remained very inflamed and angry for a week, desquamation was general and fairly free. There were no complications.

CASE VI.

This patient, a girl aged 11, was sister to Case V, and was admitted at the same time; the attack in her case was of about equal severity, except that the rash was rather more marked; the throat signs were of equal severity, but the duration was one day, or rather more, shorter at the time the serum was injected. In this case the rash disappeared very much more rapidly, the throat cleared up in a couple of days, and there was no sign of desquamation and no complications.

Of the 140 cases who have received this treatment some are quite recent, but 100 are available for review. In this series the incidence of complications has been exceedingly low. Scarlatinal rheumatism has been almost entirely absent, with the one exception already mentioned in a patient who had a history of rheumatic fever two years previously.

There has not been a single case of severe cervical adenitis, and only a small percentage have had angular

glands large enough to be easily palpable. We have not once seen a purulent discharge from the nostrils, but two cases, which both first received the serum on the third day of illness, did develop otorrhoea of mild type. There has not been a case of late nephritis.

I wish again to emphasize that this report deals only with cases which have come under treatment early in the disease.

As the result of the experience I have had with this treatment, I am very hopeful that we have now a remedy which gives promise of great usefulness, and if the estimate we have formed is found to be the general experience we may look for a reduced case mortality, a great reduction in the very severe complications and after-effects of scarlatina, and also, with the cutting down of the necessary quarantine time, we may hope for much relief to the strain which scarlet fever so often puts on the accommodation of isolation hospitals, and for a material reduction in the cost of such institutions. As a prophylactic this new method should prove of great service.

In the preparation of this serum there are at present great difficulties. The fact that the ordinary laboratory animals cannot be made use of to measure the antitoxic value of the serum is a great handicap. The need of the moment is a reliable and simple method of estimating the potency of any particular batch of serum. At present this can only be done in human beings, either by the effect on the intradermal reactions with toxin in healthy susceptible individuals or by the Schultz-Charlton reaction in early cases with scarlatina rash. Even by these methods it must be acknowledged that the estimate which can be formed is very crude. No doubt time will solve the difficulty, but until it is solved there is, I fear, danger that serum of low potency may find its way on to the market. We know that this has occurred with other antitoxic serums.

It would appear that the two essentials in securing maximum results with this method are—serum of high standard, and very early cases.

REFERENCE.
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SALIVARY CALCULUS.

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THE occurrence of calculi in the salivary apparatus is well known, although infrequent as compared with the incidence of stone in the biliary and urinary systems. This comparative infrequency, hardly to be termed "rarity," is such that the presence of salivary calculi may be overlooked and the condition escape recognition when the patient is first seen.

In almost all textbooks of surgery mention, more or less detailed, is made of salivary calculi, and it is now possible to formulate a fairly typical syndrome. It happens, however, that patients sometimes do not spontaneously furnish a typical history, and the latter may or may not be elicited by interrogation. In such cases as the last the discovery of calculi is dependent on the surgeon being alive to the possibility of their presence, and keeping in his mind the salient clinical features of the condition.

Clinical Course.

The patient usually complains of pain in the floor of the mouth, associated with a swelling there which appears or increases during mealtimes, at which times the pain also is aggravated. Such a history is almost more than suggestive of obstruction in Wharton's duct, the common situation of a salivary calculus. Should, however, the calculus be in Steno's duct, pain will be experienced in the cheek and swelling may be observed there.

When the stone has existed for some time, and has reached a size sufficient to produce obstruction of the duct, enlargement of the salivary gland concerned may be expected. In the case of the submaxillary there may be a visible swelling below the jaw. Swelling of the gland indicates more or less

inflammation of that organ, and on palpation it is found to be of firm consistence. As with the duct, pain may be experienced in the swollen gland during mealtimes, and helps to differentiate the firm swelling from that of malignant disease of upper cervical lymphatic glands. Further help in the differentiation is obtained by bimanual palpation, which shows the external to be continuous with an intrabuccal swelling in the posterior part of the floor of the mouth.

The patient sometimes complains also of a disagreeable taste in the mouth, in which case a streak of pus will usually be seen exuding from the duct orifice, or further back in the floor of the mouth. The occurrence may or may not be associated with an acute inflammatory exacerbation. If marked inflammation exists the presence of calculus may be very successfully masked.

Inspection of the floor of the mouth in a suspected case may show swelling and redness of the orifice of Wharton's duct, and if a probe introduced into the duct strikes the stone the diagnosis is made certain. Sometimes one end of a lenticular-shaped calculus may protrude from the orifice, the inflamed or ulcerated margin of which grasps the stone. In the absence of such findings, palpation of the floor of the mouth may demonstrate a hard body in the course of the duct. In some cases mobility of the concretion within the dilated duct is a characteristic feature. In another type of case the calculus may be palpated far back and apparently lodged in the substance of the gland.

Spontaneous extrusion of the calculus may occur; more often removal has to be undertaken. This is accomplished by slitting the orifice of the duct, or incising directly over the concretion. In the latter case the duct is steadied by fixation forceps applied immediately posterior to the concretion. When the incision is made pus not infrequently wells out, carrying the stone with it. The calculus may not immediately escape through the incision, in which case I have found Lister's ear-hook of assistance. If the calculus be mobile it sometimes retreats into a loculus, may for long defy the surgeon's efforts, and be dislodged only with great difficulty. In cases where the above measures fail, and in cases where the stone is situated in the gland or in the commencement of the duct and cannot be extracted in the floor of the mouth, extirpation of the submaxillary gland from without is called for. While a comparatively easy operation as a rule, extirpation is sometimes rendered very difficult by inflammatory matting of the parts, and not only may the buccal cavity be opened into, but the lingual nerve may not escape injury.

Physical and Chemical Characters of Calculi.

Of yellowish-white colour, and sometimes of faintly greenish hue, salivary calculi may be spherical, torpedo-shaped, or cylindrical. Their surface may be smooth, but is often finely tuberculated. While usually the calculus is solitary, examples of multiple concretions are occasionally met with. Their composition is made up by mineral salts and animal matter. The salts concerned are variously given by different authors. According to Erichsen,¹ Waterhouse,² Ivor Back,³ and H. Bailey,⁴ they are principally calcium phosphate and carbonate; Butlin and Spencer⁵ say chiefly calcium phosphate with some carbonate; Syme⁶ mentions calcium phosphate alone, and Pearce Gould⁷ calcium phosphate and some ammonio-magnesium phosphate. Analysis was made in four of my cases (vide infra), and showed either phosphates alone or along with mere traces of carbonate.

Such salts as are found in the calculi occur also in the saliva, the composition of which is as follows: calcium phosphate and carbonate, sodium carbonate, potassium sulphate, and chlorides of sodium and potassium; carbonates are particularly abundant; mucin is abundant in submaxillary and sublingual, and absent in parotid, saliva (Howell,⁸ with whom Flack and Hill⁹ in the main agree).

Etiology.

The calculi are the result of the precipitation of the salts of the saliva. The exciting cause of the precipitation is not definitely known. Butlin and Spencer (loc. cit.) think that calculus formation is apparently connected with the presence of a plug of inspissated mucus. The same view is elaborated

by Back (loc. cit.), who considers that the genesis of the calculi is intimately connected with inflammation of the duct of the gland concerned, a plug of mucus containing bacteria being formed, and salts deposited thereon; such inflammation depends on septic conditions of the mouth. Be that as it may, the surgeon meets with many septic mouths without calculus formation; and, on the other hand, it is often found in cases of calculus that the mouth does not show any special foulness. It seems to me that Back's view may be taken as a working hypothesis, while the cause of the precipitation is not definitely known.

Situation.

It is not known whether precipitation occurs primarily in the duct or in the gland substance. Clinically, however, the concretions are usually found in the duct of the gland concerned, although in the case of the submaxillary gland it is not rare to meet with them apparently in the parenchyma. Their relative frequency in Wharton's duct may depend on the accessibility of that structure to palpation.

All writers are agreed that calculus is much more frequently found in the submaxillary duct than in those of the other salivary glands. Andrews¹ gives the frequency as about five times greater than in any other gland. Bailey gives the ratio as a little more than 50 to 1; in my cases it is 8 to 1. This probably depends on the relative abundance of mucin in submaxillary saliva (Howell, supra). Bailey (loc. cit.) quotes Christopherson's² observation that in the Sudan parotid are much commoner than submaxillary calculi.

CASES.

The following nine cases, seen during the past twenty-five years, illustrate and are grouped according to the signs and symptoms furnished by individual patients. The submaxillary was implicated eight times, the parotid once.

A. SUBMAXILLARY.

(1) "Mealtime" Syndrome.

CASE I.¹—Female, aged 30, seen 1906. Submaxillary swelling, right, for six weeks; three weeks later dental extraction without improvement; swelling painful at mealtimes; disagreeable taste in mouth; gland stony hard, and pressure on it caused pus and mucus to exude from duct orifice. Attempted probing failed; no calculus felt on palpating duct; incision in floor of mouth failed to identify duct. Gland excised through external incision, and found to contain calculus, size of small pea, in dilated commencement of duct.

CASE II.—Male, aged 24, seen September, 1922. Discomfort in right submaxillary region, for nine years, especially during meals; twelve months ago had abscess below tongue. Prominent mucosa at orifice of Wharton's duct, and in line of duct. Palpation revealed hard body in duct; mucosa fixed by forceps, and incised, evacuating stone measuring 7 by 10 mm., with smooth hard coat; distal end bluntly tapered, proximal end thicker and bare; subsequent probing negative.

CASE III.—Male, aged 29, seen May, 1925. Pain and swelling in left side floor of mouth, and in neck, worse at mealtimes; swallowing hindered. Stony hard swelling in left submaxillary gland; sublingual thickening, juicy, in floor of mouth; no calculus felt; subglossitis. Calculus passed spontaneously, and discomfort passed away. Calculus spherical, measured 7 by 5 by 4 mm. Analysis (Dr. Cappell) showed composition to be almost entirely of calcium phosphate, with traces of carbonates and organic matter; no sulphate present, and only a trace of magnesium and iron.

CASE IV.^{1,2}—Male, aged 16, seen November, 1900. Swelling "under tongue" for ten days. Redness and swelling of orifice of right Wharton's duct; in centre of reddened area, small yellowish-white point, calcareous when struck by probe; felt very hard between finger and thumb. Mucosa proximal to swelling fixed by forceps, and incision freed stone, which was then squeezed out by forceps, and followed by stringy mucus; no distension of duct, or swelling of gland. Concretion flattened ovoid, 6 by 4 by 3 mm.; nucleus visible through cracks in rind. Analysis (Dr. W. B. Brodie) showed composition to be entirely calcium phosphate, with some albuminoid matter (mucus); carbonates, chlorides, and sulphates absent.

(2) Swelling in Floor of Mouth.

CASE V.^{1,2}—Male, aged 38, seen June, 1925. Swelling under tongue and in right submaxillary region, for one week. Swelling and signs of inflammation in line of right Wharton's duct; probe struck drical calculus. Incision evacuated pus in which escaped a small cylindrical calculus measuring 9 by 4 mm. Analysis (Dr. Cappell) gave precisely similar results as in Case iii. An element of confusion in

this case when first seen by his medical attendant was the presence of an enlarged gland of two years' duration at angle of left mandible. This gland was clearly tuberculous. There was a history of enlarged glands in childhood, and scarring was present in the left anterior triangle, and over the sterno-mastoid.

(4) Submaxillary Swelling, Acutely Inflamed.

CASE VI.—Male, aged 55, seen May, 1924. Submaxillary swelling, left side, of some years' standing; rapid enlargement of one week's duration, with pain on swallowing and on protruding tongue, and carache on same side. Firmness of swelling suggested malignancy, but no lesion could be seen or felt in tongue or fauces. No evidence of calculus. Increase of swelling and onset of oedema in floor of mouth posteriorly led to external incision, evacuating flakes of pus. During convalescence the mouth became very foul. Three weeks after incision pus observed far back in floor of mouth. Pus came from opening in inflamed area far back in floor, without induration of cancer. Later (February, 1925) swelling in floor of mouth subsided with discharge of pus, and reaccumulated. Pus came from opening in inflamed area far back in floor, without induration of cancer. Later (February, 1925) palpation detected stony hardness anteriorly to fauces; bimanual palpation showed continuity with enlarged submaxillary gland externally, the whole mass moving freely on mandible. Extirpation of submaxillary gland was carried out with difficulty, owing to nerve damaged during removal. Healing took place after slow con- valescence, and with slight "anchoring" of tongue to floor of mouth and anaesthesia. Examination of gland after removal showed embedded in intrabuccal part a large ovoid calculus, 14 by 20 mm., with tuberculated surface. Similarly tuberculated cal- careous material was present on wall of containing cavity. His- tological examination of gland (made by Dr. Cappell) showed involu- tion and atrophy of secreting tissue, chronic inflammatory changes and much fibrous tissue.

(5) Concretion Presenting at Orifice of Duct.

CASE VII.—Male, aged 31, seen September, 1922, with tip of salivary calculus projecting from orifice of left Wharton's duct. Inflammation of fold in floor of mouth, and enlargement of sub- maxillary gland. Portion of concretion, measuring 12 by 7 mm., extracted; remainder felt by probe in duct, and extracted the following day by Lister's car-hook. It measured 10 by 7 mm., was cylindrical in form, and with cup-like extremity towards duct orifice. Probed duct subsequently to 1½ in., with negative result.

(6) History of Concretions being passed from Duct.

CASE VIII.—Male, aged 22, seen December, 1916. Had history of "enlarged gland at left angle of mandible, opening into mouth by a sinus, sometimes emitting a concretion." There had been long- continued discharge from left Wharton's duct, and periodic swelling of submaxillary gland; no calculus palpable. Submaxillary and portions of sublingual gland excised; firmly adherent to tissues of neck.

B. PAROTID.

CASE IX.—Male, aged 20, seen November, 1916. For three years had had swelling of left cheek, varying in size. On palpation, calculus felt at commencement of Steno's duct (posteriorly). Removed through horizontal incision in skin of cheek over stone; not ascertained if in duct or gland tissue. No ulceration or inflammation at orifice of duct. No sutures; wound healed on ninth day. Swelling of gland persisted, especially in anterior part below level of duct. Duct probed with negative result. Analysis (Captain W. Campbell, R.A.M.C.) showed inner core of cretaceous matter, outer coating of inspissated mucus. Ovoid shape, measured 7.5 by 6.5 mm. Composition: calcium, magnesium, and phosphorus pentoxide.

REMARKS.

The above series is far too small for statistical purposes. It illustrates, however, the comparatively high incidence of calculus in the submaxillary apparatus; the high propor- tion of males; the absence of constant clinical picture; the obscurity of diagnosis by inflammation (Case vi); and in the four specimens analysed the part taken by phosphates. It is interesting to note, also, that Cases ii and vii were brothers, and that the solitary parotid case (ix) occurred in a soldier in Egypt, although the trouble had probably started before he went there.

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CARCINOMA OF THE STOMACH AFTER GASTRO-JEJUNOSTOMY.

BY

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A good deal of discussion has recently taken place as to the liability of a simple gastric ulcer to become carcinomatous, and there is considerable difference of opinion as to the frequency of such an occurrence. The appearance of carcinoma in the case of a long-standing gastric ulcer would be in keeping with the now widely accepted fact that it is a frequent sequel of irritation in any form, and would be a development that might quite well be regarded as both possible and probable. In the same way, considering the frequency with which gastric lesions are now treated by gastro-enterostomy, followed as this operation must be by the presence of a certain amount of scar tissue (also a favourable nidus for the cancer process), it would not be surprising if such an artificial opening might, in the course of years, become the seat of carcinoma. Relative to these two points the following case, which was under my care at the Glasgow Royal Cancer Hospital, is of interest, and, I think, has some bearing.

A car-conductor, aged 52, married, was admitted on November 21st, 1921, suffering from a tumour of the stomach. The letter sent with the patient gave the information that he had been operated upon by Sir Kennedy Dalziel at the Western Infirmary, Glasgow, in 1910, when gastro-enterostomy was performed. It further stated that in 1920 he was readmitted there with a recurrence of gastric disturbance, and laparotomy was performed, when it was found that there was a carcinomatous growth of the lesser curvature, stretching down the posterior wall and involving the new opening of the gastro-enterostomy. There were also secondary growths in the peritoneum beneath the left ribs. Under these conditions nothing further was done, and the wound was closed.

When admitted to the Glasgow Royal Cancer Hospital he was in a very anæmic and emaciated condition, weighing only 6 st. 11 lb., his height being 5 ft. 2 in. The gastric tumour could be felt on palpation. The clinical history of the case while in the Cancer Hospital was somewhat uneventful, but he had periodic attacks of gastric disturbance, with some vomiting and, at times, diarrhoea. The matter vomited was chiefly the food that he had taken. He got gradually weaker, and died on April 8th, 1922.

Post-mortem Examination.

The report of the *post-mortem* examination stated that: "The body was that of an extremely emaciated man. There was a central abdominal scar from an old operation. The left leg was very oedematous, and the right was also swollen, though to a lesser degree. *Thorax:* The lungs were oedematous and congested. *Heart:* The myocardium showed brown atrophy. There was atheroma of the coronary arteries and of the aorta. *Abdomen:* A firm mass was present, occupying the pyloric part of the stomach. This organ was opened along the greater curvature. An extensive malignant ulcer with raised, thickened, and rounded edges, was found at the pylorus, stopping short at the pyloric sphincter. This ulcer was about four inches in diameter, with irregular eroded base. The middle finger could be passed through the sphincter into the duodenum. A posterior gastro-enterostomy had been performed. Its stoma was represented by a conical ulcerated depression, one and a quarter inches in diameter and about the same depth. The edges were thickened and continuous with the ulcer margins. The stoma presented the same appearance as the ulcer, and was evidently malignant. A probe could not be passed into the distal part of the attached jejunum, but the proximal side admitted the forefinger. The liver was fatty, slightly enlarged, and showed numerous nodules throughout. There was thickening and shortening of the omentum near the pylorus. The mesenteric glands were enlarged. There was nothing of note in the kidneys, and the spleen was small and soft. A thrombus was present in both iliac veins, but not extending into the inferior vena cava. The microscopic section showed a typical adenocarcinoma of the stomach, with invasion of the mesenteric lymph glands and secondary nodules in the liver. The edges of the gastro-enterostomy opening were also found to be malignant and of the gastric type.

From the report of the *post-mortem* examination it is evident that the malignant disease was of gastric origin, and the condition of the gastro-enterostomy wound—namely, that a probe could not be passed into the distal part of the jejunum while the proximal side admitted the forefinger—indicated that the food must have passed more or less in a vicious circle through the duodenum and back into the stomach.

It is unfortunate that there is no record in the Western

Infirmary journals to show the reason for the operation of gastro-enterostomy done twelve years previous to the patient's death, nor is there any note made of the presence of any ulcer. An interview with the patient's daughter gave the following information: At the beginning of his illness her father complained of diarrhoea, which continued for a long time, and in consequence of which he was sent to the Western Infirmary, where, as noted, an operation was performed, she states, for dilated stomach. Decided improvement in his health followed the operation, and the diarrhoea ceased, so that he was able to go back to work after having been off duty for a year subsequent to the operation. He seems to have been able to continue his work for eight or nine years, when he began to become emaciated. He was again sent to the Western Infirmary, where the abdomen was opened a second time, and the condition already described was found. Her mother was told that at the seat of trouble there was a tumour almost up against the new passage, and that practically nothing further could be done. Shortly before his admission to the Glasgow Royal Cancer Hospital some vomiting showed itself, but there was no history of hæmorrhage at any time. The paleness present on his admission to the hospital was a matter of recent date, as previously he had a fresh colour. He was a heavy smoker, but temperate as regards alcohol.

In view of the above statement of the patient's daughter it would be a fair inference that the gastro-enterostomy was done for a dilated stomach, probably connected with some ulceration in the vicinity of the pylorus and leading to some obstruction at that orifice, necessitating the gastro-enterostomy operation. If this be the case, in view of what was found at the *post-mortem* examination two surmises are possible: one is to assume, as I have done, the existence of an ulcer which in time became malignant and extended into the gastro-enterostomy wound; the other, that the malignant action commenced in the wall of the gastro-enterostomy wound on the gastric side, and, by extension, involved the old ulcer. The balance of weight of opinion is probably in favour of the former extension, but it does not put out of court entirely the possibility of the latter.

In the *Lancet* of June 13th, 1925, Mr. Sherren is quoted as having stated that he had never seen carcinoma develop after gastro-jejunostomy. I learn from Mr. Sherren, however, that I had not correctly interpreted his statement, and that he did not say that he had never seen carcinoma develop after gastro-jejunostomy, but that he had never seen the late development of carcinoma after gastro-jejunostomy had been carried out for a small mobile ulcer on the lesser curvature. How far the above case has a bearing on the latter point one cannot say with certainty, but I think that the case has some value in connexion with the question of ulceration of the stomach being a forerunner of carcinoma, and I must leave other surgeons to draw their own conclusions as to its being an instance of a gastro-enterostomy opening becoming the seat of cancer.

THE POSITION OF THE STOMACH IN HEALTHY BRITISH AND AMERICAN SUBJECTS.

BY

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A STUDY of the position of the abdominal viscera is being carried on at the x-ray laboratory of the department of anatomy at University College, London, for the purpose of determining the normal positions and their range of variation in healthy living subjects. Radiographs have been taken of 53 men and 20 women. This is too small a number from which to draw definite conclusions; but the results warrant the interesting, though at present tentative, suggestion that in the British the stomach occupies a lower position than it does in Americans.

With the subjects in the standing position, after a meal of two ounces of barium sulphate in two cups of malted milk, the lowest part of the greater curvature of the stomach was found below the interiliac plane, a line drawn

between the highest points of the iliac crests, in 80 per cent. of the men and in 95 per cent. of the women.

At the University of California a similar study of 1,000 healthy young adults—an equal number of men and women—showed that the lowest part of the greater curvature of the stomach was found below the interiliac plane in only 75 per cent. of the men and in 88 per cent. of the women examined in London.

In the English, more often than in the American, the lowest part of the greater curvature of the stomach is found more than two inches below the interiliac line. It is found as low as this in 31 per cent. of the English men and in 57 per cent. of the English women, and in only 43 per cent. of the American women.

The position of the lowest part of the greater curvature of the practically empty stomach has also been recorded. With only one swallow of the barium mixture in the stomach this is found to be below the interiliac line in 50 per cent. of the men and 85 per cent. of the women.

This preliminary report is presented in the hope that it will interest many to volunteer to have their radiographs taken at University College and thus help to determine the truth of the tentative conclusion that in the English the normal position of the viscera is not quite identical with that of Americans. The discussion of the significance of this difference is deferred until a larger series is available as a basis for comparison.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

OCCLUSION OF THE RECEPTACULUM CHYLI: PROGRESSIVE EMACIATION: DEATH.

NOTICES occur from time to time of cases where progressive emaciation in adolescents or young adults ultimately results in death, and at the *post-mortem* examination no cause of death is discoverable. Such a case has recently been reported where a girl aged 16 years began wasting away, and when she died three years later weighed only 3 st. 13 lb.

This case recalls one which occurred in the wards of the late Professor Greenfield at Edinburgh in the early eighties of the last century. A young man was emaciating rapidly and no cause whatever could be found. In a clinical lecture Professor Greenfield remarked that the only thing he could think of to explain such a case was tuberculous obstruction of the receptaculum chyli of the thoracic duct. The *post-mortem* findings were reported to be negative, as no cause of death could be found. I could not be present till the *post-mortem* examination was concluded, but received permission to dissect out the receptaculum chyli, and found its lumen completely occluded by inflammatory tissue apparently of a tuberculous nature. The thoracic duct was not occluded.

Professor Greenfield's diagnosis of emaciation due to interference with the passage of the lymph stream from the intestines to the superior vena cava was therefore justified, and the girl above alluded to may have been a similar case, as it is not likely that an ordinary examination would have included a dissection of the receptaculum chyli.

T. STACEY WILSON, M.D. Edin., F.R.C.P.,
Consulting Physician, Birmingham General Hospital.

CONGENITAL PACHYDERMATOCELE.

The following case is, I think, worthy of being recorded by reason of its rarity.

A female infant, aged 3 weeks, was admitted to hospital with a congenital overgrowth on the left side of the head and face. The father and mother are healthy. There had been no untoward incident in the pregnancy, but labour was very difficult and instrumental. The child weighed at birth 8½ lb., was rather large, and did not take food well. On admission it was in a low state and there was a large mass hanging down from the place where the left ear should have been. As the illustration shows, the mass was convoluted and fissured, and a serous discharge was exuding from

it; this discharge had a peculiar and disagreeable odour. Extending from both sides of the tumour to half-way over the left cheek in front, to the occipital protuberance behind, to the parietal eminence above, and the angle of the jaw below, was a patch of raised convoluted tissue, the surface of which was irregular and thrown into folds. These folds somewhat overlapped each other and extended, more or less, from side to side. They increased in depth and width from above downwards. In the middle of the pendent mass there was a fissure, 1 inch deep and 2½ inches wide. Outside this patch, and extending to the middle of the nose and half-way down the neck, was a peculiar creasing of the skin, slightly elevated above the normal level, which was practically dry. The nose was of the *retroussé* type and slightly deformed. Another abnormality was the presence of a tooth in the middle of the upper jaw simulating an incisor. When, some weeks later, I excised a small piece of tissue, the mass bled profusely. The pathologist's report on the specimen was as follows: "The section shows an extensive and irregular basal-celled hyperplasia of the epithelium, apparently related to the spaces of an angiomatous portion of the tissue. There is no clear evidence that this is yet a malignant new growth, and it bears more resemblance to a naevus. There is considerable difficulty in interpreting isolated fragments, and if the whole tumour (?) should be excised we recommend that an entire portion should be sectioned. No history is given, but the section is suggestive of Darier's disease."



Mr. D. Greig, conservator of the museum of the Royal College of Surgeons of Edinburgh, on seeing a photograph, suggested that the case might be one of pachydermatocele. The pathologist now appears to agree with Mr. Greig, as he writes:

"The suggestion of Darier's disease was made merely upon the histological appearance of the portions of skin which you sent us. It is quite evident from the photograph that the case was one of that peculiar form of cystic hygroma which has received the name of pachydermia or pachydermatocele. Treves's 'elephant man' was an example of the condition. The proliferated epithelium is not particularly abnormal, though it becomes so secondarily; it is growing in such profusion because of its exaggerated vascular supply. Darier's disease is an instance of the same phenomenon, but the cause of the increased vascularity is usually a small naevus, while only large naevoid growths are called cystic hygromata."

Thus the condition seems to be a congenital pachydermatocele. As the child died soon afterwards no further investigations were possible.

I am indebted to Dr. Horan for permission to publish this case.

Leeds. M. SOUTASKY, M.D., F.R.C.S. Ed.

HYPODERMIC INJECTION OF LUMINAL-SODIUM IN STATUS EPILEPTICUS.

LUMINAL has been successfully employed on a large scale in the treatment of epilepsy, but, so far as I know, there are no records of the employment of the soluble sodium salt by hypodermic injection in status epilepticus, although Dercum records a case of chorea insaniens so treated with favourable results. My experience is limited, but the results have impressed me so favourably that I feel impelled to publish them, in the hope that others may take advantage of what I believe to be a simple and efficacious line of treatment.

Case 1.—Female, aged 42. After three fits in half an hour with incomplete recovery between each, 1½ grain of luminal-sodium was given. After this the fits became less frequent, and the patient was discharged the next morning an improved woman. Luminal-sodium was given; the fits gradually ceased within seventy-five minutes.

Case 2.—Male, aged 39. Half a grain of luminal-sodium was given by hypodermic injection after status epilepticus had existed for about thirty minutes. This dose was repeated after about four hours as there was only slight improvement. The fits ceased soon after the second injection. This patient from time to time has a series of fits in rapid succession without passing into true status epilepticus; 1½ grain of luminal-sodium subcutaneously will abort these attacks.

Case 3.—Male, aged 21. The patient had forty fits in one hour and was in status epilepticus. A subcutaneous injection of 3 grains of luminal-sodium was followed by immediate cessation of the fits. On another occasion this man had twenty-four fits during the day; he was given 1 grain of luminal-sodium subcutaneously, and had no fits afterwards.

I know of no ill effects from this treatment, even after a dose of 3 grains. Luminal itself is insoluble. Luminal-

sodium is readily soluble in water, but the solution employed should be freshly prepared, as it deteriorates and becomes worthless after keeping a few days.

W. J. T. KIMMER, M.R.C.S., L.R.C.P., D.P.M.,
Deputy Medical Superintendent, Hill End Mental
Hospital, St. Albans.

A VAGINAL CALCULUS.

In April, 1925, an Arakanese multipara, aged 44, was admitted to the Akyab Hospital complaining of having had pain in the back and discharge for the last five months. It was found that the vagina was so contracted by dense fibrous tissue that it would not admit one finger. Several dense fibrous bands ran across the vagina from the anterior to the posterior wall. With a director a stone was felt lying in the posterior fornix; this was removed by forceps after stretching the fibrous bands running across the vagina. A small vesico-vaginal fistula was found which



admitted a small probe. The stone measured 1.8 cm. in length and 1.2 cm. in breadth.

The report of the Royal College of Physicians Laboratory, Edinburgh, on the stone was as follows: "The stone consists chiefly of calcium phosphate with very faint traces of uric acid. When the stone was broken up a small nucleus resembling a fruit seed was found in the centre."

It appears to me that this stone must have been actually formed in the vagina, and from the dense fibrous tissue around it it must have been there for many years without apparently causing any inconvenience.

W. F. BRAYNE, M.B., Ch.B.,
Lieutenant-Colonel, Indian Medical Service.

PITUITARY EXTRACT TO CORRECT CONSTIPATION DUE TO MORPHINE.

A MAN suffering from advanced pulmonary tuberculosis with severe laryngeal involvement was admitted to this institution on July 4th as an emergency case. He was considered to be in *extremis* at that time. His main symptom has been agonizing superior laryngeal pain, radiating up to both ears. He has had to have morphine in doses increasingly large and frequent to alleviate this distressing symptom.

For the last two weeks he has been having four to five hourly doses of morphine, 1/2 grain, subcutaneously (making an average of 2½ grains of morphine daily). Many laxatives and purgatives, with or without nux vomica and strychnine, were used in turn, but for two weeks the gut wall had been practically paralysed, and the resulting distension and abdominal pain began to trouble him almost as much as the laryngeal pain. I tried an injection of 1 c.cm. of pituitary extract, and he had a thorough and copious evacuation within ten minutes; the injection has been repeated every afternoon since, and the effect has been as rapid on each occasion.

A boy under treatment for diabetes insipidus has for some months been having 1 c.cm. of pituitary extract every day; this reduced the urinary output from 26 to 2 pints in the twenty-four hours. On questioning him, he said that he always had a "cold feeling in his stomach" a few minutes after the injection, and a bowel action within half an hour. This suggests that the action on peristalsis is uniform and unaccompanied by any undesirable after-effects. As the organism does not acquire a tolerance to endocrine extracts, the dose does not need to be increased.

British Legion Village,
Preston Hall, Aylesford, Kent.

E. OBERMER,
Medical Officer.

NEPHRITIS FOLLOWING TONSILLITIS.

DURING the last six months I have had what I think may have been a rather remarkable series of cases of acute nephritis. There have been eight cases, and all live within a radius of about fifty yards. In all the attack was preceded by acute tonsillitis. The patients have been of both sexes, and of ages varying from 5 to 25 years. The onset of the symptoms of acute nephritis has been from twelve to fourteen days after the attack of tonsil-

litis had completely cleared up. There appeared to be nothing unusual about the tonsillitis except that the attacks were rather severe for four or five days. Swabs were negative to diphtheria. The patients were up, apparently recovered, and in about their usual health when the symptoms of acute nephritis came on quite suddenly—headache, pain in the back, pallor, oedema of the face, hands, feet, and legs, scanty urine loaded with albumin and blood, and in some cases vomiting. All recovered completely in about three weeks, with complete rest in bed, strict milk diet, large quantities of thin barley water, and free purging by magnesium sulphate. Is it possible that there was any relationship between the tonsillitis and the nephritis? How is the occurrence of all these cases within a small area, which is not congested, in this small country town to be accounted for?

Kidwelly, Carmarthenshire.

P. CLIFT PEACE.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

MONMOUTHSHIRE DIVISION.

A WELL attended meeting of the Monmouthshire Division was held at the County Hall, Newport, Mon., on December 15th, 1925, when Dr. ROCYN JONES presided.

Mr. DUNCAN C. L. FITZWILLIAMS, of St. Mary's Hospital, London, gave an address on cancer and the latest methods of treatment. By way of introduction he gave a summary of the views about cancer in times past, and added that the ideas held to-day might very probably have been abandoned two generations hence. The recent research work on cancer was fully considered and its possibilities discussed; a hopeful "wait and see" attitude was advised. The causes of the increase of cancer were touched upon, and the futility of many of the theories which ascribed the disease to diet or civilization was exposed. Considerable attention was paid to pre-cancerous states, and the recent advances in laboratory work in connexion with them. Epithelial cells might be cancerous, although they had not as yet invaded the tissues; this had been proved by transplanting these cells into mice. The single character of cancer growths was insisted upon, due possibly to the growth inhibiting cancer development elsewhere. The conclusion drawn was that cancer in its early stages must be a local disease, and, if local, must be capable of cure in a large percentage of cases if early diagnosis was made and removal effected. The increase in the severity of the operations had not brought a corresponding improvement in the results, and the better results now obtained were due rather to earlier diagnosis than to the thoroughness of the operations. Cancer for statistical purposes could be divided into accessible and inaccessible forms. Accessible cancer of the breast, tongue, and rectum should be diagnosed in an early state, and if treated adequately before there were signs of malignancy should yield a cure in 80 to 90 per cent. of cases. Such figures had actually been obtained in early cases, both in the breast and in the tongue, where otherwise the ordinary mortality figures were as bad as anywhere in the body. The difficulties of early diagnosis were pointed out, and its necessity insisted upon. "Cancer weeks" as held in America were mentioned as an advance in this direction. It should be understood that early diagnosis and local operations were to be depended on, rather than late diagnosis and huge or so-called radical operations, in all of which the results must be considered very poor. Other methods of treatment were mentioned, such as x rays; their limitations and great uses were also considered. Injections of colloidal forms of metal were touched upon, and in conclusion Mr. Fitzwilliams begged his audience to impress upon the laity the fact that cancer was a curable disease, and to try to combat the fixed idea at present held that this was a disease from which it was hopeless to seek relief.

At the close of an appreciative discussion the CHAIRMAN moved that the heartiest thanks of the Division be given to Mr. Duncan Fitzwilliams for his excellent address, which set out from the preventive medicine standpoint the most practical methods he had yet encountered. The address had

been so provocative that a promise had been obtained from Mr. Fitzwilliams that he would later submit a scheme of collecting the histories and records of treatment for the executive to consider, in order that the co-operation of the county council of Monmouthshire and the borough council of Newport might be enlisted with reference to dealing with the cancer problem in their area.

Dr. A. W. HAYLES, in seconding the resolution, said that from his standpoint as a general practitioner he welcomed the suggestions thrown out by Mr. Fitzwilliams, and would do all in his power to help in devising a cancer scheme for Monmouthshire.

Reports of Societies.

MEDICINAL INDUCTION OF LABOUR.

At a meeting of the North of England Obstetrical and Gynaecological Society at Sheffield on November 20th, 1925, Mr. M. H. PHILLIPS in the chair, Dr. K. VERNON BAILEY (Manchester) read a paper on the clinical aspect of medicinal induction of labour.

Dr. Bailey said that since the publication of A. C. Williamson's paper on the induction of labour by the use of castor oil and quinine, which appeared in *Surgery, Gynecology and Obstetrics* in 1922, much interest had been taken by the staff of St. Mary's Hospitals (Manchester) in this particular treatment, and during the last few years labour had been induced very often by this method, or a slight modification of it. The efficiency of a combination of quinine and castor oil in stimulating the uterus to contract, and the specific action of those drugs on the uterine muscle, which had been discussed by Williamson, had been definitely established. The drugs were administered in the following way. A dose of 2 ounces of castor oil was first given, followed one hour later by half an ounce of a mixture containing quinine sulphate gr. x, acid. sulphur. dil. mx, glycerin mxx, sp. chlorof. mv, and water to the half-ounce. One hour after this a simple enema was administered, and two hours later another dose of the mixture. Three hours later a further dose of the mixture was given, and another in four hours. Some patients in this series were also treated with pituitrin in 1/2 c.cm. doses half-hourly, commencing five hours after the last dose of quinine, and 3 c.cm. in all given. The method resembled that described by Watson; 40 gr. of quinine were used, but the treatment was discontinued where nausea or ringing in ears was complained of. The chief indication for induction of labour by medicinal means was uncertainty as to the progress of the labour, and cases in which induction by mechanical means was contraindicated, owing to the possibility of Caesarean section being required. The risk of sepsis after Caesarean section was increased by previous vaginal examination; this applied to induction by mechanical means where delivery by Caesarean section eventually became necessary.

Many cases in which there was doubt as to the progress of labour terminated successfully, the child being born normally and without forceps, after labour had been induced medicinally. During the course of such a labour Caesarean section could be resorted to if necessary without increased risk. In his series of cases the primiparae exhibited some degree of minor pelvic contraction. The presentation and position being normal, the foetal head might be (1) mobile at the pelvic brim, possibly due to causes other than the pelvic contraction; (2) fixed at the pelvic brim, but exhibiting some very slight degree of "overlapping"; (3) fixed but high, its greatest diameter being above the plane of the pelvic brim. The pregnancies ranged from eight months to post-maturity, and it was considered that delivery *per vias naturales* was a sound possibility; thirty-eight cases were of this type. Multiparae usually presented a history of previous difficult labours due to pelvic contraction, or of progressively large children; forty-nine cases were of this type.

Cases of uterine inertia might continue unduly; if there was dilatation of the os uteri, or if the membranes had ruptured some hours previously, it might be better to

recommence active labour as soon as possible, considering both the child and the risk of sepsis to the mother. Another type of case admirably suited to this treatment comprised certain cases of accidental haemorrhage and marginal or lateral placenta praevia. Many of these patients when first seen were in a condition of temporary relief following a smart haemorrhage, or exhibited a constant but slight loss, the uterus was contracting irregularly and at long intervals, or not at all, and there was little or no dilatation of the os. Medicinal induction of labour in these cases, where the risk of sepsis was greatly increased by interference, was attended by great success. The harmlessness of the treatment, and the high percentage of successful results obtained, had led to the employment of it in other types of case where induction might justifiably be undertaken by mechanical means, and in cases where medicinal treatment had not been successful alone in starting labour, induction by bougies, within twenty-four hours afterwards, usually succeeded. Post-maturity reacted well to this treatment (twenty-five cases), and the method was used for severe albuminuria or threatened eclampsia in eight cases. Though labour might not commence after this treatment alone, Dr. Bailey believed that the specific action of quinine on the uterine muscle was maintained to such a degree during the following twenty-four hours that added mechanical stimulation (by bougies) quickly brought about regular contractions. Patients differed so much physically and temperamentally that it was difficult to define the effect of this treatment on the progress of labour. Shortening of the first stage appeared to result sometimes, but the most regular feature was the relatively painless nature of the uterine contractions which occurred in 70 per cent. to a greater or less degree. In some patients it was so marked as to approach a condition of painless uterine contractions, and only careful observation of the uterus showed that labour was in progress. The pulse and temperature in an uncomplicated case showed no variation from that in normal labour. Considering the type of case the number of forceps deliveries was comparatively small (nine of the seventy-eight), and in these the low forceps operation was employed for the usual indications. Dr. Bailey believed that the course of quinine given as described, even if it failed to initiate uterine contractions, increased the tone of the uterine muscle itself. If pituitrin was given when the uterine muscle was in this condition, immediately after the course of quinine, it was not so liable to produce that state of irregular and spasmodic contraction which was known to cause rupture of the lower uterine segment. Pituitrin was given to the first nineteen patients of his series without any untoward occurrence. The percentage of successes (68.4) with its use was not so high, however, as that obtained by the use of quinine and castor oil alone (72.7 per cent.). He believed it was unsound to employ a drug like pituitrin, of admittedly great power but of uncertain action, in the first stage of labour. The later fifty-five cases of the series were conducted without its use. Dr. Bailey thought, however, that pituitrin might be of assistance, with negligible risk, in induction of inevitable abortion when the uterus did not exceed the size of a five months pregnancy. It was especially useful in the completion of an inevitable abortion at anything up to three and a half months. From this up to five months a course of quinine and pituitrin, followed by a hydrostatic bag, was very successful. He believed that the danger of producing irregular and spasmodic uterine contractions by the administration of pituitrin was minimized by the quinine course immediately preceding it, and that its use in the production of complete abortion at the dangerous stage up to three and a half months, or even up to five months, was legitimate. Conditions were not then favourable to uterine rupture during labour. Beyond this stage, he believed, pituitrin should never be used, as the production of anything but regular and uniform uterine contractions was extremely dangerous. In this series labour had been successfully induced by purely medicinal means in 57 of the 78 cases (73 per cent.). In a small number of the earlier cases pituitrin was used in addition to quinine and castor oil, which were used alone in the majority of the cases. The percentage of successes was greater in those

where pituitrin was not used; it would appear, therefore, that the addition of pituitrin in no way increased the possibility of success. The high percentage of successful inductions by medicinal means assigned to this method has a place in obstetrics. The proportion of successes was higher than Williamson's (46.6 per cent.) and Muschalli's (58.6 per cent.), but not so high as Watson claimed with the additional use of pituitrin (90 per cent.). Williamson, in reviewing his cases, had stated that the noteworthy points about the successful ones were: (1) the patient was due, or overdue, in point of time; (2) the head was fixed or beginning to engage; (3) the cervix was partially or completely obliterated and the external os would admit a finger. In the series here reported there were many successes with premature cases and in others, where the foetal head was mobile and the cervix closed. From a survey of these it appeared, therefore, that quinine was definitely able to act upon a closed cervix, a point which Williamson apparently considered doubtful.

In conclusion, Dr. Bailey expressed the view that there was a definite class of case in which this treatment was particularly useful—cases in which induction of labour was indicated but where methods involving vaginal intervention were contraindicated (border-line cases between the normal and abnormal from the purely mechanical point of view). Only in two cases of the series was it found necessary to perform Caesarean section after labour had been induced by this means. Had it been necessary to perform Caesarean section after mechanical attempts to induce labour had been made, the prognosis would have been graver than after the use of this medicinal method.

Mr. M. H. PHILLIPS (Sheffield) expressed his strong approval of this method of induction, especially when the cervix was infected. He would not care, however, to rely on it in cases of placenta praevia. He wished to know the relative proportion of successes in premature and full-term or post-mature inductions. The time element also was important.

Dr. DOUGAL (Manchester) had used the quinine and castor-oil method during the last three years, and found it most useful. He had never seen any ill effects follow either in the mother or child, but he had recently heard of a case where the child was born asphyxiated and did not recover, and this misfortune was thought to be due to the powerful uterine contractions induced by quinine. He would like to know whether Dr. Bailey had met with any similar cases in his series. Like most other methods, it was particularly successful when the pregnancy was about, or past, full term, or when the ovum was dead, but these were often the cases where a simple and harmless method was most called for. He had had cases of missed abortion where the uterus had completely emptied itself after the administration of these drugs. Cases of delayed onset of labour were often a source of considerable anxiety to those in attendance, and for these he strongly recommended the castor-oil and quinine method. He had known such patients start labour very quickly, and deliver themselves within twenty-four hours. Occasionally the method was almost too successful, and he related a case where labour started about three hours after the commencement of the method, and was completed within an hour and a half before either the accoucheur or his anaesthetist could arrive. He had not much experience of pituitary extract in induction of labour, but thought that there could be no objection to its use before the commencement of uterine contractions. He certainly would not hesitate to use it, if necessary, in those cases where it was desired to empty the uterus during the first half of pregnancy.

Mr. W. W. KING (Sheffield) had used the quinine and castor-oil induction a large number of times in the last few years, but he usually gave colossal calcium as a preliminary; he believed that this added to its usefulness.

Mr. J. CHRISTOLAR (Sheffield) said he was much interested in the analgesic effect which Dr. Bailey had described as following the use of this method. He did not think it was right to employ this method in the treatment of placenta praevia.

Dr. BAILEY, in reply, said that medicinal induction was only used for true accidental haemorrhage or the high type of marginal placenta praevia; it would not be employed in cases of central placenta praevia. Sufficient data were not

to hand to make any definite conclusion possible with regard to the lapse of time between the commencement of the treatment and delivery; in some cases delivery occurred before the termination of the treatment, and in others up to twenty-eight hours after its administration. In cases of contracted pelvis the pelvis was carefully examined and efforts made to approximate the foetal head to the pelvic brim in cases subjected to this treatment. Dr. Bailey had never seen a case in which the child had become asphyxiated on account of the force of the uterine contractions. Of the seventy-eight cases of the series, all but thirteen were not in labour at the commencement of the treatment. In no case had calcium been employed, as suggested by Mr. King.

ESTIMATION OF THE PATENCY OF THE FALLOPIAN TUBES.

At a meeting at the Liverpool Medical Institution on December 17th, 1925, a joint contribution on sterility due to impalpable tubal defects, by Drs. BLAIR BELL, R. E. ROBERTS, J. ST. G. WILSON, and S. B. HERD, was read by Dr. HERD.

Dr. Herd outlined the accepted methods of treatment for female sterility, and showed that vaginal operations were frequently useless. The adoption of the tubal patency test by insufflation was very valuable as a means of controlling surgical procedures and avoiding unnecessary operations. Reference was made to the work and methods of Rubin, Dickinson, Forsdike, and Blair Bell, and a description given of the technique and apparatus employed by the last named, a hand bulb, reservoir manometer, and cannula being used, and air employed. Thirty-one patients had been tested in this way without serious discomfort or disability. Radiological examination was always used, and, in all cases in which operations followed, the previous diagnosis of the state of the tubes was confirmed. Insufflation was only used for diagnosis, and no therapeutic value was claimed for it.

Dr. R. E. ROBERTS gave an account, with illustrative skiagrams, of the radiological features in the diagnosis of patency of the Fallopian tubes. The uterus having been insufflated, any air which had passed through the Fallopian tubes would tend to rise to the highest point in the peritoneal cavity, this point depending on the position of the patient. After the uterine insufflation the patient sat up or stood, and after a short interval in which the air had opportunity to rise in the peritoneal cavity, an x-ray examination was made of the diaphragmatic and hepatic area in the erect position, a skiagram being invariably taken. If the Fallopian tubes were both occluded, no air would have entered the peritoneal cavity and the upper border of the liver could not be distinguished from the diaphragm. If, however, one or other Fallopian tube was patent and air had entered the peritoneal cavity by this route, the air would have risen to the under surface of the diaphragm and would be shown in the skiagram as a translucent area between the diaphragm (which appeared as a delicate curved line) and the liver, the extent of this translucent area depending on the amount of air which had passed in. Even very small quantities of air could as a rule be demonstrated by this method, but it was conceivable that if the tubes were almost occluded the amount of air entering the peritoneal cavity would be so small that it might become entangled in the mesenteric folds and so fail to reach the subdiaphragmatic area.

Mr. ST. G. WILSON thought that inflation was most suitable for cases of "one-child sterility" when several years had followed the last confinement. Inflation alone could not always be relied on for a correct result, and he therefore advised injections with lipiodol in all cases which gave negative results with inflation. The clinical signs of passage of air through the tubes was unsatisfactory; he therefore always recommended the use of radiology.

Prognosis of Auricular Fibrillation.

Dr. WALLACE JONES contributed a note on some points in the prognosis of auricular fibrillation, based on the analysis of statistics of a series of patients attending the

heart department at the Royal Infirmary. The dominant factor in prognosis was the condition of the heart muscle. Information with regard to this would be naturally classified as clinical evidence and electro-cardiographic findings. The symptoms accompanying the onset were very important and, when marked, indicated limitation of the reserve force of the heart, and in consequence considerable myocardial damage. The investigation was made to determine the expectation of life from the time when the cases first presented themselves with symptoms of cardiac failure until they died. It was shown that auricular fibrillation in these cases was more serious in senile than in rheumatic heart disease; that in mitral stenosis the expectation was slightly lengthened by the presence of auricular fibrillation, while in aortic regurgitation this effect was more marked. The prognosis was better in females than males in all types. In the electro-cardiographic findings the presence of a bizarre Q.R.S. curve was of serious significance.

PLASTIC SURGERY.

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, held on December 4th, 1925, the President, Mr. R. C. B. MAUNSELL, in the chair, Mr. T. P. KILNER delivered an address on the principles of plastic surgery and gave a lantern slide demonstration of case records illustrating the following procedures.

Mr. Kilner at the outset gave a description of the method of cutting and applying Thiersch skin grafts and their employment for the obliteration of a buccal sulcus, for freeing the lip and improving its contour in secondary hare-lip operations, for replacing the lost mucosa of the syphilitic nose, for the treatment of ectropion of the eyelids, for reconstruction of the eye socket, and for burns of the hand. In dealing with Wolfe skin grafts, he described the replacement of forehead skin removed in making forehead flaps for rhinoplasty and the replacement of burnt skin of nose. He mentioned the following forms of simple flap: forehead to eyelid region; forehead to chin region based on the superficial temporal artery; forehead to cheek; a full thickness, muscle-bearing flap; the angle of mouth; and simple advancement flaps on abdominal wall in treatment of x-ray burn. He gave an account of the use of fat grafts for a suppressed scar of the cheek and eyelid and of several cases of partial and complete reconstruction of the nose. Dealing with syphilis of the nose, he described the closure of a perforation involving the eyelids and the treatment of typical syphilitic deformity by intranasal skin graft and later a cartilage graft. He detailed the method of preparing the Gillies tubed-pedicle flap, and reported several cases illustrating its wide field of usefulness. These included burns of the hand; extensive reconstruction of the upper lip and cheek; complete reconstruction of the chin and lower lip (including bone graft to mandible); very extensive burn contracture of the neck; repair of partial loss of the external ear (including cartilage grafts); very extensive traumatic loss of skin of thigh and knee region, followed by contracture and complete failure to heal; various other limb conditions—ulcers, wounds, etc.

The President said he was specially interested in Mr. Kilner's remarks about the colour of grafts afterwards, as he himself had constructed a few artificial noses, and had found it very hard to get the graft a good colour. He asked why in two cases of mole, one in the region of the eye and the other in the region of the chin, Mr. Kilner had chosen forehead flaps instead of flaps from the neck.

Mr. M. T. BOURKE referred to the valuable advice he had received from Mr. Kilner in treating a case of very bad facial deformity in which the patient had greatly improved.

Mr. W. PEARSON said that he had had some experience of skin grafting during the war, usually on portions of the body more easily treated than the mouth cavities described by Mr. Kilner. He personally had had 95 per cent. of completely successful cases; his operations usually concerned granulating surfaces, and he thought it was

easier to get grafts on granulating surfaces than on raw surfaces. He let the surface granulate for about ten days before putting on the grafts. He used a perfectly dry technique, without any liquid on the knife.

Mr. H. MEYER, referring to Wolfe grafts, said that Mr. Kilner had mentioned that he only cut the graft the exact size of the area he was going to replace; would he do this in areas which were likely to extend? In a recent case encountered the skin loss was on the back of the hand, and any attempt to flex the fingers tended to enlarge the raw area. Regarding skin grafts for burns, he thought the important thing in preventing contraction was to graft early. In Thiersch grafting he did not use silver foil, and left the wound completely exposed to the air.

Mr. W. DOOLIN said that plastic surgery had been practised by the Indians and the Italians, who had recognized the need of a pedicle flap; the Indians took the flap from the head and the Italians from the forearm. When replacing a keloid scar, was it likely that another keloid would form and another operation be necessary? If so, this would nullify an operation which was done purely for the cosmetic result.

Mr. KILNER, replying, said that there was no skin which matched the face skin as well as forehead skin; abdominal skin was not of the same texture, and never looked so well. In rhinoplasty cases it was comparatively easy to excise scar tissue from the inside of the nose in the later stages. He thought that cases of grafting on limbs were much more difficult than intraoral cases. He would always prefer to graft on a newly made surgical surface than on a granulating surface. He never made a Wolfe graft bigger than the area to be replaced, but he always ensured that the area was at its largest before grafting. The grafting of cases of burns early, before contraction occurred, was very important. The productive factor in keloids was tension. He often treated keloid scars by radium therapy, both before and after operation.

OSTEITIS DEFORMANS.

At a meeting of the Electro-Therapeutics Section of the Royal Society of Medicine on December 18th, 1925 (Dr. A. MACGREGOR in the chair), Dr. R. E. ROBERTS and Dr. J. MORRIS CORRY read a paper on osteitis deformans (Paget's disease of bone). A brief account of the history of the disease, its incidence, etiology, and pathology, was given, and a general survey of the symptomatology and radiological examination of sixteen patients was added. The earliest symptom was, as a rule, pain in the lower limbs, especially after walking; in some of the cases muscular weakness was complained of. Deformities and limb enlargement were as a rule late changes, and spontaneous fracture had occurred in three cases. In several of the cases Paget's disease was unsuspected till a radiological examination of the affected part had revealed the characteristic bone changes, the diagnosis being confirmed by a further x-ray examination of the skull, pelvis, and other bones. Often widespread bone changes were discovered in parts where there had been no clinical evidence of disease. The importance of making a radiological examination of any adult case of obscure limb pain was thus made clear. A detailed account of the x-ray appearances at various stages of the disease was given, with illustrative skiagrams, and deductions made as to the pathological processes producing them. Attention was drawn to the similarity of x-ray changes found in osteitis deformans and osteitis fibrosa, suggesting that both conditions were closely allied if not identical. Treatment of the disease was at present unsatisfactory, but in one of the cases definite radiological evidence of improvement was found to follow the use of parathyroid extract, cod-liver oil, and calcium lactate, the x-ray appearances of the skull and femur suggesting that the disease was becoming, or had become, quiescent. The paper was discussed by Mr. THURSTAN HOLLAND and Drs. SHILLINGTON, SCALES, COLDWELL, JORDAN, PARKES WEBER, and COLLINGSWOOD.

Dr. P. J. BRIGGS read a paper on methods of examination of the pelvic caecum, in which were described and illustrated three methods for bringing a low caecum and appendix out of the pelvis for proper palpation.

Rebiefus.

ABDOMINAL AND PELVIC SURGERY.

CONTRIBUTIONS to surgical literature by Professor RUTHERFORD MORISON are always welcome, and his latest book deals, in the main, with acute, subacute, and chronic abdominal lesions.¹

In the introduction the progress of the art of surgery is traced in an illuminating way through the Listerian days to the present time. Although since his youth surgery has to a large extent passed gradually from the hands of the general practitioner into those of the specialist, Mr. Morison regards the general practitioner as the most important unit of the medical profession. He emphasizes his responsibility for early diagnosis, and urges him to move quicker in dealing with abdominal emergencies; he regards the results as still bad, and holds that "the chief cause of death is at the present and always has been—delay." As is well known, he is a warm advocate of team work, but disapproves of the division of special ailments into departments which are too watertight.

Prominence is given to the importance of diagnosis throughout the book, and everywhere the author's sound knowledge of physiology is evident. Individual diagnostic points of all the surgical abdominal diseases are illustrated by detailed accounts of clinical cases personally observed. In this connexion it may be noted that he records a fatal case, unique in his experience, where operation before the appendix had ruptured failed to save life.

Difficulties are emphasized by records of failure; he urges greater care in diagnosis, and deprecates the prevailing "open the abdomen and see" fashion. Numerous aphorisms might be picked out, but we will quote only a few typical examples (each illustrated by clinical evidence):

Abdominal injuries. "Beware of the diagnosis 'only winded' after an abdominal contusion or of the 'trivial wound' in an abdominal wall."

Urinary calculus. "A sudden bad pain extending from the kidney to the bladder and attended by a rigor suggests stone in the pelvis of the kidney and blocking its outlet." And "A similar pain, though more severe and extending down to the testicle or labium, suggests the passage of a stone into the ureter."

Pyosalpinx. "Capricious hæmorrhage associated with pain and recurrent attacks of pelvic peritonitis suggests pyosalpinx."

Intussusception. "A sudden attack of crying and vomiting in a healthy, generally male, child, suggests intussusception."

Apropos of the choice of an operating surgeon, Mr. Morison writes: "Many can play at golf after prolonged instruction and practice, but few can play golf. Unless the golf is in it can never come out. There are many operators, but few surgeons."

The section on the after-treatment of patients who have undergone operation is so well done that it could with advantage be printed separately and circulated among all house-surgeons and nurses.

The text and print are good, and the illustrations most helpful.

It is a difficult book to review, for it is unique, and in all parts, whether it be diagnosis or treatment, remarkably good. It has the charm of simplicity, and is full of sound practical wisdom set down in plain understandable language. Its two main merits, however, are that it embodies solely the author's views, the views of a keen observer of wide experience, and is free from all ambiguity.

A good teacher is dogmatic, but the dogma must be sound; the book is typical of Professor Morison, for his helpful dogmatic statements are useful to all. The book was professedly written for general practitioners, but it is equally valuable for consultants (including gynaecologists), and should be read by all surgical teachers. It is worthy of a handy place on every medical practitioner's bookshelf.

¹ *Abdominal and Pelvic Surgery for Practitioners.* By Rutherford Morison, Hon. M.A., Hon. D.C.L., Hon. LL.D., M.B., F.R.C.S. Edin. and Eng. London: H. Milford, Oxford University Press. 1925. (Cr. Bro. pp. xi + 212; 9 figures. 8s. 6d. net.)

CARDIAC THERAPEUTICS.

THE book on cardiac drugs² by Dr. L. CHEINISSE gives an account of all the important remedies used for heart disease in France. The chief drugs described are the cardiac glucosides, including digitalis, strophanthus and squill, calcium chloride, camphor, and quinidine.

The book is of particular interest because it indicates considerable differences between cardiac therapy in France and in this country. The therapeutic action of the cardiac glucosides is discussed at some length, but little reference is made to the important work done in this country and in America which in the last twenty years has profoundly modified this branch of therapeutics. The article on quinidine is much more complete, and it is to be noted that Dr. Cheinisse claims that he was the first (in 1921) to bring to the notice of French clinicians the discoveries made by Wenckebach and Frey in 1918. When discussing the action of camphor he mentions the interesting fact that during the war the shortage of vegetable oils led to the use in France of vaseline as a solvent for camphor in hypodermic injections, and that such injections frequently were followed, after a long latent period of many months, by the appearance of local tumours which showed malignant characters. Vaseline injected subcutaneously is apparently a dangerous foreign body which may cause the appearance of large tumours that may grow and invade the deeper tissues.

Near the end of the book is a short chapter on cardiac opotherapy in which the effects of saline extracts of minced heart given by the rectum are discussed. Enthusiastic supporters of this line of treatment are quoted, but it is only just to say that Dr. Cheinisse does not himself support these claims.

ANCIENT HEALING GODS.

PROFESSOR JAYNE has made a laborious investigation of the literature of ancient civilizations with the object of putting together accounts of the healing deities. The result is a collection of great scientific value. His book, entitled *The Healing Gods of Ancient Civilizations*,³ is unusually well documented and systematically set forth, and he exhibits a scientific and critical judgement that is all too rare among students of medical history.

It is said that scepticism is the first duty of the man of science. This is no less true of the historian of science. It is extraordinary how many statements pass current in works on the history of medicine for which no ultimate evidence is forthcoming. From such faults Dr. Jayne's work is free. He ranges over the civilizations of Egypt, Assyria, Phœnicia, India, and Iran, as well as the Greek, Roman, and Celtic worlds. No man, it is true, can be a first-hand authority in all these fields, but, so far as we have been able to test, Dr. Jayne's cautious and critical spirit has prevented him from relying on any but first-hand investigators.

Despite these virtues, this excellent book appears to us to be based on a fundamental anthropological fallacy. This fallacy is often encountered in works on the history of medicine and in collections put together for the purpose of illustrating the history of medicine. It is the fallacy that assumes that before the rise of scientific medicine man was in the habit of distinguishing, or was indeed capable of distinguishing, disease as a separate entity. This does not seem to have been the case. The reading of the Bible alone should be sufficient to disprove it. Man suffered good and evil at the hands, as he supposed, of supernatural beings, and all supernatural beings were, in this sense, disease gods and gods of healing. To write a history of gods of healing would thus be to write a complete mythology. What Professor Jayne has done is to separate from the other gods, in a somewhat artificial manner, those with whom archaeologists and historians have so far succeeded in associating rites in connexion with disease. The list is always growing, and there is reason to

² *Les Médicaments Cardiaques.* Par Dr. L. Cheinisse. Paris: Masson et Cie. 1925. (51 x 81; pp. 178. 14 fr.)

³ *The Healing Gods of Ancient Civilizations.* By Walter Addison Jayne, M.D. Newhaven: Yale University Press; London: Humphrey Milford, Oxford University Press. 1925. (Roy. Bro. pp. xi + 569; 7 plates. 23s. net.)

believe that it will one day be identical with the list of the gods themselves. Professor Jayne himself calls attention to this in his preface, but he has not followed the matter to its logical conclusion.

In other respects Dr. Jayne has done a good and useful piece of work. Much of the book is of great interest to the ordinary reader. Its excellent arrangement, its admirable index, and its bibliography greatly facilitate reference. These qualities would alone be sufficient to gain and retain for it a special place in the literature of medical history.

SOME HOSPITAL REPORTS.

THE fifty-eighth volume of *St. Bartholomew's Hospital Reports*,¹ edited by a new committee, returns to its familiar binding and shape, after an experimental change into a crown octavo volume. In a short note on the history of the *Reports* the contents of the first volume in 1864 are recalled, and of the writers in the original volume two, Sir William Church and Sir Dyce Duckworth, survive full of honours unto this present. There are three sympathetic obituaries—on Dr. E. E. Klein, Dr. H. H. Tooth, and Dr. Herbert Williamson. Dr. Klein, who came from Austria to England in 1871 as assistant professor at the Brown Institute, was primarily a histologist, but entirely self-taught, became the only general bacteriologist in this country, and for years exerted a very great influence in the development of the subject in this country. There are eight articles on professional subjects, and lists are given of the officers of the hospital, of additions to the library and museum, and the proceedings of the Abernethian Society and of the Paget Club are reported. Writing on the vicissitudes of a patient with trigeminal neuralgia, Mr. L. Bathe Rawling states that he is not convinced that injections of alcohol, which must be intraneural or intraganglionic, make subsequent surgical procedure in the way of exposure of the ganglion, its root and branches, more difficult. He adds that were he a sufferer from this dread disease he would "most certainly fly to alcohol injection first, falling back on the surgeon when, and if, that method failed."

After a short essay by Dr. Hugh Thursfield on the treatment of meningococcal meningitis, there is a note on the detection of tubercle bacilli in the cerebro-spinal fluid by Dr. R. G. Canti, who demonstrated its presence in 17, or 85 per cent., of 20 cases of tuberculous meningitis; he found that the chances of success are much increased by previous incubation of the whole fluid. Dr. C. Langton Hewer's article on splanchnic analgesia is illustrated by three figures showing the technique of this method, which has the great virtue of diminishing shock from operative trauma. Mr. Wilfred Shaw deals with the relation between cyclical changes in the ovaries and similar events in the endometrium. The control of the intestinal flora is considered by Dr. L. P. Garrod, who concludes that a "normal intestinal flora" as such does not exist, and that the gravest doubts must be cast on the alleged pathogenicity of faecal streptococci.

The concluding number of the seventy-fifth volume of *Guy's Hospital Reports*² opens with an article by the Regius Professor of Medicine at Oxford, Sir Archibald Garrod, on Alexander John Gaspard Marcat (1770-1822), who was physician to Guy's Hospital (1804-1819), was with his friend, Dr. Yelloly, much concerned in the formation of the Medical and Chirurgical Society in 1805, and in 1817 wrote an essay on the chemical history and medical treatment of calculous disorders, which he dedicated to Wollaston. A further contribution to the study of the physical fitness of men assessed by various methods is made by Professor M. S. Pembrey, Mr. W. D. Hambley, and Mr. E. C. Warner, who conclude that there is not any single real test, other than the old one of trial and error, for physical fitness in every and any kind of occupation, and that physical fitness is relative and not identical with

good physique; they think that the pulse is for many reasons the best test. In the third instalment of the article on massage and remedial exercises in medicine Dr. G. H. Hunt considers diseases of the lungs and pleurae; he divides the subject into (1) local treatment—namely, emptying cavities and bronchiectases, and expansion of collapsed lung, and (2) general treatment to improve the circulatory and respiratory conditions and so the patient's general health. The successful editor, Dr. A. F. Hirst, contributes three papers: a short one on tuberculous infection of a chronic gastric ulcer; an interesting account of diverticula of the colon; and a discussion on the diagnosis of cancer of the stomach, an abstract of which served as the introduction to the discussion in the Surgical Section at the Bath meeting of the British Medical Association. This is supplemented by an analysis of fifty selected cases at Guy's Hospital by Dr. N. L. Lloyd. The results of splenectomy for acholuric jaundice, especially the changes in the fragility of the red blood corpuscles, are considered by Dr. J. M. H. Campbell and Mr. E. C. Warner, who detail four cases, three in one family, and conclude that while splenectomy removes the symptoms it does not increase the resistance of the red cells to haemolysis, much more than splenectomy normally does, and only very rarely, if at all, brings the fragility back to normal. The symptoms are therefore due to the haemolytic activity of the spleen and not to the fragility of the red cells, which is probably an underlying inherited condition in the familial cases. Dr. A. F. Knott, pathologist to the New Lodge Clinic, provides an article on the significance of coliform bacilli in the duodenum, based on the experience gained from 172 routine examinations of bile obtained from the gall bladder by the duodenal tube; he finds that pathogenic coliform bacilli occur in 90 per cent. of biliary lesions as compared with an incidence of 30 per cent. in other conditions. The treatment of acute rickets by the mercury vapour lamp is considered with moderation by Dr. J. F. Carter-Brain and Mr. A. A. Osman.

THE NATURE AND ORIGIN OF CANCER.

In connexion with the post-graduate classes arranged by the medical faculty of Vienna for the year 1924, it was proposed to include a series of lectures on carcinoma, which should furnish those attending the course, most of whom were medical men in actual practice, with a concise statement of the views at present held with regard to the nature and origin of the disease, its leading clinical features, and the main principles of its treatment. In order that medical men should be put in possession of something less evanescent than the subject-matter of a series of lectures is apt to prove, it was further proposed to embody the lectures in a book. The proposal has been carried out under the auspices of the Austrian society for the investigation and prevention of cancer, and twenty-eight of the leading members of that society delivered a series of thirty lectures, which have now been issued in a single volume.³

There can be no doubt of the utility of a book of this kind. Not so many years ago the conception of carcinoma may be said almost to have been embraced in the two words "medullary" and "scirrhous"; since that time our knowledge has been extended, not only by means of the scalpel and microscope, but also by chemical, bacteriological, radiological, serological, statistical, and other methods, and the disease has been produced experimentally in animals. The busy practitioner has no time to follow the intricacies of the subject, and is probably more bewildered than informed by any attempt to do so. He desires to know briefly what is the practical outcome of all this research, and in the volume referred to he will find concise statements on this head by recognized authorities in the subject. Another advantage in a book of this kind is the total absence of all preliminary matter—definitions, classifications, and so forth, requisites for enabling the student to pass his examinations; practical matters such as:

¹ *St. Bartholomew's Hospital Reports*. Vol. lviii. London: John Murray, 1925. (Demy 8vo, pp. xx + 113; 3 figures, 2 charts, 21s. net.)

² *Guy's Hospital Reports*. Vol. 75 (vol. 5, fourth series), No. 4, October, 1925. Edited by Arthur F. Hirst, M.D. London: Wakley and Son (1912) Ltd. 1925. (Med. 8vo, pp. 375-495; 1 full plate, 23 figures. Annual subscription, 22s. for volume of four parts; single numbers, 12s. 6d. each.)

³ *Die Krebskrankheit*. Ein Zyklus von Vorträgen herausgegeben von der Österreichischen Gesellschaft zur Erforschung und Bekämpfung der Krebskrankheiten. Wien: J. Springer, 1925. (Roy. 8vo, 110 pp., 85 figures. Paper cover, 30s.; bound, 35s.)

the practitioner wishes to be informed upon are entered on directly and without circumlocution.

The first few lectures are devoted to general subjects, such as the morphology and etiology of cancer, malignancy, the biochemistry of cancer, experimental tumour formation, and the problem of the frequency of cancer in the population; under the heading of experimental work will be found a discussion of the kindred subject of the Rous-sarcoma and the question of filterable viruses which has recently acquired a new significance from researches in this country. The remainder of the work deals with carcinoma as met with in the various organs and tissues of the body. Among the articles contributed special mention may be made of a very interesting account of the pre-cancerous stage in the skin, by Professor Kyrle, and of articles on the breast by Professor Fraenkel, the larynx by Professor Hajek, and the stomach by Professors Glaessner and Eiselsberg. The authors have amplified their lectures to some extent in order to render the descriptions complete, and a considerable number of illustrations have been introduced into the text.

FLORENCE NIGHTINGALE.

THE name of Florence Nightingale seizes the popular imagination as that of a sweet, gentle, and withal lovable woman. But when Sir Edward Cook published his *Life of Florence Nightingale* in 1913 a somewhat different picture was presented in his two exhaustive volumes. A woman of indefatigable energy, indomitable courage, and a fixed determination to have her own way, brooking no delay and attacking with purposeful sarcasm official opposition to her will, was portrayed. Much of this view of Florence Nightingale was subsequently made use of by Lytton Strachey in his *Eminent Victorians*, published in 1918, where a less agreeable picture of Florence Nightingale is drawn. It is probably on this account that it has been considered advisable to publish a shorter *Life* in the form of a revised and abridged edition of Sir Edward Cook's. The authoress, ROSALIND NASH, has compressed into some four hundred pages the two volumes of the original work, cutting and picking from them here and there in much the same way as Fitzgerald constructed his immortal verses from the *Rubáiyát* of Omar Khayyám. We cannot say, however, that Mrs. Nash's volume has anything like the same historical value as Sir Edward Cook's. It is a readable volume, but it leaves out too much. The part that is least compressed is that which deals with the Crimean war—in effect, that which presents to us the picture of the traditional "Lady of the Lamp" and the "Ministering Angel," and we are glad to have it; but much that is of intense interest in Florence Nightingale's correspondence is omitted, and the whole of that side of her character, brought out by her efforts at Indian reforms to which Sir E. Cook devotes a considerable portion of his second volume, is compressed into a dozen pages forming Part V, and a similar number of pages forming Chapter XI of Part III. In fact, the abridged edition devotes only one-third of the volume to Florence Nightingale's life and work after the Crimean war, although it was subsequent to 1855 that her real genius blossomed and her remarkable capacity for hard detail in effecting reforms in workhouse management, civil hospitals, and nursing, as well as in the army and army medical service, came into play. In describing Florence Nightingale's influence on the Red Cross movement, Sir E. Cook refers to Henri Dunant as a Swiss physician, and Mrs. Nash as a Swiss doctor. He was neither. He was a private gentleman and, to some extent at any rate, a company promoter; it was in this latter capacity that he found himself in the neighbourhood of Solferino at the time of the battle, if we may believe Professor François's *Berceau de la Croix Rouge*. Another curious mistake of which Mrs. Nash alone is guilty is the footnote on page 215, to the effect that Sir Thomas Longmore died in 1925 at the age of 97. He died in 1895 at the age of 79. Evidently the late Dr. Longhurst has been confused with him, although Dr. Longhurst's name does not appear in either

Sir E. Cook's or Mrs. Nash's volumes. An appendix of the latter's book deals with Lytton Strachey's "Florence Nightingale," which the authoress implies is the work of an entertaining caricaturist. Another appendix tells the reader how to make a "Nightingale."

NOTES ON BOOKS.

ONE of the most curious non-medical works we remember to have had for review is that entitled *Americana*.⁸ It is a collection of newspaper paragraphs and other short items of print, supplied by readers in every part of the United States during the past year, and arranged and annotated by Mr. H. L. MENCKEN, editor of the *American Mercury*. In a short preface Mr. Mencken explains the genesis and purpose of the extracts. "They come in part from newspapers of wide circulation and from other easily accessible sources, but they come in larger part from little country papers, from broadsides and other such documents of purely local circulation, and from handbills and other advertisements observed along the streets. They thus offer a singularly intimate and revelatory insight into the daily life and thought of the American people. . . . Here are the things that Americans of the vast majority read every day. Here are the ideas that are regularly presented to them." These four or five hundred samples of raw provincialism are grouped geographically according to the States, and illustrate, we must suppose, the mind as well as the speech of an ingenuous people—a people from whom have sprung such medical marvels as chiropractic and the Abrams box. "But (observes the editor) those who see only humour in these fantastic paragraphs see only half that is in them. Fundamentally, nine-tenths of them are serious in intent, and they are all presented here for a quite serious purpose. That purpose, one of the main aims of the *American Mercury*, is to make the enlightened minority of Americans familiar, by documentary evidence, with what is going on in the minds of the masses." He believes that no headway can be made in opposing and changing absurd and mischievous ideas until it is known clearly what they are; hence this book of "genuine home-brew." For the benefit of English readers a dryly humorous glossary has been appended, together with some caustic study notes for foreign students on the intellectual and moral standing of the several States. From these notes we learn, for example, that Delaware has no large city and no person of any consequence has lived in it for half a century; that good whisky is even cheaper in Florida than in New York; that one of the chief citizens of Kansas is a Mr. Howe, whose system teaches that wealth is the supreme good; that the climate of Louisiana is very hot and there are no inhabitants of any importance; that Mississippi has some of the worst newspapers in America; that primitive Washington has no citizens of any importance and is seldom heard from; with a good deal else to the same effect, only more so. It is rumoured that Mr. Mencken has in contemplation a volume of "Anglicana," but we doubt whether the choicest excerpts from our newspaper press could, in crudity of expression and artless vulgarity of thought, approach this amazing collection from America. Each extract is introduced with a line or two of editorial comment; thus, under the heading "Note on the training of a scientist from the Topeka Capital," we read: "Dr. M. F. Perkins, chiropractor, is now located in rooms 207-8 in the new Hotel Kansan. Before taking up the practice of chiropractic, Doctor Perkins operated a cleaning and pressing establishment at 727 Kansas avenue." Of professional interest also is the "follow-up letter employed upon ungrateful patients by a medical man of Paige, Texas," reproduced at page 238; and the dreadful end of "one Smith, a colored physician," burned to death by his white fellow citizens in the same State.

BALY'S *Spectroscopy*, Vol. I, is one of the series of text-books of physical chemistry produced under the editorship of Sir William Ramsay and Professor Donnan, a series designed to assist the development of those departments of research on matter in molecular dimensions which have been notable for their far-reaching and powerful influences on the growth of other branches of science. The third edition includes so much matter resulting from new investigation that it has been necessary to divide the work into two volumes. Volume I,⁹ which has recently been issued, recites the history of the subject and describes apparatus and methods of practice. Professor Baly is not only an experienced worker in the subject but an enthusiastic explorer of all that underlies the means of success in its investigation. It is easy to discern from his writing that he has gathered

⁸ *Americana*, 1925. Edited by H. L. Mencken. London: Martin Hopkinson and Co., Ltd. (Demy 8vo, pp. 309 + x. 7s. 6d.)

⁹ *Spectroscopy*. By E. C. C. Baly, C.B.E., M.Sc., F.R.S. In two volumes. Vol. I. Third edition. London and New York: Longmans, Green and Co. 1924. (Demy 8vo, pp. xi + 298; 138 figures. Vol. I, 15s. net.)

¹ *The Life of Florence Nightingale*. By Sir Edward Cook. Abridged and revised by Rosalind Nash. London: Macmillan and Co., Ltd. 1925. (Demy 8vo, pp. xi + 404; 2 plates. 15s. net.)

all the salient facts of history and he is well acquainted with the ingenious devices that have been employed to attain the objects desired in research. No less interesting is his account of the mechanical and optical qualities of instruments, his discursive comments on their development and the successes achieved by their use. Spectroscopy has become a very important agent of research in chemistry as well as in physics. It is destined to attract an increasing number of experimental workers, and there is no doubt that Baly's book will provide a most helpful foundation for their studies and a valuable companion in their labours.

Chemists have hitherto looked upon micro-methods of chemistry as a necessity imposed only by scarcity of material; we were accordingly surprised to read the advertisement on the wrapper of *Practical Chemistry by Micro-Methods*¹⁰ that the particular recommendation of the book was a saving of 50 per cent. in the cost of experiment. Perusal of the volume appeared indeed to reveal no other merit, for the instruction given simply follows that of an ordinary elementary textbook on practical chemistry, with directions to use a diminutive Bunsen burner and diminutive quantities of materials and reagents. We have looked in vain for instruction that would enable a student to perform effective experiments with smaller quantities than those hitherto considered necessary to success. All that we have noted is a disregard of that form of experiment which for due performance requires more than a drop of reagent. In the preface the author pleads that students having other subjects to learn are obliged to waste too much time on practical chemistry. We recognize the difficulty, but the author's hope of avoiding waste of time by the use of minute amounts of material seems to us to be misplaced. We should have objected less to a method of saving the student's time by making him the spectator of experiments performed by an experienced worker. Can it be conceived that power of adaptation has been dormant among teachers of chemistry for nearly a hundred years and that there has been no evolutionary tendency towards the standardization of the student's test tube and crucible? We have, in fact, no doubt that the use of moderate quantities of stuff is of more educational value and serves better as an introduction to methods of manipulating smaller quantities when later the necessity arises. Our criticism is aimed solely at the title and the author's standpoint regarding the foundation of teaching practical chemistry. The book contains excellent and useful matter, and as an adjunct to the student's equipment for the elementary study of practical chemistry it will prove helpful. We appreciate the description of dry tests and reactions so often omitted from modern courses of instruction, and we like greatly the author's excursions into matters having special interest for medical students.

Nova et Vetera.

CHEMISTRY OF THE ANCIENT ASSYRIANS.

ONCE more Professor Campbell Thompson has given to the Assyrian scholastic world an exceedingly interesting book upon a very special branch of the study.¹ It is needless to say that tablets bearing upon chemical matters in Assyrian literature are exceedingly rare, and even the texts in the Assyrian wedge-writing published in this work can hardly be described as chemical works in the true sense of the word.

As is commonly the case in the ruined libraries of Babylonia and Assyria, the clay documents they contained have suffered greatly in the course of their long burial in the soil. The clay fragments now published by the author number twenty-four. They were found in the library of Assur-bani-pal, and are now preserved in the British Museum. Prominent in their contents is the manner of making glazes, glass, and the colour with which they were stained. As is usual, the production of these things was associated with certain magical formulae. The oven had to be begun in a favourable month, and on a fortunate day, sacrifices had to be made, and logs of styrax (?) prepared for kindling the furnace.

According to the formula given, the method of making what is regarded as blue glaze was a mixture of 10 *mana* of sand, 15 *mana* of saltpetre, and $1\frac{1}{2}$ *mana* of styrax-gum.

¹⁰ *Practical Chemistry by Micro-Methods*. By Egerton Charles Grey, D.Sc., F.I.C., M.R.C.S. Cambridge: W. Heffer and Sons, Ltd. 1925. (Demy Bro., pp. ix + 124; 16 figures. 4s. 6d. net.)

¹ *On the Chemistry of the Ancient Assyrians*. By R. Campbell Thompson, M.A., D.Litt., F.S.A., Fellow of Merton College, Oxford. London: Luzac and Co. 1925. Price £2 2s.

Directions for mixing are given. As this is a recipe for making what the Assyrians called *uknū ēbbu*, "lapis lazuli," it is clear that it was not the stone, but a glaze imitating it, such as was used so plentifully in the decorations of Nebuchadnezzar's palace.

It would be interesting to quote here all the recipes for making glass, but the space at our disposal would not suffice. Of special note are Professor Campbell Thompson's researches with regard to arsenic. He argues that the various forms in which it was used are represented by the Sumerian compound groups *ASH-GE-GE*, *ASH-KHAR*, *SHIM-BI-GUSUKIN*, *SHIM-BI-ZIDA-SIGSIG*, and *SHIM-BI-IGI-GUNNU*. One of the keys to the meaning "arsenic" is apparently furnished by the Semitic rendering of *SHIM-BI-ZIDA*—namely, *gukhlu* and *amamū*, the former, as recognized by Professor H. Zimmern, for *gukhlu*, the Arabic *kohl*, "collyrium." (If these words are the same, the Arabic form is not well transcribed, as it has *k* for *q* or *g*, and *h* for *kh*.) How *zida*, "lasting" or "true," is to be understood in this compound is not clear; but in the variant longer compound, *SHIM-BI-GUSUKIN*, which is rendered by the Semitic *shindu*, or, possibly (if we restore *SHIM* at the beginning of a damaged line), as *shindu khuraqu*, "paint, gold," seems to furnish the key. This the author has identified with orpiment—*auri pigmentum*, the yellow trisulphide of arsenic. Other renderings of this and of *SHIM-BI-SIGSIG* in Assyrian are *lêru* and *shpu*, which might be translated (if this rendering be correct) by "very yellow paint." Owing to the common meaning of *sic* as "yellow," in Assyrian *argu*, he is inclined to render the Sumerian *SHIM-BI-SIGSIG* as *shindu argu*, "yellow paint," as before, and regard it as the origin of the word *sandarach*. Time alone will show whether this etymology is right.

Another attractive section is No. 25, which deals with the Assyrian *khulalu*, belonging, so the author thinks, to the category of colours. This word, he reasons, is that used for "white lead," whilst another word, *sasu*, translating the same Sumerian group with an additional character, stands for "red lead." The strange thing about these products is that they are classed as stones, but one naturally asks what other determinative prefix, in a script poor in such aids to interpretation, could be applied to them. The medicinal use of white lead, however, is a difficulty, even though "given in small doses as a sedative." The author contends, however, that his conclusion that *khulalu* is "white lead" is confirmed by the fact that this list has also the expression *khulalu ini*, "*khulalu* of the eye," and that it is mentioned in the medical texts. When I was preparing the list giving the various kinds of *khulalu* for publication in the fifth volume of the *Cuneiform Inscriptions of Western Asia*, I thought *khulalu ini* was *kohl*, but clearly this supposition was wrong.

Interesting in the extreme is the way in which magnetic haematite was indicated. The word in question, a compound, was *tak ka-gina-dibba*, and was translated in Assyrian by *shadanu qabitu*, "grasping haematite," because it "seized" any piece of iron brought near it.

The transcription of the Sumerian word or sign used as a prefix for stones is indicated by *tak*, but we are in doubt as to whether this was one of the names for "stone" or not. One thing, however, seems to be certain, and that is, that three other words were so rendered—namely, *i*, *na* (used for stone which had been worked), and *gi*. The first and last probably designated glazes and glass, and manufactured materials of a stone-like appearance.

These are only some of the questions treated of in this noteworthy book. Many other things are mentioned in the principal index, such as the embryo, the magnet, the mill for grinding lapis, the mirror, etc. References to ancient and modern authorities are numerous, and the indexes are very useful. The list of Sumerian and Akkadian words, however, would have been much more useful if indications of their meanings had been given in every case. The reproduction by mechanical means from typewritten pages, also, leaves much to be desired, as the print is often exceedingly faint and imperfect. Would typographic printing, at present so very dear, have placed this useful work beyond the reach of the ordinary purchaser? Another great advantage would have been the reduction of the book to a quarter of its present size, or less.

T. G. PINCHES.

British Medical Journal.

SATURDAY, JANUARY 2ND, 1926.

THE BRITISH PHARMACOPOEIA.

THE remarks of the President of the General Medical Council in his address at the opening of the autumn session¹ informing the profession that the preparation of a new edition of the *British Pharmacopoeia* has been begun, and the coming into effect of a new revision—the tenth—of the *United States Pharmacopoeia*, have afforded Dr. A. J. Clark, Professor of Pharmacology in University College, London, an opportunity of discussing the aims of a national pharmacopoeia and the method by which they should be attained, in an article which is published elsewhere in this issue (p. 30). In it he institutes a comparison between the two pharmacopoeias, not altogether to the advantage of our own.

The Medical Act of 1858 imposed upon the General Medical Council the duty of causing to be published under its direction a book "containing a list of medicines and compounds, and the manner of preparing them, and such other matters relating thereto as the General Council shall think fit." The book was to be called the *British Pharmacopoeia*, and the Council was to alter, amend, and republish it as often as it deemed necessary. A subsequent Act (1862) directed that this *Pharmacopoeia* was to be substituted for the pharmacopoeias of London, Edinburgh, and Dublin. The first *British Pharmacopoeia* was published in 1864, the second in 1867, and an addendum to it in 1874; a third *Pharmacopoeia* was issued in 1885, and an addendum to it in 1890; a fourth *Pharmacopoeia* was issued in 1898, and an Indian and Colonial addendum in 1900. The *Pharmacopoeia* now current is the fifth, and in it the material about the Indian and Colonial drugs, which had been prepared for the addendum of 1900, was included in the text so far as seemed advisable, so that the Council claimed to have produced "a *British Pharmacopoeia* suitable for the whole Empire." This is a point upon which Sir Donald MacAlister has on more than one occasion laid stress, and he has observed also that it is expedient that in different countries the same or equivalent names, especially in the case of potent drugs, shall mean preparations of equivalent strength and composition. In order to obtain uniformity two international conferences have been held in Brussels—the first in 1902 and the second last September. This second conference advised the recognition of biological methods of standardization which have been, or may be, recommended by the Health Section of the League of Nations, and approved various steps towards the unification of pharmacopoeias.

In the *Pharmacopoeia* of 1885 an endeavour was made to fix the alkaloidal strength of some of the tinctures, and in that of 1898 the amount of the more important alkaloid, or of total alkaloid which ought to be present, was specified. This policy was pursued and extended in the *Pharmacopoeia* of 1914, and the number of drugs of definite chemical composition to which assayed processes were to be applied was increased. The Council consulted the universities and medical corporations as to additions and omissions,

and was aided by some independent inquiries as to the frequency with which the official preparations had been actually prescribed in different localities. It had a conference with delegates nominated by the pharmaceutical societies of the United Kingdom, and appointed a committee of reference in pharmacy, consisting of persons nominated by those societies. The committee presented a number of reports and recommendations, which were published for the information of medical practitioners and pharmacists. The Council also set up a committee of reference in chemistry, and, in response to official inquiries transmitted by the Colonial Office and the India Office to Governments and administrations of the Empire, it received a number of suggestions from medical and pharmaceutical authorities overseas; all the information and criticisms thus collected were submitted to those engaged in the preparation of the *Pharmacopoeia* of 1914, which was carried out under the general supervision of the *Pharmacopoeia* Committee of the Council.

The *United States Pharmacopoeia*, of which the tenth edition came into force on the first day of this year, dates back to a suggestion made by Dr. Lyman Spalding of New York in January, 1817. The first *National Pharmacopoeia*, prepared by a committee of which Dr. Spalding was chairman, was issued at the end of 1820, and since then the *Pharmacopoeia* has been revised every ten years. The duty of revision is entrusted to a corporate body, the *United States Pharmacopoeial Convention*, with no direct Government affiliation, but each new revision, when it appears, is adopted by the *United States Government* as the official standard for medicines. When it was decided to proceed with the revision which has just come into force the first step was to call a meeting of the Convention. This was held at Washington in 1920; it was attended by representatives of the Government services, by delegates of national organizations, including the *American Medical Association*, the *American Pharmaceutical Association*, and the *American Chemical Society*, and by representatives of universities and medical and pharmaceutical bodies in the several States. The object of the *Pharmacopoeia* is defined as the provision of standards for drugs "sufficiently used in medical practice throughout the *United States* and its possessions, to lay down tests for the identity, quality and purity of these," and "to insure, so far as possible, uniformity in physical properties and active constituents." The Convention recognized that the international conference for the unification of formulas for potent remedies had performed a signal service for all countries by recommending the various pharmacopoeias of the world to adopt certain standards for potent medicines, and advised that the standards, wherever practicable, should be retained or adopted in the revision; it was, however, also recognized that the advances in science since the international conference at Brussels in 1902 rendered the standards then adopted not such as could now be approved as in conformity with present knowledge and ideals. The Convention appointed a general committee of revision, which was divided into fifteen subcommittees, and the chairmen of these committees formed an executive committee. The first of the committees was on scope, and decided upon admissions and deletions; it was composed of sixteen physicians and five pharmacists. The physicians were responsible for finally deciding about therapeutically active substances, the pharmacists for those which were pharmaceutical necessities. The decisions were published, and all criticisms were

¹ SUPPLEMENT, November 28th, 1925, p. 187.

collected and referred to a referee committee of physicians on scope. The definition of the objects the revisers of the *United States Pharmacopoeia* were to have in view has just been quoted. That before the *British Pharmacopoeia* Committee is "to afford to the members of the medical profession and to those engaged in the preparation of medicines throughout the British Empire one uniform standard and guide, whereby the nature and composition of substances to be used in medicine may be ascertained and determined." The American definition is perhaps the more explanatory and precise, but it need not be doubted that the aim of those to whom the task of revising the *Pharmacopoeia* in each country was, or is, committed is the same. The American executive committee had altogether, as has been said, fifteen subcommittees, including one on biological products and diagnostical tests, and another on biological assays.

With these few explanatory notes, mainly of an historical nature, we leave Professor Clark's essay to the judgement of our readers, with only one observation. He evidently considers that the method pursued in the *United States* is the more thorough, and believes that the British committee might exercise its authority more drastically to reduce the number of drugs and to lessen the number of preparations made from them, and be more courageous in admitting only effective standardized preparations of potent drugs, being guided in the choice of the preparations not merely by the custom of the profession but by the advances that have been made in pharmacology.

SPECIFIC SERUM TREATMENT OF SCARLET FEVER.

THE paper we publish to-day by Dr. Gardner Robb of Belfast (p. 11) may be looked upon as among the first-fruits of the labours of a group of pathologists, whose investigations into the nature of scarlet fever now promise a profitable reward to the clinician. Here is also another example of the fact that the fortunes of pathology and therapeutics are most intimately bound together, each benefiting by the vitality of the other; for, in the case of scarlet fever, a more enlightened pathology has been followed almost immediately by a more effective therapy. This is very apparent when we bring to mind the main events in the history of research work on scarlet fever during the last few years—a story well worth recalling.

The forward movement dates from 1917, when Schultz and Charlton observed that on injecting a few drops of the serum from a convalescent case of scarlet fever into the skin of patients during the acute stage, the rash faded at the spot. A similar power of blanching the scarlet fever rash was found to be present in the serum of some, but not all, healthy individuals. These observations, which excited little comment at the time, were destined to play an important part in subsequent history, for they gave movement and direction to scarlet fever research. A group of bacteriologists began an intensive study of scarlet fever; the most successful were Drs. George and Gladys Dick, who in 1923 furnished evidence that the infecting agent in scarlet fever is a haemolytic streptococcus. They succeeded in isolating this germ from the throats of scarlet fever patients and in propagating it in pure culture, and they reproduced the disease scarlet fever by inoculating human volunteers with their cultures. This particular haemolytic streptococcus, which could be distinguished from kindred

cocci by serological tests, produced a filterable toxin when growing in broth culture. On the basis of these observations it was possible to found a rational conception of the pathology of scarlet fever—namely, that the disease is caused by infection with the haemolytic scarlet fever streptococcus, and that the symptoms of the disease and characteristic rash are due to toxin manufactured by the germ. The blanching reaction of Schultz and Charlton found an explanation in the hypothesis that the serum of convalescent patients contained an antitoxin able to neutralize the circulating toxin locally.

This new pathological view quickly brought practical benefit to clinical medicine, in the Dick test for diagnosis and the antitoxin treatment of scarlet fever. The diagnostic value of the Dick test is now being examined in many parts of the world. We have so often referred to it that it is enough to remark here that most of the evidence offered has been favourable to the test. Perhaps the most recent expression of opinion is from three Russian doctors who write from Moscow, and seem very satisfied with the practical value of the test.¹ The antitoxin treatment of scarlet fever has recently been the subject of two important papers—one by the Drs. Dick, entitled "Therapeutic results with concentrated scarlet fever antitoxin," which was published in the *Journal of the American Medical Association* for November 28th, 1925; the other is that by Dr. Robb which we publish to-day. These, and earlier papers on the specific therapy of scarlet fever, are full of promise of a more successful treatment of this infection. They also raise two problems which demand further study—namely, the best methods for producing and standardizing the antitoxin.

The Dicks appear to have been successful in their first attempts at treating scarlet fever with antitoxin. They took 100 patients with scarlet fever, and gave antitoxin to the 50 more severe cases and kept the 50 less severe as controls. Complications due to scarlet fever occurred in 19 of the control cases and in only 4 of the antitoxin series; the conclusion seemed justified that antitoxin treatment had shortened the course of the disease and reduced the number and severity of complications and sequelae. The results were substantially the same in Dr. Robb's series. In the 100 cases available for review he found the incidence of complications exceedingly low. Severe cervical adenitis, late nephritis, and purulent nasal discharge were absent from all cases. The Dicks also noticed that no post-scarlatinal nephritis occurred when antitoxin was given early.

We agree that the statistical study of the incidence of complications in cases which have or have not received antitoxin is likely to prove the most convenient way of assessing the value of this form of treatment. As the present form of the disease is mild, having a mortality rate of less than 4 per cent., a very large number of cases would have to be treated before evidence could be derived from the actual mortality rates. But besides the statistical evidence concerning complications—which, as we have seen, is very favourable—the Drs. Dick and Dr. Robb also speak enthusiastically of immediate clinical evidence pointing to the efficacy of the serum—disappearance of the rash, fall of temperature, and improvement in the general condition. Dr. Robb, however, does not place so much reliance on fall of temperature as do the American workers, because quick changes in the temperature chart are common after any form of serum; but he says: "As a rule the temperature was down to

¹ *Journ. Amer. Med. Assoc.*, November 28th, 1925, p. 1728.

normal, and stayed there, in twelve to forty-eight hours after the administration of the serum." On the other hand, the Dicks have always laid particular emphasis on the disappearance of the rash as a convenient indicator of the action of antitoxin. In their recent paper (*loc. cit.*, p. 1694) they remark: "If enough antitoxin has been given the rash will be definitely faded within twenty-four hours, and there will be a marked improvement in the general condition of the patient, especially noticeable in the most toxic cases." Dr. W. H. Park of New York, who took part in the discussion of this paper by the Drs. Dick, said, among other things: "A very toxic patient, after an intravenous injection, will often appear convalescent in six hours if he has no complications."

These encouraging results must not be allowed to conceal the fact that the methods of production and standardization of this antitoxin rest on a foundation far less secure than exists, for instance, for diphtheria antitoxin, and until they are improved it will be difficult for manufacturers to ensure a standardized and dependable product. It may not prove difficult to settle the best method of producing the antitoxin: besides the method of Dochez, described by Dr. Robb, there are two other methods for which good results are claimed. The Drs. Dick use sterile filtrates of streptococcus cultures for producing antitoxin, and inoculate horses subcutaneously with increasing doses of sterile toxin. They lay great stress on the importance of selecting a good toxin-producing strain of streptococcus for the preparation of toxin; by their method they produce a powerful antitoxic serum. Certain commercial firms are now making a serum by injecting living cultures of streptococci as well as sterile toxin, and thereby offer a serum for which both bactericidal and antitoxic properties are claimed. Laboratory and clinical experience may be relied on to decide between the merits of these different products.

A greater difficulty is presented by standardization. Hitherto the antitoxic power of the serum has been tested on human volunteers. The strength of the scarlet fever antitoxin has been measured by the power of the product to neutralize scarlet fever toxin as judged by the Schultz-Charlton reaction in early cases, or after injection of scarlet fever toxin intradermally into susceptible individuals: 1 c.cm. of serum should neutralize at least 1,000 skin-test doses of toxin. The Dicks found that 1,000 skin-test doses of toxin is capable of producing transient symptoms of mild scarlet fever in susceptible adults. An amount of antitoxin sufficient to neutralize twenty times this quantity of toxin has been found to be an effective therapeutic dose. The American workers consider that it is wiser to avoid the mention of units other than skin-test doses so as to avoid confusion between scarlet fever and diphtheria. The latest improvement in the mode of preparation of the serum consists in the concentration which can be effected by methods similar to those employed for diphtheria antitoxin. This reduces the size of the dose, increases its potency, and, by reason of the lessened protein, diminishes the frequency and degree of serum sickness. The discovery of a more accurate method of estimating the potency of scarlet fever toxin and antitoxin would be a valuable addition to what has already been accomplished.

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We much regret to announce the death, on the evening of Monday, December 28th, of Dame Louisa Aldrich-Blake, D.B.E., M.S., M.D., Dean of the London School of Medicine for Women and consulting surgeon to the Royal Free Hospital. We hope to publish a memoir in our next issue.

EIGHTY YEARS AGO.

WE are indebted to Dr. Frederick W. Cock for being at the pains to send us a pamphlet he found recently among some old papers in his house at Appledore in Kent. It contains a report of the second annual meeting of the South-Eastern Branch of the Provincial Medical and Surgical Association. Though containing nothing of first-rate importance, it is of real interest as illustrating the stage to which organization of the profession had attained eighty years ago. The meeting was held at Ashford, Kent, on June 24th, 1846, and Dr. Sibbald of Maidstone presided over a gathering of twenty-six members, the total membership of the Branch being ninety-eight. His address was devoted to the fifth of the five objects of the parent body—"The maintenance of the honour and respectability of the profession generally in the provinces" by friendly intercourse and free communication. The wording is a little different, but the meaning is the same to-day. The profession, he held, was improving its position in the State; more deference was being paid to its opinions and more regard to its interests. Parliament had passed an Act recommending magistrates to afford retiring pensions to officers of county asylums, and on a scale of liberality which evinced appreciation of their services; also the cost of treatment of paupers was to be in part charged to the Consolidated Fund, so that medical officers of unions would be more independent of boards of guardians. A matter discussed at the Ashford meeting recalls or reveals a position regarding medical examination for life insurance which can hardly be even a memory in the present day. It appears that insurance offices required opinions and confidential statements by individual men regarding the health of their patients, and most offices refused to pay any fee for such information; at the same time the confidential character of the report was frequently infringed. It is not surprising that in these circumstances the Branch passed a resolution that insurance offices had no claim whatever on the private medical attendant for an opinion regarding an applicant, and that every office should appoint medical referees of its own. The resolution was to be sent to all life assurance offices. In the committee's report reference is made to the working machinery of the parent Association. Its annual meetings had usually been held in the great towns of the north and west, practically inaccessible to members in Kent, so that it was only the establishment of the Branch that had brought about medical gatherings; even Branch meetings then involved time and outlay which would now be sadly grudged. Railways were only in their infancy, but the hope was expressed that with their aid members would be enabled to attend the annual Branch meeting and get home again in the course of a day, or at the most within twenty-four hours. A proposal that the South-Eastern Branch should, by agreement with the Southern Branch, be extended so as to embrace the whole of the counties of Surrey and Sussex, as well as the whole of Kent, was under consideration; this was regarded as "a very convenient territorial arrangement." Nowadays these three counties include some seventeen Divisions, each with its own meetings. Dr. Sibbald, in his address, made a passing reference to a "contemplated measure for the improvement of the health of towns" introduced in the previous session of Parliament, but deferred owing to the state of public business. This reference brings to mind the fact that the labours of Chadwick, Southwood Smith, and their colleagues, as set forth in the epoch-making report of 1842, were in course of bringing forth fruit of inestimable value for the national welfare. A Royal Commission was appointed in 1842, and presented a report in 1844 and another in 1845. The Commission, besides hearing some witnesses, made inquiry into the health conditions of each of fifty towns, and proposed new legislative measures

applicable to all towns and populous places. Several enactments, indeed, were required to cover the scheme, and these culminated in the Public Health Act of 1848. It was very fortunate both for the public health and for the interests of the medical profession that, simultaneously with this public legislation, the Provincial Medical and Surgical Association was arranging its own affairs, and organizing itself for the advancement of medical science in its various branches, for encouraging harmony and good feeling among its members, and for maintaining the honour of the profession. As every reader of the *BRITISH MEDICAL JOURNAL* knows, or ought to know, the Provincial Medical and Surgical Association became the British Medical Association in 1856. Its membership, which in 1846 was just over 1,800, is now more than 30,500.

ENGLISH-SPEAKING PIONEERS IN TROPICAL MEDICINE AND HYGIENE.

PRESIDENTIAL addresses usually deal with the present and the future, but there is not only an attractive atmosphere but a stimulating value about a retrospective review of the subject with which the audience is concerned. This has been convincingly proved by the address of Dr. Andrew Balfour, director of the London School of Hygiene and Tropical Medicine, in his presidential address to the Royal Society of Tropical Medicine and Hygiene on "Some British and American pioneers in tropical medicine and hygiene."¹ Few men are so well fitted by experience and literary skill to praise these famous men who begat tropical medicine and hygiene, but he has presented in chronological order a Valhalla of over seventy sketches of those who should be held in grateful remembrance for work often done in most difficult circumstances—a lesson calling not only for admiration, but for modesty on our part. Some of these are thus rescued from undeserved oblivion. This address is made the more interesting by the portraits of fifty men and three women, Florence Nightingale, Mary Kingsley, and Mary Slessor, the missionary for thirty-nine years in Nigeria, where she was known as "Ma Akamba" (the great mother). She put a stop to infanticide, and was a remarkable pioneer in hygiene through her strange influence on the native. Dr. Balfour walks, as it were, through his picture gallery giving thumb-nail sketches of those on the walls, interpreting the physiognomy of those long gone and adding personal touches to the moderns whom he has met in his twenty-five years of wandering work. Beginning with the great army physician, Sir John Pringle (1707-1783), he ends with the greatest of them all, Sir Patrick Manson, "the father of the modern science of tropical medicine," as the great Frenchman, Raphael Blanchard, first acclaimed him. Both these pioneers in the gallery were Scots, and so are many in between: James Lind, Gilbert Blane, Donald, son of Monro *primus*, William Wright, James McGrigor, James Randall Martin—"from the misty Isle of Skye," of whom there are two portraits—George Ballingall, Morehead, Bidie, David Livingstone, W. A. F. Browne, D. D. Cunningham, William MacGregor, Governor finally of Queensland, George Lamb, and Andrew Davidson. Among the American pioneers are Benjamin Rush, of Quaker stock, who first described dengue; J. C. Nott of South Carolina, who in 1846 suggested that mosquitos might be responsible for the spread of yellow fever; C. J. Finlay and Walter Reed, also pioneers in connexion with "yellow jack"; H. R. Carter; W. C. Gorgas, on whose coffin, when borne up the aisle of St. Paul's in 1920, the only wreath was most fittingly that of Sir Patrick Manson, who was so soon to follow him on that journey from which no traveller returns; and S. T. Darling (1872-1925), the outstanding tropical parasitologist

and pathologist, who was a fellow prisoner in the quarantine station at Colon in 1914; and Howard Ricketts. Dr. Balfour modestly reproaches himself for having said little about lay pioneers, such as Chadwick, Joseph Chamberlain, Alfred Jones, Baird Smith, and T. E. Demster, who in 1848 introduced "the splenic index." No one who reads this charming address can have any feeling but the wish to hear more on the same lines, and if he really feels penitent the remedy is at hand for Dr. Balfour to give his readers a full account of what men other than medical practitioners have done for tropical medicine and hygiene.

RHEUMATIC HEART DISEASE IN CHILDREN.

THE appeal by the chairman and other honorary officers of the Invalid Children's Aid Association for £10,000 with which to equip a home to accommodate children suffering from rheumatic heart trouble in its early stages is so modest, and the cause so good, that we feel justified in hoping that it may speedily be successful. The need for treatment in hospitals and convalescent homes in the early stages of heart trouble in children was clearly stated in the discussion on the subject at the Bath meeting and in our leading article on October 31st, 1925. In no disease and in no circumstances is the maxim "*Principiis obsta*" more applicable. To allow the child convalescent from an acute attack of rheumatic heart disease to return from hospital direct to what in many cases is a poor home, and in nearly all one where proper after-care cannot be carried out, is to court disaster. The Invalid Children's Aid Association has for several years been carrying on homes for such cases at Willesden and at Hartfield in Sussex, but the lease of the latter terminates next year, and it is for the purpose of re-establishing this home elsewhere that the appeal is made. The damage done by acute rheumatism in this country is enormous. One of the openers of the discussion at Bath, Dr. Askins, who is the deputy medical officer of health for the city of Bristol, estimated the annual loss of life from rheumatic heart disease as between 12,000 and 18,000. If much impression is to be made on such a mass of suffering as is implied by these figures, the homes at Willesden and Hartfield must be multiplied many times; they represent a beginning, and offer a demonstration to the public of the saving of health and life which early after-care can secure. Some of the speakers at Bath deprecated the view that poverty was an important factor in causation, but we understand that an inquiry into the after-histories of children who had been treated for rheumatic affections in a London hospital brought out with striking clearness the fact that a poor home is a very important factor in estimating the chances of recovery. The home surroundings of every case were inquired into by experienced social workers, who visited the homes and inquired closely into every circumstance of hygienic importance; the conditions were thus ascertained with a very much greater degree of accuracy than could be attained by judging from the appearance of the patients or their friends at the hospital. Probably it will hardly be denied that this form of disease is far commoner in the working classes than in those who are better endowed with this world's goods, and that, like consumption, the incidence of acute rheumatism in childhood diminishes as we ascend the social scale. Not only is actual penury to blame for furnishing a congenial soil for the seeds of these diseases, but unfortunately it too often appears as if the less the family income the less wisdom is shown in laying it out, so that the money, which is little enough to provide the most nutritious plain food, is spent on innutritious trifles—to say nothing of alcoholic drinks. Doubtless improved housing and nutrition, in whatever way they were brought about, would have a great effect on the prevalence of acute rheumatism, as of other diseases.

¹ Balfour, A.: *Trans. Roy. Soc. Trop. Med. and Hyg.*, London, 1925, xix, 183-229.

PHYSIOLOGICAL ACTION OF LIGHT.

As one of the course of lectures and demonstrations now being given at the James Mackenzie Institute for Clinical Research, St. Andrews, Sir James Irvine, F.R.S., Principal of the University, recently delivered an address on the effect of light on chemical and physiological processes. After a general review of research methods as applied to a large variety of problems ranging from engineering to biology, he said that, irrespective of the nature of the problems concerned, a common feature which emerged was that fundamental researches were concentrated on the study of units. The electron and the atom became the pursuit of the physicist, the molecule of the chemist, and the cell of the biologist. It was a matter of extreme difficulty in the present state of knowledge to apply such principles to clinical medicine, but there appeared to be ample justification for studying more minutely the effects produced by light energy. That the action of light on the human body was important had long been known, and was now beginning to be fully appreciated. Taking examples chosen from well standardized chemical reactions, he showed that activation by light was dependent on a specific wave-length (which could be measured accurately), and, further, that such reactions could be catalysed by reagents capable of transforming wave-lengths. Discussing the clinical value of irradiation, Sir James Irvine drew a parallel between its effects and those induced by certain vitamins, particularly fat-soluble A, and gave an account of the recent work by Zilva, Drummond, and others on the activation of various materials by light. The conclusion he drew was that the photocatalysis of the reactions concerned in metabolism was possible only within a limited range of wave-length. This consideration might be applied extensively to biochemical studies, and the clinical observer could contribute supplementary evidence of the utmost value.

RECENT ADVANCES IN NEUROLOGY.

Dr. R. Ley has contributed to the *Bruzelles-Médical* for December 6th, 1925, a sketch of the progress in neurology during the past couple of years. He discusses first the similarity, if not identity, that has been established between the virus of encephalitis lethargica and that of herpes, to which frequent reference has been made in our *Epitome* paragraphs. Dr. Ley thinks that the comparative frequency of the one condition and the rarity of the other are due to a weakness of personal resistance and an exaltation of the virulence, which combination only rarely occurs. He draws attention to the protean nature of the symptoms of syphilis of the nervous system, encephalitis lethargica, ponto-cerebellar tumours, poliomyelitis, and tuberculous meningitis being among the diseases simulated. Treatment should be intensive, varied, and prolonged. Dr. Ley finds that the best results are obtained by combining a course of intravenous injections of arsenobenzol with intramuscular injections of bismuth, mercurial injections being also given from time to time. In true epilepsy with convulsive attacks it has been shown by Bigwood that the acid-base equilibrium of the blood is profoundly altered; the blood plasma is always alkaline before the attacks, with a return to the normal, or even an acidosis, after the crisis. The alkalinity is associated with diminution of the calcium ions in the blood plasma, which may be correlated with the known physiological action of calcium on the excitability of the neuro-muscular system. This suggests that treatment should take the form of the production of acidosis, as, for example, by fasting, or the administration of dilute hydrochloric acid, which has been known to prevent the development of the convulsive crisis. According to Dr. Ley, boro-tartrates and gardénal also seem to act by producing acidosis. Ventricular puncture has been recommended for the introduction of drugs, especially of anti-

meningococcic serum (2 to 5 c.cm.) into the ventricles by the trans-cerebro-frontal route suggested by Sicard. Suboccipital puncture has been used in both diagnosis and treatment, while cervical puncture is of value in localizing medullary tumours, the cerebro-spinal fluid being found normal above, but altered below, the level of the tumour. Radiotherapy has made rapid strides in the treatment of cerebral tumours in the region of the hypophysis, though in the case of tumours elsewhere the results have been less favourable. This contrast is attributed to the polymorphic character of gliomas, their variable radio-sensitivity, and the differences they present as regards necrosis *en masse*, or of the more or less rapid absorption of their toxic products.

THE CONTROL OF MOSQUITOS IN SAMOA.

It has been known for some years that *Aedes variegatus*, or *Stegomyia pseudoscutellaris*, as was its former denomination, was the carrier of filariasis in Samoa. Dr. P. A. Buxton, who went there on an expedition from the London School of Hygiene and Tropical Medicine, and is now on his way back to take up the duties of director of the entomological department at the school, has done good service in once more calling attention to the breeding places of this disease-carrying insect.¹ The ordinary measures—guarding against unscreened cisterns, repairing sagging gutters, removing empty tins, and improving scavenging methods generally—will not suffice for its eradication. Fruitful sources, often overlooked, are rot-holes in trees which are pollarded and used as fence-posts, and the steps cut in the trunks of cokernut palms. His report also deals with antimosquito measures directed to reducing other more irritating and virulent biters, though not vectors of human disease in Samoa—namely, *Culex fatigans* and *Finlaya kochi*. Screening the ventilators of septic tanks and the regular monthly treatment of pit privies with cresol would deprive the former of their favourite breeding sites. Lowering by a couple of feet or so the water level of the Taufusi swamp, and thus reducing the amount of taro grown, would to a large extent control the latter. Dr. Buxton sounds a timely warning against the potential danger of this swamp should *Anopheles* be introduced, say, from the New Hebrides or Solomon Islands, when an epidemic might arise like that which devastated Mauritius a little more than half a century ago, killing over 32,000 persons in two years and making Port Louis a veritable city of the dead.

MIDDLESEX HOSPITAL PRESS COMMITTEE.

The Press Committee of the Middlesex Hospital has been for some time actively engaged in educating the public by means of health leaflets, and on February 16th, 1924 (p. 305), we referred to the first seven of the series which were then in circulation. Two more have now been added, dealing respectively with eye-strain and the precautions to be observed by tuberculous patients, and in the committee's annual report it is stated that other leaflets are contemplated. During the last year over 36,000 leaflets have been supplied to the medical officers of health of various large towns and counties. Besides this useful activity the Press Committee hopes later on to guarantee against loss up to a certain amount any author publishing a book under its auspices, or, alternatively, is willing to contribute towards the cost of publication of such a book. The funds so far received have been inadequate for this purpose, but one-third of the cost of the publication of the report on *Cancer Research at the Middlesex Hospital from 1900 to 1924* was provided through the committee, which also assists in the publication of textbooks produced by three or more members of the hospital staff.

¹ Mandated Territory of Western Samoa. Annual Report of the Department of Health for the year ended March 31st, 1925. Appendix D: The Control of Mosquitoes in Apia, Samoa. By P. A. Buxton, M.R.C.S., L.R.C.P., D.T.M. and H.

THE COMPILATION OF PHARMACOPOEIAS:

INCLUDING A COMPARISON OF THE UNITED
STATES AND THE BRITISH.

BY

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THE tenth revision of the *United States Pharmacopoeia* was completed in 1925, and the new edition came into force on January 1st, 1926.

A revision of the *British Pharmacopoeia* has just been commenced, and therefore it is interesting to compare the new *United States Pharmacopoeia* (U.S.P. X) with the current B.P., which appeared in 1914, in order to see what changes appear desirable in the latter volume.

When comparing the two it is, of course, necessary to remember that the B.P. is twelve years old, and that great advances in therapeutics have occurred since its appearance. On the other hand, it must not be forgotten that the present edition of the B.P. is still, and will continue for a year or two to be, our official guide for the preparation of drugs, and therefore if it is found to be very out of date this fact, whatever be its cause, is a strong argument for making some change that will enable our pharmacopoeia to keep more in touch with existing medical practice.

In considering the merits of any book it is necessary to have a clear idea of the purposes which it is intended to serve. Fortunately these purposes have been defined, since in the preface to the current *British Pharmacopoeia* (p. viii) it is stated that its object is "to afford to the members of the Medical Profession and to those engaged in the preparation of medicines throughout the British Empire one uniform standard and guide whereby the nature and composition of substances to be used in medicine may be ascertained and determined." This statement of aims was amplified by the President of the General Medical Council in his presidential address last November (*BRITISH MEDICAL JOURNAL*, SUPPLEMENT, 1925, vol. ii, p. 185), when he stated that "Any drug, in fact, which is (1) in current use over any considerable area, and (2) requires for the safety of the public that it should be exactly defined, in respect of source, preparation, standard of purity, etc., has a claim to admission."

The primary aim of the pharmacopoeia is, therefore, to fix standards for a certain selected number of drugs. There are several thousand drugs and preparations in use by the medical profession and scores of new compounds are introduced every year; hence it is impossible to fix official standards for every drug used in the treatment of disease throughout the British Empire, since this would need a library rather than a single volume. In point of fact, the present B.P. contains 400 drugs and 400 preparations, whilst the U.S.P. contains 650 drugs and preparations.

A comparison of either pharmacopoeia with the *British Pharmaceutical Codex*, or with Martindale and Westcott's *Extra Pharmacopoeia*, shows at once that the pharmacopoeias contain an account of only a small minority of the drugs used in medicine.

An examination of the pharmacopoeias of other countries proves that there is in practice a general practical agreement that a national pharmacopoeia can only include a selection of the drugs used in medicine. Stress has been laid on this necessity for selection because it is a point that is often ignored, and many arguments regarding the composition of the *British Pharmacopoeia* are based on the completely erroneous assumption that the volume ought to contain an account of all the drugs used in medicine.

Success in the production of a pharmacopoeia depends, therefore, first on a correct selection of the drugs to be included, and secondly on the provision of satisfactory standards for the drugs selected.

The Selection of Drugs.

The selection of drugs is a matter that concerns the medical profession rather than the pharmacists. This fact was recognized in the preparation of this new, tenth, revision of the *United States Pharmacopoeia* (U.S.P. X). The volume is the joint production of the medical profession,

the pharmacists, and the chemists, and the aim has been to prepare "a carefully selected list of medicinal substances of known origin" (p. xlii). The list of selections was drawn up by a subcommittee of sixteen physicians and five pharmacists, and was revised by a committee of twenty-one physicians (pp. ix and x). The choice of drugs was therefore left almost entirely to the physicians.

The principles of selection laid down by the President of the General Medical Council appear perfectly satisfactory, but of the two tests he has mentioned—namely, (a) frequency of use, and (b) necessity for standardization—the latter is obviously the more onerous. The pharmacopoeia is essentially a book of standards, and unless a drug has some action it is difficult to see upon what principle it can be standardized; the lack of a standard for such a drug could not involve any public danger.

It seems obvious that care should be taken to include all drugs with powerful actions which are in medical use, even though they may be used infrequently, and that there is less need for inclusion of such drugs as flavouring agents, carminatives, bitters, etc., since the accurate standardization of these latter is a matter of less importance to the public safety.

There is another factor of an economic nature which ought to be taken into consideration when compiling a pharmacopoeia, and this is that the provision of an official name and an official standard for a drug will often reduce the price of the drug.

Most new drugs are introduced to the medical profession under proprietary names, and it is desirable that the pharmacopoeia should include such drugs as soon as they become firmly established in medical practice. Very frequently such drugs are well known chemical compounds which are sold at a high price under a fancy name, and the medical profession can effect a considerable economy by prescribing these drugs under official names if such names are provided. For this same reason it is desirable that the pharmacopoeia should include as many drugs as possible which have distinctive and peculiar therapeutic actions, so that a medical practitioner, if he so desires, can confine the drugs he uses to pharmacopoeial preparations and thus avoid the expensive proprietary preparations. This last consideration will, of course, tend to swell the size of any pharmacopoeia, and therefore it is very important to avoid as far as possible the inclusion of useless or redundant drugs and preparations.

Any process of selection involves leaving out drugs which are in medical use. This is no great hardship, since the omission of a drug from the pharmacopoeia does not prevent any doctor from prescribing it if he so desires.

Any selection to be defensible must be based on general principles, and I suggest that the two chief principles should be—

(1) The inclusion of all powerful drugs in general use, on the ground that variation in the activity of such drugs is a public danger; and

(2) The inclusion of a sufficient number of drugs to ensure that any medical man wishing to prescribe a drug to produce a particular therapeutic effect should be able to find a drug of the type desired in the pharmacopoeia, and should thus be able to avoid the use of expensive proprietary articles.

In addition, a sufficient number of bases, flavouring agents, etc., must be included to permit the dispensing of standard preparations of uniform quality and appearance.

The selection of drugs should be based primarily on these principles, and after these requirements have been satisfied as many additional drugs can be added as may be considered desirable. This work of selection must be carried through by a committee considering the problem as a whole. For instance, there are between fifty and a hundred compounds which are used as hypnotics. No one would wish all these drugs admitted, but only a committee considering the needs of the pharmacopoeia as a whole can decide what number of hypnotics will form a proper proportion of the volume. Obviously a plebiscite cannot decide a matter of this nature; it can indicate which drugs are most popular, but cannot give any indication as to the number of any one class of drugs that ought to be admitted.

If a pharmacopoeia is to be judged by the proportion it

maintains between the various classes of drugs, and the number of important drugs for which it provides standards, then it must be admitted that the B.P. compares very unfavourably with the U.S.P.

The B.P. describes 400 separate drugs, but of these 40 are bases or colouring matters, 60 are flavouring agents, carminatives, and bitters, and 16 are simple astringents. About 50 more drugs are vegetable purgatives or anthelmintics. Any pharmacopoeia must, of course, contain an adequate representation of all the classes of drugs mentioned, but these numbers seem excessive. Moreover, of the remaining drugs there are a considerable number which have little or no known therapeutic action.

The U.S.P. in its last two revisions has made a determined effort to clear out rubbish, and it has, in this period, removed 432 drugs and preparations, and has added only 108. Thus it has reduced its scope to 650 drugs and preparations, most of which have a well defined therapeutic action. The process has consisted chiefly in deletion of galenicals of doubtful activity, and the insertion of new synthetic compounds. About 80 of the substances discarded, and 22 of the substances added, are in the present *British Pharmacopoeia*.

A more important difference between the two pharmacopoeias is that the U.S.P. contains a large number of potent drugs in general use which are not included in the *British Pharmacopoeia*. The following are a few of the more important drugs which are absent from the *British Pharmacopoeia*, but which appear in the U.S.P.

Class I. Drugs which were known before 1914.—Atophan, barium sulphate, emetine hydrochloride, pituitary extract, nitrous oxide, oxygen, novocain, salvarsan, antidiphtherial serum, antitetanic serum, theocine, small-pox vaccine, sodium veronal.

Class II. Drugs introduced to medicine since 1914.—Neosalvarsan, quinidine, sodium luminal, thyroxin.

The standardization of all these drugs is obviously desirable in the interests of public safety. In most cases the drugs have powerful therapeutic actions, and therefore any variation in their activity is a matter affecting the public safety. In the remaining cases, such as barium sulphate, nitrous oxide, and oxygen, the presence of impurities may be dangerous to life.

The *British Pharmacopoeia* is therefore overloaded with numbers of substances with little or no therapeutic activity, and does not include a considerable number of important drugs. In my opinion about 80 drugs might be deleted from the B.P. without causing the least public inconvenience. Of these 80 drugs only 10 are in the present edition of the U.S.P., and 40 have been deleted at the last two revisions of the U.S.P. On the other hand, there are at least 40 important drugs, nearly all of which are in the present U.S.P., which ought to be added to the B.P.

With regard to the selection of preparations it is very difficult to generalize, as a number of questions have to be considered. Certainly, however, it is undesirable to crowd the pharmacopoeia with a large number of preparations of the same substance. All of these preparations may be excellent, but since the pharmacopoeial space must be regarded as valuable a selection should be made of the most useful.

The U.S.P. has managed to eliminate redundant preparations more successfully than has the B.P. For example, the U.S.P. X contains only seven opium preparations, whereas the B.P. has no fewer than seventeen. Moreover, the U.S.P. saves much space by giving general instructions for the preparation of infusions, decoctions, and extracts.

The U.S.P. X is enabled to save space by the omission of widely used preparations of minor therapeutic importance, because most of these preparations are included in the National Formulary. This latter volume contains prescriptions for a large number of compounds in general use, and is recognized as a legal standard for drugs. Any scheme for the reform of our pharmacopoeia should include the official recognition of some volume of similar scope in this country.

In my opinion about 150 preparations might be deleted from the present B.P. Fewer than 10 of these are in U.S.P. X. Any such process of wholesale deletion would, of course, involve the removal of many drugs widely used by medical men; and, after all, the pharmacopoeia is not

"the Doctors' Bible," nor is it a textbook of therapeutics, but it is a list of official standards for those drugs for which standards are deemed necessary in the public interest. The omission of a drug from the pharmacopoeia does not prevent anyone from using it, but the inclusion of a drug is official recognition of the fact that it is considered sufficiently important to be in a selected list of drugs.

The Standardization of Drugs.

It is impossible to criticize the standards provided for drugs without considering the purposes for which the standards are provided. The standards in the U.S.P. X are legal standards, since the National Food and Drugs Act, 1906, and various State laws make the U.S.P. and the National Formulary the standards for drugs (U.S.P. X, p. x).

The standards of purity, etc., of the B.P. apparently are not intended for legal standards, since it is stated (p. xiv): "In short, the details of procedure in these and other chemical operations are now left to the skill and judgement of pharmacists and of analysts, who are assumed to be fully trained." No attempt, therefore, is made to make the standards foolproof or fraudproof, and in many cases an analytical chemist could, while keeping strictly within the limits of the directions provided, obtain very considerable variations. The *British Pharmacopoeia* is intended to instruct pharmacists how to prepare drugs for physicians. In practice it has been made a presumptive legal standard for other purposes, but it is unfair to blame the B.P. for being unsuited for purposes for which it was not intended.

On the other hand, the B.P. is bound to be the basis of important trade transactions. Drugs, when dispensed as medicines, must comply with the B.P. standards, and hence these standards are bound to form the basis of wholesale transactions. For this reason the standards of purity provided in the B.P. appear to need extensive revision and expansion. With regard to standards designed to measure therapeutic activity, however, there can be no doubt that it is most important that any which are provided by the B.P. should be adequate tests. The inclusion of useless drugs in a pharmacopoeia chiefly injures the reputation of the volume and does little direct harm, and although the omission of an important drug means a failure to provide any official safeguard as regards that drug, yet the provision of an inadequate standard is a far greater peril. It means the legalization of the sale of preparations of widely varying activity.

There are a number of important substances whose activity cannot at present be measured by chemical tests, and therefore require biological standardization. The editors of the U.S.P. recognized this fact in 1916, and laid down compulsory methods of biological assay for pituitary solution and for cannabis indica, and provided optional methods of biological assay for aconite, digitalis, strophanthus, squills, and suprarenal glands. The present U.S.P. has made biological assay compulsory for aconite, cannabis, digitalis, ergot, pituitary extract, strophanthus, and squills, and its regulations imply biological standardization for antitoxic serums, salvarsan, and neosalvarsan. It also provides an optional method of biological assay for the vitamin content of cod-liver oil.

The *British Pharmacopoeia* lays down no requirements regarding biological assay, and in consequence its standards legalize the sale of preparations of active and important drugs of the most widely varying potencies. For example, a tincture of digitalis might satisfy the B.P. requirements, and yet its activity might be anything from zero to more than normal strength.

The passing of the Therapeutic Substances Act, together with the action of the League of Nations in providing international standards for biological assay, will presumably ensure the inclusion of such assays in future editions of our pharmacopoeia. It is regrettable, however, that we should be more than ten years behind the *United States Pharmacopoeia* in adopting this method.

Mistakes in the B.P.

There are a certain number of actual mistakes in the B.P. which are avoided in the U.S.P. For example, the

hypodermic injection of cocaine is of 5 per cent. strength with a dose of 5 to 10 minims. This strength is far greater than necessary, and in consequence the dose is dangerously high.

Again, the methods laid down in the B.P. for the preparation of ergot extracts are such as to risk the loss of the whole of the alkaloids, which are the only active principles in ergot known to produce therapeutic effects when the drug is given by the mouth.

Naturally, the number of such errors is limited, and they can be avoided by simply copying the practice of other pharmacopoeias.

Nomenclature.

A comparison of the U.S.P. and the B.P. shows that the former is superior in nearly every respect, but although this comparison is very flattering to the U.S.P., yet it must not be supposed that this pharmacopoeia is above criticism. It still contains a number of obsolete drugs which might be deleted with advantage, and in the nomenclature chosen for new drugs the results seem in many instances to be rather unfortunate.

Most new drugs are introduced to the medical profession under proprietary names, and they are only adopted into the pharmacopoeia and given official names after they have become established as therapeutic agents, and after their proprietary names have got a firm hold. Obviously it is difficult to replace the general use of these proprietary names by official names, and it would be an obvious advantage were all pharmacopoeias to adopt a common official name. The U.S.P. X seems to have taken especial pains to avoid using any name that has been adopted by the B.P. For example, the chemical compound hexamethylenetetramine became widely known under the name urotropine, and was sold under this name and a dozen other fancy proprietary names for many years. The B.P. 1914 adopted the name hexamine, and the U.S.P. had previously adopted the name hexamethylenamine. Even this divergence was unfortunate, but now the U.S.P. X has rechristened the drug methenamine. Another example is diethyl barbituric acid, which is widely known as veronal. This drug was adopted by the B.P. as barbitone, and the drug has now been admitted to the U.S.P. X under the name barbital.

The only purpose of these official names is to try and replace the proprietary names, and there is no likelihood of this endeavour being successful unless all pharmacopoeias adopt the same name. Medical literature is international, and therefore international names are needed for drugs, and if the pharmacopoeial names are more local than the proprietary names the latter will persist. It is to be hoped that in future official names will be settled by international agreement.

The Editing of the Pharmacopoeias.

A comparison of the new edition of the U.S.P. with the current B.P. shows that the latter needs a very extensive revision if it is to be brought into line with modern medical practice. The difference between the two volumes cannot be accounted for entirely by the twelve years' interval between the dates of their appearance, because the contrast between the U.S.P. IX (1916) and the present B.P. (1914) is almost equally striking. A comparison of the mode of production of the two pharmacopoeias explains very largely the differences to be noted between them.

The U.S.P. was edited by an executive committee elected by a convention at which all interests affected by the pharmacopoeia were represented. The executive committee was divided into fifteen subcommittees which did the detailed work. These subcommittees were composed of experts of all kinds—clinicians, pharmacists, analytical chemists, pharmacologists, and so on. The task of selection of the drugs to be included was left practically entirely to the medical section of the executive committee, but the pharmacopoeia as a whole represents the joint production of the medical profession, the pharmacists, and the chemists.

The *British Pharmacopoeia*, on the other hand, is edited by a committee of members of the General Medical Council, and since the members of this Council are elected mainly to

fulfil the highly important duty of acting as a court of discipline in professional matters for the medical profession, it is only a chance if they happen to be particularly interested in the compilation of a pharmacopoeia.

In the past the editorial committee has been assisted by committees of reference in pharmacy and chemistry. The pharmacists have now declared that they are unwilling to co-operate on the past basis, for the reason that since they have to do a large proportion of the work they ought to have a voice in the editing of the pharmacopoeia.

The production of a satisfactory pharmacopoeia is a public need, and therefore it is to be hoped that some arrangement will be made that will ensure the co-operation of all the interests concerned.

The production of a new edition of the B.P. is so urgently needed that it will be necessary to produce a new volume as quickly as possible, and since most alterations in the pharmacopoeia involve a good deal of careful research work it will probably be necessary to rely in the next edition very largely on information provided by other pharmacopoeias. The expert knowledge available in England is, however, just as good as that in any other country, and it is offensive to national self-respect that we should be content with a parasitic existence, and should not endeavour to supply our quota of knowledge.

In the future some organization ought to be arranged that will ensure continuous research being carried out on pharmacopoeial problems, and a new edition ought to be brought out at least once every ten years. The U.S.P. appears regularly every ten years, and the last edition took five years to prepare. Careful consideration, however, is needed of the exact functions which a pharmacopoeia is intended to fulfil.

The defence of our present pharmacopoeia is that it is not intended as a guide in therapeutics, but that it registers the customs prevailing in the medical profession at the time of its production, and that the standards set forth are merely guides to the pharmacist to enable him to prepare uniform preparations of the type in popular demand by the medical profession. On these assumptions it would be possible to defend almost any pharmacopoeia, however bad. They are not justified in actual practice because it is admitted that a selection of drugs is exercised, and hence the appearance of a drug in the pharmacopoeia is a recognition of its importance.

The pharmacopoeia does not attempt to set limits to therapeutic practice, but it undoubtedly guides it to a certain extent. Under the present arrangement the practitioner knows that the pharmacopoeia is prepared by the leaders of the medical profession, and he does not realize that in selecting drugs they are not guided by their own opinion as to the value of drugs, but merely follow popular custom. Hence the appearance of a drug or preparation in the pharmacopoeia encourages its use, and as its retention is determined simply by the frequency with which it is used a vicious circle is established which checks the progress of therapeutics.

With regard to the standards formulated for drugs, the practitioner naturally believes that the standards for therapeutic efficiency are devised in accordance with the best scientific knowledge available, and does not realize that faulty standards have been defended simply on the ground that the preparations made according to these standards have been accepted by the profession without complaint.

In my opinion a pharmacopoeia ought to be compiled in accordance with the best medical opinion available, and the editors ought not to be afraid to take the responsibility of saying that the drugs included have been selected because they are believed to produce therapeutic actions, and that the preparations have been selected because they are believed to contain the active principles of the drugs in a stable and reliable form. At the same time there should be a clear definition of the purposes for which the standards laid down are suitable.

The assumption of such responsibility would, of course, be a departure from previous custom, but it would result in the production of a volume that would encourage rational therapeutics, and would not be merely a record of obsolescent medical customs.

England and Wales.

THE COST OF SANATORIUM TREATMENT.

THE Ministry of Health has issued a memorandum showing under various heads the weekly cost per patient at certain hospitals and sanatoriums in England and Wales for the treatment of tuberculosis. For comparison with the figures for the year ending March 31st, 1925, the corresponding figures for the previous two years have been inserted when available, so that it is possible to determine what economies have been made. In approximately half the institutions so compared a reduction of cost is evident, but in a nearly equal number there has been some increase. In many institutions additional expenditure has been necessary for renewals and repairs, though in some there has been a decline in the proportion of the beds actually occupied to the beds provided. When this is the case a relative increase in the cost of treatment is inevitable, and the Ministry reminds local authorities of the importance of keeping beds filled to the greatest possible extent. Another matter needing consideration is the numerical proportion of the institution staff to patients. The figures ranged from 2.3 per ten beds to 6, and even allowing for the fact that many of the institutions with the higher figures have the care of children as well as of adults, there would yet seem to be some room for improvement in this respect. The memorandum deserves careful study by those concerned in the administrative treatment of tuberculosis, since the wealth of detail contained in it will enable them to judge where improvement may possibly be effected in the institutions for which they are responsible.

STAFFORDSHIRE GENERAL INFIRMARY.

A new operating theatre was opened at the Staffordshire General Infirmary, on November 30th, 1925, by Sir John Bland-Sutton, Bt., President of the Royal College of Surgeons of England. The theatre, which cost £5,000 to erect, stands on the west side of the infirmary; it has a northern light, and includes a small theatre for septic cases, an anaesthetic room, a large operating theatre, with a surgeons' dressing room, a washing and a sterilizing room, and a preparation room. It is regarded as one of the most up-to-date and completely equipped operating theatres in the country. The Earl of Lichfield, president of the institution, gave an account of the way in which the money had been obtained, and referred to a generous legacy bequeathed earlier in the year. Sir John Bland-Sutton delivered an address on surgical operations past and present, and described the procedure in the pre-anaesthetic epoch. He showed how the discoveries of Pasteur and Lister had laid the foundations of modern surgery, and gave some amusing details of the earlier antiseptic methods. The present wonderful results in operative surgery were due largely to the rigorous precautions taken to avoid infection. Harmonious co-operation between a hospital board of management and the surgeons of the staff resulted in increased security for the patient, benefit to the community, and honour for the institution concerned. Dr. F. M. Blumer, senior honorary surgeon to the Infirmary, paid a cordial tribute to the great sympathy between the committee, the board of management, and the honorary staff during the forty years he had been connected with the Staffordshire General Infirmary.

WELSH HOSPITALS REUNION DINNER.

The Welsh hospitals reunion dinner, for all ranks, will be held at the Royal Hotel, Cardiff, on the evening of Saturday, January 16th. Colonel A. W. Sheen will preside. This is the day of the international rugby football match, England v. Wales, at Cardiff. A large attendance is expected at the dinner, and any who have not been communicated can obtain tickets and particulars from Staff-Sergeant R. W. Hedley, Waterworks Department, City Hall, Cardiff. The original Welsh Hospital was offered, and accepted by the War Office, for service in France about August 14th, 1914, but owing to war exigencies was established at Netley, where it remained throughout the war. No. 34 (the Welsh General Hospital) mobilized in April, 1916, and went to India, where it was established at

Deolali and enlarged to 3,000 beds. Most of the original Netley staff went with this hospital, the Netley Hospital being restaffed by Wales. Colonel A. W. Sheen commanded the Netley Hospital at first; on being appointed to command the oversea hospital he was succeeded by Lieut.-Colonel H. G. Cook. Both these hospitals did good work in the war, and throughout commanded the sympathy and support of the people of Wales.

Scotland.

SUCCESS IN PRACTICE.

FOLLOWING a practice which has obtained for several years past, the Edinburgh and Leith Division of the British Medical Association held a reception on Tuesday, December 15th, 1925, for those who were to graduate on December 18th. Dr. Keppie Paterson, chairman of the Edinburgh and Leith Division, occupied the chair, and a number of members of the Division were present. After tea and a musical programme, Professor G. M. Robertson delivered a short address. He said that his first duty was the obvious one of congratulating the graduands on having successfully passed all their professional examinations, and on their being about to place their feet on the first rung of the professional ladder. The first piece of advice he wished to give to those about to graduate was that they should without delay take the opportunity of being proposed as members of the British Medical Association, and for this he need only give two reasons. In the first place, there must be some body in a position to speak collectively in the name of the whole medical profession. Medical men had very properly subjected themselves to a self-denying ordinance which prevented them from advertising and from making themselves unduly prominent in the public eye. This was for the benefit of the public and of the profession, but it had the drawback that it made it less easy to give public expression to medical views; but this could be done by a large organization like the British Medical Association, which could express itself collectively. The second reason was totally different, and was of a personal nature. No man, although he had successfully passed all his professional examinations, should regard himself as knowing all within the domains of medicine. He must not cease to be a student after he had graduated, and to keep abreast of the times he must engage in post-graduate study and work at once. He ventured to say that there was no post-graduate teaching which approached nearly to the education they would receive by reading the weekly pages of the *BRITISH MEDICAL JOURNAL*. It was the finest post-graduate course in the world. Professor Robertson went on to say that from long experience he had found that it was not the clever and brilliant man who was usually most successful in practice. He thought that success came more to the man of character, the man upon whom his patients could rely, the man who attended to his patients, and who did the utmost that lay within his power, whatever that might be. Some men were phenomenally successful, and he believed that these men had not only been devoted to their patients, but that they had also had the benefit of luck. It was impossible to command this luck. Nevertheless, the speaker believed that it was the man who had both done his duty by his patients, and had the full benefit of good luck, who succeeded in this phenomenal way. Luck might also come to the man who had not attended to his patients as he ought to have done, but then this good luck did not benefit him in the same way and to the same extent. A man was sometimes unlucky, it might be, from a simple mistake. He remembered the case of a very distinguished Edinburgh physician who attended a patient with many complaints, and who attended her most carefully. On one occasion she had complained of sleeping badly, and he had prescribed a mild hypnotic. He had visited her a day or two afterwards and left without asking how the hypnotic had acted. This had appeared to her in her hypersensitive condition to be such evidence of gross neglect and incompetence that she gave him up as a doctor, and for years continued to abuse him in the most undeserved

way, simply for not inquiring as to her sleep at one visit. The graduands should never forget that they had to treat patients who were human beings, and not merely diseases; they must study human nature, and especially human weaknesses. He would not take advantage of this opportunity of saying how much attention should be given to the mental element in the complaints of patients, and in the remedies prescribed, because he had dealt with that subject in a recent promoter's address to graduands. He would conclude by wishing them success in the glorious profession which they had adopted, and also happiness in life. Apropos of this, he might say that a young man had recently come from the South of England to thank him for a piece of good advice which the speaker had given him at a most important juncture in his life. He had had the prospect of two appointments; one of these might have led to a very brilliant career, but the payment was relatively small, while the other appointment was not so good, but the salary was adequate, and as the young man was engaged he would be able to marry at once. The advice the speaker had given to him was that he should get married at once, because he believed that happiness was more desirable than a distinguished professional or scientific career, and he had quoted a poet who knew the secrets of the human heart:

"To make a happy fireside chime
To weans and wife,
Is the true pathos and sublime
Of human life."

EDINBURGH POST-GRADUATE COURSES.

The annual meeting of the lecturers taking part in the Edinburgh post-graduate courses was held on December 18th, 1925, in the Senate Hall of the University. Numerous suggestions were made regarding additions and improvements in the courses to be held during 1926. The numbers attending the courses held during July and August continue to increase year by year, and the secretary intimated that the number of entries received last summer during these months had been 150. Of those attending the courses, fifty-four had been graduates of Edinburgh University or possessed the diploma of the Scottish Conjoint Board, while the remainder included graduates from schools in America, Canada, Australia, New Zealand, India, China, and other schools of the United Kingdom. It was also reported that new features which had been added to the general medical course held last summer had included a series of lectures on dietetics, lecture demonstrations on insulin treatment, treatment by artificial pneumothorax, and sunlight treatment. The attendance at the general surgical course had showed a large increase, and, in this connexion, the question was discussed of providing additional post-graduate surgical clinics during the spring months. A series of medical clinics, which has been held for some years during the spring months twice weekly, will be resumed after the Christmas vacation. A suggestion was made that the course in diseases of children, which had hitherto been a separate course, combining medical and surgical treatment, should be incorporated with the general courses in medicine and surgery, so as to introduce into these a subject which is of great importance to the general practitioner. A handbook dealing with the arrangements for 1926 will be issued by the Post-Graduate Committee early in the coming year, and may be obtained on application to the Secretary, Post-Graduate Courses in Medicine, New University Buildings, Edinburgh.

CHANGES IN THE PUBLIC HEALTH SERVICES IN SCOTLAND.

The closing months of the year 1925 have witnessed several important changes in the public health services in Scotland. In Glasgow, Dr. A. K. Chalmers, who has filled the office of medical officer of health for many years with conspicuous ability and success, has retired, and Dr. A. S. M. Macgregor, O.B.E., D.P.H., receives the reward of good service as assistant by being promoted to the medical officership. In the county of Dumfries, similarly, Dr. John Ritchie, D.P.H., the deputy medical officer of health, has been promoted to succeed Dr. J. Maxwell Ross, who retires, after a long and honourable career, as medical officer of health for the county. Dr. Ritchie acts also

as principal school medical officer and medical officer of most of the smaller burghs in the county. In Perthshire a vacancy in the medical officership was caused by the death of Dr. John T. Graham, and the county council and the education authority have taken the opportunity to co-ordinate the two services by making a joint appointment. Dr. D. J. McLeish, D.P.H., who has been for a number of years school medical officer and tuberculosis officer for the county, has now received the joint appointment of county medical officer of health and school medical officer. He acts also as medical officer to some of the districts, but the burghs continue to appoint separate medical officers. In Aberdeenshire, where Dr. J. P. Watt, medical officer of health, has retired, almost complete co-ordination of the public health services in the county has been secured by a scheme the main objects of which are direction of the various branches of the public health services as a well ordered whole under one chief medical officer and the reviving of complete co-operation between the county public health staff and the general practitioners in the county. The chief medical officer will act as county medical officer and as district medical officer of health for the several districts of the county and as medical officer for all the burghs in the county except the burgh of Peterhead. Dr. Harry J. Rae, D.S.O., lately deputy medical officer of health and chief tuberculosis officer for the county, has been appointed chief medical officer of the co-ordinated medical services of the county of Aberdeen and burghs. The problem of the multiplicity of local authorities responsible for health affairs has long engaged the attention of all those interested in the advancement of public health in Scotland, and the merging of the smaller authorities has been recommended by a departmental committee. The experiment in voluntary co-ordination will be watched with sympathetic interest.

THE CARE OF CRIPPLES.

The publication of a leading article in our issue of December 12th, 1925, on the care and cure of crippled children has induced Dr. J. N. Meade, the chief medical officer under the Ayrshire Education Authority, to send us a copy of his annual report for the year ending last July. We gather from information that has been published from time to time that the educational authorities in Scotland are a little behindhand in their provision for the treatment of physically defective children, but Dr. Meade's report shows that in Ayrshire a substantial foundation is being laid, although it is still necessary to send cases to Glasgow for operations, and one child appears to be provided with orthopaedic treatment at the cost of the Ayrshire authority as far away as St. Vincent's Orthopaedic Hospital at Pinner, Middlesex. We learn that St. Leonard's Home, Ayr, has been acquired for the purposes of a special school for defective children; 16 are in residence and 38 attend daily, being conveyed to school in a motor ambulance carriage, making in all 54 physically defective children. Provision for the residence of physically defective children is an unusual feature in special schools, and is probably made necessary by difficulties of transport. We are glad to note that advantage is taken of this circumstance to treat the disabilities of children. In May last Mr. Norman Davidson, O.B.E., F.R.C.S., was appointed orthopaedic surgeon to the home, and has since made regular visits, prescribing treatment by appliances and taking cases requiring operation into the Victoria Infirmary, Glasgow. As Dr. Meade says: "The problem of the cripple child deserves more serious consideration than it has hitherto received, and now that at least the nucleus of an orthopaedic centre has been formed, it is hoped that its development will bring amelioration to many helpless children in the area." Elsewhere in this report it is recorded that in various places in Ayrshire there are in existence, or in course of formation, special schools or special classes for mentally defective children. It seems possible that in the future out of these may be developed orthopaedic clinics, and that perhaps St. Leonard's Home might develop into a central orthopaedic hospital. But judging from the records of medical examinations of school children, the number of cripples in Ayrshire is not very great, and a scheme linking

up several counties might prove to be the most promising, if the Oxford, Bucks, and Berks system were adopted as a model. We congratulate the Ayrshire Education Authority on its enterprise, and hope that this may be only an earnest of what is to come in the care and cure of crippled children in Scotland.

Ireland.

CENTENARY OF THE NEW MEDICAL SCHOOL, TRINITY COLLEGE, DUBLIN.

THE centenary of the opening of what is still called the New Medical School, Trinity College, Dublin, is about to be celebrated. The building, which was commenced in 1823, was formally opened on November 1st, 1825, by Professor James Macartney, university professor of anatomy and chirurgery. The centenary ceremony will take place on Wednesday, January 13th, when Dr. T. P. C. Kirkpatrick, Litt.D., will deliver an address on the early history of the school of physic, at a meeting to be held in the school, presided over by the Provost. All medical graduates of the university are invited to be present. On the same evening a dinner will be held in the dining hall of the college at £4.5s, for which medical graduates may obtain tickets at £1 1s. each. Academic dress will be worn. As accommodation is limited, applications for dinner tickets should be made at as early a date as possible to the Dean of the Faculty of Physic, Trinity College, Dublin.

MEMORIAL TO DR. J. C. MARTIN OF PORTRUSH.

A life-size portrait in oils of the late Dr. J. C. Martin was unveiled on December 22nd, 1925, at the Hopefield Cottage Hospital, Portrush. By the side of the portrait is a brass tablet mounted on oak bearing the following inscription:

"This painting has been placed here by public subscription in loving remembrance of J. C. Martin, Esq., M.D., J.P., who died January 31st, 1925. A skilful physician and surgeon and a very courteous gentleman, his death was deplored by all who knew him, but particularly by the patients and staff of Hopefield Cottage Hospital, with the founding and work of which he was closely connected."

Correspondence.

TREATMENT OF CARBON MONOXIDE POISONING.

SIR,—I am glad to find, from their letters in the *BRITISH MEDICAL JOURNAL* of December 19th, 1925 (p. 1199), that both Sir Charles Gordon-Watson and Mr. Douglas Kerr are in agreement with me in their interpretation of the striking cases in which the former transfused blood successfully. At the end of his letter, however, Sir Charles puts the very pertinent question as to what can be done by a medical man faced with a patient who has been rendered unconscious by carbon monoxide poisoning, for instance, in a garage.

If everything requisite were available the most effective and quickest method of treatment would be, I think (apart from artificial respiration if the breathing had stopped), the administration through a mask of oxygen mixed with about 5 per cent. carbon dioxide, as recommended by Henderson. The advantage of the oxygen is, first, that it immediately adds to the blood a supplementary supply of oxygen in simple physical solution, and secondly, that thereafter it drives out CO far faster than if the same amount of air were breathed. But, as Henderson and Haggard have shown, the blood and whole body have lost so much CO₂ during the excessive breathing of acute CO poisoning that as soon as the want of oxygen is partially relieved by the oxygen a condition bordering on apnoea is produced, so that as a matter of fact the CO is only driven out slowly unless CO₂ is added to the oxygen in order to stimulate breathing. With this addition the breathing is so increased that the CO is driven out very rapidly; and by no other means can the want of oxygen in CO poisoning be relieved so rapidly.

In a recent paper on CO poisoning in mines (*Trans. Inst. of Mining Engineers*, lxxviii, p. 271) I drew attention to the fact that with a given saturation of the blood with CO the symptoms are much more severe when an animal is breathing pure air than when it is breathing expired air or air to which the same proportion of CO₂ has been added as in expired air. This is certainly due to the fact that the circulation is more rapid, and hence the supply of oxygen to the brain less restricted, when excessive loss of CO₂ by the blood in the lungs is prevented. We are thus furnished with a probable explanation of why men working at underground fires in air vitiated by both CO₂ and CO often fall unconscious on returning to pure air. The old-fashioned remedy, still sometimes used, of digging a turf and laying a gassed man with his face in the hole, may also have its explanation in the beneficial action of rebreathing his own CO₂. An apparatus which simply furnishes to the patient a mixture of about 4 or 5 per cent. of CO₂ (for instance, the "Carbethea" apparatus designed for this purpose by Messrs. Siebe Gorman and Co. on my suggestion) is very effective in treating CO poisoning, and has advantages on the score of lightness and lasting power, though the oxygen and CO₂ mixture is superior where weight does not matter.

In very many cases of CO poisoning no apparatus whatever will be available until too late for much, or perhaps any, benefit to be obtained from it. From the results of the animal experiments I am convinced, however, that good results could be obtained by means of some simple arrangement for making the patient inhale as much as possible of the expired air of another person. For instance, the donor might expire through a tube made from a rolled-up pamphlet, the lower end of this tube being held close to the patient's mouth or nose, and surrounded with a woollen scarf or similar material to hinder lateral escape of the expired air. If the expirations of the donor were synchronized with the inspirations of the patient the latter would receive fresh expired air, more or less free from CO, at each inspiration. Such treatment, unorthodox as it may at first sight appear, definitely aims at producing some immediate relief by quickening the circulation, and at hastening the elimination of CO by increasing the volume of air breathed.—I am, etc.,

J. S. HALDANE.

Oxford, Dec. 21st, 1925.

THE ULTIMATE FATE OF PATIENTS WHO RECOVER FROM AN ATTACK OF INSANITY.

SIR,—Is it not the case that our knowledge of the fate of patients discharged well from the various kinds of institution for care and treatment of mental disorder is very inadequate? The annual reports issued by these, which the urging of conscience, or of pitiless obsession, compels me to peruse, do not deal with the matter. It would be interesting to learn the experience of public mental hospitals, registered hospitals for the insane, and licensed houses ("Board of Control," "licensed house"—these and like delectable expressions have been commended to the attention of the prohibitionists, who, we trust, are represented on the Royal Commission now inquiring into the subject of the lunacy laws) on the matters of the duration of the period of good health on recovery and frequency of relapse. One would think the best statistics would come from the rate-supported mental hospitals, for the obvious reasons that the rate-aided in a given area, who had been treated in the hospital for that area, are, for the most part, permanent residents therein, and would, on relapse, be taken to the same hospital in the great majority of cases. Should such have removed while well to another area they would, in perhaps the majority of instances, still have a settlement in the original area, and would, consequently, if admitted to the hospital of the other area, be transferred to that of the original one.

But, in my opinion, as one who has worked long years in public mental hospitals, and had regular reports for some years from an after-care association regarding discharged patients and their homes and circumstances, and who has also cognizance from the depressing experience of an out-patient clinic in psychiatry (where patients discharged from a public mental hospital are regularly seen)

of the powerful factors which militate against the maintenance of health by the convalescent poor, if our inquiry is limited to the rate-aided, we shall obtain results calculated unduly to discourage us. With this class, the work done at the hospital is often rapidly undone on the patient's discharge; the efforts of the hospital, in fact, are not backed up outside. We are entitled to expect that retention of health on the part of the recovered patient would be of longer duration, relapse less frequent, amongst the better educated, better-to-do classes. For obvious reasons, let me mention two only: a long period of rest and change is possible on convalescence, with periodic, sufficient holidays; adoption of precautionary measures (as advised) promptly, on recognition of symptoms of ill health, is more likely. It is possible that registered hospitals and licensed houses could also supply the desired statistics in respect of the voluntary boarder class which they are allowed to receive.

To obtain information of value it would seem that institutions of the above classes would require to have as accurate a record as possible of the subsequent history of the cases discharged recovered for a total period up to, say, twenty years, dealing with cases discharged during the first fifteen years. What was the duration of the period of good health, what the relapse percentage, what the frequency of relapse, in relapsing cases, what the percentage of those who did not relapse?

I am aware that the subject of relapse of insanity is touched upon in the article entitled "Statistics of insanity," by Dr. Hack Tuke, in his *Dictionary of Psychological Medicine*. Dr. Tuke conjectured that only 27 per cent. "of the total persons admitted" are likely to die sane. He also makes the statement, based upon statistics of the York Retreat (a registered hospital for the insane), got out by Dr. Thurnan, that of eleven persons attacked by insanity six recovered and five died sooner or later during the attack. Of the six, not more than two remained well during the rest of their lives, the other four sustained subsequent attacks, during which three of them died. It is possible that more recent and fuller information is available bearing upon the subject of this letter. The textbooks which I have, British and foreign, do not deal with it. Kraepelin, whose textbook I do not at present possess, may do so. But I doubt very much whether any comparative information in respect of different social classes of the community exists.—I am, etc.,

EDWIN GOODALL.

Cardiff City Mental Hospital,
Dec. 28th, 1925.

TABES DORSALIS IN SURGICAL PRACTICE.

SIR,—Mr. Watson Jones's memorandum on this subject is apposite (December 26th, 1925, p. 1224). No common disease is missed more frequently than tabes dorsalis, and yet it is as a rule easy to diagnose. Guy's men know the story attributed to a former surgeon. When called to an abdominal emergency he murmured repeatedly "Gums and jerks." But tabes dorsalis can be diagnosed prior to the stage of abolition of tendon jerks and in some cases of long standing the tendon jerks remain. Moreover, there is nothing impossible in a correct diagnosis in a patient whose eyes are glass and whose legs are wood.

A man now under my care was admitted to a surgical ward with a provisional diagnosis of nerve involvement in the scar of a long-distant amputation through the hip-joint. He had well marked tabes dorsalis, and the pains about the scar were merely part of the pains of the disease, which had existed for many years in his phantom limb—a remarkable case. His knee-jerk is brisk, his ankle-jerk abolished. His tests, then and since, are all negative as regards syphilis, but his syphilis has never been treated. We meet so many cases of tabes dorsalis, a disease of syphilis, in which, either by the lapse of time or as a result of treatment, there is no longer any serological evidence of syphilis, that it is erroneous to speak of "confirming" the diagnosis of tabes dorsalis by examination of the cerebro-spinal fluid. A positive fluid may assist in the diagnosis of a difficult case. A negative fluid should never invalidate a clinical diagnosis.

I have seen four cases of tabes dorsalis in which haemat-

emesis occurred as a symptom. Three of these had already been submitted to laparotomy. The fourth case is under my care at the moment, a thin woman of 60 who eight weeks ago had a first haematemesis without other gastric disability save long-standing moderate dyspepsia. She had been thought to have pulmonary tuberculosis with haemoptysis. She has numerous and striking signs of tabes dorsalis. Her knee-jerks are active, her ankle-jerks abolished. Her tests for syphilis are all negative.

Mr. Watson Jones's note strengthens me in the opinion which I hold strongly, and which I teach whenever I can, that except in cases of trauma no laparotomy should be performed save with the sanction of the physician, unless, of course, the surgeon is at heart "a physician doomed to the practice of surgery." This opinion is based on a varied personal experience of abdominal manifestations in tabes dorsalis, and also on a personal experience of six cases of long-standing hysterical regurgitation of gastric contents, in all of which needless laparotomy had previously been performed, and in one of them, now under observation, four times.—I am, etc.,

HILDRED CARLILL, M.D. Cantab.,
Physician to Westminster Hospital.

London, W.I, Dec. 25th, 1925.

TREPANING AND TREPHINING.

SIR,—The crown-shaped saw now usually called a trephine is very ancient. One was found in the ruins of Nineveh, though there seem to be no extant Greek or Roman samples. Hippocrates (*Wounds in the Head*) calls it simply a saw (*πίπων*), but distinguishes it clearly from the drill (*τρύπανον*). Its later names were *χουρεϊς* and *χουρικιον* in Greek and *modiolus* in Latin, under which name Celsus describes it. It had no cross-handle, and was worked by bow and cord like a drill. But, since it is a saw and not a drill, no misuse seems to justify the application of the word for drill to both instruments. Woodall gave it a handle and invented the name "trephine" from *tres fines*! It is a convenient term for distinguishing the two, and perhaps the simplest way of translating the Greek and Latin titles where "trepan" is obviously inadmissible. But there are objections to the word, and perhaps some reader will suggest something better for the new edition of "Liddell and Scott."—I am, etc.,

Oxford, Dec. 25th, 1925.

EDWARD T. WITHINGTON.

SIR,—Dr. Clowes's valuable letter in the *JOURNAL* of December 26th, 1925 (p. 1247), on the terms "trepanning" and "trephining" is interesting from both an historical and etymological aspect. Concerning the instruments employed, we know that trepanning (the making of a hole in a skull with a metal borer) and trephining (making a hole with a circular saw) both stand for a similar operation, the former method having been superseded by the latter for practical purposes.

Dr. Clowes states: "If a generic term is required I think it should be 'trepanning,' which might logically include both the modern and the prehistoric operation, and that it should always be applied to the latter." It must be remembered that by far the larger number of Neolithic trephinations in Western Europe, during a period ending about 2000 B.C., were not done by boring implements. The scraping method was by far the commoner one employed, and specimens discovered exhibiting flint-boring openings in the skull have been comparatively few. One is, therefore, not logically justified in saying that the word "trepanning" would embrace the Neolithic European procedure of opening the skull. No name has hitherto been given to this method.

Broadly speaking, the modern word "trephination" implies the making of an opening into the cranial cavity. This opening may be begun by circular-sawing and enlarged by the saw, the chisel, or the gouge. As the British have *trephined*, his word, let us not go back to mediaeval times *trepanned*, unless that precedent can be logically proved to be better than the one we now employ; and Dr. Clowes has himself pointed out that the word "trephining" is the one that is used by experts, while the word "trepanning" continues to be used almost exclusively by lay writers. The only argument on the other side appears

to be of an international character, in that the French have only one word, regardless of all etymology, for this operation, whether it be Neolithic, mediæval, or modern, and that is *trépanation*.—I am, etc.,

London, N.S., Dec. 26th, 1925.

T. WILSON PARRY.

PREVENTION OF THE COMMON COLD.

SIR,—I am quite convinced that Dr. F. R. Walters (BRITISH MEDICAL JOURNAL, November 21st, 1925, p. 980) is quite right that dust, naturally carrying germs of many kinds, is very frequently the cause of "common colds."

The old method of "dusting" by a feather duster simply changes the place of the dust and does not get rid of it. It fills the air of the room with the dust and is unavoidably inhaled.

I do not know how common the use of "vacuum cleaners" is in Great Britain. In the United States they are very widely used, one might almost say becoming universal. The dust is sucked up into a bag and disposed of by burning or otherwise. Small objects are also sucked up unless too heavy.—I am, etc.,

Philadelphia, Dec. 6th, 1925.

W. W. KEEN.

NASAL DOUCHING.

SIR,—I have recently seen in the lay press a wholesome and wholesale attack on the prevalent habit of nasal douching—whether by sniffing the solution (usually salt and water) through the nostrils or with the help of a glass douche. It was stated that great danger attended this practice—in particular, middle-ear trouble and deafness.

For many years I have advised some of my patients to douche the nostrils with saline, the result being that within the past couple of weeks I have been asked by some of these patients whether they should not discontinue the practice because they read in the paper that it was condemned by a "Harley Street doctor."

I wonder how many of us really consider that nasal douching generally is dangerous. If douching is done by sniffing the solution from a container or from the hands, the suction action is carried out by the lungs, and as soon as the solution enters the nasopharynx it is carried down by this suction as well as by gravity. There cannot therefore be any rise of pressure in the naso-pharyngeal space which might force the solution into the Eustachian tubes.

The usual method of douching (as carried out by a doctor), in which the solution is forced up the more obstructed nostril and allowed to come out through the other nostril, does not seem to be a safer method, as the patient is asked to breathe through the mouth in order to cut off the naso-pharyngeal space, and unless the nostril which carries the return flow is quite free from obstruction there might possibly be a rise of pressure affecting the Eustachian tube. Again, in this latter method, is not the solution more likely to be forced into one of the nasal accessory sinuses, seeing that it is being syringed through a more or less obstructed nostril, than in the "sniffing" method where the two nostrils are in action or possible action and the patient is not breathing through the mouth and the naso-pharyngeal space is not therefore cut off by the soft palate?

Patients, while free from any apparent nasal trouble, such as enlarged turbinates, polypi, etc., are often prone to a "cold in the head," which is a frequent precursor of severe influenza. In this type of case nasal douching might well be looked upon as a preventive of influenza, and think it is.

Are we going to tell our patients that nasal douching is dangerous?—I am, etc.,

EDWARD P. COYNE, M.B., B.Ch.

Neath, Glamorgan, Dec. 10th, 1925.

"NEO-CARDIOLOGY."

SIR,—Dr. G. Arbour Stephens (December 26th, 1925, 1245) attributes to me the statement that "it is quite impossible to learn anything by clinical examination of the condition of the myocardium." Such alleged statement "most emphatically" repudiate.

Your readers have cause for gratitude to "A General Physician" for his thoughtful and convincing letter, a

timely emollient at the Christmas season to what threatened to become an acrimonious correspondence. With all that he writes I am in full accord, and with these remarks my contribution to the discussion ends.—I am, etc.,

Hove, Dec. 27th, 1925.

DONALD HALL.

Obituary.

JAMES RITCHIE, M.D., F.R.C.P.ED., F.R.C.S.ED.,
Edinburgh.

DR. JAMES RITCHIE, who had been for many years a well known medical practitioner in Edinburgh, died after a short illness at his residence in Slateford, near Edinburgh, on December 10th, 1925. Although he was in his 85th year and had retired from practice some years ago he still enjoyed a great measure of bodily and mental vigour, and maintained an active interest in many branches of public work. He took the diploma of M.R.C.S.Eng. in 1872, and graduated in medicine, with honours, at the University of Edinburgh in the same year; in 1891 he proceeded to the degree of M.D., receiving a gold medal for his thesis. In 1874 he became F.R.C.S.ED., and in 1882 took the M.R.C.P.ED., proceeding to the Fellowship in the following year. After graduation, he acted for six months as house-surgeon to the late Professor Annandale, and in the following summer was resident physician to Sir Thomas Grainger Stewart. Among his fellow residents were Dr. Alexander James, Dr. C. W. MacGillivray, and Sir George Beatson. For a short time he acted as assistant to Sir Thomas Grainger Stewart in the chair of practice of medicine at the university, but his time very soon became fully occupied by the claims of a large general practice, which he continued to enjoy until he retired.

Despite the claims of practice he found time to write occasional papers, such as an article on general cystic degeneration of the adult kidney, published in the *Reports* of the laboratory of the Royal College of Physicians, Edinburgh, in 1892; on osteomalacia, published in the *Transactions* of the Obstetrical Society of Edinburgh in 1895; and on general secondary carcinoma of the bones, published in the *Transactions* of the Medico-Chirurgical Society of Edinburgh in 1896. He gave special attention to obstetrics and was an examiner in this subject for the Royal College of Surgeons of Edinburgh; he served a term of office as president, both of the Edinburgh Obstetrical Society and of the Edinburgh Medico-Chirurgical Society. He took an active interest in the affairs of the British Medical Association. Before the establishment of Divisions he was for several years a member of the Parliamentary Bills Committee. From 1899 to 1915 he was honorary treasurer of the Edinburgh Branch, and became its president in 1917. In 1904 he was chairman of the North-West Edinburgh Division, and in 1911 was elected the first chairman of the Edinburgh and Leith Division, formed by the amalgamation of three previously existing Divisions in the city; he held this office during the important period when negotiations were in progress respecting the National Health Insurance Act. Dr. Ritchie also took a very prominent position in work connected with the United Free Church of Scotland, and was for some years president of the Edinburgh Medical Missionary Society. He was a man of modest and unassuming character, and in a very high degree was respected and beloved by his large circle of patients and friends. His wife died twenty-five years ago; he is survived by two sons, who are both medical practitioners, and by four daughters.

DAVID LLOYD OWEN, M.D., F.R.C.S.I.,

Consulting Ophthalmic Surgeon, Birmingham General Hospital.

THE death occurred suddenly on Christmas evening, at Harlech, North Wales, of Dr. David Lloyd Owen, formerly a well known ophthalmologist in Birmingham. He was consulting surgeon to the Birmingham and Midland Eye Hospital, and consulting ophthalmic surgeon both to the Birmingham General Hospital and the Hospital for Sick

Owen was born in 1843, the son of

the Rev. D. Owen, originally of Darowen, Montgomeryshire, and was educated in Birmingham and later in Paris. He took the diploma of M.R.C.S.Eng. in 1865, and became F.R.C.S.I. in 1880. Subsequently he graduated M.B., B.Ch.Birm. in 1901, and proceeded M.D. in the following year. He resided for a considerable period in Edgbaston, afterwards at Newhall Street, and later at Four Oaks, where he remained until his retirement five years ago.

Dr. Lloyd Owen was an ex-president of the Midland Medical Society, a former vice-president of the Birmingham Medical Institute and of the Ophthalmological Society, and an ex-president of the Birmingham Branch of the British Medical Association. He served as president of the Section of Ophthalmology at the Association held its Annual Meeting in 1890. He was the author of a number of papers on the eye, and in 1890 published a manual, *The Elements of Ophthalmic Therapeutics*. In 1896 he delivered the Middlemore Lecture, taking as his subject "Pain in eye disease, its character and its relief."

He was a justice of the peace for the county of Warwick and the borough of Sutton Coldfield. On leaving Birmingham he was presented by Undeb y Brythoniaid (the Birmingham Welsh Society), of which he was founder, with a replica of the presidential badge of the Undeb. Outside his professional work his chief interests were Freemasonry, archaeology, and genealogy.

SAMUEL FLEMING, M.B., O.M., Metropolitan Police Magistrate.

MR. SAMUEL FLEMING, metropolitan police magistrate of Lambeth, died on December 20th, 1925, on board the steamer *Armada Castle*, on his way to the Cape. He was born on May 24th, 1865, the son of Mr. Frederick Grant Fleming, and was educated at University College, London, and Edinburgh University, where he graduated M.B., O.M. in 1890; he took the D.P.H. at Cambridge in 1893. Leaving the medical profession for the law, he was called to the Bar by Gray's Inn and the Middle Temple in 1897, and joined the North-Eastern Circuit, practising at the Durham, Leeds, Sheffield, Bradford, and Rotherham sessions. During the war he was legal adviser and judge advocate of the Aldershot Command, afterwards legal adviser to the Army Medical Department, and received a brevet lieutenant-colonelcy in the R.A.M.O. in 1918, having become major in 1916. In 1920 he was appointed Recorder of Doncaster, but resigned that post in the following year, when he was appointed a metropolitan police magistrate. He sat at first at Greenwich and Woolwich, and was transferred to Lambeth in 1924. He had been elected a member of the Bar Council in 1920. In 1892 he married Elizabeth, daughter of the late Colonel W. C. Ball, C.B., and at the time of his death was on his way, with his wife, to visit one of his daughters, who is married to Major Pict Vanderbyl.

Mr. Fleming was, we believe, the first and only medical man who has filled the post of metropolitan police magistrate. In this connexion we may remark that the present generation has seen the creation of the first medical peers, Lord Lister (1897), Lord Ilkeston (1910), Lord Finlay (1916), and Lord Dawson of Penn (1920); the first medical Lord Chancellor, Viscount Finlay (1916-18); the first medical ambassador, Sir Auckland Geddes (1920-24); the first medical Lord Mayor of London, Sir Thomas Crosby (1911); and the first medical Poet Laureate, Dr. Robert Bridges (1913).

The death of Dr. ALFRED BOWLES took place suddenly from heart failure at his residence at Eastbourne on December 21st, 1925, in his eighty-fourth year. He was active in his professional work to the end. This consisted almost entirely in the care of mental patients in his own house, and he had a large experience in this branch of medicine, for which he was particularly well suited by his tact and kindly disposition. His name was familiar to most of the London psychiatrists and neurologists of the present and past generations, and he was well known to the medical men in Sussex, who frequently sought his

expert advice. He was a member of the British Medical and Royal Medico-Psychological Associations and of the Eastbourne Medical Association. Dr. Bowles was educated at University College and St. Mary's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. in 1899. For some years he was assistant medical officer at Moorcroft, Dr. Stilwell's establishment at Hillingdon, Uxbridge. Dr. Bowles leaves a widow and a son to mourn his loss, and a wide circle of friends.

The Services.

TERRITORIAL ARMY MEDICAL OFFICERS' ASSOCIATION.

A DINNER for Territorial medical officers, active and retired, will be held at the Café Royal, Regent Street, London, on Friday, February 12th, at 8 p.m. Officers intending to be present are asked to communicate without delay with Colonel M. B. Ray, D.S.O., M.D., A.D.M.S., honorary secretary, at the offices of the Territorial Army Medical Officers' Association, 37, Russell Square, London, W.C.1. Lieut.-General Sir Hugh S. Jevons, K.C.B., K.B.E., Director-General of the Territorial Army, and Lieut.-General Sir William B. Leishman, K.C.B., K.C.M.G., F.R.S., Director-General of the Army Medical Services, have intimated their intention to be present.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Board of the Faculty of Medicine.

THE Board of the Faculty of Medicine has co-opted E. Farguhar Buzzard, D.M., Magdalen College, and Malcolm H. MacKeith, D.M., Fellow of Magdalen College, as members of the Board for two years from the first day of Hilary term, 1926.

Francis Gotch Memorial Prize in Physiology, 1925.

The board of management of the Francis Gotch Memorial Fund has reported to the Vice-Chancellor that, as a result of the examination of candidates held on December 1st, 1925, it has awarded the medal and the prize of £5 to Joyce Wright, B.A., Somerville College; *proxime accessit*, Jack William Pugh, B.A., University College.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examination indicated:

THIRD M.B., B.CHIR.—Part I. *Surgery, Midwifery, and Gynaecology*:
A. R. Adderley, D. Ascrman, G. W. Bamber, J. O. W. Bland, G. C. W. Brown, J. A. S. Brown, P. R. Buckton, G. P. Chandler, P. F. Chandler, H. A. Clegg, L. C. Cook, W. F. Cooper, B. Cunningham, T. S. Dwyer, H. V. Dicks, J. Dockray, O. D. Donaldson, A. B. Eddowes, J. B. Ellison, A. W. Ewing, T. D. W. Frost, S. J. P. Gray, J. C. P. Grey, W. S. Grove, H. J. Heathcote, J. D. Hindley-Smith, G. G. H.

A. Simpson Smith, H. B. Stallard, E. J. E. Topham, E. A. Trim, J. L. Warner, H. M. Woodman.

* Allowed to take Surgery only by Grace 61 of November 14th, 1925.

UNIVERSITY OF BIRMINGHAM.

AT a congregation held on December 18th, 1925, the following medical degrees were conferred:

M.D. Constance R. La Trobe
M.B.

SOCIETY OF APOTHECARIES OF LONDON:

THE following candidates have passed in the subjects indicated:

SURGERY: B. A. Perott, C. E. Hagenbach, B. D. Jais, M. F. Whitby, J. Shilko.
M.E. For M.M.

* Section II.

The diploma of the Society has been granted to Messrs. R. F. Ashkeny, S. Douglas, C. E. Hagenbach, T. A. Lazaro, M. Schwartzman, and F. Smith.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Acts of medical interest passed by Parliament during the session just concluded, with their dates of coming into force, are:

- Therapeutic Substances Act (to be fixed by Order in Council between August 7th, 1926, and August 7th, 1927).
- Workmen's Compensation Act (May 1st, 1926).
- Government of India (Civil Services) Act (December 22nd, 1925).
- Mental Deficiency (Amendment) Act (July 31st, 1925).
- Public Health Act: Unification (August 7th, 1925).
- Dangerous Drugs Act (to be fixed by Order in Council).
- Public Health (Scotland) Amendment Act (December 10th, 1925).

Diphtheria and Scarlet Fever: Errors in Diagnosis.—In answer to Mr. Bromfield, the Minister of Health stated that he was aware that 31.5 per cent. of the cases notified as diphtheria, and 13.6 per cent. of the cases notified as scarlet fever, and sent to the infectious diseases hospitals of the Metropolitan Asylums Board in the year 1924, were found after admission to be suffering from something else or from no disease at all. He was informed that the increase in the number of cases of diphtheria admitted during 1924 to the infectious diseases hospitals of the Metropolitan Asylums Board in which the diagnosis had to be revised might be accounted for by the increasing recognition on the part of medical practitioners of the necessity, in the interests of the patient, of immediate removal to hospital for the purpose of securing treatment as early as possible without waiting for the receipt of a laboratory report. No figures were available to show whether the percentages notified in error were as high or higher throughout the country. In cases in which the diagnosis made at the Metropolitan Asylums Board's hospitals was not in agreement with that of the notifying practitioner, the information was communicated to the medical officer of health of the sanitary district from which the patient was removed, in order to ensure the accuracy of his statistics. Information as to the diagnosis made at the hospital was given to the parents on request. No information was available as to the number, if any, of these cases which contracted scarlet fever or diphtheria after admission to hospital. He was advised that there was no statutory provision under which a medical practitioner could be called upon to refund the fee for a notification certificate in a case in which his diagnosis was not in agreement with that subsequently made at the hospital, and it would, in his opinion, be undesirable in the public interest that such a course should be adopted.

Bottles for Poisonous Preparations.—The Minister of Health announces that regulations under the Poisons and Pharmacy Acts require that preparations containing scheduled poisons intended for external application should be supplied in bottles distinguishable by touch. The question of the extension of these regulations to other preparations containing scheduled poisons was a matter for the Privy Council, and he would bring to the notice of the Lord President the suggestion lately made by a coroner's jury at Camberwell that all poisons should be sold in blue ribbed bottles instead of in white.

Encephalitis Lethargica.—Sir Kingsley Wood, in a written reply to Captain Fairfax, said that 1,157 deaths had been provisionally attributed to encephalitis lethargica in England and Wales during 1925 down to the end of October. The Ministry of Health had issued reports and memoranda in recent years in which the principal facts ascertained regarding the occurrence of this disease and the manner of its spread had been set out. Efforts were being made in conjunction with the Medical Research Council to add to knowledge of the causes of this disease and the possibilities of avoiding it.

Medical News.

THE Joint Nursing and Midwives' Council of Northern Ireland, being about to revise its list of examiners, invites applications from registered medical practitioners, including women, who would be willing to act. Particulars can be obtained from the Registrar, 118, Great Victoria Street, Belfast, to whom applications should be sent not later than January 15th.

THE Council of the Royal Institute of Public Health has awarded the Harben gold medal for 1925 (of the value of fifty guineas) to Professor Baron Shibusaburo Kitasato, M.D., Director of the Royal Japanese Institute for Infectious Diseases, for his "eminent services to the public health." The Smith award (a bronze statuette of Hygieia by Charles L. Hartwell, R.A.) has been made to Professor Matthew Hay, M.D., LL.D., F.R.C.P.I., for his "outstanding merit as a medical officer of health."

THE National Association for the Prevention of Infant Mortality and for the Welfare of Infancy (117, Piccadilly, W.1) announces that a course of lectures on infant care, for health visitors, nurses, midwives, and superintendents of infant welfare centres, will be given at the Infants Hospital, Vincent Square, Westminster, on Mondays at 6.30, from January 11th to March 29th.

THE fourth and last of the series of post-graduate lectures on general anaesthesia, arranged by the Dental Board of the United Kingdom, will be given by Professor Noël Paton, F.R.S., and will deal with the metabolic changes in chloroform poisoning. It will be delivered at the Royal Society of Medicine, 1, Wimpole Street, W.1, on January 11th at 8.30 p.m.; in the Medical School, University Buildings, Oxford Road, Manchester, on January 13th at 5.30 p.m.; and in the Surgery Theatre of the University of Edinburgh on January 15th at 5 p.m. No tickets of admission are required.

THE Fellowship of Medicine has arranged a further series of open lectures from January to March on subjects of general interest. Dr. Herbert Spencer will give the opening lecture, on abdominal palpations in pregnancy, on January 21st, at 5 p.m., at 11, Chandos Street, W. From January 11th to 23rd the Prince of Wales's General Hospital will hold an intensive course in general medicine, surgery, and the special departments, with a daily lecture at 4.30 p.m. free to members of the Fellowship. Commencing on January 4th a month's series of lecture demonstrations on psychological medicine has been arranged for Tuesdays and Saturdays, at 11 a.m., at the Bethlem Royal Hospital, and a four weeks' course of lectures and demonstrations in the diagnosis of nervous diseases will begin also on January 4th, at 5 p.m., at the West End Hospital. At the North-Eastern Hospital a three weeks' course in infectious fevers will be given on Wednesdays, at 2.30 p.m., and Saturdays, at 11 a.m., from January 11th to 30th. Whole-day courses have been arranged in diseases of children at the Queen's Hospital and at the National Hospital for Diseases of the Heart from January 18th to 30th. From January 11th onwards there will be weekly demonstrations in clinical surgery; the first will be given at 5 p.m. at St. Mark's Hospital by Mr. Lockhart-Mummery. A copy of each syllabus of the foregoing courses and of the Fellowship general course programme may be obtained from the Secretary, 1, Wimpole Street, W.1.

INTENSIVE courses in cardiology, of a fortnight's duration, are held at the National Hospital for Diseases of the Heart, Westmoreland Street, London, W., in January, July, and October every year; the first course for the year 1926 will commence on Monday, January 18th. The fee for the course, which is limited to sixteen members, is £7 7s. Full particulars may be obtained from the secretary at the hospital.

THE British Institute of Philosophical Studies, of which the Earl of Balfour is president, has arranged for two courses of lectures on science and philosophy, during Lent term, to be given at Bedford College, Regent's Park, N.W.1. The one course (nine lectures), the subject of which is life and mind, will be given by Professor James Johnstone on Mondays at 5.30 p.m., beginning on January 11th. The fee for non-members is £1 5s. The other course (twenty lectures), on the conception of matter, will be given by Professor Leonard J. Russell, and will be given on Tuesdays at 5.30 p.m., beginning on January 12th. The fee is £2 2s. for non-members. Further particulars can be obtained from the Director of the Institute, 88, Kingsway, London, W.C.2.

AN excursion round the Mediterranean in the steamship *Lotus* is being arranged by the *Bruxelles-Médical* from March 17th to April 13th, visiting Naples, Malta, the Piræus, Constantinople, Smyrna, Rhodes, Cyprus, Beyrout, Jaffa, and Alexandria. Land excursions may be arranged to Damascus, Lebanon, Tripoli, Baalbek, Jerusalem, and Cairo, Easter being spent in Jerusalem. The charges for medical practitioners are: first class, 38 guineas; second class, 25 guineas; and third class at reduced rates for medical students. Further information and an illustrated guide may be obtained from Dr. Bernard, 62, Rue Froissart, Brussels.

AT the meeting of the Pharmaceutical Society of Great Britain to be held at 17, Bloomsbury Square, W.C., on Tuesday, January 12th, at 8 p.m., a discussion on some new, modified, and tested formulae of the *British Pharmacopoeial Codex* will be opened by Mr. Frank Browne and Miss Dorothy Randle. Medical friends of members will be welcomed.

THE anniversary meeting of the Royal Anthropological Society will be held at 52, Bedford Place, W.C.1, at 8.30 p.m., on January 26th. A soirée will be held after the transaction of formal business.

MESSRS. J. AND A. CHURCHILL announce for early publication *The Nematode Parasites of Vertebrates*, by Professor Warrington Yorke, M.D., and Dr. P. A. Maplestone. The authors' object has been to provide a trustworthy guide to the allocation of the various parasites to their respective genera. There is an extensive index of generic names and synonyms, an index of specific names, and a copious bibliography. The same publishers will shortly issue a new edition of Professor E. H. Starling's *Principles of Human Physiology*, and the third volume of a new series, entitled *Recent Advances in Obstetrics and Gynaecology*, by Mr. Aleck W. Bourne.

DR. CARLO CHAGAS, director of the Instituto Oswaldo Cruz at Rio de Janeiro, has been appointed professor of tropical medicine in the university of that city.

At the meeting of the Guildford Division of the British Medical Association to be held at the Royal Surrey County Hospital, Guildford, on Thursday next, January 7th, at 4 p.m., Mr. R. P. Rowlands will give an address on the acute abdomen.

The firm of John Wright and Sons of Bristol, founded a hundred years ago, has just issued a centenary souvenir, very elegantly printed and well illustrated, giving an account of the chief events in its history. It has long been the publisher of medical books, but it is, perhaps, best known to the profession through the *Medical Annual*, a very excellent year book, of which the forty-third consecutive issue appeared early last year and was reviewed in our columns last May (p. 845). It prints and publishes also the *British Journal of Surgery* for the committee of surgeons by which that very well got up periodical is conducted. The text and pictures of the souvenir contain an informing sketch of the development of the technical side of printing, and the relation of the firm to medicine is emphasized by pictures of the Bristol Royal Infirmary and the Bristol General Hospital.

The sixth Salon des médecins will be held from March 14th to 24th at 117, Boulevard St. Germain, Paris, for the exhibition of painting, sculpture, engravings, and decorative art by practitioners and students of medicine, dentistry, veterinary science, and their families. Further information can be obtained from the organizing secretary, Dr. Paul Rabier, 84, Rue Lecourbe, Paris, X^e.

PROFESSOR VERTOGEN has been appointed successor of the late Dr. Depage in the Brussels First Surgical Clinic.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9851, 9852, 9853, and 9854** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR of the BRITISH MEDICAL JOURNAL, Antiology Westcent, London.

FINANCIAL SECRETARY AND BUSINESS MANAGER
ate Westcent, London.
ecra Westcent, London.

The **Office of the British Medical Association**
Street, Dublin (telegrams:
Bacillus, Dublin; telephone: 4151 Dublin), and of the Scottish
Office, 6, Drumshugh Gardens, Edinburgh (telegrams: *Associate*,
Edinburgh; telephone: 4361 Central).

QUERIES AND ANSWERS.

INCOME TAX.

Adjustment of Assessment of New Partner.

"G. M. S." entered into a partnership on May 5th, 1925, on the basis of a five-twelfths share, exclusive of prior book debts.

The assessment for the year commencing April 5th, 1925, must be based on the profits of the practice during the three previous years, and will not therefore specifically include either "G. M. S.'s" expenses after May 5th, 1925, or any increased earnings which his work may bring in. His share of the 1925-26 assessment, before deducting his personal allowances, life assurance relief, etc., will be eleven-twelfths of five-twelfths of the amount. He (or his partner) might usefully write to the local Inspector of taxes stating the facts and asking for a note showing how the income tax payable on the 1925-26 assessment should be allocated as between the partners. It is, of course, clear that "G. M. S." may find that he has to pay on more than the net cash received from the practice; that is because he has to account for the tax on his earnings, whether received or not.

TREATMENT OF SPASTIC CONTRACTION IN DISSEMINATED SCLEROSIS.

"PARALYSIS" asks for suggestions for treating a woman, aged 57, suffering from an extreme form of spastic rigidity due to disseminated sclerosis of about ten years' duration. The onset was very gradual, the order of involvement being left leg, right leg, left arm, and now there is increasing diminution in power in the

right arm. The intelligence and general health are unaffected, and syphilis, tuberculosis, and malignancy can be excluded. The pain on the whole has not been very severe, but the pressure and contracture of the left arm over the cardiac region, especially at night, are painful and distressing. Various ingenious pads have been tried. On the form of surgical intervention to giving temporary relief permanent benefit.

There appears to be no published record of surgical treatment for a case of this kind, and possibly systematic massage by a skilled masseuse might give considerable relief. It is important to exclude any cause of local pressure on the cervical cord, since this clinical picture is unusual in disseminated sclerosis, especially the onset at the age of 57.

LETTERS, NOTES, ETC.

DR. A. M. CAYREHILL (Ealing) asks us to state that the credentials of a man giving the name of James Campbell should be examined before money is given to him. He may show a scar of an Eastlander's operation and solicit temporary help.

"IN THE TWILIGHT."

UNDER this title Dr. Duncan Greenlees has recently considered in the *Caledonian Medical Journal* the problem of a steadily enlarging class of sufferers, the "borderland cases." He felt amongst individuals ever since the war a diminished morality, a laxity in all ordinary relationships, and an unhealthy outlook which stands in marked contrast to the healthy and optimistic outlook that previously prevailed. This deterioration he felt expressing itself in the attitude of one country to another—"a sort of political neurasthenia spreading its poisonous germ among the races of mankind who participated in the conflict; a guarded suspicion of each other; an increasing want of confidence in each other's integrity and honesty." In the recent growth of various cults Dr. Greenlees sees evidence of this increasing mental instability, and instances charlatanism outside the profession and faddism within it. He urges the profession whose chief function it should be to educate the public in matters pertaining to their health, actively to combat all such tendencies. From a consideration of these modern "crises" the author proceeds to a study of the approaching march of the psychopathic. He draws attention to the periodicity of such attacks, and regards "psychorhythm" as being observable not only in the alteration of states in the insane and in the borderland cases, but also amongst normal persons—"the ups and downs of normal health." The aggravation in the mental symptoms due to bad physical health or occurring after fatigue is noted, and attention is directed specially to the appearance and recurrence of obsessional states when the subject is suffering from exhaustion. Dr. Greenlees describes the various forms which these obsessions take. For this purpose he divides them into obsessions of indecision, obsessions of fear (the phobias), and obsessions of irresistible impulse; he illustrates his remarks by examples. He considers that the medical man in attendance requires to be temperamentally fitted to undertake the care of such cases, that he must be tactically resourceful, and firm. Removal of the patient from his home and complete freedom from the visits of his friends and relatives is likewise insisted on. The Weir Mitchell treatment, massage, electricity, and dieting are also recommended.

THE ORGANISM OF UNDULANT FEVER.

DR. DANIEL M. MARGUERAT (Malta) suggests that the organism of the disease formerly known as Malta fever might well be renamed "*Bruce's undulococcus*," and that the present title *Micrococcus melitensis*, including its pseudo- and para-varieties should be abandoned, since it is now well known that Mediterranean or undulant fever occurs also in India, South Africa, China, South America, Fiji, and other distant places. The proposed new name for the organism would indicate its discoverer, Sir David Bruce. Dr. Marguerat adds that on December 14th, 1925, the proposed change was suggested to the Minister for Public Health in the Legislative Assembly of Malta.

THE MEDICAL PROFESSION AND UNQUALIFIED PRACTICE.

In a letter in which he expresses dissatisfaction with the conclusions and results of the discussion on the relation of the medical profession to unqualified practice, arranged by the Medical Division, a report of which was published in our issue of December 19th, 1925 (p. 1191), Mr. Paul Bernard Roth, F.R.C. (London, W.1), suggests that before the profession decides on any proper parliamentary action it would be well that an investigation committee should spend a few months in the United States and then draw up a fearless report on osteopathy, regardless of its own prejudices. He proposes that the committee should include a neurologist, an aurist, and an oculist, and be especially interested in the subject.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 8.

THE ABSORPTION AND ELIMINATION OF VOLATILE SUBSTANCES THROUGH THE LUNGS:

ANAESTHESIA, POISONING BY GASES AND VAPOURS
IN INDUSTRY, TREATMENT OF ASPHYXIA.*

BY

YANDELL HENDERSON, Ph.D.,
PROFESSOR OF APPLIED PHYSIOLOGY, YALE UNIVERSITY.

THE art of anaesthesia is usually treated as if its scientific basis were distinct and peculiar. In fact, however, the inhalation of volatile substances, gases or vapours with strong pharmacological actions, is not confined to anaesthesia. We have used illuminating gas in our houses, and have inhaled at least its combustion products for two generations past; and now the motor car adds its exhaust gas to the air we inhale in the streets. Petrol is an anaesthetic, although a poor one.¹ The use of gases in war; the increasing pollution of the atmosphere with the gases and vapours of industry; the use of oxygen in the treatment of pneumonia—all of these are subjects which have points in common with inhalational anaesthesia. I propose in this lecture to refer to such collateral subjects, for the sake of the information and experience that can be extracted from them, throwing light on the art of administering a volatile anaesthetic.

The Importance of Volatility:

It is no mere accident that the substances which we use as anaesthetics for surgical purposes are volatile. There are, indeed, non-volatile anaesthetics, solids and liquids. They find use in experimental work on animals when the subject is not to be kept alive. But with the exception of morphine, which is scarcely an anaesthetic, they are not used to any extent upon patients. Why is it that in general the volatile anaesthetics are preferred to those which are non-volatile? The answer is, I think, that for surgical anaesthesia the patient must be very profoundly drugged—more profoundly than in any other condition for which drugs are used; so profoundly, in fact, that death would almost inevitably follow if the condition were continued for many hours. The fact that the substances used as anaesthetics are volatile enables them to be absorbed extremely rapidly up to the high concentration in the blood necessary for an anaesthetic action upon the nervous system. Their volatility also allows a more rapid elimination than is possible for any non-volatile substance.

Volatility, the property of forming a gas or vapour, is a quality of the utmost importance in determining the physiological effects of substances that may gain entrance to the body, or to which the body may be exposed. Volatility renders a substance capable of entering and leaving the body through the lungs. The differences between absorption and elimination through the lungs, on the one hand, and, on the other hand, absorption from the alimentary canal and elimination through the kidneys, are of far-reaching but not generally appreciated significance. There are in chemistry and physics certain much used principles called the gas laws: the laws of Boyle, of Henry, and of Charles. These laws have no direct bearing upon absorption from the stomach or excretion through the kidneys, and little application therefore to solids and liquids. We do not yet know with any degree of precision the laws controlling absorption from the stomach and intestines and excretion through the kidneys. But the gas laws dominate absolutely, in respect to the absorption and elimination of volatile substances through the lungs, and afford the foundation for the toxicology, the pharmacology, and the therapeutics of gases and vapours.

A substance taken in through the lungs may act so much more rapidly and intensely than when taken in through the stomach that it is hard to believe that the cause in the two cases is the same substance. As an illustration let us take lead. Ordinarily, lead poisoning, as seen in painters,

type-setters, and other trades, is a slowly progressing chronic condition affecting the teeth, the alimentary canal, and some voluntary muscles. Recently it was discovered that a compound of lead with some organic groups, in particular tetra-ethyl lead, which is a volatile liquid, has the property of greatly increasing the efficiency of motor-car engines. The addition of only 0.1 per cent. of this substance to gasoline or petrol is sufficient to alter the character of the explosion in the cylinders of the engine, so as to afford a much smoother working and a possibility of greater efficiency. Following up this discovery a combination of the largest industrial concerns in America undertook to manufacture and sell this material. We sanitarians, who are more interested in the welfare of the human machine than in greater efficiency in motor-car engines, protested that an immense industrial and public health hazard would be involved in such a use of lead; and we have succeeded in having the whole matter referred to a commission for study. But the point that I wish to call to your attention is that at nearly every stage of the development, manufacture, and distribution of this substance there were outbreaks of poisoning. The symptoms of poisoning by this volatile lead compound were, however, quite unlike ordinary lead poisoning. Even physicians with the widest experience in industrial diseases were at first inclined to deny that the fatalities were essentially due to lead. The sequence of symptoms was usually insomnia, visual delusions, and violent mania, soon leading to death. Encephalitis and mania are, indeed, described in the literature, but are seldom seen, as the result of the swallowing of lead. The inhalation of lead dust usually induces the slow form of poisoning. But when lead in a truly volatile form is inhaled the effect is acute, and is primarily upon the brain.²

These facts illustrate the difference between the effects of the absorption of lead or any other substance from the alimentary canal, and absorption from the lungs. It is scarcely possible, or at least exceedingly rare, for absorption from the stomach to be so rapid as to produce simultaneously the same concentration or pressure of a soluble substance in the stomach, in the arterial blood, and in the brain. But we have learned that with a large number of volatile substances the natural and usual relation is that the pressure and concentration of the substance in the lungs instantly produce the same pressure and a corresponding concentration of the substance in the arterial blood, and almost immediately the same pressure and concentration of the substance in the brain. Absorption from the lungs is not only more rapid than from the stomach, but more rapid than from subcutaneous injection, and practically more rapid even than from intravenous infusion.

As regards the elimination of any substance, the lungs are incomparably the most rapid channel. A substance which, even with the aid of diuresis, will be excreted through the kidneys only in the course of days, may be excreted through the lungs within a few hours. The lungs should, therefore, be used for the therapeutic elimination of all harmful substances that are volatile. The method of increasing the volume of breathing so as to obtain a maximal pulmonary ventilation for such therapeutic purposes was described in my previous lecture.

If a further illustration is needed, it is afforded by a comparison of ethyl ether with ethyl alcohol, the latter in the form of Scotch whisky. The pharmacological actions of ethyl alcohol and ethyl ether upon nerve tissue are fundamentally almost the same. But how different are the common uses of the two liquids! How different are the commonly observed effects upon the users induced by the two substances! Alcohol is indeed capable of being burned to some extent in the body; ether is not. But fundamentally it is not this property that produces the differences between the symptoms, the intensity, and the duration of alcoholic drunkenness and ether anaesthesia. Essentially the differences in the two conditions are due to the facts (1) that ether is far more volatile than alcohol, (2) that alcohol is far more soluble in blood than ether, and is therefore less rapidly ventilated out of the blood in the lungs, and (3) that it is customary to take alcohol in liquid form into the stomach, while ether is taken in vapour through the lungs.

* The second of two lectures under the auspices of the Dental Board of the United Kingdom, delivered at the Royal Society of Medicine, London, October 23rd, 1925. The first lecture was published in the JOURNAL for December 19th, 1925 (p. 1170).

Applications of the Gas Laws.

Recently Haggard and I³ have formulated the applications of the gas laws in this field. We have confirmed and amplified the conclusion reached by Cushman.¹⁴ Without attempting to go too much into detail I may here give you a summary of the principles at which we have arrived and which control the absorption, distribution, and elimination of what we may call non-reacting gases. By a non-reacting gas we mean one which is taken up, held, and given off again by the blood and tissue fluids of the body in simple solution, which undergoes no alteration in the body, but is both absorbed and eliminated simply by diffusion from and into the air of the lungs and into the urine. It may or may not have pharmacological action. Examples of such gases are nitrogen, methane, and ethyl ether. The first has been studied by Haldane, Boycott, and Damant,⁴ in relation to caisson disease, the compressed-air illness of deep-sea divers. Ether has recently been investigated from this standpoint by Haggard. The absorption and elimination of such gases depend upon four main factors.

1. The rate at which a gas is absorbed into the body and the amount the body can hold vary greatly according as the gas is more or less soluble. In general, the solubility of a gas in blood is only slightly less than its solubility in water. Its solubility at the temperature of the air in the lungs determines its behaviour. The capacity of the various tissues to dissolve gases varies widely; it is low in bone and often very high in fat; but with most gases the average for the body as a whole is probably nearly the same as the solubility in blood. This, at least, is true of ether, as Haggard has found. The total amount of any gas that the body will take up is dependent both upon its solubility and upon the concentration in the air breathed.

2. The rate of absorption is directly proportional to the concentration of the gas or vapour in the air breathed. The concentration in the air is generally best expressed in milligrams of the substance per litre of air. The concentration that is effective is, however, not exactly the concentration in the air of the room; it is the concentration when the air is warmed to body temperature and saturated with moisture. It is the somewhat reduced concentration under these conditions, as they obtain in the lungs, which induces diffusion into the blood passing through the lungs. At the saturation point the total amount of the gas in the body is directly proportional to the concentration in the atmosphere, with which the blood and body as a whole have come into equilibrium. From twice as high a concentration the body will absorb twice as much of the gas.

3. The third factor determining the rate of absorption is the pulmonary ventilation. It depends upon the volume of air breathed, and the amount of the gas thus brought into contact with the blood in the lungs, but not that which merely enters the dead space. As we shall see, respiration is particularly important in respect both to absorption and elimination in the case of quite soluble gases and vapours, such as ethyl ether; but it is comparatively unimportant in respect to relatively insoluble gases, such as nitrogen.

4. The circulation is the fourth factor, and is largely determinative of the rate of absorption and elimination of gases of relatively low solubility, while for such gases respiration plays a comparatively small part. Thus a condition which would double the volume of air breathed per minute would only slightly affect the entrance or exit of such a gas, so long as the circulation remains constant. But if the circulation were doubled, so that twice as much blood would flow through the lungs each minute, even with respiration unchanged, the rate of absorption and elimination of such a gas would be nearly doubled.

For the various factors concerned in these processes and conditions we use the following symbols:

L = Effective pulmonary ventilation in litres per minute—that is, respiration minus the volume of air which merely enters the dead space.

C = Concentration of the gas in milligrams per litre of inspired air, when warmed to body temperature and saturated with moisture as it is in the lungs.

K = Coefficient of distribution of the gas between equal volumes of lung air and pulmonary blood. For ordinary conditions complete and instantaneous equilibrium between arterial blood and lung air may be safely assumed. Thus, if for a certain gas such as the

vapour of ethyl ether K is 15, this figure means that there is always in the blood leaving the lungs, and in the arterial blood, 15 times as much of that gas in one litre of blood as in one litre of alveolar air; and that this holds true alike during absorption, equilibrium, and elimination of the gas.

G = The volume of blood, expressed in litres or kilos, in active circulation in the body—in other words, the effective blood volume at the time.

B = Circulation, defined as the number of litres or kilos of blood flowing through the lungs in one minute.

A_c = Concentration of the gas in the arterial blood in milligrams per litre.

V_c = Concentration of the gas in the mixed venous blood in the right heart in milligrams per litre.

W = Body weight in kilos.

Using these symbols we derive the following expressions:

(1) LC = the amount of the gas inhaled into the lungs per minute.

(2) $LC \times \frac{L}{BK + L}$ = amount of the gas again exhaled from the lungs per minute.

(3) $LC \times \frac{BK}{BK + L}$ = amount of the gas absorbed per minute into the blood, before any of the blood completes the round of the circulation, and returns to the lungs from the venous side—that is, the initial rate of absorption.

(4) $\frac{LCK}{BK + L}$ = amount of gas in milligrams absorbed per litre of blood flowing through the lungs.

(5) $\frac{LCKG}{BK + L}$ = amount of gas absorbed during the first complete circulation of the blood, which is accomplished in the time $\frac{G}{B}$, a period less than one minute even during bodily rest.

(6) $\frac{LCKG}{BK + L} \times \frac{G}{W}$ = amount of the gas brought back to the lungs by the venous blood during the second round of the circulation.

The amount of the gas which the blood brings back to the lungs from the venous side is added to that which the breathing takes into the lungs, and the sum of the two quantities is distributed between the arterial blood and the expired air in accord with their relative volumes and with the coefficient of solubility. The distribution is always in the ratio $BK : L$.

These expressions signify that during absorption the arterial blood contains at first far more of the gas or vapour than the venous blood. But as the inhalation of a constant concentration of a gas in the air continues, the concentrations in the arterial and venous blood gradually approach the same value—namely, that of saturation for the concentration of the gas in the air. At all times the mixed venous blood flowing back from the body contains an amount of the gas per litre which is the same as the average concentration in the body as a whole at the moment (in milligrams of the gas per kilo of body weight). During absorption, therefore, especially in the earlier stages, the concentration in the venous blood is far below that in the arterial blood. During elimination, on the contrary, the venous blood has a concentration which is the average of the concentration in the body as a whole, while that of the arterial blood is lower than the venous by the fraction thrown off in the breath. Thus

(7) $V_c \left(1 - \frac{L}{BK + L}\right) = A_c$, the arterial concentration during elimination.

The amount of any gas that the body will hold is defined by the expression:

(8) CKW = amount of gas in the body at equilibrium with C in the air.

Evidently the maximum amount of a gas that can be absorbed is not a fixed absolute quantity, but is proportional to the concentration of that particular gas in the air. When respiration and circulation remain uniform and normal, the rate of absorption is such that, if a certain percentage of saturation is taken up in one minute, the same percentage of the remaining unsaturation will be absorbed in the second minute, and so on thereafter. Thus if saturation be taken as 100 and if 1 per cent. of this amount is absorbed in one minute, 1 per cent. of 99 will be absorbed in the second minute; and 1 per cent. of 98.01 in the third minute, and so on. The absorption is thus comparatively rapid at

first, then slower, and finally infinitely slow. It is not practical, therefore, to determine the time when equilibrium of intake and elimination will be reached, but it is often convenient for purposes of calculation to use the time required to reach 50 per cent. saturation, $\frac{CKW}{2}$, or some other percentage of saturation.

If we let t_x represent the time required to reach the percentage of saturation x , we may calculate this time in minutes by means of the expression

$$(9) \quad t_x = \frac{2.3 \times W(BK + L)}{LB} \log \frac{1}{1-x}.$$

The use of the half-saturation time, or the time of any definite percentage of saturation, is particularly convenient because it is the same for all concentrations of any one gas, so long as respiration and circulation are uniform. But the greater the solubility of a gas, the longer is the time required to reach half-saturation, and the greater the absolute amount constituting half-saturation.

For an average human adult at rest with normal volume of respiration and circulation, the time of half-saturation for a gas or vapour of $K=15$, such as ethyl ether, is about two and a half hours, while for one of $K=0.014$, nitrogen, it is about seven minutes, and for 90 per cent. of saturation about twenty-two minutes. For a child, owing to the more active metabolism and greater relative volume of breathing and circulation in relation to body weight, the time required to reach half-saturation, or any other definite percentage, is correspondingly less. The same relation holds true in an adult when respiration and circulation are increased by exercise, or by the pharmacological action of the gas itself, or in any other way.

The absorption of any absolute amount of gas—for example, the anaesthetic amount of ether—is effected very slowly when a low concentration of the gas is inhaled, but with a far more than proportional rapidity when the concentration in the air is high. The rates of absorption are not expressed by straight lines, but by exponential curves, which rise rapidly at first and then more and more slowly. In the absorption curves of all concentrations of a given gas points having equal abscissae have ordinates which are proportional to the concentrations. An absolute amount in millilitres may therefore be only a relatively low percentage of the saturation limit (CKW) of a high concentration, but a high percentage of the limit, or even exceed the limit, for a low concentration.

The influence of respiration, circulation, and the solubility of the gas upon the time required to reach 50, or any other, per cent. of saturation is expressed by the formula:

$$(10) \quad \frac{t_x}{t'_x} = \frac{\frac{BK+L}{LB}}{\frac{B'K'+L'}{L'B'}}.$$

Using this formula and substituting various values of K , so as to see the effect that solubility has, not only on the rate of absorption but also on the parts played by respiration and the circulation in effecting absorption, we reach results of great utility. Thus with a gas of a solubility as low as 0.01, even a doubling of the respiration scarcely affects the rate of absorption or of elimination, while a doubling of the circulation of the blood induces a nearly proportional increase of the rate of absorption and elimination. On the other hand, with a gas of solubility 10, alterations of the circulation of the blood have an entirely negligible effect, while the rates of absorption and elimination rise and fall almost in proportion to the volume of respiration. This is shown in the following table.

	B=B'=1.		L=L'=1.	
	L=1.	L'=2.	B=1.	B'=2.
K=0.01	$\frac{1.01}{1}$	$\frac{2.01}{2}$	$\frac{1.01}{1}$	$\frac{1.02}{2}$
"				
K'=10.0	$\frac{11}{1}$	$\frac{6}{1}$	$\frac{11}{1}$	$\frac{21}{2}$

Irritant Gases.

From the standpoint of a physician interested in industrial diseases, and from the standpoint of the use of gases in war, the irritant gases have a peculiar importance. For us, in connexion with the topic of this lecture, irritation of the lungs is chiefly of interest because it occasionally follows ether anaesthesia. Ether vapour in high concentration is well known to be an irritant. If, then, sufficiently large amounts of ether are to be introduced into the lungs without resorting to very high concentrations in the inhaled air, there is obviously only one way to effect the purpose. This is by increasing the volume of air breathed by means of an inhalation of carbon dioxide as a preliminary to the initiation of anaesthesia.

The laws of absorption which we have just now considered teach us that if the ventilation of the lungs is increased to twice its ordinary amount, and the concentration of the inspired ether vapour is reduced to one-half, we may induce the absorption of the same amount of ether as is effected by a small volume of breathing and a high concentration of the vapour in the inspired air. The first combination avoids the irritant action of ether on the lungs, the second subjects the patient to it.

In general the effects of the irritant vapours follow a law worked out in my laboratory by Haggard.⁵ This law is that the more soluble the gas the more it attacks the upper respiratory tract; the less soluble it is the more liable it is to act chiefly upon the deeper parts—the bronchi and the lungs. The more soluble substances, such as ammonia, are largely absorbed on the damp walls of the nares, pharynx, larynx, and trachea. They also excite the respiratory reflexes of coughing and closure of the glottis; and the lungs are thus protected. With substances such as phosgene and the higher oxides of nitrogen the comparatively slight solubility and relatively slight immediate irritation allow the chief action to be effected in the lungs themselves. So the patient may feel quite well for some hours afterward, and then develop an acute pulmonary oedema and die on the slightest exertion.

The nature of pulmonary congestion and oedema is still obscure, and the causal connexion of anaesthesia and post-operative pneumonia is not wholly clear. I suspect that if the lungs of patients were regularly examined every few hours for a day or two after anaesthesia, râles and other indications of irritation would be found in a considerable proportion of cases, even among those who fortunately recover without developing pneumonia. It is well recognized, as the result of observations on gassed soldiers during the war, that asphyxia is a consequence of the congestion and oedema of the lungs induced by irritant gases. It is not generally realized that the opposite relation is also possible, and that asphyxia, even partial asphyxia, may induce severe pulmonary effects, even when the gas causing the asphyxia has in itself no direct irritant action whatever. Thus it was found by David⁶ that mere oxygen deprivation by excess of nitrogen may induce pulmonary congestion in animals. We have found that in dogs slowly asphyxiated with carbon monoxide the congestion of the lungs may be so acute that a lobe of lung is scarcely distinguishable at first glance in its density and colour from a lobe of the liver, so intense is the congestion. Yet it is absolutely certain that carbon monoxide is entirely devoid of direct irritant action.

Of course, pneumonia following anaesthesia is a bacterial infection; but without a predisposing disturbance of physiological conditions the lungs would resist the invasion and infection. We cannot assign with certainty the relative importance of such factors as the chill induced by ether, when volatilized on an open mask, the irritation induced by highly concentrated ether vapour in the lungs, the anoxaemia and acapnia, and the slow emergence from coma, all characteristic of a vast number of anaesthetics. But this aspect of the matter I would emphasize: that all of these hazards may be eliminated together by the procedures described in my previous lecture.

Carbon Monoxide Asphyxia.

I cannot urge too strongly that the study of anaesthesia, at least with volatile anaesthetics, is merely a branch of

a larger subject—that of gases and vapours in their physiology, toxicology, therapeutics, and industrial and sanitary aspects. Sanitary science has a vast fund of knowledge regarding foods, water supplies, and corresponding subjects; and this knowledge is now extensively applied. But it is only recently that pollution of the air that we breathe has begun to receive adequate consideration. My reason for directing attention to this matter now is that all phases of the physiology of gases are mutually contributory. Anyone interested in the volatile anaesthetics will profit by including some acquaintance with the industrial gases. So I propose to devote the remainder of this lecture to certain aspects of carbon monoxide as it now affects the lives of all civilized men.

It is well established that the number of deaths each year in any city due to its illuminating gas rises in direct proportion, or even in more than direct proportion, to the amount of carbon monoxide in the gas. In those cities where coal gas of low carbon monoxide content is supplied asphyxiations are few. In New York City at the other end of the scale, where the gas contains nearly 30 per cent. of carbon monoxide, the number of deaths from carbon monoxide asphyxiation runs up toward 500 a year. A part, but only a part, of this mortality is suicide; the despondent New Yorker turns on the gas, just as a despondent Londoner jumps into the Thames.

In recent years the automobile has enormously increased our exposure to carbon monoxide. But knowledge has been accumulated now which we may at least hope will provide the basis for much needed reform. In America tunnels are being introduced, particularly in New York, where the Hudson River is nearly three-quarters of a mile wide; too wide for bridges and inconvenient for ferries. The ventilation of such a tube, with a double line of vehicles moving through it, raised special problems. The chemical aspects of these problems were referred to Mr. A. C. Fieldner⁷ of the United States Bureau of Mines, while the physiological aspects were referred to me for investigation. Mr. Fieldner and I, and our co-workers, developed a standard for tunnel ventilation, which has been adopted, not only in America but also in England, on the advice of Dr. J. S. Haldane, for the tunnel to be constructed under the Mersey River at Liverpool. Experience in a similar tunnel at Pittsburgh, Pa., has now demonstrated the safety of this standard, and the danger (before ventilation was installed) in failing to maintain it.

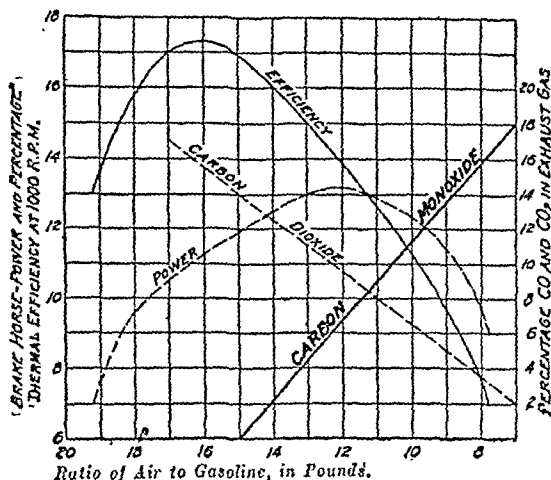


FIG. 1.—Showing the relation of carburettor adjustment in the ratio of air to gasoline (petrol) to efficiency, power, combustion of fuel, and amounts of carbon dioxide and carbon monoxide produced in an automobile engine.

The sum and substance of Fieldner's very extensive tests on a large number of passenger cars and trucks are summarized in Fig. 1. It shows at a glance the general behaviour of the motors now used in automobiles and the extent to which the fuel is consumed. Roughly, in any one car, the distance travelled, the number of strokes of the engine, and the amount of air drawn into and discharged from the cylinders are proportional quantities. So

the greater the amount of fuel in proportion to air—that is, the richer the mixture to which the carburettor is set, the greater the fuel consumption per mile and the less the efficiency. Unfortunately the richer mixtures afford greater power, especially for starting and hill climbing; and carburettors are usually set to deliver a pound of fuel for each 12 lb. of air. If the manufacturers and the owners of motor cars were truly interested in saving fuel the engines could be adjusted to an efficiency requiring only 1 lb. of fuel to each 15 lb. of air. The saving of fuel would amount to 20 or even 30 per cent.

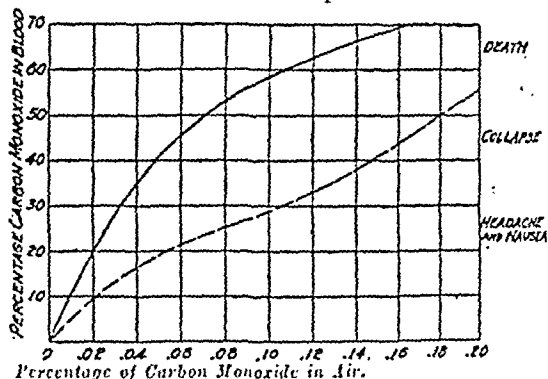


FIG. 2.—Showing the carbon monoxide dissociation curve of blood (solid line) and the percentage saturation after one hour in various concentrations of the gas (broken line).

We might leave this whole matter to engineers for solution, except for the fact that it also involves a health hazard which is reaching serious proportions. With a full supply of air the combustion in an explosion engine may be nearly complete; its products in that case are carbon dioxide and water vapour. With the excessively rich mixtures habitually employed the combustion is, on the contrary, extremely incomplete; one-third of the fuel value is unconsumed. Thus, as shown by the straight lines which cross in the figure, the proportion of carbon dioxide decreases rapidly and that of carbon monoxide increases rapidly with the richness of the mixture. As we see in the figure, exhaust gas usually contains about 6 per cent. of carbon monoxide, an amount which, if discharged in any quantity into a confined space, is intensely poisonous. It is not merely this concentration, but rather the absolute amount of carbon monoxide that is important. The amount is approximately 1 cubic foot per minute for each 20 horse-power. This means that from even the smallest car commonly used in America there is enough carbon monoxide to render the atmosphere of a small closed garage of 10 by 10 by 20 feet deadly in less than ten minutes. As is well known, the victims of carbon monoxide poisoning often lose the power to stand or walk before any other symptom warns them of their danger. Neglect to open the garage doors before starting a car is thus an increasingly common cause of death in spite of extensive public warnings.

In the physiological part of the investigations we first studied in detail the fundamental matter of the combination which carbon monoxide makes with the haemoglobin of the blood and the general nature of carbon monoxide asphyxia. Our observations verified in every detail the fundamental work of Haldane. We then proceeded to determine the rate at which men and women exposed to atmospheres contaminated with exhaust gas will absorb carbon monoxide, and the physiological effects of various amounts for periods of one hour.³

The results of these investigations are expressed graphically in Fig. 2. Here the upper curve is the well known theoretical dissociation curve of carbon monoxide and haemoglobin in the presence of air; the lower curve expresses very practical information as to the approximate percentage of saturation that a man will develop in one hour, if he is sitting still in an atmosphere containing the amount of carbon monoxide shown in the scale below the abscissa. This curve and the scale are drawn for a normal volume of breathing. If respiration were doubled these percentages of saturation would be attained in half an hour.

and the curve would therefore represent the percentages of saturation attained in this time by a man breathing air containing the amounts of carbon monoxide indicated.

On this basis I recommended 0.04 per cent., or 4 parts of carbon monoxide in 10,000 of air, as the maximum concentration allowable in air to be breathed for such a period as that required to pass through the Hudson River tunnel, a period probably of a quarter to half an hour. As this standard has been very widely adopted, it is important that I should emphasize the fact that it applies only to quite short periods of time. Any standard for the contamination of air with carbon monoxide must specify, not only the amount of carbon monoxide, but also the time of exposure. Thus the full sanitary rule which we developed is as follows: When the time of exposure is measured in hours and the concentration is measured in parts of carbon monoxide per 10,000 of air, then if the product of the time multiplied by the concentration equals 3, no perceptible physiological effect results. If the product equals 6, there is a just perceptible effect, perhaps a slight headache and lassitude; if it equals 9, severe headache and nausea result; if it equals 15 the condition is dangerous; if it rises above 15, the conditions are such as will be quickly fatal. If the subject is making any muscular exertion and his breathing is increased, the figures for the products of time and concentration that are comfortable and safe are reduced from 3 to 2, or 1, or even less; for the rate of absorption varies directly with the volume of the breathing.

Conditions in Streets and Garages.

With this rule in mind we proceeded to determine the extent of the contamination of the air in the streets of New York City, where traffic is congested.⁹ The general results of our investigations show that concentrations of 1 part of carbon monoxide in 10,000 of air are rather common, and indicate that the conditions in crowded streets are on the verge of being definitely injurious for persons who are exposed in them for many hours. In garages the conditions are often far up in the scale of unhealthiness, and headaches are common.¹⁰ The conditions in assembling and repair shops are much worse; indeed, they are so bad that the mechanics have severe asphyxial headaches, often accompanied by nausea and extreme unreasonableness of temper, several times each week. Altogether the automobile trade in America is one of the most unhealthy in modern industry.

To a considerable extent these conditions are unnecessary. The carburettors and engines of cars could be adjusted so as to conserve fuel and decrease the amount of carbon monoxide produced. While Governments are gravely considering the world's dwindling supply of petroleum, the manufacturers of cars have as yet done little to help in overcoming the serious health hazard involved in the wasteful consumption and incomplete combustion of petroleum products. It is, indeed, surprising that when all automotive engineers know that a slight change and a negligible increase of cost would effect such great improvements, conditions are allowed to continue as wasteful and as unhealthy as they are in America now. Owing to the general use of less highly powered cars here in Great Britain conditions seem to be distinctly better. In my opinion, the high tax here of £1 per year per rated horsepower is a measure of distinct sanitary advantage.

Pending more fundamental improvements, there is a device by which the air in streets, and especially the conditions in garages and repair shops, could be greatly improved. This device is the so-called vertical exhaust. It involves merely a continuation of the exhaust pipe vertically upward at the back of the car so as to discharge the exhaust gases upward out of the level at which we inhale air through our noses and mouths. A vertical exhaust pipe is in effect merely a chimney. To discharge exhaust gas below a car in the manner now customary has the same disadvantage that would be produced if all stoves and furnaces were vented through basement windows. It is just as important to employ the ancient device of the chimney upon motor cars as it is upon locomotives and other engines. Although exhaust gas is a relatively colourless form of smoke, its constituents are actually more toxic

than are those of most of the smoke produced from the burning of coal. I believe that, with the increasing use of cars, vertical exhaust will ultimately be required, at least on all city taxicabs and omnibuses.

The Elimination of Carbon Monoxide from the Blood.

Finally, I wish to return for a few minutes to a topic to which I referred also in my previous lecture: the treatment of acute carbon monoxide poisoning. Within a few hours after profound but not fatal poisoning with carbon monoxide no trace of the gas is found in the blood. It has been eliminated through a reversal of the process through which it was absorbed. And yet for days, months, and even for life, structural degenerations and functional derangements, usually either nervous or cardiac, may continue. They are the sequelae of the injury wrought by oxygen deficiency and its concomitants, while the gas was still in the victim's blood.

The investigations to which I have already referred drew our attention to the question of the rate at which the gas is eliminated. Haggard and I¹¹ thus came upon a point which had previously been overlooked and which suggested the therapy—perhaps it should rather be called a prophylaxis—which has come into extensive use. We had previously determined the rate of elimination of carbon monoxide in men who had reached saturations of 20 or 30 per cent. Haldane has recorded the rate of elimination after saturations of 40 or even 50 per cent. His data and ours both indicate an elimination during the first hour of about one-half the amount of carbon monoxide previously absorbed. No one, however, had studied the rate at which carbon monoxide is eliminated during the first hour or two after a gassing which has produced a saturation of the blood of considerably more than 50 per cent. with coma and its accompaniments. There is a fundamental difference between the behaviour of subjects gassed to the point of coma and that of those in whom the saturation does not exceed 50 per cent., and the duration of exposure is not prolonged. Under the latter conditions the subjects breathe practically normal volumes of air, and their metabolism at most is only slightly perverted.

Our observations on subjects more profoundly poisoned soon showed that when the degree of saturation of the blood rises to figures above 50 per cent. and definite asphyxia is threatened, there is excessive breathing which markedly reduces the body's store of carbon dioxide. We found that when the victim is afterwards removed from the poisonous atmosphere the breathing, lacking its normal stimulus, remains at a very low level for an hour or more. The body lacks the carbon dioxide needed to maintain an efficient ventilation of the lungs. The elimination of carbon monoxide during this time is therefore very slight. Although the body is surrounded by fresh air the asphyxiation continues within the tissues. Even the administration of oxygen has no great effect, for it is not adequately inhaled. Until a sufficient amount of carbon dioxide is reaccumulated in the blood and tissues efficient breathing does not return, and the injurious conditions within the living cells of the nervous system and heart are thus continued long after the body is surrounded by pure air. When, as in our experiments, the period of gassing is brief but acute, most of the asphyxia, during which the harm is wrought, probably occurs after the subject is removed from the poisonous atmosphere. It is largely during this time that the autolytic and necrotic processes are so intensified as to be thereafter irreversible. Evidently the abbreviation of the post-gassing period of depressed breathing and its continued asphyxia are of critical importance in preventing permanent damage.

Dogs were used in our experiments. They were placed in a glass-walled gassing chamber through which was passed a current of air and enough city illuminating gas to produce a concentration of 0.3 to 0.4 per cent. of carbon monoxide. Up to the point of unconsciousness the picture presented by the subjects resembled closely that of slow anaesthesia with ether. At first the animals were restless, then a stage of excitement set in, followed by muscular weakness. Respiration became more and more vigorous, culminating as coma developed in violent and prolonged hyperpnoea.

After five or ten minutes of unconsciousness the animals were removed from the gassing chamber, and at frequent intervals thereafter for a couple of hours small samples of blood were taken and analysed for carbon monoxide. The experiments fall into four groups: (1) those in which the subjects were allowed to recover spontaneously; (2) those in which they were made to inhale oxygen; (3) those in which they were made to inhale air to which 8 to 10 per cent. of carbon dioxide had been added; (4) those in which they were made to inhale oxygen containing 8 to 10 per cent. of carbon dioxide.

The results of these four groups of experiments are shown by the curves in Fig. 3. It is here seen that animals left

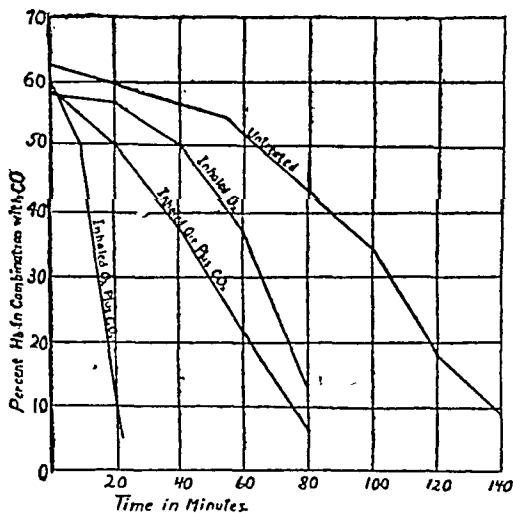


Fig. 3.—Showing the rate of elimination of carbon monoxide from the blood in dogs, (a) untreated, (b) under inhalation of oxygen, (c) air and CO₂, (d) oxygen and CO₂.

to recover spontaneously have a very slow rate of elimination during the first half or three-quarters of an hour. In those treated with oxygen the elimination is at first scarcely more rapid, for the animals do not breathe any better; indeed, in some cases they breathe even less when oxygen is administered than when they are left to recover spontaneously. Such slight benefit as pure oxygen affords is seen in the greater rapidity of elimination in the latter part of the first hour, or the first part of the second hour. With inhalation of air and carbon dioxide, as in the third group of experiments, the curve starts downward immediately and falls in a practically straight line. This is due to the increased respiration, which provides sufficient fresh air to start the elimination of carbon monoxide immediately. Finally, the fourth curve shows that under inhalation of oxygen containing carbon dioxide the blood of the subjects was practically freed from carbon monoxide within twenty minutes. The augmented breathing and high concentration of oxygen together rapidly displace carbon monoxide from the blood.

Later we were able to follow essentially the same sequence of events in the human victims of gas poisoning.¹² Both the hyperpnoea during gassing and the depression of respiration after removal from the poisonous atmosphere were verified. The slow elimination during the first hour or two has been verified in patients who received no inhalation, while, on the contrary, rapid elimination was found in all cases where a mixture of oxygen and carbon dioxide was administered. The mixture generally employed is 5 per cent. carbon dioxide and 95 per cent. oxygen. This treatment has now saved a large number of lives, and has come into very general use in America. In two respects its benefits have exceeded even our hopes. It seems to prevent the subsequent development of pneumonia, a fact which is probably due to the overcoming of the initial pulmonary congestion. The treatment has also proved capable of effecting complete restoration without subsequent nervous sequelae even in patients gassed for considerable periods. Its most brilliant successes, however, have followed applications to men who have been gassed acutely but for short periods of time, as in the case of workmen exposed to the

fumes from blast furnaces, or those overcome by illuminating gas while working in a sewer or a trench in the streets, or men in the city fire brigade, who, as they say, have been "eating smoke" while fighting a fire. In such cases the subject may have been not only unconscious, but so nearly dead that artificial respiration was necessary at the beginning of the inhalation, and yet after fifteen or twenty minutes' inhalation he is in many cases not only conscious and breathing naturally, but able to get on his feet and go back to work.

In preparing for the treatment of poisoning by the various gases and vapours of modern industry the question sometimes arises whether to provide cylinders containing the mixture of oxygen and carbon dioxide, or merely carbon dioxide to be mixed with air as it is wanted. For all those volatile poisons which cause the blood to be deficient in oxygen, inhalation of oxygen and carbon dioxide is superior to air and carbon dioxide. But the intoxications which cause no oxygen deficiency can be treated with air and carbon dioxide quite as effectively as with oxygen and carbon dioxide, and infinitely better than with oxygen alone, as in the past. Even for treating asphyxial cases in some industries here in Great Britain, air and carbon dioxide probably offer some important practical advantages over oxygen and carbon dioxide.¹³ Carbon dioxide is relatively cheap, and the supply of one cylinder lasts much longer than a cylinder of oxygen and carbon dioxide. For the many non-asphyxiant volatile toxic substances to which modern man exposes himself (for example, various alcohols, petroleum products, benzole, etc.) air and carbon dioxide are the logical and effective antidote. The aim is to stimulate the breathing of the patient, and to maintain it for an hour or more at such a large volume as will ventilate the poison out of the blood by way of the lungs, and thus clear the body and especially the brain. Oxygen does not stimulate respiration; carbon dioxide does.

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CHANGE OF TENSION ON THE LENS CAPSULES DURING ACCOMMODATION AND UNDER THE INFLUENCE OF VARIOUS DRUGS.*

BY

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A PATIENT came in 1924 wearing glasses for his one sound eye. I questioned him about the other eye which does not, unaided, possess useful sight; no evidence of the presence of a lens can, by ordinary methods of examination, be seen in this eye which has absolutely clear media and normal (6/5) vision with a plus 14 lens. The slit-lamp reveals the following features: A tiny scar-track (C, Fig. 1) through the cornea; at the bottom of the anterior chamber a tiny brown spherical object (X) which is doubtless an encapsulated or partially disintegrated minute foreign body; a minute prick (K) in the pigment-layer of the iris at the pupil-margin opposite the corneal scar; and finally, opposite this, a small rather oval hole (a) in an absolutely clear and otherwise intact anterior lens-capsule (A). The posterior lens-capsule (P) is equally clear and wholly intact, and vestige of lens-matter remains between these two clear, and thin capsules: it has all dissolved out with a completeness

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which may be appreciated by the fact that the media are absolutely clear to careful examination with the retinoscope or even to close focused examination with the direct electric ophthalmoscope and its *plus* 12 to *plus* 20 lenses.

Aqueous fluid occupies the intracapsular space which is thrown into communication with the anterior chamber by means of the small hole in the anterior capsule.

My full notes on this case are in England and I have written this paper from an abstract which I have brought with me to America. I cannot now give exact measurements which are of no particular importance, but as far as I can calculate from some of the data in this abstract the elliptical corneal scar measures at the endothelial face about 0.6 mm.; and the hole in the anterior lens-capsule about 1.5 mm.

The patient said he was 31 years of age when, as seems probable, the eye was injured in 1917. He stated that in 1917 he knocked his forehead on a piece of furniture at home and noticed next day that he could not see properly with his left eye. He went to his doctor who treated him in a general way for about

eight weeks. After that the patient sought ophthalmic advice and overheard the remark, made in discussion of his case, that "his lens must be dislocated but it was peculiar that it could not be seen anywhere." I mention this to emphasize how clear are his media by ordinary methods of examination. When I questioned him he recollected that some time before the incident of knocking his forehead, to which hitherto he had always attributed the impairment of vision in his left eye, he was chipping a piece of metal and felt a slight sudden prick in his eye. He thought his companion then removed a small foreign body. It would therefore seem clear that some eight years ago the patient sustained a penetrating injury by a very small object which, after passing through the cornea, perforated the pupil-margin and the anterior lens-capsule, but reached no deeper; in all probability a minute penetrating foreign body, having pricked the pupil-margin and the anterior lens-capsule, fell to the bottom of the anterior chamber there to lie behind the periphery of the lower part of the cornea. The blow on the forehead was incidental and served only to draw the patient's attention, for the first time, to the insidious dissolution of the lens-substance which had resulted from a previous small injury. It will be noted that the injury, though one of serious consequences, was from a mechanical point of view slight, ultimately leaving an eye which was devoid of all intracapsular lens-material but was otherwise practically normal. There is no adhesion and no pigmentary disturbance—for example, there is no vestige of pigmented or other deposit on the anterior lens-capsule—nor any abnormality of the corneal endothelium to suggest former inflammatory trouble. The visibility of the homogeneous beam of the aqueous fluid (examined according to the technique specified in "The Outstanding Beam of the Aqueous Fluid," *American Journal of Ophthalmology*, January, 1925) is normal. The case is probably unique in that not only has all intracapsular lens-material disappeared without any sign suggestive of past inflammatory trouble, but nowhere is there any proliferation of the capsular epithelium, nor is there any other change which would render these perfectly transparent thin capsules in any way abnormal save for the small hole in the anterior one.

The two thin capsules are reluctant and so the narrow slit-beam shows as two white stripes where it traverses them; thus slit-lamp examination reveals not only the presence of both capsules, but also their exact configuration. The capsules can be made tense and flat if the patient is told to look in the distance, or quite lax and distorted if he is told to look near. When a mydriatic is given the capsules become so tense and flat that, by slit-lamp observation methods, each is seen to be capable of acting as a plane mirror. The observations which I have recorded include the influence of various drugs on the state of tension of

the capsules and on the ability of the patient to render the capsules lax by a voluntary effort when the eye is subjected to the progressing cumulative influence of the drugs.

It should be explained how the slit-lamp effects were interpreted. When the slit-beam passes through a plane where the refractive index changes, for example from air to glass or from glass to air, a visible stripe is produced at the demarcation-face. If the face is flat the stripe is straight, no matter what may be the angle of incidence, to the face, of the illuminating beam or of the axis of observation. If the face is distorted the stripe is correspondingly distorted to an extent which is revealed with greater evidence the more obliquely inclined to the surface is the vertical plane of the ribbon-like slit-beam.

The contour and position of the lens-capsules of this patient are readily ascertained by study of the contour and the distance of separation of the two stripes produced by the accurately focused narrow slit-beam. When the capsules are tense and flat the stripes are parallel and straight (Fig. 2); and if now the eye is disposed so that the normal to the capsules bisects the angle embraced by the axes of illumination and observation each capsule, thus viewed by direct illumination along the axis of specular reflexion, may be seen to be so flat as to act as a plane mirror. As these capsules become lax the stripes are no longer straight, and with increasing laxity they become distorted and wrinkled so that, at all angles of observation, they show specular reflexes here and there off the summits or valleys of the component curves of individual wrinkles. In addition, with increasing laxity, the distance separating the capsules undergoes considerable increase.

Theoretically it is simple, by use of a micrometer ocular, to calculate the exact antero-posterior distance at any time between the two capsules, as being the ratio of the apparent distance to the sine of the angle embraced by the axes of illumination and observation; but sources of error tend to make this precise calculation unreliable and I omit it. Intermediately, when just short of being quite tense, the capsules are practically plane and though they show no wrinkles they may display fine vibration which, however, disappears when they become truly tense.

The ordinary state of these capsules—representing an average based on the results of many examinations in which the patient was given no special directions as to how or where he should direct his gaze—is as follows: They are usually slightly lax; the anterior is usually slightly convex forward; the posterior is usually a little wrinkled and more mobile. When wrinkled and lax the posterior is separated from the anterior capsule by a distance which varies. At times it will float forward displaying undulatory variations of its wrinkling so that it touches, especially in its centre, the anterior capsule (Fig. 3 (a)); at other times the distance separating the two capsules is greater (Fig. 3 (b)). Posture, as far as the apparatus permits of its variation, seems to have no influence on the laxity or disposition of the generally laxer posterior capsule—for example, its state does not seem to be influenced by a downward inclination of the patient's gaze.

When the patient is told to look in the distance the capsules straighten: they may not always go quite so straight and taut as they do when, in the manner described later, a mydriatic is given.

Sometimes, as the patient looks into the distance, the anterior capsule is very slightly curved forward and the posterior, not quite taut, lies close up behind it; at most times they both become quite straight and parallel (Fig. 2) as he looks into the distance. It should be added that these observations were made in a small dark-room and the patient's efforts at distant vision comprised no more than fixing his gaze on the faintly illuminated wall which was

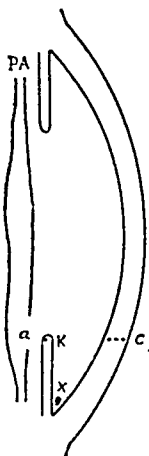


FIG. 1.



FIG. 2.

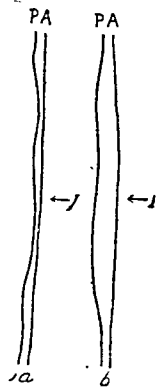


FIG. 3.

not very far off; or else, with the room even darker, mentally concentrating his ideas on an unseen distance.

When he is told to look at a close object—for example, the microscope which he is facing—both capsules go noticeably lax, the posterior more than the anterior. The anterior may reveal no more than a few general wrinkles and some undulatory vibration; but the posterior undergoes marked relaxation, displaying not mere wrinkles but folds, so that it falls back like a slack sail lying edgewise to a wind, receding in its slackness from the anterior capsule (Fig. 4).



FIG. 4.

I do not know whether the separation of these capsules, when they are thus relaxed, signifies a transient negative pressure in the vitreous as the result of alteration of the volumetric capacity of the vitreous chamber brought about in some way by a change of shape of the ciliary muscle; on the other hand, it may be, as would seem more likely, that there is a free communication, through the fibre-gaps of the suspensory ligament, between the anterior vitreous fluid in the retrolental space and the fluid in the anterior chamber. As, however, the slit-lamp observations on this particular point which in the main are only a matter of surmise, I will not discuss it here but will confine this report to those observations whose results have led to definite conclusions. It may, however, be pointed out that the purposeless undulatory motions to which this posterior capsule is subject when it is very lax—as when under the influence of eserine—suggest that the fluid immediately behind it probably has no greater viscosity than that which is in front of it.

Tests repeated over and over again show that every time the region—for example, the lids—of the other eye is touched or pressure is made on the other eye, both anterior and posterior capsules of this affected eye at once go very lax—more lax than they become under the simple voluntary effort of looking near. I also found the same reaction on touching the lids of the affected eye under observation. I suggest that perhaps this indicates an automatic reaction of the accommodation mechanism which may be part of some general response to the primitive needs of protection in connexion with detecting the close and unexpected approach of objects. This very definite reaction tends to tire and become less marked, so that after the stimulation has been repeated twenty to forty times in close succession the response may cease, only to reappear after the patient has been given a period of rest. When this reaction is first tried, even the anterior capsule shows pronounced relaxation, bulging forward to an extent which, sometimes tending to approach that caused by eserine, reveals a much greater degree of relaxation than that caused by a simple voluntary effort of looking near. I ultimately found that such a pronounced reflex relaxation of these capsules could be brought about without any touching of the region of the eyes if the patient was told to make a conscious effort which, to use his own words, constituted "squeezing his eyes" without in any way closing his lids.

Hence we have an eye revealing that when the patient looks in the distance his lens-capsules go tense and flat and parallel. Then when he is told to look near both capsules relax, the anterior slightly, and the posterior moderately so that it displays kinks and folds and usually recedes from the anterior capsule. The relaxation is even greater if the other eyeball is pressed or if the patient makes a conscious effort at squeezing his eyes, when the capsules will relax much more—especially the posterior which will then show generous folds and will recede markedly from the anterior. Thus if the capsules are watched carefully from the moment of instillation of a mydriatic drug which is calculated to render them tense, as the drug begins to act a stage is soon reached at which the effort to look near fails to cause relaxation of the capsules, but, for a period, the stronger stimulus caused by pressure on the other eye, or by the patient making a conscious effort to "squeeze" the eyes, will successfully cause relaxation of the capsules. Presently, as the

instilled drug takes stronger effect, even this stimulus fails to influence the capsules which remain tense, flat, and parallel under all conditions. If now, when the capsules are tense under the influence of a weak mydriatic, a miotic is instilled a stage ensues in which temporary relaxation can be induced by the strong stimulus of pressure on the other eyeball but not, for the time being, by the patient being told to look near; and a little later, with deeper diffusion of the miotic, the tense capsules will momentarily become lax when the patient looks near but nevertheless will yet remain taut when the patient is not making this conscious effort; finally, with a still deeper diffusion of the drug, the capsules become quite lax regardless of any such stimuli and they then fail to respond in any way to efforts at distant gazing.

I will now quote from some records of the results of instilling drugs into the eye. For example, one evening at 9.20 some 2 per cent. cocaine was instilled. At 9.35—that is, fifteen minutes later—when the pupil was beginning to dilate, the posterior capsule was moderately straight; at 9.40 the posterior capsule was perfectly flat so that it could form a plane mirror, and the anterior capsule was similarly quite flat, the two being parallel and separated by a definite interval. At 9.50—that is, thirty minutes after the cocaine had been given—a drop of 1 per cent. watery solution of eserine was instilled. I did not re-examine the eye until four minutes later, by which time, though the pupil was still large and uninfluenced in size by the eserine, the capsules were markedly lax: the anterior was curved slightly forward, more especially in its centre, whilst the posterior was crumpled and very lax and was separated far from the anterior—much more than it would ordinarily be separated when not under the influence of the drug—so that when the anterior capsule stripe was in focus with the A2 objectives the posterior capsule stripe was very much out of focus. On re-examination at 10.5—that is, fifteen minutes after instillation of the eserine—the pupil was becoming quite small: close up behind it was the slightly convex non-tense anterior capsule, whilst seen far back—so far back that it was necessary to bring the illumination and observation axes to a close angle with one another—the posterior capsule, lax and wrinkled, could just be discerned.

On another occasion, when the capsules were normally lax, four drops of 2 per cent. cocaine were instilled at 10.1 p.m., after which the capsules were watched continuously. At 10.10 both capsules were straight, but when the patient looked near both became lax, especially the posterior. At 10.14 when the patient made an effort to look near, the anterior capsule did not relax perceptibly, but it vibrated a little, whilst the posterior relaxed. The pupil was just beginning to get larger than the other pupil. At 10.18 the anterior capsule was tense and plane and did not vibrate when the patient looked near; the posterior showed just a suspicion of relaxation when the patient made a strong effort to look near. As the pupil was now quite large, the axial region of the retina was flooded with the full beam from the fully opened slit so as to cause the pupil to contract well: the capsules remained uninfluenced in their tenseness, proving that the state of the capsular tension was independent of the size of the pupil. At 10.35 the effect of the cocaine had begun to wear off: when the patient was told to look near, the posterior capsule, but not the anterior, became markedly wrinkled.

On another occasion, at 9.24 p.m., two drops of 2 per cent. watery homatropine and cocaine were instilled. At 9.35 both capsules were flat and only the posterior became relaxed just slightly when the patient looked near. At 9.40 the pupil was larger. At 9.46 both capsules were straight, parallel, and tense, forming perfect plane mirrors when viewed in the axis of specular reflection. The strongest effort on the part of the patient to look near caused no relaxation of either capsule, nor was any relaxation caused by pressure on the other eyeball.

On another occasion homatropine and cocaine was instilled and an interval (thirty minutes) allowed to elapse until the pupil had become well dilated—so that a strong light-stimulus failed to cause any contraction—and the capsules had been rendered tense, so that all reflex efforts failed to elicit any sign of their relaxation. Then, at 10.29 p.m., one drop of 1 per cent. watery eserine was in-

stilled. At 10.31 a suspicion of tremor was evident in the posterior capsule and at 10.32 it was definite. At 10.32½ the capsular separation had increased slightly, and the posterior capsule showed slight wrinkling, whilst the pupil was still fully dilated and showed no sign of any tendency to contract when the fundus was flooded with light. At 10.34½ the posterior capsule was very lax and cockled, and the anterior was lax and showed a definite forward curvature, the two being widely separated (Fig. 5). At 10.38 the



FIG. 5.

dilated pupil just began to diminish in size; an effort of the patient to look near, or pressure on the other eye, did not at this stage influence the already evident laxity of the anterior capsule but it made the very lax posterior capsule apparently slightly laxer.

On another occasion, at 9 p.m., three drops of 2 per cent. atropine sulphate were instilled. A little over an hour was allowed for the pupil to become well dilated and the capsules to become straight and tense. Then (10.6 p.m.) two drops of 1 per cent. watery eserine were instilled. At 10.20 p.m. there was no evident effect on the tense capsules; another drop of eserine was instilled.

At 10.53 two more drops were instilled, up to which time the capsules had been

watched continuously; they remained tense, flat, and parallel, and neither efforts of the patient to look near, nor pressure on the other eyeball, caused the slightest relaxation. At 11 p.m. pressure on the other eyeball caused a slight momentary wrinkling of the posterior capsule. At 11.1½ the posterior capsule showed, spontaneously, slight cockling; the pupil was still fully dilated. At 11.30 the posterior capsule was more lax; the anterior capsule was still practically flat, but when it was seen in the axis of specular reflection, some slight contour variations appeared which indicated relaxing tension. The patient then went home; the pupil was still fully dilated; he stated afterwards that the pupil was still widely dilated next morning and that it did not become small until the evening—that is, twenty-four hours after the instillation of atropine followed an hour afterwards by eserine.

On another occasion, at 8.45 p.m., and with repetition afterwards, a small quantity, in powdered form, of the sympathomimetic drug p-hydroxyphenylethylamine (tyramine) was placed in the conjunctival sac. It caused dilatation of the pupil, but did not produce any evident influence on the capsular tension. Following this, at 9.19 to 9.21, about twelve drops of 2 per cent. cocaine were instilled. At 9.25 to 9.27 the capsules showed the usual state of tension resulting from the instillation of cocaine, and by that time a strong effort on the part of the patient to "squeeze" the eyes and also to look near caused only a very slight cockling of the posterior capsule, this reaction being practically abolished by 9.33. At 9.35 1/30 grain of solid homatropine hydrobromide was placed in the conjunctival sac. At 9.47 two drops of 1 per cent. eserine sulphate were instilled, at which time no efforts to cause reflex relaxation of the very tense capsules produced any effect. At 9.49 the capsules were still tense, even when the patient made a strong effort to "squeeze," and another drop of eserine was instilled. At 9.50 the effort to "squeeze" produced ample cockling of the posterior capsule; at 9.51 both capsules remained, spontaneously, quite lax and widely separated, the anterior being, especially in its centre, markedly concave forwards and the posterior thrown into generous folds, the laxity of both being increased when the patient made an effort to "squeeze." At 9.52 to 9.52½, but not before, the pupil just began to show signs of contracting, but it did not become small rapidly: at 9.58 it was still rather large, while both capsules had become so lax that they trembled and waved freely with every movement of the eye, even when the patient merely blinked. At 10.2 the size of the pupil was approaching that of the other eye.

On another occasion, from 9.45 p.m. onward, three to four instillations of 2 per cent. cocaine were given over a period of five minutes, and by 10.3 both capsules were

fully tense. At 10.7 two drops of 1 per cent. pilocarpine were instilled. At 10.10 the capsules were still tense and the pupil was still large. At 10.15 the pupil was still large, but it just reacted faintly to light when the patient looked up at a lamp on the ceiling, though no trial had been made to see if the pupil reacted thus immediately before the instillation of the pilocarpine. At 10.23 the pupil showed signs of reacting readily to light. The capsules were both straight, but would now become lax when the patient looked near, the posterior showing bends and waving well back and the anterior revealing a suspicion of forward convexity. At 10.25 the pupil was smaller than the other pupil, even in a dim room-light. At 10.26, when the patient looked in the distance, the anterior capsule became tight but the more lax posterior capsule failed to tighten and remained lax; if the patient looked near the anterior capsule became, especially in its middle, moderately convex forwards, whilst the existing laxity of the posterior capsule was increased. At 10.33, when the patient looked in the distance, the capsules became about as they would be when, at 10.26, he looked near; but now, when he looked near, the anterior became definitely convex forward and the posterior became so lax that, separated far from the anterior, it was not merely wrinkled but became folded and buckled with gross angular kinks. At 10.35 the capsules remained thus no matter whether the patient was looking near or in the distance. This was the only occasion on which I tried the use of pilocarpine.

On another occasion novocain dilated the pupil a little but produced no evident effect on the state of tension of the capsules.

On another occasion adrenaline neither dilated the pupil nor affected the capsules.

These particulars which I have quoted now, abstracted from extensive notes, are a record of observations which I have been careful to ensure are devoid of errors. It might be that a full report on all the observations of this case would be of interest to others besides ophthalmologists—for example, physiologists and pharmacologists. If at any time they are desired, I should be glad to provide a fuller account of the observations made: they are too extensive to submit in full in this communication.

In general, I may summarize in conclusion that the behaviour of these capsules shows that one mechanical result in the process of accommodation consists in a relaxation of their state of tension. Further, if a mydriatic is given the capsules are rendered taut; and if time is allowed for these capsules to get just so taut that they do not relax when the patient gazes close, but not so taut that they fail to relax when the other eye is pressed, and the fundus is at this stage flooded with a sufficiently strong light-stimulus to cause good contraction of the already moderately dilated pupil, the pupil-contraction thus produced takes place without causing any evident relaxation of the existing capsular tension, showing that tension of these capsules caused by the mydriatic is independent of the dilatation of the pupil which is also caused by the mydriatic. If, when the pupil is well dilated and the capsules are tense under the full influence of a mydriatic and cycloplegic such as cocaine or homatropine, eserine is then instilled, in a very short time the capsules begin to relax and they then rapidly become extremely lax—far more lax than they ever were without the influence of a drug such as eserine—this occurring before contraction begins in the pupil which is still fully dilated by the mydriatic. When a stronger drug such as atropine is used, though longer time is required for the eserine action to begin to show itself by reduction of the capsular tension, even so this result occurs before the miotic begins to show its influence in diminishing the size of the dilated pupil. Tests made on other occasions which I have not quoted here confirmed that eserine acts on the capsular tension before it begins to act on the size of the pupil, when this eye has previously been subjected to the influence of a mydriatic.

The very definite slit-lamp observations on this unique eye, both as to the response of the capsules in the act of accommodation and as to the influence of drugs upon this response and upon the capsular tension in general, may

justifiably be accepted as affording satisfactory and conclusive evidence of the principle of the alteration of the state of tension on the normal lens-capsules in the act of accommodation, and of the influence which the various drugs experimented with may normally have upon this tension.

PHYSIOTHERAPY IN THE TREATMENT OF ARTHRITIS.

BY

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For the purpose of the present article it is proposed to limit the field of discussion to acute and chronic infective arthritis of non-tuberculous origin, climacteric arthritis of metabolic origin, periarticular fibrositis and bursitis, and osteo-arthritis. The forms of physiotherapy to be discussed are massage, active and passive movements, stimulation by the faradic and galvanic current or the Bristow coil, radiant heat, ionization, and diathermy. Hydrotherapy, in all its forms, is deliberately omitted, as it forms a separate study, and the numerous other forms of electrical and mechanical appliances are not referred to because it is very doubtful if anything can be effected by them which cannot be done by the simpler methods enumerated above. Moreover, with the possible exception of radiant heat and diathermy, these are usually within the reach of any practitioner even in country districts; but heat can, in fact, be applied by methods other than radiant heat, and ionization will serve much the same purpose as diathermy, if the latter is not procurable. Those skilled in massage and physiotherapy are available almost everywhere, and portable faradic and galvanic batteries are relatively inexpensive. Ionization can be given adequately with the latter, provided a milliamperemeter is attached.

Acute Infective Arthritis.

In this condition the joint is exquisitely tender and swollen and the skin over it is hot and red. If the condition is prolonged the muscles round the joint waste rapidly, and this, coupled with the swelling and consequent stretching of the ligaments, may ultimately result in a lack of stability of the joint. This causes a serious disability later, when the patient should be able to resume an active life.

The first indication for treatment in this form of arthritis is to keep the joint at rest until the inflammation has subsided. As there is a possibility that an acutely inflamed joint may become fixed, it is important that it should be kept at rest in the optimum orthopaedic position. Thus, in the event of this unfavourable result a maximum of useful movement can be obtained through the shoulder girdle and pelvis in the case of the proximal joints, and requisite stability for weight-bearing in the case of the knee, while the other joints are in such a position that the important functions of the limb are still possible. In this country splints and plaster which completely immobilize the limb are the usual methods employed, but in view of the results obtained by Professor Rollier in his clinics at Leysin, and by others, it is by no means certain that it would not be better, where possible, to restrain the joints by means of sandbags or plaster troughs. These enable the patient to make small voluntary movements, and it is noticeable that voluntary movements never do harm to a joint, for the pain resulting from the threat of too great movement immediately inhibits the movement. The result of these small harmless active movements is that there is extraordinarily little muscular wasting, even although, as is the case at Leysin, no massage or other form of physiotherapy is used.

The second aim is to restore and maintain the tone of the surrounding muscles so that the ultimate stability of the joint is endangered as little as possible, and the patient

is enabled to resume active life at the earliest possible moment. This can only be achieved by exercising the muscles without disturbing the joint, either by allowing small active movements as described above, or by careful massage. Splints, if used, should be so fashioned that they can be removed sufficiently for the masseuse to get at the muscles without disturbing the position of the joint. The massage must be strictly confined to the bellies of the muscles, and care should be taken not to cause any pull on the ligaments which form the capsule of the inflamed joint. For this reason any effort to restore muscles by electrical stimulation is contraindicated, since the resulting muscular contractures inevitably disturb the periarticular structures. In no circumstances should the joint itself be touched by the masseuse, even if the position is bad, for sudden movements will only intensify inflammatory reactions, and changes in posture are better effected by the steady and gradual traction of properly applied extension apparatus.

The reduction of inflammation and swelling can be effected by counter-irritants such as Scott's dressing or blisters or by ionization. The latter process consists in the application of pads of lint soaked in certain saline solutions to which are attached electrodes in the circuit of a galvanic battery. In this way a constant current is passed through the joint, and the burning of the skin which would result from the direct contact of the zinc electrodes is prevented by the pads. The original theory of this method of treatment was that certain drugs were conveyed into the joint in an ionic and therefore extremely active form. There is considerable evidence to support the contention that the metallic and acid radicles are carried into, and possibly through, the skin and distributed by the blood stream, but it is extremely doubtful if the drugs reach the deeper tissues of the joint. The action of ionization would appear to be twofold: in the first place, the skin is stimulated and the effect of counter-irritation is produced; and secondly, the passage of the current through the joint results in a local hyperaemia which ensures the neutralization of toxins and the removal of waste products. Ionization should be applied for twenty minutes on alternate days with a current of from 30 to 70 milliamperes, varying with the tolerance of the patient, till the swelling and redness have reached the limit of subsidence. This method should not be applied over broken skin, and any complaint of too severe pricking or irregularity in the register of the milliamperemeter independent of the supply of current are warnings that burning may occur and indications to reduce the current.

Subacute and Chronic Infective Arthritis.

In this condition the joint is no longer hot and red but may still be swollen and tender. In many cases, as they are brought to the physician, deformities of the joints have already occurred, whether from the spasm of neighbouring muscles or the formation of adhesions, and these deformities require to be corrected. In practically every case marked muscular wasting is present and there is considerable trophic deterioration of the skin, which becomes shiny, blue, and cold. Treatment should be directed to the correction of deformities, removal of swelling, and restoration of muscular tone. In the correction of deformities the question of an anaesthetic is of some importance. For diagnostic purposes this is of great use. Under an anaesthetic all muscular spasm is relaxed, so that the extent of the deformity due to adhesions may be estimated. Corrective plasters may be put on with advantage when the muscles are relaxed, but this should be the only form of treatment practised under anaesthesia. The temptation to break down adhesions is considerable, but should never be yielded to in any circumstances. Admittedly brilliant results are sometimes obtained, but the risks are too great. If the adhesions are extra-articular they can be broken down by active and passive movements, as will presently be described, but if intra-articular, they can only with difficulty be stretched or broken down at all, and the attempt to do so suddenly, without the restraint of the subjective feelings of the patient, leads inevitably to fresh haemorrhage into the joint, with subsequent formation of still more dense adhesions. Where adhesions occur, therefore, it is better to exercise

patience and trust to active and passive movements. Where the condition of the joint is still subacute and thus liable to flare up into active inflammation it is best to trust to active movements by restoring the muscles by massage and encouraging the patient to stretch his joints himself. If he is prepared to work really hard in this way the desired result will be obtained, with the safeguard that the reflex inhibition of movement will prevent him doing any harm. In any case, increased heat, redness, or swelling in the joint is indicative of too much movement and the necessity for rest.

Before any effort is made to correct deformity, whether by active or passive movements, it is well to relax the muscles concerned by radiant heat or diathermy. The former exposes the part to a dry atmosphere which can be raised to a considerable temperature without burning—300° to 400° F. The latter is a process whereby the heat and blood supply of the joint are increased by the passage of an interrupted current by a method similar to that used in ionization. It is often found after these treatments that with the relaxation of the muscles there is a considerable reduction in the pain of the joint, and the patient may get up and think some miraculous cure has been achieved. Within a very few minutes, however, the spasm and the pain usually return. The reason for this is that the muscular spasm is Nature's method of splinting so as to prevent contact of painful and inflamed surfaces, and although this special contact may be avoided for some moments in certain postures, sooner or later a position is adopted which does involve the painful contact, and spasm returns. For this reason, when it is desired to correct deformities by movements after muscular relaxation and these deformities are pronounced, it may be necessary to preserve the correction obtained by plaster or other splints. These may be removed after a day or two and the joint further relaxed and the splint reapplied. While a joint is so inflamed as to induce repeated muscular spasm whenever a particular contact occurs, much mobilization should not be expected or attempted, and the aim of treatment should be to attain the optimum orthopaedic position. Joints may, however, remain stiff, either from adhesions or muscular spasm, after all active inflammation has subsided; in the case of adhesions these may be gradually stretched as described above. Where muscular spasm persists this is due to the persistent suggestion induced by the previously painful and inflamed joint. In such cases efforts should be made to induce the patient to relax the muscle and persuade him that the spasm is unlikely to recur. The old posture of the limb, however, may be maintained for some days until use has restored the normal postural tone of the muscle.

Reduction of the swelling in the joint may be furthered by increasing the vascular supply by radiant heat or diathermy, or by ionization used in the way described above. In all such treatments, however, great care must be taken not to burn the skin, which is usually unhealthy. Too prolonged or too intense applications are dangerous, and it is better not to give the treatment more often than once on alternate days and gradually to work the current up to the requisite strength. If the pads used for diathermy and ionization are not evenly soaked in the saline solution, sparking and short-circuiting are apt to occur and much increase the risk of burning. As is well known, electric burns take a very long time to heal and may interfere with treatment of the joint just when steady persistence is of the utmost importance.

The restoration of tone in the muscles is effected by massage, as is done in the acute joint, but when active inflammation has subsided this may be more vigorous and may be supplemented by electrical stimulation of the muscle, whether by interrupted galvanism, faradism, or the Bristow coil. These will all tend to restore both tone in the muscles and better circulation in the skin, with a more rapid return to normal.

Climacteric Arthritis.

This arthritis commonly met with in women at the menopause is closely allied to the chronic villous arthritis in which the swelling of the joint is chiefly due to an overgrowth of synovial membrane. This arthritis is often associated with infective foci, but the general metabolic change

in the body is more obvious and important than these. In the common type mostly affecting the knees of middle-aged women there are signs of definite thyroid deficiency, and thyroid extract should always be tried. The joint is swollen and puffy, the bursae being concerned in the synovial as the joint surfaces themselves. As a result the joint is often shapeless and unstable from the stretching of the capsule. Coarse grating on movement, due to the dried synovial fringes riding over each other, is common. The joint is stiff, painful, and moderately tender, but not as a rule red or hot; the surrounding muscles are wasted, but not more than would be expected from the disuse of the limb, in contradistinction to the marked atrophy of acute infective arthritis. The wasting is somewhat masked by the general myxoedematous condition of the skin and subcutaneous tissues.

The condition being one of deficient circulation in the joints, the chief aim of treatment is to promote the blood supply to the part. Radiant heat, diathermy, and ionization are useful here, especially the last two. Massage is necessary to restore muscular tone, and in these joints a certain amount of friction to the joint assists in the supply of blood to the part. Movements, both active and passive, are used to restore mobility, and these can be practised relatively freely as there is less risk of setting up an acute inflammatory attack. Most of the patients with this type of arthritis are too heavy, and since the incidence of the disease is usually in the knees and ankles this is an important factor in the case. There can be no doubt that once the synovial membrane has taken on the habit of proliferation, the continued close approximation of joint surfaces when a heavy person walks tends to increase this synovial overgrowth. Measures directed to reduce weight are therefore important; they comprise the administration of thyroid extract, dietary measures, and general massage, in addition to local treatment. At the same time, in the more severe cases it may be desirable to take the weight of the body off the affected joint for a time. As it is essential for the general health and reduction of weight that the patient should get about, the only method available is by fitting some form of walking calliper modified according to the joint affected; the general principle is to transmit the body weight from the pelvis by means of steel bars to the heel of the boot below the ankle-joint.

Periarticular Fibrositis.

This is a special variety of a generalized fibrositis affecting the fibrous capsule of the joints. The characteristic lesion of fibrositis is the replacement of inflamed fibrous tissue by scar tissue, which is liable to contract. This contracture leads to thickenings which, if still the seat of inflammation, are tender and form nodules, and to shortening of the ligaments, which, if allowed to persist, pull on the ends of the opposing bones and results in deformities.

In periarticular fibrositis there is no definite swelling of the joint, and the wasting of the surrounding muscles is that of disuse rather than of trophic disturbances. Tenderness may be considerable, but is generally localized to affected areas in the ligaments and not to synovial surfaces. There may be much pain on movement and restriction of mobility. In the ball-and-socket joints—the hip and shoulder—rotary movements (which are specially restricted in a true arthritis) are relatively less restricted than flexion and extension, abduction and adduction.

The aims of treatment are reduction of active inflammation, restoration of mobility, and removal of scar tissue. The first object may be attained by radiant heat, diathermy, or ionization, and, on the whole, experience shows that local radiant heat gives the best results. When the pain and tenderness are lessened treatment should be directed as soon as possible to the two last objects, as once the contracture of the scar tissue has induced much stiffness and deformity the restoration of full function is difficult. Massage should be employed, as in other forms of arthritis, to restore muscular tone and efficiency, so that the patient may use his own efforts to recover movement of the joint. In addition, the localized thickenings in the ligaments must be sought for by careful palpation, taking care not to mistake small inflamed bursae for these; when found they must

be subjected to deep kneading, with the object of softening and stretching the scar tissue and, if possible, getting rid of it altogether. The patient must be warned that this process will be painful, but at the same time encouraged to expect the benefit which results from successful treatment. Massage must be supplemented by active and passive movements, persistent but never sudden, the degree of stretching the adhesions at any one time being guided by the patient's feeling of pain. As has been said above, it is better to progress slowly than risk any actual tearing of these fibrous bands, which may give rise to bleeding and subsequent formation of fresh adhesions. By these methods deformities may be reduced, and scar tissue dispersed at the same time.

Periarticular bursitis is common in the neighbourhood of all joints, and is characterized by tense swollen bursa which may be hot and red. These are tender to palpation and painful when the joint is moved in such a way as to stretch or press on the inflamed synovial walls. The condition is apparently due to the infection settling in a bursa irritated by a constant strain on the surrounding tendons and ligaments. This is well illustrated by the clinical picture of subacromial bursitis as described by Buckley. With the arm at rest by the side there is a point of extreme tenderness if the bursa is palpated under the tip of the acromion. As the arm is abducted there is severe pain while the wall is stretched by the action of the supraspinatus whose tendon crosses the floor of the bursa. With abduction beyond a right angle, however, both pain and tenderness disappear as the bursa passes in below the protecting acromial process. As these conditions are due to strain or trauma in conjunction with infection, the joint must be protected from the strain or trauma, whether the swing of a golf-club, the use of a tennis-racket, or other such movement, until the inflammation has subsided. For hastening this end, ionization is the method of choice; it combines counter-irritation with the direct increased blood supply to the part from the passage of the current. Once the inflammation in the bursa has subsided there is no difficulty in restoring mobility and full function.

Osteo-arthritis.

In this condition rarefaction and absorption of the bone occurs with compensatory formation of osteophytes and overgrowths. The joint surfaces become eroded, and with the destruction of the synovial linings the sensitive cartilaginous surfaces come into contact with each other, causing intense pain and inducing protective muscular spasms. These spasms may result in considerable deformities, and the formation of osteophytes may take place in such a way that restoration of the opposing bones to their normal alignment is impossible. Cases which have progressed to this stage cannot be helped to any great extent by physiotherapy, and indeed any treatment short of active surgical intervention to immobilize the painful joint gives little promise. Moreover, since the condition is most frequently met with in old debilitated persons, little able to stand a major operation, even this method is not often applicable. Every effort should therefore be made to arrest the condition in the early stages, or prevent deformity of joints. Since strain and pressure favour the formation of osteophytes, as soon as the joint can be got into the best orthopaedic position by extension apparatus, weight-bearing splints must be applied to prevent the direct apposition of joint surfaces and convey the stress of the body weight past the affected joint. In order to achieve the object of relieving muscular spasm and restoring good position and at all times to relieve pain, radiant heat is of the greatest service. Massage to muscles is of use in maintaining tone, but care must be exercised that the hypertonia existing in those muscles already in spasm is not increased by injudicious treatment.

I do not suggest for a moment that other methods of treatment of the various forms of arthritis referred to in this paper are not of the greatest use, and in some cases almost essential; but it is useful to indicate that much may be done for these troublesome and all too common afflictions by methods that are within the scope of the available therapeutic armamentarium of most practitioners and within reach of the pockets of most patients.

END-RESULTS OF ARTIFICIAL PNEUMOTHORAX.*

BY

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THE following results are based upon a series of 78 patients whose treatment was commenced fifteen to three years ago. Of those who recovered, only 4 were started later than December, 1921, and only one later than June, 1922. All the patients were in the third stage of pulmonary tuberculosis and were sputum-positive. They were patients who had failed or who were failing to respond to the ordinary sanatorium régime.

Table Summarizing Results.

	Operation Practicable.	Operation not Practicable.
Able to work:	29+4=42.3 per cent.	2
Dead	31+5=50.0 "	9 (6+3)
Dead from other cause	1	—
Ill with tuberculosis	3	—
Lost sight of	2	3
Total	69+9	11

The 9 patients put separately were some who were largely under my care during the period mentioned, but artificial pneumothorax was not started originally at the Mundesley Sanatorium. During the same period there were 17 patients in whom only a partial pneumothorax could be produced; 8 of these are dead, 4 are well and working, 1 is ill, and 4 I have lost sight of.

Of the patients who died, one lived twelve years, another seven and a half years, both enjoying good health for the greater part of these periods. Others lived six, five, five, and four years respectively; others, again, lived only a few weeks or months. The average duration of life of the 47 patients who died (including the cases of partial pneumothorax) was two and one-third years; and the duration is the same if only the 34 of the first group are taken into account. By comparing this duration to the duration of life of sputum-positive cases of all types treated by other means than artificial pneumothorax (as illustrated, for example, in Dr. James Watt's article in *Tubercle*, August, 1924), it can be seen that life was prolonged appreciably by means of this treatment, even in the cases who eventually died of tuberculosis. From a study of the above statistics it can be said that in any case of moderately advanced pulmonary tuberculosis which is fairly unilateral, the prognosis is best if compression treatment be undertaken and if feasible.

The comparison in the table also makes clear that artificial pneumothorax is successful when the results are compared with similar cases for whom this treatment has not been possible on account of generally adherent pleura. It will be seen from the table that the death rate with these patients is much heavier. Yet the conditions which lead to the choice of a trial of compression were the same in both cases. No one can say beforehand which patients have good adhesions.

I always advise maintaining the pneumothorax for at least three years. Often four, four and a half, or five years are found advisable. But this is not a hardship, for, ere the day of the refill, the patient's workaday life need be seriously interfered with. The average duration of period of refills in those of my patients (34) who recovered is four years and four months; and the average duration of life since commencing treatment is six years and ten months.

The question of how far the recovery goes, how far working capacity is restored, is of interest. To what extent does the lung re-expand after the treatment has stopped? Since the patients dealt with in this series

* Summary of a paper read before the Assurance Medical Society, November 4th, 1925.

third stage, sputum-positive cases not progressing well under the ordinary régime, restoration to a quite full working capacity cannot be expected in all cases, or in the first few years. Occasionally patients soon make a complete recovery. This is especially likely to occur in young persons with sound contralateral lungs. The expectoration of sputum containing tubercle bacilli is usually an early symptom to cease.

The extent of re-expansion of the compressed lung varies, and cannot easily be predicted. In rather more than one-third the re-expansion is fairly complete. The scarring in the lung shows chiefly through cardiac, and, if on the left side, stomach displacement. The heart is pulled over to the affected side. There are no adventitious sounds, but the breath sounds may remain permanently a little weak. When much destruction with excavation of the lung has taken place, a considerable opening up of the lung is usually neither desirable nor often found.

Other figures giving the end-results of pneumothorax treatment can be found in a recent paper by Dr. R. C. Matson and others in *Tubercle* for October, 1925, and in Dr. Gravesen's *Surgical Treatment of Pulmonary Tuberculosis*, 1925, Table I (p. 52). These statistics show from 30 to 40 per cent. of cures.

THE NATURE AND USES OF REFRACTOMETRIC AND VISCOSIMETRIC TESTS.

BY

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During the last twenty-five years a great amount of work has been done on viscosity of the blood and serum, most of it since the introduction in 1906 of Hess's viscosimeter. In clinical work, it is the *relative viscosity* which is measured (of blood, serum, oedema fluid, etc.), compared with distilled water. Refractometry gives us the protein content of serum, oedema fluid, etc.—that is, the degree of concentration of the protein.

Viscosity plays an important part in the circulation. That the blood pressure itself is dependent upon the state of the heart and the vessel walls has long been recognized, but it is only recently that the part played by viscosity has received attention, and its importance in pathological conditions has been realized. Allbutt recognized this in his review in 1911,¹ the viscosity of the blood increasing the heart working many times, compared with what it would be if it were water.

Viscosity is a property of the blood, and is subject to variations, slight daily, marked in pathological conditions. The blood carries cells in suspension, salts in solution, and a viscous protein. Viscosimetry and refractometry help to throw light upon the changes in the tissues and the alterations in the water content of the blood in varying conditions.

Viscosity in relation to work becomes an important factor in circulatory and cardiac disturbances. A blood examination cannot be considered complete without a viscosimetric-refractometric examination being undertaken. The value of determining the viscosity has been well summarized by Bircher,² as threefold:

1. In circulatory questions, viscosity should be considered. Red cells and viscosity are the two opposite factors which have a determining influence on the effect of heart work.
2. The viscosimetric factor is an excellent check of the normal blood test, because it depends on the different constituents of the blood. It is a delicate indicator for changes in their relation, and on this fact is based some valuable diagnostic information.
3. The viscosity is an accurate means of analysing the constituents of the blood; the quantity and quality of protein in

plasma may be studied as well as the exact volume of the cellular elements. On these determinations are based the diagnostic applications supported by Naegeli.³

Instruments.

The viscosimeter of W. R. Hess of Zürich is used, which is not only very simple and reliable, but the only one which fulfils all the necessary conditions; it is based on the law of Poiseuille, according to which fluids at equal temperature and pressure, passing through capillary tubes of equal calibre, vary in their rate of flow in direct proportion to their internal friction—that is, to their viscosity. The clinical model shown in the diagram is the most generally useful, being compact and portable.

Method.

Only one drop of blood is required, obtained from a stab in the finger after immersing the hand in a basin of warm water for two to three minutes. The blood is collected in a short length of narrow glass tubing, E, specially supplied, which is at once brought into opposition with the end of the blood capillary tube K₂; the tube E is held in position by being pressed into a spring clip F. By means of a bulb the blood is immediately sucked up to the 0 mark. The tap H is now opened and both water and blood columns are drawn along until the blood in tube K₂ reaches the 1 mark. After reading the point reached by the column of water the blood is expelled, and the tap is turned off as soon as the water has been driven back to zero. The blood tube, K₂, is at once cleaned by sucking in and expelling ammonia, water, alcohol, and ether in succession. Although the method is not by any means free from errors, it is sufficiently accurate for clinical purposes.

Blood is then collected in a U-tube, each limb 4 inches long, no pressure being made on the finger; this is centrifuged, and when the supernatant serum is clear one limb is cut off just above the blood clot and the viscosity of the serum is measured, the other being retained for refractometric examination. (A full description of the viscosimeter is given in Bircher's review,⁴ and of the refractometer in the booklet supplied by the makers.) The refractometer of Pulfrich (Zeiss's dipping refractometer) is used, which gives the angle of refraction of the fluid; this reading is converted into grams of protein per cent. by means of E. Reiss's table.

The viscosity of the blood depends upon:

1. The mass (whole volume) of the cells. An increase raises the viscosity, and a fall in number lowers it, but the viscosity is not directly proportional. (Du Pré Denning and Watson,¹⁴ Münzer,¹⁵ Bence.⁵)
2. The haemoglobin content. (Lisbonne and Margat.¹⁶)
3. The number of

the white cells per cubic millimetre. The viscosity is increased in leukaemia, the white cells conducting more, in proportion, to the viscosity than do the reds. (Determann,¹³ Rotky.²²)

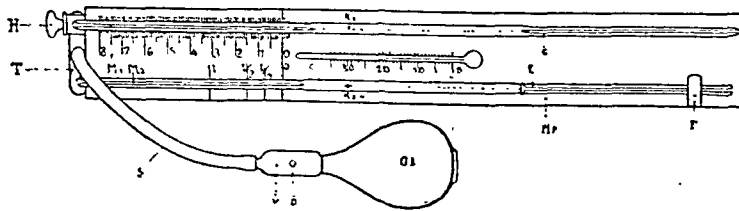
4. The carbon dioxide content. The viscosity is raised in cyanosis; venous blood is more viscous than arterial, and oxidation lowers viscosity. (Koranyi and Bence,⁶ Adam,³ Determann,¹² Austrian.⁴)

5. The protein content. Dehydration increases the viscosity, and hydraemia lowers the viscosity. After a severe haemorrhage by the rectum I have observed it to fall from 4.0 to 1.75. (Nicastro-Ferro,¹⁹ Lommel.¹⁷)

6. The salt and urea contents—of small influence. (Bottazzi.¹¹)

The average viscosity of the whole blood may be taken as 4.5 to 5.3 in men, 3.9 to 4.9 in women, and of serum as 1.7 to 2.0 in both (Naegeli). The viscosity of the serum depends chiefly upon the protein content.

Considerations of space make it impossible to enter into



The essential part of the apparatus consists of two capillary tubes, K₁, K₂, connected to a single aspirator S, Gb; by the aid of a strong rubber bulb, Gb, distilled water and blood (or serum) are simultaneously drawn through the two capillary tubes K₁, K₂, respectively. If the blood is sucked up tube K₁ from 0 to 1 the column of water reaches a point in the graduated tube K₂, which indicates directly how much further the water has flown in the same time and under the same conditions. The reading is then taken at the point which the water has reached, say 4.3; this reading is the viscosity of the blood. No correction need be made for temperature between 17° and 23°C.

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the significance of the viscosimetric-refractometric findings in various diseases, which it is hoped may be dealt with in another paper, but that it has a distinct value in cases of syphilis, cancer, and tuberculosis has been shown by Bircher,¹⁰ in secondary anaemias and in peritoneal infections by Oehlecker,²⁰ Simon,²¹ and Süssenguth,²² in pneumonia by Ch. Achard, Touraine, and St. Girons,² and by Franklin,¹⁵ and in oedema by Shirley.²³

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DELIVERY OF BREECH WITH EXTENDED LEGS.

BY

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AND

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With the object of discovering the most satisfactory method of treating a breech presentation with extended legs, we have recently investigated the details of 100 cases that have occurred at Queen Charlotte's Maternity Hospital during the last ten years.

Of the 100 cases only 6 were delivered spontaneously with legs extended; with the remainder the legs were brought down before delivery. The average weight of the children born with extended legs was 5 lb. 10 oz.; when the legs were brought down the average weight was 7 lb. 7 oz. The delay was so considerable that it practically amounted to obstruction in 47 of the cases where the legs had ultimately to be brought down; that is to say, the breech did not advance in spite of good pains, although left as long as two hours in the second stage. Of these 47 cases, 28 were delayed in the cavity of the pelvis and 19 on the perineum; in the latter condition the difficulty in pulling down the legs was much greater.

Of the remaining 47 cases no record was kept of the reason for the bringing down of the legs, but in all the breech was well down in the pelvic cavity or on the perineum before the legs were brought down. The inference is that in the majority of these cases there was some delay at the outlet. In most cases both legs were brought down simultaneously. When only one leg was brought down it was generally necessary to bring down the other at a later stage.

After the extended legs had been brought down the presenting part advanced regularly without further interference. Sometimes this advance was found to be slow, but it was not accompanied by foetal distress. When the child was born as far as the umbilicus the position of the arms was then ascertained. They were found to be extended in 84 cases, 6 of these being instances in which delivery took place spontaneously with legs extended. In the remaining 88 cases the legs had merely been brought down and not

pulled on, nor was fundal pressure used until the arms had been brought down. This, in our opinion, is of great interest, as it appears to show very clearly that the extension of the arms is a primary condition, and not, as generally supposed, the result of the legs being pulled on. In every case the arms were pulled down and the head delivered without delay by various methods (the Prague, Mauriceau-Veit combined with fundal pressure). In 13 cases great difficulty was encountered in the delivery of the head. Apparently this was due in the majority to extension of the head. In 2 cases forceps, applied to the after-coming head, were used with success, and in 4 perforation through the roof of the mouth was necessary before delivery was possible.

Conclusions.

The conclusions we have drawn from the investigations and from our personal experience of 20 cases are as follows:

1. As a general rule extended legs have to be brought down.
2. In the comparatively few cases where it is not absolutely necessary, it will shorten the labour and lessen the sufferings of the patient if the legs are brought down.
3. The right time for bringing down the legs is as soon as the os is fully dilated. It must be understood that each case must be treated according to the attendant circumstances.
4. When the presenting part is not advancing we consider that the legs should be brought down although the os may not be fully dilated. In these circumstances the os should not be rigid, and it should be at least three-quarters dilated.
5. It was noted that there was greater difficulty in bringing down the legs when the delay was on the perineum.
6. Before the legs are brought down an anaesthetic must be administered. The result is that temporarily the pains either cease or become weaker. In our opinion it is better to bring down the legs and then wait until the pains become stronger, when the patient will be able to deliver the child as far as the umbilicus. No harm will be caused to the child by this delay. Unless there is a definite indication such as foetal or maternal embarrassment, we consider better both for mother and child not to pull on the legs all after they have been brought down.
7. When the child is born as far as the umbilicus a loop of cord can be pulled down and watched. The position of the arms must then be ascertained. If found to be extended (this is usually the case) they must be brought down. Before doing so an anaesthetic must generally be administered. The posterior arm must be found and pulled down, then the anterior. If there be any difficulty the body should be rotated so that the anterior arm becomes posterior. This will give more space by reason of the hollow of the sacrum, and the bringing down will be accomplished with greater ease. At this juncture, and not earlier, the skilled assistant can follow the head from above and endeavour to keep it flexed.
8. As in most cases there are difficulties with the after-coming head, we consider that it is best to use the Mauriceau-Veit method, with fundal pressure from above. In combination with this method and in those cases where the head is not well flexed, it has been found advantageous first to push up the occiput with the fingers of the right hand, thus helping to flex the head, then to get two fingers of the left hand well down over the tongue, not only just inside the mouth. When this has been done both hands should pull in the axis of the pelvic outlet, and fundal pressure should be applied in the same axis. The pushing up of the occiput and the placing of the fingers well inside the mouth instead of just inside the lower jaw are two points which we consider of much importance.

Summary.

- We are of the opinion that care should be taken—
- (a) In deciding the propitious time for bringing down the legs.
 - (b) In realizing the importance of not pulling on the legs when once they have been brought down.

(c) In ascertaining the position of the arms in the uterus as soon as the child is born as far as the umbilicus.

(d) In the delivery of the after-coming head, with special reference to the pushing up of the occiput and placing the fingers well inside the mouth of the child before delivery.

We wish to express our deep obligation to the Committee of Queen Charlotte's Hospital for the use of the above statistics, and our sincere thanks to Mr. Aleck Bourne for his generous help and advice in preparing this paper.

LUMBAR RIB OF UNRECORDED TYPE.

BY

JOHN CUMMING, M.B., C.M.GLAS.,
CHIEF POLICE SURGEON, HULL CITY POLICE.

On September 26th, 1925, a member of the city fire brigade attended sick parade and stated that on the day previous, whilst practising with a jumping sheet, he had injured his back. He also stated that on November 25th, 1922, he had fallen into one of the dry docks in the city and had injured the same place as well as his left upper arm.

He was seen at that time by my predecessor, Dr. J. Wright Mason, who ordered his left arm to be x-rayed, for the reason that he complained more of the injury to this than to that of his back. The x-ray photograph showed nothing abnormal, and after a lapse of a few weeks he returned to full duty.



On examination I found that he had a very tender point corresponding to the transverse process of the fourth lumbar vertebra, but both Dr. David Hyslop, my assistant, and I were of the opinion that he had ruptured some of the muscular fibres of the erector spinae at that point. I

strapped him up and he got a certain amount of comfort, but the pain did not disappear so quickly as I had anticipated, and as he still complained of acute pain at the one particular point—namely, the fourth lumbar vertebra—I decided to have this x-rayed.

The condition displayed was a lumbar rib arising from the transverse process of the third lumbar vertebra; it curved down and fused with the transverse process of the fourth lumbar vertebra on the same side. It was also seen in the x-ray photograph that there was a fracture of this rib close to the transverse process of the fourth lumbar vertebra, but the fragments were in good position. I wrote to Professor Robert Howden, Durham University, who for some time has been responsible for the editing of *Gray's Anatomy*, and he informed me that he had neither seen nor heard of a similar condition, although a rib arising from the first lumbar vertebra was not uncommon.

I may say that the patient is a very well developed man, and previous to this occurrence had no knowledge that such a condition existed.

I am indebted to Dr. W. H. Rowden, Leeds, for the skiagram.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TORSION OF FALLOPIAN TUBE.

Torsion of the normal Fallopian tube is an exceedingly rare event. Michael reports a case,¹ and states that only two others are known to have been reported previously. Since then another case has been recorded in the *JOURNAL* (April 4th, p. 657) by Davies. The following is an additional case.

A single woman, aged 32, was admitted to the Rochdale Infirmary on the afternoon of December 4th, 1924, as a case of acute appendicitis. She stated that severe abdominal pain had commenced in the early morning of the same day and she had vomited continuously since. Her periods had always been irregular, the last having occurred nine weeks previously. The pain was referred to the right iliac fossa and to the back of the right buttock in the area supplied by the first lumbar nerve. There was some rigidity over the right iliac fossa. Cutaneous hyperaesthesia was very definitely present just above the centre of Poupart's ligament and to a lesser degree over the area behind previously referred to. On rectal examination a tender swelling was felt to the right of the uterus. The temperature was subnormal and the pulse 100.

A tubal lesion was diagnosed, and on opening the abdomen the right Fallopian tube was found to be twisted, together with an abnormally long mesosalpinx, in a clockwise direction, and to be black, swollen, and intensely congested. The rest of the organs were normal. The tube was untwisted with the greatest readiness and there were no adhesions; it was removed, and the patient made a good recovery. She began to menstruate two days after the operation.

There were thus present in this case the requisite factors which appear necessary to precipitate this occurrence—namely, a long mesosalpinx and the circulatory disturbances caused by premenstrual hyperaemia.

The striking point about the symptoms, to my mind, was the very definite area of pain and cutaneous hyperaesthesia over the right buttock in the area supplied by the first lumbar nerve. The afferent fibres of the tube appear to belong to the eleventh and twelfth thoracic and the first lumbar nerves. In this case, at any rate, its innervation must have been definitely from the first lumbar segment, as the thoracic segments were not affected.

In twenty-seven cases of ectopic gestation leading to either rupture of the tube or tubal abortion, lesions somewhat comparable in severity, I have not observed this sign before.

JOHN C. JEFFERSON, F.R.C.S.,
Honorary Surgeon, Rochdale Infirmary.

PULMONARY OEDEMA IN A CHILD.

A CHILD, aged 4½ years, had been confined to the house, but not to bed, for a few days with a cold, when, while playing on the hearth with other children, clear fluid was seen to gush from her mouth and nose. The mother formed the idea that the child was vomiting. I was sent for, and when I arrived I found frothy colourless fluid oozing steadily from mouth and nostrils. She was cyanosed and restless, and obviously in acute distress, the breathing was laboured and wheezy, the limbs rigid, and the hands clenched. Little air was entering the lungs, the breath sounds were obscured by coarse rhonchi, and the whole chest was dull on percussion. The diagnosis of pulmonary oedema was hazarded, and atropine gr. 1/200 was given hypodermically. In a quarter of an hour there was a decided improvement in her condition, and in half an hour the cyanosis and the flow of secretion had ceased. Before the expiration of an hour the chest was clear on auscultation and gave a resonant note on percussion. At this stage the child fell into a natural sleep which lasted unbroken for six hours.

Beyond a few fine rhonchi in the right chest for a day or two the patient appeared none the worse for the incident. The pupils responded to atropine in a puzzling manner. Both before and immediately after the injection they were widely dilated, but when improvement in the general condition was manifest they were contracted to little more than a pin-point.

Pontyclun, Glam.

RICHARD KENTFICK, M.B., B.Ch.

¹ BRITISH MEDICAL JOURNAL, March 14th, 1925, *Epitome*, para. 237.

want. In the last chapter—on acclimatization—it is shown that oxygen passes more rapidly into an acclimatized person's blood, which therefore more easily reaches an equilibrium with the air in the lungs. Major R. W. G. Hingston's account of the physiological difficulties in the ascent of Mount Everest, given in an appendix, forms a suitable addition to this valuable and exceptionally interesting monograph, the publication of which coincides with the author's appointment to be professor of physiology in the University of Cambridge.

RECENT ADVANCES IN PHYSIOLOGY.

PROFESSOR LOVATT EVANS's *Recent Advances in Physiology*² should be assured of a hearty welcome from practising physicians in this era when the appreciation of the importance of disorders of function has been recognized as a step towards the ideal of medicine—namely, the prevention of structural, and indeed of all, forms of disease; for the time has long passed when, as was felt by the audience of Claude Bernard's lectures in 1870 on experimental physiology applied to the practice of medicine, physiology was regarded merely as a *science de luxe* for which there was not any real need. Professor Lovatt Evans rightly reminds his readers that there cannot be any great theoretical conceptions in medicine without corresponding comprehension of great underlying physiological principles. Physiology has advanced so greatly that, like medicine, it is inevitably breaking up into subordinate special departments; the applications of chemistry have greatly developed physiology, and a similar use of physics should have a like effect in unveiling further knowledge during the lifetime and by the exertions of some of the present generation of physiologists. This volume, which is a worthy successor to *Recent Advances in Physiology and Biochemistry*, brought out in 1906 by L. E. Hill, M. S. Pembrey, and A. P. Beddard, covers a wide field, for it deals with the blood and circulation; the problems of muscular contraction; the active principles of some of the endocrine organs, such as thyroxin, pituitary principles, and insulin; the mechanism of postural reflexes and the functions of the labyrinth, on which Sir Charles Sherrington and Professor R. Magnus of Utrecht have done so much; and on conditioned reflexes, on which the veteran Professor I. P. Pavlov has carried on pioneer work for more than twenty years. At the end of each chapter there are references to authoritative papers, which the advanced student will find useful for even more detailed information.

A few examples may perhaps be given to indicate the general character of the work. While refraining from a final and dogmatic decision on the vexed question of the origin of blood cells, from one common primitive or stem cell (the monophyletic hypothesis) or from an unknown number of stem cells (the polyphyletic hypothesis), he confines consideration to the monophyletic view. The fixed mesenchyme provides, in addition to fibroblasts, the free and the fixed histiocytes, the former appearing as mast cells, the latter or "resting wandering" cells supplying the specialized constituents of the reticulo-endothelial system, and forming an incomplete lining for the sinusoids of the liver, spleen, bone marrow, and adrenal medulla. These cells and their descendants the monocytes have phagocytic properties, which have been also ascribed to all vascular endothelia; this view is not accepted by the author, who considers that the general true vascular endothelium, and also perhaps the endothelium of the serous membranes, more closely resembles the fibroblasts, into which, indeed, they are seen to be transformed in inflammation. Another chapter is devoted to the carriage of carbon dioxide by the blood, in which the ionic interchange is authoritatively explained. The reaction of the blood is then dealt with, and the correlation between the volume output of the heart and the oxygen requirement of the whole body is considered. In the account of the active contraction of the capillaries, Krogh's observations receive full attention, and there is a good illustration of the branching cells described

in 1873 by Rouget; placed on the outside of the capillaries, they are a special form of smooth muscle, and are responsible for the capillary contraction. The nine different effects produced by injection of unpurified "posterior lobe" extracts, and the relation of the pars tuberalis and the hypothalamic region to diabetes insipidus, are discussed. After sketching F. M. Allen's work showing that the β -cells of the Langerhans islets form insulin, the history of its isolation is given, and attention is called to the importance of recognizing that the blood sugar curve is normally subject to variations, and to the problems raised by the method of action of insulin.

But enough or more than enough space has been occupied in attempting to show the interest that this, well written book has for the medical profession.

FRACTURES OF THE ARM AND FOREARM.

THE handsome volume on *Fractures of the Humerus, Radius, and Ulna*,³ with its wealth of illustrations, is a credit to the University of Pennsylvania, in which its authors hold various offices. It is one of a series of surgical monographs published by the New York firm of Appleton and Co. In the preface the authors justify the existence of the book by the changes in our knowledge due to improvements in radiological apparatus and technique which have forced a revision of some of the older ideas concerning the frequency of type and the treatment of certain fractures and epiphyseal separations.

In the chapter on general considerations it is stated that "the more complex the function of a bone the lighter and more delicate it is," and this is alleged to be the reason why the radius is more often broken than the ulna. It is questionable whether either the premiss or the conclusion is acceptable. Is the function of the fibula more complex than that of the tibia?

A chapter is devoted to the osteology and embryology of the long bones of the upper extremity and another to general symptomatology. In this the sound advice is given that "circular plaster bandages are only permissible when completely divided in at least one line." The marked decline in favour of plaster-of-Paris is probably the result of experience gained in the war.

The remaining chapters deal with the several bones and regions and the treatment of complications. A somewhat remarkable omission in a monograph on this subject is the absence of all but casual mention of the calamitous complication of ischaemic paralysis. Some consideration might have been expected of the causes of this condition and the precautions to be taken to avoid it, even if a very strict view of the limitations of their subject precluded the authors dealing with its treatment.

The last chapter, on indications for operative treatment, shows once again how very much more conservative in this respect the practice of surgeons has become since the days before the war, when some kind of plating was much more in vogue. The authors lay down the sound rule that operative or open reduction treatment should only be undertaken when other means fail and when the surgeon feels that he can promise a better functional result. Owing to untiring attention to the technique of operation in its widest sense the authors are able to say that they have had but one infection in plating operations in seven years; that was due to skin abrasion in the original injury. In no case has it been necessary to remove a plate. Yet despite this success they are justified in the statement that "internal fixation is really nothing more than a flimsy makeshift at best, as it is easily broken; absorption soon loosens wires or screws or inlays. Therefore there should be just as rigid care taken with the external fixation as though the case were simply a closed reduction."

The illustrations are many and good, but the diagram of the shoulder-joint on page 59 displays a glenoid cavity more like the acetabulum than the shallow saucer of the scapula.

² *Recent Advances in Physiology*. By C. Lovatt Evans, D.Sc.Lond., M.R.C.S., L.R.C.P., F.R.S. London: J. and A. Churchill. 1925. (Post. 8vo, pp. xi + 364; 62 figures, 10s. 6d. net.)

³ *Fractures of the Humerus, Radius, and Ulna*. By Eldridge L. Eliason, A.B., M.D., Sc.D., F.A.C.S., with the collaboration of Ralph Goldsmith, M.D., and Eugene F. Pondgrass, M.D. Surgical Monographs, under the editorial supervision of Drs. Lewis, Pool, and Ewing. New York and London: D. Appleton and Co. 1925. (Super. roy. 8vo, pp. xvii + 397; 333 figures. 21s. net.)

GUILLAIN'S NEUROLOGICAL STUDIES.

THE first volume of Professor GUILLAIN'S neurological studies was reviewed some three years ago (December 30th, 1922, p. 1269), and it is a pleasure to welcome a second series from the same pen.⁴ Since the publication of the first volume Professor Guillain has succeeded to the chair of diseases of the nervous system in the Faculty of Medicine in Paris, a position of distinction merited by the wide range of his neurological work.

In the present volume he touches many subjects in numerous chapters of varying length and interest. The first six deal principally with a new reflex, designated the "medio-pubic reflex"; the method of eliciting it and its possible value are fully described. The next four chapters are devoted to a study of various cerebral lesions; the most valuable and informing is that describing a case of tumour of the corpus callosum: we have a useful discussion of the symptomatology of these lesions and a bibliography which will be of much use to all who are investigating this somewhat uncommon condition. In one of the longer sections of the book Professor Guillain gives an account of the traumatic lesions of the spinal cord, and has succeeded in presenting a good and succinct account of the principal points of interest and practical value in this important subject, though British neurologists will perhaps disagree with him in certain minor details. We are glad, however, to note a tribute to the work of Head and Riddoch in regard to the reflex activity of the injured cord. Considerable interest attaches to the description of osteo-arthropathies occurring in traumatic paraplegia, a condition of which little, we believe, has been heard in this country.

To disseminated sclerosis a long section is devoted, which may well be recommended to any whose ideas of this disease are bounded by the old conception of the classical picture given by Charcot—a picture which even still dominates some textbooks. Its pathology, clinical manifestations, the changes in the cerebro-spinal fluid, and the etiological problems are all well presented; the whole is a valuable and up-to-date exposition of present knowledge. The secondary degenerations following certain well defined lesions of the cerebrum and mid-brain are next described. A brief note on the occurrence of temporary hyperaemia of the optic disc following lumbar puncture will interest those whose experience has, like the author's, included many patients who have been strangely intolerant of this procedure.

The volume is concluded by eight brief chapters on a diversity of subjects, all of considerable clinical interest, among which we may perhaps mention that describing a form of chronic joint affection following herpes zoster. This second volume of Professor Guillain's neurological studies is a worthy successor to the first, and may be warmly commended to the profession in this country.

A TEXTBOOK OF INORGANIC CHEMISTRY.

THE new edition of Dr. MELLOR'S *Modern Inorganic Chemistry*⁵ has been reset, several sections have been rewritten, and many additions have been made, with the result that the book is nearly two hundred pages longer than the last edition. It provides the student of chemistry with what is probably the best introductory textbook of the subject yet published, full of well selected detail, broad and philosophical in outlook, and written in a style likely to catch the reader's interest.

Dr. Mellor has very wisely incorporated in his pages a great deal of physics, for much chemistry is unintelligible without the illumination cast on it by the science of physics; and his successive chapters, forty-three in number, take the reader on from the simpler and more generalized facts and theories to the most complex, from "Combination by Weight" to "Radio-activity." Much stress is laid throughout on the historical development of chemical knowledge; dates are given, and the evolution of present views is traced wherever possible, a method of exposition

that is by far the most satisfactory to the inquiring mind. Numerous illustrative questions set in examination papers are added at the end of each chapter to enable the student to register the steps in his advancement to knowledge.

The book may be warmly recommended to all students of elementary chemistry; it is well got up, excellently printed, and, as books go nowadays, cheap. Mention may perhaps be made of a few minor errors met with in its perusal: on page 38 the Greek word for "a path" should be "hodos," not "odos"; on page 649 "*spiritus cornu cervi*" should surely be "*spiritus cornus cervi*"; on page 837 the name "A. Mooso" should read "A. Mosso"; on page 955 the quotation ascribed to "Hutchinson" is a quotation from Tennyson ("In Memoriam," cxxii) with several errors of punctuation; on page 1093 "Brinn's" should be "Brin's"; and on page 1096 "Retger's" should read "Retgers'."

NOTES ON BOOKS.

THE general tendency of textbooks of ophthalmology, more perhaps than with other branches of medicine, is to be concerned very largely with problems of pathology and diagnosis; too often the question of treatment, apart from operative methods, is too hastily dismissed. To the practitioner undoubtedly the main interest lies in the possibility of a prompt cure of the condition, and to supply this want Dr. LOEB of Chicago has translated FRANK'S *Ocular Therapeutics*.⁶ The translation is conscientious, and any criticism of the work, therefore, becomes a criticism of the original. The book is divided into two parts. The first deals with different methods of treatment, considered as applied generally or locally to the eye: serotherapy, organotherapy, protein therapy, drugs, and the various applications of physical therapy—light, radium, electricity, heat, cold, and so on. The remainder of the book deals with the various diseases of the eye and its associated parts, a list of possible therapeutic measures being tabulated for each. This resolves itself largely into a mere list of many and various remedies arranged categorically with little or no criticism, constructive or destructive, of their relative merits. From the introduction it would appear that this uncritical attitude is purposely adopted, and that the object of the book is to "give the beginner only a list of remedies which may be used." But without any guidance as to choice, and with little or no information as to indications or contraindications, this would seem to be a somewhat dangerous procedure. The beginner will be the less benefited by such list because a large number of the preparations mentioned are synthetic, which, though they may be known in Germany, are quite unfamiliar, at any rate to the reviewer, and presumably to the majority of English practitioners.

Photomicrography has become an important branch of microscopic work, but is beset by many difficulties when high magnifications, such as those used for the study of bacteria, are necessary. The book which Mr. BARNARD wrote fourteen years ago has been a much appreciated guide to the technicalities of the photography of microscopic objects, and the second edition, entitled *Practical Photo-micrography*,⁷ in which he has had the assistance of Mr. FRANK V. WELCH, will continue the tradition. Since microscopes and cameras of to-day differ but little from those of twenty years ago the authors have not had a heavy task in revision, but they have been able to advise simplification in some apparatus formerly very elaborate. By his recent publication in connexion with cancer Mr. Barnard has encouraged the hope that the scope of photomicrography will soon be enlarged. But no reference is made in this book to the methods and apparatus for using ultra-violet light; another book is promised on this subject.

A translation has now been made by Dr. EHRENFEST of Washington of Dr. ROBERT KOEHLER'S monograph on the treatment of puerperal fever:⁸ we reviewed the second German edition on June 28th, 1924 (p. 1134). The book contains a description of various forms of treatment, with a running commentary on their relative value. Special attention is paid to recent methods, including chemotherapy and protein therapy, and the general tone of the volume is reasonably critical. It contains an index and a good bibliography.

⁴ *Études Neurologiques*. Deuxième Série. Par Georges Guillain. Paris: Masson et Cie. 1925. (Roy. 8vo, pp. viii + 360; 50 figures. 25 fr.)

⁵ *Modern Inorganic Chemistry*. By J. W. Mellor, D.Sc. New edition. London and New York: Longmans, Green and Co. 1925. (Post 8vo, pp. xx + 1103; 369 figures. 12s. 6d. net.)

⁶ *Ocular Therapeutics*. By Dr. Ernst Franke. Translated by Clarence Loeb, A.M., M.D. London: Henry Kimpton. 1925. (Med. 8vo, pp. 183. 18s. net.)

⁷ *Practical Photo-micrography*. By J. E. Barnard, F.R.S., F.Inst.P., F.R.M.S., and Frank V. Welch, F.R.M.S. Second edition. London: E. Arnold. 1925. (Demy 8vo, pp. xii + 316; 86 figures, 16 plates. 18s. net.)

⁸ *The Therapy of Puerperal Fever*. By Privatdozent Dr. Robert Koehler. English edition prepared by Hugo Ehrenfest, M.D., F.A.C.S. London: H. Kimpton. 1925. (Med. 8vo, pp. 276; 27 figures. 18s. net.)

British Medical Journal.

SATURDAY, JANUARY 9TH, 1926.

THE COLONIAL MEDICAL SERVICE.

On October 10th last we welcomed the statement of the Secretary of State for Dominion Affairs and the Colonies that he hoped to create at the Colonial Office an Imperial Ministry of Health. The idea was finely conceived, and the auspices seemed favourable at the moment of its announcement, which followed hard upon the creation of the Civil Research Committee, the report of the East African Commission, and a parliamentary debate on East Africa in the course of which unusual prominence was given by all parties to questions of tropical hygiene, whilst Mr. Amery himself promised the creation at his Ministry of "at least the nucleus" of a Medical Department under a responsible medical head.

This promise, according to answers given in the House of Commons at the end of the session, has not yet been fulfilled, and although the delay may be attributed to reluctance on the part of the Treasury to sanction the necessary outlay rather than to second thoughts on the part of the Secretary of State, it is not so easy to absolve the latter from responsibility for a mistake calculated to check the development of the Colonial health service as perhaps no other single action could. Such a mistake would have been unthinkable had the Secretary of State had the advantage of advice from a medical officer in close touch with the personnel of the Colonial Medical Services, and it is only one more illustration of the crying need for the appointment of such an officer. But even as things stand at present it cannot be pleaded that the decision, taken doubtless without full appreciation of its significance, has been adhered to in ignorance, for Mr. Amery's attention was drawn to the matter by the Dominions Committee of the British Medical Association three months ago, and we refer to it now only because the advertisement of vacancies in the East African Medical Service lays upon us the duty of informing potential candidates for these, and indeed for all appointments made by the Colonial Office, of the position which has arisen. That position is explained on the first page of this week's SUPPLEMENT to the BRITISH MEDICAL JOURNAL. The manner in which the Association has dealt with it will appear more fully from the correspondence which it is hoped to publish at a later date. Meanwhile we can only repeat the trite statement that security of tenure and confidence in the capacity and intention of the Secretary of State to guarantee the rates of pay and conditions of service offered on appointment is one of the chief attractions offered by the Colonial services. Without it recruits of the required calibre will be hard to find. Nor can it be destroyed in Kenya and maintained in Hong-Kong or Trinidad.

Any aspirant for the style of Imperial Minister of Health would do well to remember that the most progressive measure may be introduced in a manner calculated to render it abortive, and that a Minister of Health cannot afford to diminish the efficiency of the medical personnel on whom he must depend for the execution of his policy. We may yet hope that

with fuller consideration of these truths better counsel will prevail at the Colonial Office, and that the projected reorganization on which so much depends will not be much longer delayed.

THE "ANNALS OF EUGENICS."

It is now a good many years since the sons of the eugenic prophets, mourning the loss of Francis Galton, could greet Professor Karl Pearson with the words, "The spirit of Elijah doth rest on Elisha." The output of the Francis Galton Laboratory for National Eugenics has been unrivalled in quality, and has had very few rivals in quantity. The history of pious foundations in England tells many stories of endowments successfully used for ends of which the founder did not dream; some stories of transformations hard to distinguish from breaches of trust; not very many where, although the original intentions of the founder are faithfully carried out, they fulfil an even more useful purpose than he had contemplated. In this select class Francis Galton's endowment has an honourable place.

It is possible that some inconveniences have resulted from the fact that the eugenic work, not only of the Galton Laboratory staff, but of those in sympathy with its objects and using similar methods of research, has been published in more than one journal. The staff of the laboratory has generally published either in *Biometrika* or in separate monographs, and in some instances this will always be the best plan. But there is an obvious advantage in having a journal wholly devoted to the scientific study of racial problems. This fact has led Professor Karl Pearson to undertake the publication of a new journal, the *Annals of Eugenics*,¹ the first two parts of which have recently appeared.

The format of the new journal is, like that of all books printed at the Cambridge University Press, admirable, and the size of page is suitable for the reproduction of charts and pedigrees. The first paper in this issue is a study (to be completed in the next issue) of the characters of Russian and Polish Jewish children in London, by Professor Pearson and Miss Margaret Moul. Its purport is "to discuss whether it is desirable in an already crowded country like Great Britain to permit indiscriminate immigration, or, if the conclusion be that it is not, on what grounds discrimination should be based." The authors suggest that unless the immigrant population attain, on the average, a somewhat higher standard in respect of racially desirable characters than that of the nation receiving them, there is a strong case against unrestricted immigration. They point out that, in the present state of psychological and medical knowledge, it would not be easy to lay down satisfactory rules. A condition precedent is evidently a careful biometric study of the immigrant population, together with that of an adequate sample of our own people. The memoir is an important contribution to knowledge of this kind. It does not appear from the results communicated that the Jewish immigrants do contrast favourably with native Gentile children.

The second memoir is a beautifully illustrated pedigree of epicanthus and ptosis by Dr. C. H. Usher. It is noted that fifteen individuals with epicanthus and ptosis are descendants of an affected male in the direct line. The third paper (also to be completed)

¹ *Annals of Eugenics*. Vol. I, Parts I and II. Edited by Karl Pearson, assisted by Ethel M. Elderton. Issued by the Francis Galton Laboratory for National Eugenics, University of London, and printed by the Cambridge University Press, 1925. (Med. 4to, pp. 255; illustrated. Annual subscription, 50s. net; double parts, 35s. net; single parts, 17s. 6d. net.)

is an analysis by Miss Ethel M. Elderton of data, provided by the medical officers of health for Rochdale, Bradford, Blackburn, Preston, and Salford, regarding infant welfare. Miss Elderton has considered the health and habits of the parents, the condition of the home, the occupation of the father, the place in family, the age of the mother at birth of child, and the employment of the mother, in relation to infant viability. Miss Elderton devotes a good deal of space to a careful discussion of the difficulties likely to be encountered in work of this kind, a discussion which should be read and re-read by those who wish to undertake similar investigations. We would particularly recommend perusal of the very clear discussion of the possible effects of selection on measures of association. We cannot, for instance, assert, without further examination, that because there is no significant association between two characters in a slum population those two characters are not in general significantly associated. We must first ascertain whether the selection implied in the choice of a "slum" population is relevant to the issue. The general sense of Miss Elderton's results is that innate factors are more important than purely environmental factors in relation to infant mortality. The last paper in the issue, by Mr. Anthony B. Hill, deals with Malthus's interpretation of the movements in time of birth rates and death rates. The association is found to be neither distinct nor easy to interpret.

We are sure that this new journal will receive a hearty welcome, and offer the editor and his collaborators our sincere good wishes for the success of the undertaking.

SIR ROBERT BOLAM.

THE announcement that the King, on the occasion of the New Year, has signified his intention of conferring the honour of knighthood on the Chairman of the Council of the British Medical Association has been applauded by all members of the profession, for the recognition of the value of the services he has rendered to it in various capacities is universal. It has naturally given very great pleasure to members of the British Medical Association, whose recent fortunes he has had so large a part in directing. Sir Robert Bolam has, in fact, been concerned in the central administration of the Association for over twelve years; he became a member of the Representative Body in 1913, and of the Council in 1915. In 1920, during the Annual Meeting at Cambridge, he was elected Chairman of the Council in succession to Dr. J. A. Macdonald, who had held office for ten years, including the troublous days of the war. The new Chairman threw himself, not only with zeal, but with zest into the duties of the office to which he had been chosen, and it has been a matter of astonishment to Londoners that he has been able to combine the continuance of active practice in Newcastle with vigorous and unwearying attention to the multitudinous duties which the Chairman of the Council has to perform in London. All members of the Council will agree that his mingled tact and firmness have made him an admirable presiding officer, and members of committees will agree with equal unanimity that he is a most effective as well as regular attendant at their meetings. Not the least of the services rendered by him to the Association has been in the acquisition and equipment of the new House in Tavistock Square, by which the central work of the Association has been greatly facilitated. There is perhaps one more word that should be added. It was said in the address which accompanied the presentation to him of the Gold Medal of the Association, at the Annual Meeting last

year, that he has the rare gift of inspiring affection as well as respect; the extent to which this is true he perhaps does not himself fully realize.

POOR LAW REFORM.

A FURTHER step has been taken in the proposed simplification of Poor Law relief. The Minister of Health has issued to boards of guardians in England and Wales a memorandum of provisional proposals (B32-707) and an explanatory circular (658). Both may be obtained from the Stationery Office, the net price being 2d. and 1d. respectively. On December 12th, 1925 (p. 1136), we referred to the issue of these proposals to county councils and other local authorities, and mentioned some of the more important principles concerned. Opponents of the proposed changes have contended that the activities of the Poor Law guardians have become so specialized as to need the supervision of an authority elected *ad hoc*, but the Minister in his circular to the guardians gives his reasons for disagreeing with this, and for believing that the sympathetic treatment of the poor will not be endangered under the new arrangements. He points out that it will be possible for members of the boards of guardians to serve as elected or co-opted members of the authorities entrusted with Poor Law administration, and that economy and the removal of certain anomalies will be secured. It may be convenient to summarize here the main points of the present proposals. Boards of guardians will be abolished, and their duties, with the exception of the registration of births, deaths, and marriages, will be transferred to county councils and borough councils, the county council exercising general supervision of the administration of all health services, and the borough councils and district councils dealing with detailed work. The registration of births, deaths, and marriages will be undertaken by "electoral registration officers" acting for counties and the county and metropolitan boroughs. Relief to able-bodied persons will be limited and correlated with unemployment insurance; expenditure will continue subject to Government audit. The joint use of institutions by various counties and boroughs will be facilitated. In London the Metropolitan Asylums Board and the Metropolitan Common Poor Fund will be abolished, and the existing staffs, property, and liabilities will be transferred to the London County Council. County councils will submit for confirmation by the Minister of Health a scheme of the arrangements proposed, and it is hoped that there will be no difficulty in securing the concurrence of other local authorities. The existing grants for poor relief, health services, and other purposes will be replaced by a system of block grants to the county or county borough council. Decentralization of the present responsibility of the Minister of Health will follow, and simplification of the financial relations between the Ministry and the local authorities, together with greater freedom for the latter in details of expenditure.

RED CROSS MEDICAL STATIONS FOR SEAMEN.

As those who attended the recent Imperial Social Hygiene Congress at Wembley were reminded, an agreement regarding the international treatment of venereal disease among merchant seamen has been signed by fourteen countries, of which Great Britain is one.¹ Under this agreement medical facilities are to be provided free for seamen in the chief ports of the contracting parties; specialist officers are to be available in the clinics, and a card which can be universally understood is to be used. The agreement, however, deals only with venereal disease, and makes no mention of the broader problem of the health of the

¹ See BRITISH MEDICAL JOURNAL, November 21st, 1925, p. 564.

merchant service as a whole. Norway, as a seafaring nation, has been seriously occupied with this problem, and the Norwegian Red Cross took the initiative in bringing it to the attention of the representatives of other Red Cross societies at the third meeting of the General Council of the League of Red Cross Societies, held in Paris in 1924. That meeting passed a resolution praising the pioneer work undertaken, in co-operation with the Governmental departments, by the Norwegian Red Cross for the improvement of health in the merchant service, recommending national Red Cross societies of all maritime countries to take the matter up, and advising the establishment of Red Cross health centres with clinics for the medical treatment of seamen. In an article in *The World's Health* for January the Norwegian representative, Dr. Harold Engelsen, argues that the provision of clinics for seamen where venereal disease only was treated might keep away some who required treatment, because a feeling of bashfulness might prevent men from applying to a centre generally known to be for venereal disease only, whereas if the centre were under the Red Cross and were known to exist for the treatment of all diseases they would be more ready to apply. Meanwhile the Norwegian Red Cross has established medical stations for the treatment of all diseases among seamen in twenty-one of its seaport towns. These medical stations have been organized on a plan as simple and economical as possible. Usually the chairman of the local health board, who discharges duties similar to those of a medical officer of health, has been appointed to act as Red Cross doctor to treat seamen of all nations applying to him. Moderate rates are charged; in most instances a sailor can pay for treatment, but often does not know where to apply for it. All ships are to be informed where the Red Cross stations are situated, and it is proposed that the doctor shall provide each patient with a small record sheet, with a red cross on it, whereon is inscribed the doctor's name, the name of the centre, the date, and the patient's name, nationality, disease, and treatment. This record would be available to doctors in other ports, and might encourage the sailor to seek treatment again in a foreign port, as it would lessen the difficulty of explaining his case. Dr. Engelsen expresses the hope that the Red Cross societies of other seafaring nations will follow Norway's lead and establish similar stations for the treatment of seamen of all nationalities. The Greek Red Cross has already given practical proof of its interest in the scheme, and the committee appointed to consider it has recommended the opening of Red Cross medical stations in the most important ports in Greece. There is to be a minor health congress in Oslo next summer, at which the Norwegian Red Cross intends to give an international demonstration. It is hoped that it may be attended by many interested in the health of seamen.

PLAGUE IN KUMASI, ASHANTI.

KUMASI, if the photographs portraying the unhygienic conditions in the report¹ before us are representative, must be considered as fortunate in having escaped the ravages of plague for so long. A warning had been given by two distinct outbreaks at Accra in 1908, with 344 cases and a high mortality (over 90 per cent.), but, as with plague and cholera in England in times gone by, a repetition of disaster was necessary to awaken thoroughly the sanitary conscience, which was probably being stirred by the recent arrival of a new medical officer of health. The history of the epidemic of 1924 is briefly told. During April and May it is probable that a few unrecognized cases occurred. In the middle of June the disease assumed an epidemic

character, and in three months there were 140 cases and 121 deaths (86.4 per cent.). It was in all probability originally ship-borne, from eastern ports, Portuguese or French West Africa, or the Canary Isles, to Lagos and thence to Sekondi, or possibly direct to the last without the intervention of Lagos. Undoubted cases occurred in Sekondi early in March, and infected persons could easily reach Kumasi within the period of incubation. Throughout the three months of the epidemic the climatic conditions were ideal for plague, the temperature being between 72.5° and 79.5° F., and the humidity 74 to 75. All types of the disease were encountered—bubonic, pneumonic (primarily and secondarily), and septicaemic. Some of the first were very acute, death taking place in less than twenty-four hours; the case mortality of this form was 78.8 per cent. Nineteen recovered after a stay in hospital of six weeks or so. All 26 who suffered from the primary pneumonic form died, and 24 cases of septicaemic plague all proved fatal in a few hours. One of the latter was a woman seven months pregnant. At the autopsy no signs of disease were found in the foetus, and splenic smears were negative. The suggested explanation that high maternal temperature had killed the foetus in an early stage hardly appears to meet the case. Great credit is due to the medical officer of health, Dr. Selwyn-Clarke, for the promptness and energy with which he formulated and set on foot measures to combat the outbreak, and to the civil authorities in affording all possible help to meet the situation. Though vaccination could not be made compulsory, by exercise of tact most of the population of Kumasi (twenty-five to thirty thousand) were vaccinated; many came also from the surrounding villages, so that in all more than ninety thousand primary vaccinations were performed. The case mortality among those vaccinated prior to infection was 53.1 per cent., as compared with 89.2 per cent. among the unvaccinated. Of the 19 recoveries 12 had been recently vaccinated. These were all bubonic cases. The vaccine was quite ineffectual in warding off a fatal issue in the other forms; 1,434 contacts were kept under surveillance for twelve days; 2.7 per cent. of these contracted the disease, the remainder being allowed to go, with the usual orders to report at once any sickness. Houses, clothing, and effects were disinfected, new premises with the Clayton apparatus, stores and concrete houses by the cyanide fumigator. Excellent examples of the value of antiserum are mentioned where two out of three patients from the same family were treated with it, the other receiving symptomatic treatment only. The former improved rapidly and recovered early; the latter also recovered, but only after an illness of several weeks. The intravenous injection of iodine, formerly recommended, proved quite ineffectual. The usual measures, such as establishing inspection posts on roads of entry and exit, rat destruction (mostly by catchers; poisoning was contra-indicated by the large numbers of domestic animals; the bacillary virus and the Rodier method were not tried), closing of schools and cinemas, and propaganda work were put in force. The report contains an appendix, in which the circulars sent out are transcribed, the prosecutions for contravening quarantine regulations are enumerated, and details of housing conditions, plans, and maps of local interest are given, the whole being well illustrated by photographs. Where so much can be said in favour, a few words of criticism will not, we hope, be resented. The report is very detailed—in fact somewhat overdetailed—and a little more time or care might have been expended in proof reading; lastly, the modern tendency to work out percentages on absurdly low figures, which is here indulged, rather detracts from than enhances the value of a report. For example, we are told that among the police the case mortality was 100 per cent. This is alarming, and might be regarded as further evidence of the unhappiness of the

¹ Report on the Outbreak of Plague in Kumasi, Ashanti. By P. S. Selwyn-Clarke, M.C., M.D., B.S., M.R.C.S., L.R.C.P., D.P.H., D.T.M. and H., Medical Officer of Health, Kumasi. 1925. Government Printing Department, Accra.

policeman's lot, until we find that only one policeman was attacked. Such are, however, minor blemishes, and we can sum up by saying that the account reflects credit on the work of all concerned, and that the outbreak, as on former occasions and in other parts of the world, proved a blessing in disguise, in that it has led to the cleaning up of the district and improvement in hygiene generally—water and food supply, modes of dealing with sewage and refuse, and all that makes for health and well-being and the prevention of epidemics.

APOTHECARIES' SOCIETY: HONORARY DIPLOMA.

H.R.H. THE PRINCE OF WALES, on the afternoon of January 5th, received at York House, St. James's Palace, the Master and Wardens of the Society of Apothecaries of London, and accepted from them the honorary diploma of Licentiate of the Society. The diploma had been prepared and illuminated by Mr. G. K. Gray, and was enclosed in an oblong mahogany casket ornamented with silver and shagreen, made by Mr. Paul Cooper and Mr. H. Soper. In the designing and preparation of the diploma and casket Mr. Oswald Barron, F.S.A., acted as honorary adviser to the Society. The Master, Dr. Vincent Dickinson, with the Senior Warden, Dr. Alfred Hepburn, and the Junior Warden, Dr. R. W. Statham, were accompanied by Mr. Samuel Osborn (a past Master) and Mr. Bingham Watson (the Clerk). Dr. Dickinson, in asking the Prince to accept the diploma, recalled briefly that the society was granted in 1617 a charter by James I, who, in representations made to him by Gideon de Laune, apothecary to the Queen, decided to separate the apothecaries from the Grocers' Company, of which they had hitherto formed a part. The Master mentioned also that the Society of Apothecaries was the only one of the Livery Guilds of the City of London which still practised its "art and mystery," and that by the Apothecaries Act of 1815, and subsequent Medical Acts, its licence was recognized as a medical qualification. The informal proceedings closed with a few words of acknowledgement by His Royal Highness.

PUBLIC HEALTH IN CHINA.

CANTON is said to be the only instance in China of a municipal government endeavouring to establish public health administration on modern lines, and the October issue of the *National Medical Journal of China* is of special interest, since it devotes more than fifty pages to a detailed report of the health of that city. In the same issue, by way of contrast, there appears a sanitary survey of Tsunhwa, a walled town with 50,000 inhabitants, situated 100 miles east of Peking, and retaining the lack of sanitary system characteristic of "old China"; it is probably typical of all Chinese towns with a population of under 100,000, as well as of most of the larger cities. Such surveys are now being made as a compulsory part of the post-graduate study of hygiene at the Peking Union Medical College, and the hope is that by this means great improvements may be effected in the near future. Dr. Chia Ku'ei, in his report on Tsunhwa, explains that the health administration is entirely in the hands of the police force, which numbered 100 to 150 five or six years ago, but has now been reduced to four. There is no special health officer, and the chief of police, even if he possessed the least knowledge of hygiene, has next to no money to spend on it. The main sanitary duties of the police are supposed to be the prevention and supervision of communicable diseases, of which the more prevalent are typhoid and dysentery, but no attempt, in fact, is made to control them. No hospital for infectious diseases exists; there is no quarantine and no notification. Tuberculosis is the greatest single

cause of mortality; cholera is uncommon, but when an epidemic occurs a large proportion of the inhabitants quickly die. In the last epidemic, in 1923, the chief of police issued pamphlets warning against unboiled water, raw vegetables, and fruits, but no action followed. Midwives are unlicensed and extremely ignorant, so that the maternal and infantile death rates are very high. There is no attempt at any form of nursing, school and factory inspection, or supervision of food. The streets are everywhere polluted with human excreta; the city has no sewer system or water supply, and refuse of all kinds is deposited in the yards or streets, where it remains until washed elsewhere by a heavy storm. This calls to mind the descriptions of London about the time of the Great Plague of 1665. In Tsunhwa to-day there is no registration of births, deaths, and marriages; and medical practice is uncontrolled, for doctors are not required to pass examinations or be licensed. An old-fashioned leech usually attaches himself to a drug store. He is not paid for his visits directly, but draws a certain amount of money annually from the store because his patients have to buy their remedies at it. There is no public health relief, and the solitary mission hospital has far too few beds. With a Government in financial difficulties health work on a large scale is out of the question, but Dr. Chia Ku'ei observes that a few simple measures, such as the control of wells and excreta, the prevention of fly breeding, the supervision of medical practitioners and midwives, and the registration of births and deaths, could all be undertaken without much difficulty or expense, and would lay the foundation of better public health. A more pleasant picture is presented by Dr. Li Ting-an's report on Canton, with its population of 800,000; this city is independent of the Peking Government, and has a municipal department responsible for the cleanliness of the streets; for the inspection and regulation of public buildings, including public baths, markets, slaughterhouses, and latrines; for the preparation of vital statistics; and for the registration of medical practitioners, drug stores, and hospitals. It has control of a small public health laboratory, of hospitals for infectious diseases, of one hospital for the insane, and exercises other minor health activities. During last year the money spent on this department is estimated to have been about one-tenth of the whole municipal expenditure, and three-fifths of that for education. No active steps are taken, however, to prevent or treat tuberculosis, but occasional public lectures are given with a view to its prevention. No preventive work against cholera exists until an epidemic arises, when instructions are posted in public places, and a few temporary regulations with regard to the sale of food and drinks are issued. At present there is no organization concerned with infant and maternal welfare, public health nursing, or industrial hygiene. Special treatment is provided for lepers and the insane, and various missionary hospitals and schools carry on very valuable general treatment and preventive work. Public latrines are kept in good order, and house refuse which is dumped in the streets is collected daily by scavengers. Attempts are being made to construct new sewerage, and some old sewer pipes, laid several hundred years ago, have been repaired. All doctors and midwives must be registered before being allowed to practise, but, unfortunately, the licence is often granted to unqualified persons, and the regulations are not strictly enforced. The existence of five small medical schools in Canton tends to improve the local conditions, but the total number of graduates annually is only about fifty, and little attention is devoted to public health in the curriculum. Much delay in improving the sanitary conditions has resulted from the war and political upheaval, but the attitude of the public towards health measures is, on the whole, very good. Small doubt is entertained that very rapid progress will be made as soon as peace is restored.

FOOD CONTROL IN THE UNITED STATES.

It is generally admitted that the arrangements for cold storage in this country to-day fall far short of those in America and other countries, and in discussing on August 22nd, 1925 (p. 349), the new Regulations for preservatives in food issued by the Ministry of Health which are to come into force at the beginning of 1927, we expressed the hope that special efforts would be made to remedy this deficiency. It must not be forgotten, however, that so far back as 1889 such questions received careful attention in England, though ten years elapsed before any active measures were taken. Even so, it may fairly be claimed that this country initiated rather than followed the modern campaign for clean food. The present position in the United States is one of considerable general interest, and therefore a recent report¹ on the supervision of uncooked foods by Dr. H. N. Bundesen, commissioner of health for Chicago, deserves notice. Dr. Bundesen traces the commencement of active measures to 1907, when Rosenau made a list of 317 outbreaks of typhoid fever, 51 of diphtheria, and 125 of scarlet fever, all transmitted by infected raw milk. Since then much attention has been paid to safeguarding the milk supply, and as a result milk-borne epidemics have been considerably reduced both in incidence and intensity. In Chicago no case of typhoid fever, diphtheria, scarlet fever, or other infectious disease has been traced to milk since 1916, when universal pasteurization was put into practice. The efficacy of this precaution was increased by bacterial examination before and after pasteurization, by a strict limitation of the temperature of this process, and by the prevention of contamination of the milk supply subsequently. It was found that the principal sources of such contamination were the imperfect sterilization of the containing vessels, and infection occurring in small establishments where hand bottling and capping were practised. Clean milk was often contaminated by the receptacles in which it was received by the consumer from shops and in restaurants. In Chicago before the end of 1923 one-third of the samples of milk and cream taken from restaurants were found to be deficient in butter-fat, and the bacterial content of the milk was considerably higher than that of bottled milk delivered at private houses. To remedy this an order was made in March, 1924, requiring all milk in restaurants to be served from approved urns, which ensured the proper refrigeration, protection, and mixing of the milk dispensed; as a result the number of "undergrade" milks fell to about 3 per cent. In large cities control of the pasteurization of cream was found much more difficult. A serious factor was the fluctuating demand, the sales of cream being higher at the week-end and falling off during the week, with the result that the cream was often kept long before it was sold. It then had a much higher bacterial content than milk. The danger of such cream, especially if infected with typhoid bacilli, was recognized to be grave, and the Chicago authorities ordered that all cream should be properly pasteurized and labelled with the date of this procedure. The popularity of ice cream in America is very great, and its possible danger as a cause of disease has received more attention there than in England, where the consumption is less. Dr. Bundesen mentions also recent typhoid epidemics in New York, Chicago, and Washington traceable to uncooked oysters. In this connexion it is interesting to recall that at the Cambridge Annual Meeting of the British Medical Association in 1880 Sir Charles Cameron reported cases of serious intestinal disease following the consumption of oysters. The late Sir William Broadbent (JOURNAL, 1895, vol. i, p. 61) reported several cases of the transmission of typhoid fever by them. While most of the principal British oyster layings are now care-

fully protected, the situation in this country is still not wholly satisfactory. There is, however, reason to believe that an oyster kept in clean water for a sufficient length of time will free itself from contamination. In America it was decided that to prevent these outbreaks no one should be allowed to sell oysters without a permit from the local authorities at the place where the oysters were grown or prepared. This corresponds to a proposal under consideration in England at the present time. Dr. Bundesen urges the importance of considering watercress as a possible source of typhoid infection, especially where the danger of contamination by sewage cannot be excluded. Thorough washing of fruit and vegetables with warm water has been found effective in removing soil or other matter containing *B. coli*, but it is not known yet whether this organism found on vegetables is human in origin, and its pathogenicity has not been established. In some lettuces contaminated with *B. coli* the cause was found to be infected ice used in packing. Dr. Bundesen recommends that all vegetables whose freedom from infection cannot be guaranteed should be cooked before they are eaten. The trouble about such advice is that people—at any rate English people—who like lettuce and watercress and cucumber are provoking enough to think that a salad boiled is a salad spoiled, and until we have a Soviet Government they will only eat these things raw.

NEW YEAR HONOURS.

THE New Year honours list contained the following names of members of the medical profession.

Baronetcy.

Sir ROBERT JONES, K.B.E., C.B., F.R.C.S., President of the Association of Surgeons of Great Britain.

K.C.B. (Military).

Surgeon Vice-Admiral JOSEPH CHAMBERS, C.B., C.M.G., M.D., Director-General, Medical Department, R.N.

Knighthood.

ROBERT ALFRED BOLAM, O.B.E., M.D., F.R.C.P., LL.D., Chairman of the Council, British Medical Association.

Lieut.-Colonel FRANK POWELL CONNOR, D.S.O., F.R.C.S., I.M.S.

HENRY ALFRED A. NICHOLLS, C.M.G., M.D., lately Principal Medical Officer, Dominica, Leeward Islands.

C.I.E.

Major ROBERT HENRY BOTT, M.B., F.R.C.S., I.M.S.

Lieut.-Colonel JOHN WALLACE D. MEGAW, M.B., I.M.S., Director of School of Tropical Medicine and Hygiene, Calcutta.

Kaiser-i-Hind Medal of the First Class for Public Services in India.

Miss JESSIE MATILDA ALLYN, M.D., Canadian Baptist Telugu Mission, Pithapuram, Madras.

Miss JENNIE CARLETON, M.D., American Presbyterian Mission, Ambala.

Miss CHARLOTTE LEIGHTON HOULTON, M.D.

Miss SHERIN HORNUMSHAW COMMISSARIAT, Superintendent, Medical Aid to Women, United Provinces.

*PROMOTIONS.**Royal Navy.*

Surgeon Commander ROBERT W. B. HALL, O.B.E., to be Surgeon Captain.

Royal Naval Volunteer Reserve.

Surgeon Lieutenant Commander ALFRED E. W. HIRD to be Surgeon Commander.

Royal Air Force Medical Service.

Squadron Leader FRANK C. COWTAN to be Wing Commander.

The following Flight Lieutenants to be honorary Squadron Leaders: GEORGE S. WARE, EDMOND F. N. CURREY, CHARLES A. MEADEN, FREDERICK E. WILSON.

Sir HENRY CRAIK, K.C.B., M.P. for the Scottish Universities since 1918, and previously for Glasgow and Aberdeen Universities, upon whom a baronetcy is conferred, is an honorary member of the British Medical Association.

¹ Journ. Amer. Med. Assoc., October 24th, 1925, p. 1285.

Canada.

[FROM OUR SPECIAL CORRESPONDENT.]

PUBLIC HEALTH IN ONTARIO.

THE chief officer of health for Ontario is striving energetically to bring about a more effective organization of the public health department, especially in the outlying country districts, and has put forward suggestions well worthy of consideration throughout the Dominion. He compares the progress made in public health in England during the last fifty years with that in Ontario since the passing of the first Public Health Act in 1882, and the establishment of a Provincial Board of Health, and shows that on the whole the comparison is favourable to Canada. The general death rate, for example, in Ontario, was 11.8 per 1,000 in 1923, and the infant mortality rate has dropped from 113.1 in 1900 (the year in which reliable records are first available) to 84.9. The tuberculosis rate has dropped from 148.6 (1900) to 65.6 (1923). The small-pox death rate is negligible, and there has been for several years a steady decline in the deaths from most of the preventable diseases. There is, however, much to be done as regards such causes of death as childbirth, cancer, organic heart disease, influenza, and infant diseases, and Dr. McCullough strongly urges the establishment of whole-time health units, instead of local health administration by small municipalities. As he puts it, "The real basis for local health administration is a competent organization constantly on the job in an area of suitable size and with a population financially able to bear the cost." He shows that there is overlapping of expenditure in the efforts of the Government, the insurance companies, voluntary health boards, and voluntary workers. The co-ordination of medical services, he considers, hinges on the appointment of full-time health officers, as the part-time practising physician will not be seriously regarded as an authority on public health by his medical brethren. He agrees with those who think that the education of the public in matters of health should be initiated and carried out by the local health unit. It is work which must in any case be complicated by the fact that within the boundaries of Ontario 407,000 square miles are embraced. As has been said, this is a subject which is of vital concern to Canada generally, and a recent editorial in the *Canadian Medical Association Journal* commends to the attention of the next conference on national medical services the problems connected with an improved sanitary organization throughout the rural districts of the Dominion. In this connexion it will be of interest to quote the statements of Dr. S. B. Woodward (*Boston Med. and Surg. Journ.*, May, 1925) in making a comparison between the amount of small-pox in Canada and in the various northern States of the Union. He combats the assertion made by health officers of these border States, that the presence of small-pox in their midst is due to its being endemic in Canada, and quotes statistics showing that the number of small-pox cases in every border State exceeded the numbers in the several provinces in Canada. "It is quite clear," he says, "that there is less small-pox in Canada than for man than there is in the United States; that the provinces in Canada have more effectual laws regarding vaccination than exist in the majority of the States; and that we are more a menace to Canada than Canada is to us."

FREEDING OF PRINCE EDWARD ISLAND FROM BOVINE TUBERCULOSIS.

For some time past plans have been in preparation to free the Province of Prince Edward Island from bovine tuberculosis. There was complete co-operation in the matter between the Federal and Provincial Departments of Agriculture, a spirit of willingness which was also found to exist among the cattle-owners of the Province. It was first necessary to secure a two-thirds vote of all the cattle-owners, and this was readily given. The owners realized what an advantage it would be to the island to have all its herds tested, an undertaking which is very easy to carry out, as there is practically only one port of entry, and the importation of stock from outside places can easily

be controlled. The result of this energetic campaign is that Prince Edward Island is now declared to be free of tuberculous cattle. Nearly one hundred thousand head of cattle were examined by qualified Federal veterinary surgeons, and of these less than one-half of 1 per cent. were found diseased, and were at once killed. A very careful quarantine against the entrance of diseased animals is now being maintained.

DALHOUSIE UNIVERSITY.

The teaching facilities of the medical school of Dalhousie University have been greatly increased by the completion of the new pathological building of the Victoria General Hospital, Halifax, for it is at this hospital that the Dalhousie medical students receive instruction in bacteriology, pathology, and public health laboratory work. The building is well designed and equipped in the most modern manner for teaching and the carrying out of research work.

CHILD IMMIGRATION INTO CANADA.

A resolution has recently been passed at a meeting of the Child Welfare Association in Ottawa urging the Government to make more rigid laws regarding the immigration of children into Canada. This was sent to the Department of Immigration, with an endorsement from the director of insane asylums and reformatory schools in the Province of Quebec; in it he referred to the large proportion of inmates of the provincial reformatory schools who were foreign born: last year it was 33 out of 115. The problem was even more grave in the western provinces, where it was found that certain organizations had been responsible for bringing out to this country children of whom a large number were mentally deficient. It is therefore urged that the examination of applicants for admission to Canada be made more thorough, even to the extent of requiring a certified family history of all children.

MEDICAL AFFAIRS IN MANITOBA.

At the last annual meeting of the Manitoba Medical Association the following resolutions were passed, among others: (1) That the Canadian Medical Association be congratulated upon its affiliation with the British Medical Association. (2) That an invitation be sent to the British Medical Association to meet in Winnipeg in 1929. (3) That recommendations be made to the Faculty of Medicine of the University of Manitoba that the number of medical students be limited, together with the adoption of some means of selection of the students admitted. (4) That organized free medical charity be placed under the direction of the organized medical profession. (5) That the question of specialization without adequate medical training be investigated.

Scotland.

GLASGOW WESTERN INFIRMARY.

At the annual Christmas meeting of the Glasgow Western Infirmary, Colonel J. A. Roxburgh, chairman of the managers, announced that the late Mr. Alexander Elder, to whom they owed the extension of the nurses' home and the building of the chapel, had directed his trustees to devote the sum of £100,000 for providing an infirmary or hospital in Govan, near the Elder Park, for poor people. We gave an account of the dedication of the war memorial in the chapel on December 19th, 1925 (p. 1196). It had previously been impracticable for the trustees to proceed with the erection of the infirmary, but a site of twenty-seven acres was acquired some time ago. Interest has meanwhile been accruing on the bequest, with a result that, after paying legacy duty and the cost of the land, the trustees still have £100,000 for the erection and equipment of the hospital and the provision of an endowment fund. The managers of the Western Infirmary are to be the trustees of the hospital, and active building is now in progress. It is intended to provide forty-two beds, but the administrative buildings will enable a larger number of beds to be provided later on when funds are available for further building. As no more than £60,000 will be

available for endowment a considerable annual sum is required to carry on the work in the new building. The new infirmary will be administered as an annexe or auxiliary hospital of the Western Infirmary.

"UNIVERSITY OF EDINBURGH JOURNAL."

The first number of the *University of Edinburgh Journal*, for the autumn term of 1925, has just appeared. This journal is intended to be the official organ of the Edinburgh Alumni Association, an organization designed to foster among former students a spirit of corporate life and to enable them to keep in touch with one another. In a foreword by Principal Sir Alfred Ewing, the hope is expressed that those who have passed out of the University will from time to time contribute accounts of what they are doing and thinking in the greater world—in the life for which their Alma Mater did what she could to prepare them. It is pointed out in an editorial note that the new association does not clash with the interests or functions of existing Edinburgh University clubs, societies, or publications, but that it may be actually helpful to these. Geographical lists of members of the University, including all faculties, are being compiled by the organizing secretary of the Alumni Association, and these will be available to the officials of local societies who may desire to get into touch with all the Edinburgh men in their area. The first issue of the journal includes articles on "New developments in the education department," "The co-ordination of the medical curriculum," "The University settlement movement," and "The Reid symphony orchestra." A list of recent bequests and gifts which have been received by the University is given, and there are several pages of short notes on University news. The editors especially invite information regarding activities of associations of Edinburgh graduates, or of local branches of the Alumni Association at home and overseas. All communications should be addressed to the office of the Alumni Association, Surgery Department, University New Buildings, Edinburgh.

QUEEN VICTORIA'S JUBILEE INSTITUTE FOR NURSES.

It was announced at the annual general meeting of the Scottish branch of the Queen Victoria's Jubilee Institute for Nurses that the successor to Queen Alexandra, who had been patron of the Institute for twenty-four years, was Queen Mary, by virtue of the Royal Charter of the Institute. Lady Mar and Kellie, speaking of the growth of the Scottish branch, said that the cases in the past year nursed had numbered 96,000, an increase of 16,000 upon those for the previous year; the total number of visits paid had been 1,617,000, as compared with 1,500,000. The number of nurses had been 1,746, an increase of 121. The Marquess of Linlithgow, in moving the adoption of the annual report, said that there was much progress and growth, for twenty district nursing associations had been added to the Scottish branch. He added that the particular tendency of medicine and surgery at the present day was not so much a matter of curing as of keeping people well; he believed that if existing medical and surgical knowledge could be made available in all its details to every home in the land, serious disease would be reduced by perhaps 25 or 30 per cent. at once. It was not science which lagged behind, but its administration in the home and the full development of the remedial which science had so far placed at the disposal of mankind. As to finance, he said that the expenditure of the Scottish branch was rising at a faster rate than its income, and there was an increase in the deficit of £945. They must therefore persuade the public to give more support. Sir Leslie Mackenzie, in seconding the report, spoke of the health visiting side of the movement, and of the lines upon which that service was developed in the counties.

ANIMAL DISEASES RESEARCH ASSOCIATION.

The appointment of Professor S. H. Caiger to the new chair in the University of Liverpool, where a department of research in animal pathology is being established, has rendered vacant the post of Director of Research of the Animal Diseases Research Association of Scotland. As will be seen from the notice in our advertisement columns, the appointment now vacant is whole-time and the salary

£800 a year. Applications must be made, before March 27th, to the secretary, Mr. A. R. Milroy, 83, Buccleuch Street, Glasgow. They will in the first instance be considered by the technical advisory committee, who will make its recommendation to the directors of the Animal Diseases Research Association.

EXTENSION OF FALKIRK INFIRMARY.

Speaking at a Christmas fair, held in the Town Hall at Falkirk to raise funds for the new Falkirk and District Infirmary, Lady Findlay of Aberlour referred to the urgent need for the establishment and extension of local hospitals, and congratulated Falkirk and district on the provision it was making, and on the present special effort, which had been organized by the wives and daughters of East Stirlingshire farmers. Within nine months, she said, about £30,000 had been raised by public subscription; with that sum and what would be added by efforts still to come, and with £50,000 which was already at the credit of the infirmary reserve fund, the managers would be able to go ahead with the building of the new hospital, and would at the same time feel quite certain of having the public support to maintain and, if necessary, to increase it.

Ireland.

COUNTY MEDICAL OFFICERS OF HEALTH.

THE Local Government Department of the Irish Free State has issued a circular to county councils drawing attention to the provisions of Section 21 (1) of the Local Government Act, 1925, which laid down that the council of every county shall appoint, with the approval of the Minister, for every county health district in such county, a medical practitioner duly qualified as such, and with such other qualifications as may be prescribed, to be the superintendent medical officer of health, and to be known as the county medical officer of health, with the distinguishing name of such county health district. The Minister is satisfied that the success of the new system of public health administration would largely depend on the proficiency of the persons chosen to fill this position. The possession of the Diploma in Public Health or equivalent degree would be, the Minister indicated, an essential qualification, and should be supplemented by practical experience of administration. With a view to promoting the training of candidates with specialized knowledge the International Health Board of the Rockefeller Foundation made a generous offer to send three medical men, selected by an independent committee, on account of distinguished records of service, to the United States to familiarize themselves with the latest developments of public health procedure. Furthermore, it was recognized that the position of the existing tuberculosis officers possessing the D.P.H. was entitled to special consideration, and arrangements had accordingly been made with the Society of Medical Officers of Health to enable such officers seeking appointment as county medical officers to acquire further administrative experience. These measures were calculated to ensure for the senior positions of the health service of the county a supply of highly qualified competitors. In the circumstances the Minister has decided that, as a condition precedent to his approval, the principle of a selection committee, which had already been found satisfactory in connexion with dispensary posts, would apply to all appointments as county medical officers of health. A bill would shortly be introduced to regulate the future procedure concerning appointments of officers of local authorities. The work in some of the smaller counties would not be such as to afford whole-time employment, and in these cases recourse would be had to a joint appointment with a neighbouring county, accompanied by equitable adjustment of the cost. On the other hand, in a county of extensive area it would rest with the county council to consider the question of subdivision. On various grounds it is considered improbable that the appointment of county medical officers of health could become effective before April 1st next. Notice will be given to the county councils as to the preliminaries with a view to an appointment, but in the meantime it should be

borne in mind that all existing medical officers of health in rural districts have been transferred to the new county sanitary authority, and that consequently the administrative organization for the protection of the health of the community remains intact.

SCHOOL MEDICAL INSPECTORS.

Professor R. J. Johnstone, F.R.C.S.Eng., M.P., on the motion for the adjournment in the Northern Parliament recently, referred to an advertisement of a county regional committee for a medical inspector of school children at a salary of £400. He pointed out that this was an important new service requiring men of experience, and suggested that the Minister for Home Affairs should use his powers of persuasion on the county councils to offer a higher salary. Mr. T. Henderson (Labour) said he did not see why an inexperienced medical man should be allowed to practise on school children, and condemned so low a salary. Sir Dawson Bates (Minister for Home Affairs) replied that the appointment of medical inspector was a matter for the local authorities, but he hoped that the persuasion of the medical profession would ensure that professional men were properly paid.

Correspondence.

PREVENTION OF PUERPERAL FEVER.

SIR,—Many articles and a number of letters on the above subject have appeared in recent years in the *BRITISH MEDICAL JOURNAL*. Not the least important is the article in your issue of January 2nd.

I have always considered that it is possible to demonstrate in a practical way the results of many of the statements which have been made in regard to the means which have been suggested for preventing the occurrence of this disease. We have throughout the country a large number of maternity hospitals and maternity homes, together with some most excellent maternity departments in Poor Law hospitals, to which women go for their confinement who have not been interfered with previously and who have had fair ante-natal supervision. Most of these institutions are in charge of an experienced obstetrician, and they have as good nursing facilities as it is possible to get. If careful records from each of these institutions were put together, one would get a demonstration of what the results would be if the education of the medical profession and of the midwifery nurse were improved, and of the results of midwifery under good aseptic conditions.

I will presume that the results will demonstrate that confinements undertaken under these conditions will show that puerperal mortality can be reduced to a vanishing point. If this can be done it will be more effective in securing for women better conditions than any opinions expressed by our most prominent obstetricians.

I am, of course, aware that at such institutions women are admitted in labour, and that attempts have been made to deliver, and that no ante-natal supervision has been carried out by the hospital or institution, and that among these there occur at the present time a certain number of cases of sepsis. It will be a perfectly simple matter to exclude this group on a definite schedule of conditions which would apply to all institutions keeping records, and if this were done these cases, which must be admitted, would not interfere with the value of the demonstration of treating women under good conditions. The expense of such an inquiry would be negligible. I have on more than one occasion urged this, and still feel sure that such a demonstration would be of the utmost value to the profession.

I am convinced that our efforts should be concentrated on the prevention of the disease, because when it is once developed very little good follows from any variety of treatment at present applicable.—I am, etc.,

JOHN ROBERTSON.

Medical Officer of Health, Birmingham.

January 4th.

SIR,—Mr. Comyns Berkeley (January 2nd, p. 4) has covered the ground pretty thoroughly; but one factor he does not stress is that general practitioners are called upon to do the most difficult and nerve-racking work when they are quite unfit for the job. After a day of ten to twelve hours' hard work the general practitioner goes to bed, entirely weary. At 2 a.m. the bell rings. Out he has to go. Quite likely the car refuses to function until the doctor is almost exhausted by winding the wretched thing. He drives to the patient's house through whatever weather happens to be supplied; and he is confronted by a difficult instrumental case. For assistant he may, or may not, have a competent nurse, who will do all she can; but the doctor must give the anaesthetic, put on the forceps, and hope for the best. If the baby is not born the doctor must slip round to the other side of the bed and give more anaesthetic, and then return to his pulling. I have done it myself scores of times; and always I have cursed my fate, and wondered why general practitioners should be content to continue exposing their patients to such hideous risks.

Often the house conditions are impossible. I have conducted a difficult instrumental case in a house where the sole illumination was a tallow candle. I had to boil my tools by the light of torches of twisted newspaper. And on that occasion my sole assistant was an old woman who was not even passably clean.

So long as midwifery is done by general practitioners who are tired out by a long day's work before they are called out in the small hours, so long will the maternal mortality figure remain high. The general practitioner is asked to do the impossible. Of course, he is an ass to go on doing it. No operating surgeon would conduct a major operation (often more easy than a "forceps case") in a cottage, with inadequate illumination, inadequate assistance, and no anaesthetist. The general practitioner does his best. And for fee?—he may get a couple of guineas; often no fee at all is forthcoming. Money is at the root of the whole trouble. Instrumental midwifery should be carried out in hospital. But there are not enough beds, because there is a lack of money for that sort of thing in hospitals. It is very difficult for an honest doctor not to be an aggressive socialist.—I am, etc.,

Walsall, Jan. 4th.

FRANK G. LAYTON.

FLOATING KIDNEY.

SIR,—Dr. Russell Andrews's instructive address on backache in women (December 26th, 1925, p. 1207), in which he refers to "floating kidney," recalls the unsatisfactory results of operations for fixation, which, as he says, have almost died out during the last few years. Kidneys so loose that they may be almost grasped in the hand when the patient stands and leans forward, have been found on routine examination where no symptoms attributable to "floating kidney" existed. Exercises gave far better results than artificial support, and the latter method is surely the last resort in young women. Our difficulty lies with overworked women and those improperly or under fed, who from disinclination or lack of convenience do not succeed with the exercises. These, however, may be so simple as to be possible in any bedroom, and I venture to mention four: (1) While lying on the back, raise the leg with knee extended and move to right and left, and repeat twelve times. (2) The same, when lying on the face; by placing a sandbag weighing 1 to 3 lb. over the ankle the effort may be increased. (3) While lying on the back with the feet held under a rail fixed to the skirting, or some heavy piece of furniture, raise the body from a sitting position. Here also the effect is to be gradually increased by holding weights in the hands, or, better, carrying the sandbag on the chest suspended by a loop round the neck. (4) For combining pleasure with open-air values, nothing is better than rowing, and this can be obtained by those who can afford it in town parks.

It will be observed that all these exercises bring the abdominal muscles into action. The personal effort involved will be acknowledged by everyone who has given any attention to the matter to be far more effective than massage. One of course realizes that all classes are the better for

the continuous supervision of an instructor, as can be obtained in the gymnasiums, while home exercises are apt to be neglected.—I am, etc.,

London, W.I, Dec. 31st, 1925.

CHARTERS J. SYMONDS.

THE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

SIR,—I am glad to see that the remarks of Sir William Taylor, at the last Annual Meeting of the British Medical Association, on the delinquencies of practitioners with regard to the recognition of intestinal obstruction, have received the adverse criticism they deserve, as I regard them as unjust. It is gratifying to note that subsequent speakers did something to soften their asperity.

It is beyond dispute that the diagnosis of obstruction may be a matter of great difficulty in the early stages. It is to be regretted that a leader of surgical thought and practice should indulge in strictures of this nature which appear to be used either for rhetorical effect or as the result of unbalanced enthusiasm. Let me give another example of a similar nature. A few years ago—I am speaking from memory—there appeared an article on the operative treatment of simple fractures, from the pen of another leader of surgical thought, the purport of which was that unless a bone was restored to anatomical alignment the practitioner might deservedly be condemned in damages in an action at law. I am under the impression that the words used were of a more forcible nature.

No doubt in both instances the intention was good, and in both good may result: in the one, by the surgeon being called at an earlier date, and in the other, by more care being exercised in endeavouring to obtain a higher standard of results by the non-operative methods; yet both I regard as damaging to the profession and dangerous in these days when the public is always so ready to blame the doctor and to start actions for negligent treatment on the flimsiest of evidence.

Let us for a moment suppose that every case of threatened obstruction reached the surgeon's hand at the earliest stage before the fatal symptoms are manifest. What would be the result of such an ideal condition? I agree with Sir William Taylor that the results of operation would probably greatly improve, but one hesitates to think what a large percentage of cases would have an abdominal section performed unnecessarily, as doubtless we have all met with cases in which no obstruction has been present at the operation, and on the other hand, cases in which we felt almost certain that obstruction existed that have cleared up to the satisfaction of all concerned without operation. No doubt the surgeon would be satisfied by saying, "Better open a dozen abdomens than fail to recognize one case"; but what about the opinion of the patient and his friends if they were aware of the facts? I rather think that an action might be brought against the surgeon with perhaps more justification than against a general practitioner for not recognizing the serious nature of the case in the early stages, as it would be said, "We sought the advice of the highest in the profession and an operation was performed which was not necessary, and which he as a leading man ought to have recognized was not necessary."

To borrow Dr. Gordon Taylor's words, the moral of the story to my mind is: rhetorical effect should not be indulged in the discussion of a scientific subject, nor should enthusiasm be permitted to obliterate all sense of proportion.—I am, etc.,

London, W.I, Dec. 31st, 1925.

DOUGLAS DREW.

RECENT INVESTIGATIONS INTO THE CAUSE AND TREATMENT OF CANCER.

SIR,—In the *Canada Lancet and Practitioner*, November, 1925, Loudon and McCormack claim to have confirmed the view that the immediate causal factor in carcinoma is the "pleomorphic micro-organism isolated by Glover and Young." They have succeeded in isolating this microbe from a large number of different kinds of cancerous growths. Their investigations have led them to the conclusion that the filterable micrococcus of Nuzum and the filterable elements described by Barnard and Gye are prob-

ably identical with the corresponding forms of the Glover and Young micro-organism, and in this respect their views coincide with the contention which I have urged in the columns of the *BRITISH MEDICAL JOURNAL* (January 10th, 1925, p. 63, and August 8th, p. 271) and in the *Journal of the Royal Sanitary Institute* (December, 1925). My general views on the cancer microbe were set out in the paper published in the *BRITISH MEDICAL JOURNAL* of January 10th, 1925 (p. 60). My former papers appeared in the *Edinburgh Medical Journal* and date from 1921. The investigations therein recorded have convinced me that, whilst this microbe possesses as alternative phases coccal, bacillary, yeast, and hyphal forms, it lives ordinarily in the cancerous tissue as a dispersed element which is so minute as to be invisible. At about the same time as I was carrying out my early investigations in Edinburgh, Glover (in Toronto, as the result of an independent piece of research) was arriving at similar conclusions, which do not seem, however, to have been published till 1924.

Further confirmation of these views is found in two papers by M. J. Scott in the American journal, *Northwest Medicine*, of April and October, 1925. Scott claims to have isolated the Young-Glover microbe from cancerous growths and, in lower animals, to have produced malignant epithelial tumours experimentally at the point of inoculation of the micro-organism. Four monkeys with such experimental growths are illustrated. Furthermore, in his latter paper, Scott claims to have cured a considerable number of cases of cancer with a serum obtained from young horses immunized against an antigen prepared from the Glover-Young microbe. He first commenced the use of the serum over three years ago. The record includes twelve cases, some of which were very advanced.

Case 1, for example, was a woman, aged 39, who in June, 1921, at the Mayo Clinic had a radical removal of the right breast for adenocarcinoma. In May, 1922, she was admitted to St. James Hospital, Butte, with secondary growths in the right axilla and supraclavicular region, involvement of the skin and swelling of the right hand, forearm, and arm. A gland was excised from the axilla and adenocarcinoma recognized microscopically. The treatment was begun in July, 1922, and lasted till May, 1923. "By January, 1923, patient was entirely free from all evidences of carcinoma and free from all swelling and soreness of hand, forearm, and arm, and has remained so to date. Since August, 1922, patient has worked regularly as stenographer, weighs 108 lb., appears perfectly well and states her health was never better."

Case 2 was a woman, aged 50, who had a microscopically diagnosed squamous carcinoma involving part of the face, entire nose, septum, roof of mouth and upper lip, with enlarged cervical glands. The patient was very emaciated and weak; weight 125 lb.; Wassermann negative. The first treatment was given in October, 1923, the last in December, 1924. "By April, 1924, all evidences of carcinoma had disappeared, and by two months later all ulcerated and eroded surfaces had completely healed and have remained healed to date. Present weight 190 lb., colour good; patient appears to be in perfect health, doing own house work and says she never felt better."

Nine other cases are recorded with cancer at varying stages and exhibiting the same improvement under treatment.

In one further case considerable improvement took place, but the patient was subsequently found to have died in another State; Scott says there is no knowledge as to whether or not a post-mortem examination was made.

Scott states that with the experience gained in the treatment of the early cases and the improvement in the preparation of the serum better results are now to be expected, and believes that many of the earlier cases which died under treatment might now be saved. These results of Scott, in my belief, constitute the most important contribution to the non-operative treatment of cancer so far published, but while this new remedy is still in the experimental stage and its full possibilities have yet to be explored it would be unwise to lead the public to imagine that a proved "cancer cure" has been discovered.

The investigations of these various workers are thus seen to confirm in a very complete manner my views on the cancer parasite first published in 1921, and they encourage us in the hope that the knowledge of this parasite which we now possess may be applied with success to the problems of treatment. I have advanced evidence (*BRITISH MEDICAL JOURNAL*, October 27th, 1923, p. 765) suggesting that vaccination with the dead microbe can protect animals in a considerable degree against experimental cancer, and it remains for us to determine how far this procedure can be utilized for prevention in man.—I am, etc.,

Edinburgh, Dec. 19th.

JAMES YOUNG.

THE RELATIONSHIP OF THE MEDICAL PROFESSION TO UNQUALIFIED PRACTICE.

SIR,—After the interesting and important discussion by the Marylebone Division (*BRITISH MEDICAL JOURNAL*, December 19th, 1925, p. 1191) it seems a pity that no formal resolution was submitted to the meeting to crystallize its opinion and act as a guide to the rest of the profession. Perhaps the discussion was too academic and placid to lend itself to so practical an outcome. It is also to be regretted that no member of the public health service contributed to the discussion, speaking entirely from the point of view of the effect of unqualified practice on public health, although it must be admitted that Mr. Bishop Harman's contribution bore in that direction. Dr. Hawthorne's fine exposition of the relationship of the profession to unqualified practice seems to err—if it does err—on the side of a too generous liberality of thought. I gather that he desires the relationship of the profession to the unqualified to be established on general principles, rather than on an analysis of the practice of both kinds of practitioners. According to this view the errors and mistakes of the qualified about balance the "triumphs" of the unqualified, and therefore no relationship can be established on an insecure basis of this kind.

While general principles may be useful guides to the profession in its attitude to the unqualified, they are apt to be mistaken by the public for what it terms "professional etiquette"—the rules of which it believes have been formulated by professional prejudice in the selfish interests of the profession. With all due deference to Dr. Hawthorne, the only way to combat unqualified practice is to expose the methods and practice of the unqualified by what may be termed the analytic method. This method, however, will never be attained until the practice of medicine and surgery is legally restricted to qualified and registered practitioners, and offenders against the law are haled to the bar of justice and there examined and cross-examined with regard to their methods of practice. Quackery thrives on mystery and secrecy, but collapses (like a soap bubble in the sunlight) when the light of a public inquiry exposes its pretensions and humbug.

Take a remarkable eighteenth century example of this—Joanna Stephens's remedies for gravel and stone in the bladder and kidney (see *BRITISH MEDICAL JOURNAL*, May 27th, 1911, p. 1270). So remarkable were the successes attributed to these remedies and vouched for by the highest in the land that Parliament was induced to purchase their secrets for £5,000: in present-day currency probably equal to £25,000. Several leading members of the profession in London of that day—Cheselden, Caesar Hawkins, Samuel Sharp—supported the application. The wonderful secrets when revealed turned out to be a powder of calcined snails and egg-shells; a decoction made by boiling some herb (together with a ball consisting of soap, swine's cress burnt to blackness, and honey) in water; pills of calcined snails, carrot seeds, burdock seeds, hips and haws, all burnt to blackness; soap and honey. When the mystery was revealed the remedy lost its virtue.

The brother of one of my insurance patients, completely blind from dense leucomata in both eyes for the past ten years, consulted an advertising eye specialist in a neighbouring city. He was charged 5s. for the first consultation, one guinea for the second, and half a guinea for subsequent consultations, and was given a small pencil of a dark substance not unlike blacklead to rub into a powder, mix with water, and apply to his eyes. If this treatment was carried out improvement in vision would follow!

A cancer curer in a large Midland town induces his patients to drink their own urine. They do it and some get cured! This instance has not come within my own experience, but it was vouched for by an esteemed medical friend who actually investigated the practice of this cancer curer. The philosophic generalities of Dr. Hawthorne may be good enough for a ruminating profession placidly chewing the cud of reflection in its own "garden," but an active profession, alive to its responsibilities and prestige, will look over the garden wall and see what is going on there.

It was surprising to learn from Mr. McAdam Eccles that Mr. George Bernard Shaw had so impressed his London audience that they even wished that they had never become

qualified and registered. It may be that Londoners are more under the influence of Shavian logic than those who live further north. Mr. Shaw, in a letter to the *Times* of October 23rd, 1925, dealing with the General Medical Council and Mr. Axham, in order to combat an allegation that he had "a down on doctors," stated, "few persons can have had more or better doctor friends than I; indeed, that is why my utterances have been so well informed." Further on in the same letter he informed the public that when he and his wife were ill as the result of an injury they had to seek the help of the unqualified and unregistered—to wit, Sir Herbert Barker and an American doctor of osteopathy at Birmingham. From this information one gathers that when the Shavian intellect requires fodder to castigate the profession, Mr. Shaw gets it from his registered medical friends—gratis, I suppose; but when the Shavian body requires treatment he gets it from the unregistered—for a fee commensurate with the time, skill, and responsibility involved. Mr. Shaw may not be "down on doctors," but he gives them an inordinate amount of his attention. Perhaps he chastens because he loves them and desires to exorcise their foibles and stupidities. It would be a change, however, if he turned his versatile intellect in another direction, and gave us a play with the quack as hero. A play based on James Graham and his Celestial Bed would make an excellent draw if it could pass the censorship of the Lord Chamberlain.—I am, etc.,

Warrington, Dec. 21st, 1925.

J. S. MANSON.

PALE BABIES AND DEEP PERAMBULATORS.

SIR,—While I quite agree with the authors of the note on "Pale babies and deep perambulators," published in the *JOURNAL* of December 26th, 1925 (p. 1224), I would like to suggest another reason for the improved colour of the baby's cheeks. I suggest that the diet, in this case, is very far from being suitable, and the colour is a danger signal and not a sign of health.

In the first place, 5½ oz. of milk and 1½ oz. of water, or 7 oz. feeds for a baby 2 months old, is far too large a volume. The capacity of the stomach at this age is 3.37 oz. In the second place, assuming that there are six feeds in the twenty-four hours, the baby gets 33 oz. of milk, giving 660 calories; and if sugar is added probably about 750 calories are given, or sufficient for a baby weighing 15 lb. The baby's weight is not stated, but at 2 months the average baby weighs about 10½ lb., and requires 512 calories (50 calories per pound of body weight). In this case, then, the baby has at least 200 calories above the normal requirements.

I suggest that the increased colour of the cheeks is an effort to eliminate the excess of calories as radiated heat, by flushing the exposed part of the body with the overheated blood, and the better circulation of air round the body, obtained by raising the baby in the pram, would tend to increase the circulation of blood in the exposed parts.

Babies living in the open air certainly require a more generous supply of calories, and so can digest a larger quantity of milk than those living in a warm atmosphere; but I repeat that it is wise to observe that an increase of colour in the exposed parts of the body may be a danger signal and not a sign of improved health.—I am, etc.,

B. A. ASTLEY WESTON, M.B., Ch.B., D.P.H.

Wellington, Shropshire, Dec. 28th, 1925.

NASAL DOUCHING.

SIR,—Dr. Coyne's letter on this subject (January 2nd, p. 37) ends with the question, "Are we going to tell our patients that nasal douching is dangerous?" Personally I am *not*; but I am going to point out to them that they must let the solution trickle out and on no account blow the nose until the fluid has disappeared, otherwise they will blow the diluted discharge into the Eustachian tubes. I am inclined to think that a watery agent is apt, after prolonged use, to thicken the mucous membranes and I prefer an oily one.—I am, etc.,

London, W.C.1, Jan. 5th.

GRAHAM GRANT.

Obituary.

LOUISA ALDRICH-BLAKE, D.B.E., M.D., M.S.,

Dean of the London School of Medicine for Women.

A brief announcement was made in the *JOURNAL* of last week of the death of Dame Louisa Aldrich-Blake, which unexpectedly occurred on December 28th, 1925, at her house in Nottingham Place, Marylebone. Although for some little time past her health had caused anxiety to her friends, yet it was characteristic of her reticence regarding her own trouble that only those who were most intimate with her were aware of her condition. Up to the last she was engaged in active work. She was operating at the Royal Free Hospital a month previously, and had attended a School Council meeting only a week before she died.

Louisa Brandreth Aldrich-Blake was the daughter of the Rev. F. J. Aldrich-Blake, and was born in 1865 at Chingford, Essex, of which parish her father was at that time rector. She was educated chiefly at home and then for a year and a half at Cheltenham Ladies' College, where she passed the Preliminary Scientific Examination (now the First Medical). In 1887 she entered the London (Royal Free Hospital) School of Medicine for Women, and in 1892 she passed the examination for the M.B. degree of the University of London with first class honours in medicine and obstetric medicine. In the following year she graduated B.S., also with first class honours, and qualified for the gold medal. She obtained the degree of M.D. Lond. in 1894, and the M.S. Lond. in 1895. She was the first woman holder of the latter degree.

In 1895 Miss Aldrich-Blake was appointed assistant surgeon at the Elizabeth Garrett Anderson Hospital. She became full surgeon in 1902, and senior surgeon in 1910, which post she only relinquished at the beginning of 1925, but still remained on the consulting staff. She was the first woman to hold the posts of surgical registrar, anaesthetist, and lecturer on anaesthetics at the Royal Free Hospital; she held these posts for several years. Soon after the war Miss Aldrich-Blake was invited by the Royal Free Hospital to become a member of the consulting staff. She discontinued her active surgical work there only about a month before her death. In February, 1906, Miss Aldrich-Blake had been appointed Vice-Dean of the London School of Medicine for Women. She succeeded Miss Cock as Dean in 1914. Despite the distinguished positions she held elsewhere, Miss Aldrich-Blake for many years continued as surgeon to the Canning Town Women's Settlement Hospital. The distance was considerable and the eastward journey must have been irksome, yet the house-surgeon could always

depend on an immediate and willing response to a call for Miss Aldrich-Blake's valued help.

It is difficult to realize how one individual could have successfully accomplished all the war work which Miss Aldrich-Blake undertook. Immediately upon the outbreak of war she was very active in equipping a group of medical women who were prepared to go to Brussels, but, as it eventually proved impossible to establish a hospital there, the unit began work at Château Tourlaville, near Cherbourg, in the autumn. She herself worked at this hospital during the Christmas vacation, 1914-15. During the summer vacations of 1915 and 1916 she worked at the hospital at Royaumont of which Miss Ivens was in charge, thereby relieving her for a time. In the spring of 1916 Miss Aldrich-Blake approached all the women on the *Medical Register*. From the replies received, eighty women were sent to

hospitals in Malta, Egypt, or Salonika in August and September, 1916. In October, 1916, on hearing from the War Office that fifty more medical women were needed for service with the R.A.M.C. in English hospitals, Miss Aldrich-Blake again negotiated with all the women who had qualified in the preceding ten years, and secured the requisite number in a very short time. While she was thus supplying and equipping doctors, and herself acting as relief in her own vacation time, she was also doing double duty at the Royal Free Hospital. She continued this work until the return of the regular surgeons in 1919. She was also visiting surgeon to the W.A.A.C. Hospital at Isleworth throughout its existence, and consulting surgeon for the women patients at the Herbert Hospital, Woolwich. All this extra work, in addition to her own private practice, was quietly and unostentatiously accomplished. Her work received



DAME LOUISA ALDRICH-BLAKE.
(After the portrait by Sir William Orpen, R.A.)

Royal approval when she was created Dame Commander in the Order of the British Empire among the New Year Honours of 1925.

Miss Aldrich-Blake contributed an article on "Pain as a symptom of pelvic trouble" to the *Practitioner's Encyclopaedia of Midwifery and Diseases of Women*, and an article on "Abdomino-perineal excision of the rectum by a new method" to the *BRITISH MEDICAL JOURNAL* in 1903. She had long been a member of the British Medical Association, and at the Annual Meeting at Bradford in 1924 she held the office of vice-president of the Section of Obstetrics and Gynaecology. She was an active and valued member of the Reception Committee which had charge of the arrangements in connexion with the Royal opening of the Association's new House in London last summer, and in that capacity was one of those presented to the King and Queen during the ceremony on July 13th.

None worked harder than the Dean for the accomplishment of a fitting memorial of the jubilee of the London

School of Medicine for Women—namely, the establishing of three chairs. At the jubilee dinner held in the Guildhall in 1924 striking testimony of the affectionate regard of students past and present was given. When the Dean rose to speak repeated cheers were given in an outburst which, on retrospection, seems to have been accompanied by more than usual emotion. Dame Louisa Aldrich-Blake's professional work was distinguished by an efficient thoroughness which, coupled with her characteristic self-effacement, gave to her personality its distinctive charm. As colleague, teacher, and dean she will be mourned by all the medical women and students who had the honour to be associated with her.

The funeral took place on January 1st from the School of Medicine for Women, the service being held at St. Pancras Church. After the cremation the ashes were taken to Dame Louisa's home at Welsh-Bicknor, Ross, Herefordshire. A message of personal regret and sympathy was received by the School of Medicine for Women from Her Majesty the Queen, expressing the loss she feels has been sustained by the profession. Many were the floral tributes sent from various associations and groups of people expressing the affection held for her by those with whom she had worked. The funeral service was attended by representatives of all the institutions with which Dame Louisa had been connected, and of many medical bodies and charitable organizations, together with a large number of medical men and women who had been associated with her in professional or private life. The University of London was represented by the Vice-Chancellor, Professor Gardner; the Royal College of Physicians by the President, Sir Humphry Rolleston, Regius Professor of Physic at Cambridge; the Royal College of Surgeons by Mr. Walter Spencer, Vice-President; the Ministry of Health and the Board of Education by Sir George Newman; the Royal Society of Medicine by the President, Sir St. Clair Thomson; the British Medical Association by Dr. Christine Murrell (member of Council) and Dr. C. Courtenay Lord (Assistant Medical Secretary); and the Medical Women's Federation by Dr. Jane Walker and Miss Frances Ivens.

The following appreciations of the work and character of this most distinguished medical woman have been contributed at our request by colleagues and friends:

Miss M. M. CHADBURN, M.D., B.S., senior surgeon, South London Hospital for Women; late surgeon, Elizabeth Garrett Anderson Hospital, writes:

As one of the few medical women who entered the London School of Medicine for Women on the same day as Dame Louisa Aldrich-Blake, and one who has been her colleague ever since, until her too early and much lamented death, I would add my tribute to her memory.

My recollection of Miss Aldrich-Blake as a student was that of a shy, quiet, steady, solid personality, invariably producing brilliantly good work without any fuss or trouble. It soon became evident that to specialize in surgery was her aim, and I remember we thought her lucky in that owing to private means she could afford to wait the opportunity. She did not have to wait, however, as the only opening to practise surgery as a specialist likely to occur for years came at the right moment in her career, and she was appointed surgeon to the Elizabeth Garrett Anderson Hospital (then the New Hospital for Women). It was equally as fortunate for the hospital to have secured Miss Aldrich-Blake's services as it was for the inexperienced brilliant young aspirant to surgery to have acquired her opportunity of which she was to make such splendid use.

Miss Aldrich-Blake qualified at a time when opposition to women in the profession was still very marked, and here again she was a source of strength to the cause; any work she did was sure to be good; her serenity, equanimity, and self-reliance could stand the jars undisturbed which might have upset the even tenor of work for many people. Happily combined in her character were capacity for great intellectual achievement, a grave sense of responsibility, and real administrative power. She was impartial in judgement, just even towards what she most disliked or disapproved. I have often, in her younger days, heard her described by her senior colleagues as "a pillar of strength."

The shyness of her younger days to a great extent wore off with time and the necessities of her prominent position and varied experience, but by nature she was shy and quiet, rather than retiring. She was ready to do all the work that came to her hand, but it came to her rather than that she sought it, and it came to her because of the excellence of her doing. Her physique was such that hard work was easy to her.

Miss Aldrich-Blake was not a fighting pioneer, as Miss Jex-Blake and Mrs. Garrett Anderson had to be, but she was a necessary sequence to their work if the position of medical women was to be established—a pioneer in solid, brilliant work, a pioneer whose character influenced for good all who came in contact with her, and one to whom, fortunately for her, it fell to demonstrate rather than to fight. I doubt if she could have fought actively; it was not in her nature, though she could certainly sit tight and hold on against opposition, and this without any ill will to those fighting her; she expected the truth to win by its own weight.

I have known her work well and intimately all her working life, and never known it to fall below the best; second best was unknown to her. She was not a quick thinker, but her judgement was excellent. She gave full time and thought to every case, whether minor or major. As an operator she was bold, courageous, level-headed, thoughtful; her hands were good to watch at work—her finger-tips obviously carried brains in them. Miss Aldrich-Blake was one of the first English surgeons to do Wertheim's operation for carcinoma of the cervix uteri (see *BRITISH MEDICAL JOURNAL*, 1905, vol. ii, p. 699); she also developed and improved the technique of the abdomino-perineal route of excision of the rectum.

Miss Aldrich-Blake was loved, admired, and esteemed alike by colleagues, patients, and friends. As Dean of the Women's Medical School she was very popular with the students; her character and attitude towards her profession was a profound influence for good among them. It can be truly said of her that she has joined

"the choir invisible
Of those immortal dead who live again
In minds made better by their presence: live
In pulses stirred to generosity,
In deeds of daring rectitude, in scorn
For miserable aims that end with self,
In thoughts sublime that pierce the night like stars
And with their mild persistence urge man's search
To vaster issues."

Lady BARRETT, C.B.E., M.D., writes:

Dame Louisa Aldrich-Blake was one of the first medical women in active practice whom it was my privilege to meet when I entered hospital as a student. I remember she impressed us all as being a woman brilliant in surgical work, level-headed in judgement, and singularly unconscious of herself or of possessing unusual ability. We took it for granted that her help was always available for any who (as she would have put it) thought it worth having. She was somewhat shy and reticent, alike to colleagues and juniors. This characteristic made it perhaps difficult for many to know her intimately, but by all she was entirely trusted. This has been proved in the course of many years by the number of her colleagues who turned to her instinctively when needing surgical help for themselves. As Dean of the London (Royal Free Hospital) School of Medicine for Women she has done a great work. Her balanced judgement and sympathetic appreciation of both sides of debatable questions have been invaluable in the deliberations of the council for over ten years, and her selfless outlook on life has enabled her to be a unifying influence, drawing ever closer the bonds between the educational work of the Medical School and the philanthropic side of the hospital. She has set a high standard for all who follow after.

Dr. ARTHUR G. PHEAR, C.B., senior physician to the Royal Free Hospital, writes:

Dame Louisa Aldrich-Blake was one of those rare and noble characters for whom self-interest counts as nothing. She was indifferent to worldly success, yet to her came, unsought, professional success and worldly distinction in no small measure. Her dominant motive was service, and

throughout her active life she devoted herself to the welfare of the medical school of which she was dean, and of the two hospitals on the staffs of which she served as a distinguished member. Perhaps it was in the fulfilment of her responsibilities as Dean of the London School of Medicine for Women that she found her greatest opportunities. Here indeed she proved herself one of those who "give counsel by their understanding." She was accessible to all, and all came to her, students and staff alike, when they were in any difficulty, assured of a sympathetic hearing and of wise and helpful advice. She found ample scope for her unusual administrative faculties on various committees of both school and hospital, and her insight and wide experience were of great value in promoting the harmonious working of the two separate, though co-ordinated, institutions. Of her it might have been truly said that "labor vitæ vita est," and to her life's work she brought human qualities of sympathy and a wide understanding that endeared her to all with whom she had to do. From her devotion to the interests of others there sprang a measure of serenity and happiness that lasted to the end, undimmed by the suffering of her later days, and the memory of her example and personality will remain as an enduring help and encouragement to all who knew her.

Dr. MARX SCHARLIEB, C.B.E., President of the London (Royal Free Hospital) School of Medicine for Women, writes:

From her student days Dame Louisa Aldrich-Blake was always remarkable for her unselfishness, modesty, and truth. Great as she was as a surgeon and as an administrator, she was far greater as a guide and leader among medical women and students. All this was clearly demonstrated during the last difficult and painful eighteen months of her life. She knew her fate, and she suffered much disability, but never once did she falter, never once was she wanting in cheerful performance of her manifold duties. Her winning smile and serene gaiety of manner persisted to the very end, and one of her last acts was to secure yet one more benefit to the hospital she served so well.

RICHARD CATON, C.B.E., M.D., F.R.C.P.,

Emeritus Professor of Physiology and Consulting Physician, Royal Infirmary, Liverpool.

It is with great regret we have to record the death, at Haslemere, Surrey, of Dr. Richard Caton, one of Liverpool's honoured citizens and a highly esteemed member of our profession. His health during the past six months had not been good, and he suffered from sciatica, which greatly impeded his usual activity. Mentally alert, he sought the South to escape the chilly months of the North; although retired from medical practice, he continued to take a keen interest in the university, and was an active member of the University Council down to the time of his death.

Dr. Richard Caton belonged to a Lancashire family originating in Heysham and Caton. He was born in 1842, and received his general education at Scarborough Grammar School, where he developed a taste for classics which he assiduously cultivated throughout his life. He received his medical education at Edinburgh University, where he graduated M.B., Ch.M. in 1867. In 1868 he settled in Liverpool, and was soon identified with the Liverpool Royal Infirmary School of Medicine, and had his share in its development into the Medical Faculty of the University College of Liverpool. In 1870 he became M.D. Edinburgh, receiving the gold medal for his thesis on migration of leucocytes. Dr. Caton did some original work on localization of movements in the cerebrum in the early seventies, and owing to his interest in physiology was appointed lecturer in that subject in the then School of Medicine. This post he held until the Holt chair of physiology was founded, when he became the first professor of physiology in the new University College. When he relinquished this chair he was succeeded by Professor Francis Gotch, and was accorded the title of Emeritus Professor for his long and distinguished services. Dr. Caton was one of the most active promoters of university education in Liverpool. He was a seer in this respect, and the idea of the University College being one of the constituent colleges of Victoria University, Manchester,

received his full support. This connexion existed until 1903, when the University of Liverpool was founded and the University College merged in it. His interest in university education in Liverpool did not diminish. He served the university in many capacities; he was its first representative on the General Medical Council, and held that office down to the time of his death. He had also been Pro-Chancellor.

Dr. Caton was a painstaking physician and a good teacher in clinical medicine. He paid special attention to diseases of the heart, and published an interesting and suggestive monograph, *Prevention of Valvular Disease of the Heart*. He took great interest in the foundation of the new Heart Hospital shortly to be opened in Liverpool. He warmly supported the cause, and recognized at the outset the importance of such a hospital for diseases of the heart. When he retired from the active staff of the Royal Infirmary he was appointed consulting physician, and afterwards held the office of president. In the Liverpool Medical Institution he held the office of vice-president in 1881 and president in 1896, and celebrated in 1919 the jubilee of his membership. His public services were recognized by the Universities of Liverpool, of Edinburgh, and of Padua by the conferment of the LL.D. degree. At Padua Dr. Caton represented the University of Liverpool at the 700th anniversary of the foundation of that famous seat of learning.

Dr. Caton was keenly alive to the importance of a high standard of public health, and his name has been associated with every form of progress in the city. A man of such varied interests and accomplishments naturally attracted the attention of the civic rulers, and in 1907, amid universal approval, he was chosen Lord Mayor of the city. If Dr. Caton was a party man he was so only for the advancement of the well-being and welfare of the city. As long as progress was being made he cared little which party performed it. He realized the importance of example and the constant reiteration in the most telling language of the rules of health. He ever insisted on the personal equation, and reminded all and sundry that slums were due in large measure to the ignorance of the rudiments of personal health. Dr. Caton travelled a good deal and was fond of mountain climbing. His fondness for the classics brought him the chairmanship of the Liverpool branch of the Classical Association, and he was a member of the Hellenic Society. He travelled in Greece and published papers on *The Temples and Ritual of Asclepius, Hippocrates and Cos*, and *The Medicine and Medicine God of the Egyptians*.

Dr. Caton took a great interest in the cathedral, and was at one time joint honorary secretary of the executive committee. During the war he was honorary colonel, West Lancashire Division, R.A.M.C., and was indefatigable in his efforts for securing the comfort and nursing of the sick. He was chairman of the Nursing Service Committee (Liverpool branch), British Red Cross Society, and in March, 1920, received the decoration of C.B.E. in recognition of his services.

As a man to meet for the first time his affability was a striking feature; he had the happy knack of placing new acquaintances at their ease. Singularly free from pettiness of mind, he made full allowance for the foibles of human nature. Generous almost to a fault, he did a great deal of quiet unostentatious charity, and many have been relieved in their necessities, never knowing who the generous friend was.

Dr. Caton married the daughter of the late W. S. Ivory, W.S., of Edinburgh. Two daughters were born, one of whom is the wife of Professor Ormerod, professor of Greek at the University of Leeds. Dr. Caton had been a widower for some years; but his life had been rendered happy by the solicitude of his daughter. Dr. Caton leaves behind a host of sorrowing friends in all ranks of society, a fragrant memory of a life well spent, a race well run, and an example to be followed by all who love their fellow man.

Dr. V. C. DE BORNVILLE (Liverpool) sends us the following tribute to his memory:

As one who has been intimately associated with the late Dr. Caton, as his family physician, for the past eighteen years, I venture to write these few lines. In Dr. Caton,

as all who knew him will agree, there has passed from our midst a great man, a good man, and a gentleman. It is doubtful whether our profession, in spite of its high calling, and all that it does to bring out that which is great, good, and gentle in human character, has ever brought forth a man in whom these fundamental qualities taken together were more highly developed. His genial and remarkable personality imprinted itself upon everybody who came in contact with him, but only those who knew him best could appreciate his determined yet humble devotion to duty in the service of his fellow men, and, it should be added, of his God. Even when much too ill to work, he was not satisfied unless he was doing something in response to this high calling, whether in relation to national, civic, or professional betterment; and it was a bitter disappointment to him when he was with difficulty persuaded to leave Liverpool and to go to Haslemere, in the hope—alas! in vain—that his old and failing body would outlive yet one more winter. But though his body was old his mind was ever young, full of knowledge whose mass was unresistingly driven as by some divine force always to be helping his city, his nation, his race. His familiarity with anthropology, archaeology, the Bible, the classics, and modern science, kept that broad mind in touch with the line of continuity that has made the human intellect what it is to-day, and rendered him a master as well as a student of human nature. But he was also able to look beyond all those mental impressions which permit of analytic perception, and to probe into what he believed, and, by example, made others feel, to be the divine sphere of reality itself, showing, not by argument nor by attaching himself to the unsatisfying tenets of any particular philosophical doctrine, but by sheer force of character, that religion and science are not incompatible. For he never worked for self-advancement nor from selfish motive, but with singleness of purpose accompanied by a delightful sense of humour and charming friendliness he lived to do good and did it, making all his hard labours, his great learning, and his inimitable gift of refinement subserve that one end.

JOHN GRAY MCKENDRICK, M.D., LL.D., F.R.C.P. Ed.,
F.R.S.,

Emeritus Professor of Physiology, Glasgow.

THE death took place in Glasgow, on January 2nd, of John Gray McKendrick, Emeritus Professor of Physiology in the University of Glasgow. He was born at Aberdeen in the year 1841, being the only son of James McKendrick, merchant of that city; he received his education there, and graduated M.D. in 1864. His original intention was to engage in general practice, but while acting as surgeon in the hospital at Fort William he met Dr. Hughes Bennett, at that time professor of physiology in the University of Edinburgh, who offered his assistantship to Dr. McKendrick. The post he accepted, and soon gained for himself a great reputation as a teacher. For some time also he acted as a lecturer on the institutes of medicine in the Extra-Academical School at Edinburgh. He joined the Royal College of Physicians at Edinburgh as a Fellow in 1872. In 1867 he married Miss Mary Souttar, daughter of Mr. W. Souttar of Aberdeen. In 1876, on the death of Professor Andrew Buchanan, he was elected to the chair of physiology in the University of Glasgow, and in this post he spent thirty years, retiring in 1906. In Glasgow he gained a great reputation, both as a teacher and as an observer of physiological facts. Besides the work of regular teaching of medical students he found time for much original research, showing, as the titles of his published communications indicate, particular interest in the peripheral nervous system and the special senses. The development of the physiological department at Glasgow University owes much to his energy. On the death of Professor Bennett, Professor McKendrick had purchased his apparatus and diagrams for the benefit of the class in Glasgow University, and to his encouragement of physiological research is largely due the great development which has taken place in recent years in this department of Glasgow University.

He was a Fellow of the Royal Societies of London and Edinburgh, and the Universities of Aberdeen and Glasgow had both recognized his contributions to science by conferring upon him the honorary degree of LL.D. During the course of the active period of his life he had at various times held the post of examiner in physiology at the Universities of London, Edinburgh, Birmingham, Oxford, Cambridge, and Durham. He was for a time Fullerian Professor of Physiology to the Royal Institution of Great Britain; he twice delivered the Thomson Lectures at the Free Church College of Aberdeen, and for a time acted as one of the lecturers in connexion with the Gilchrist Trust. When the British Association met in Glasgow he was president of its Physiological Section, and he had served on the councils both of the Royal Society and of the Royal Society of Edinburgh.

Two years after becoming professor of physiology in Glasgow he published his *Outlines of Physiology*; which attained a great success, and in 1888 he produced his well known *Textbook of Physiology*. The first volume, "General physiology," appeared in 1883, and the second, "Special physiology," in the following year. In 1879 he had published his lectures on the history of physiology, and in 1892 he brought out *Life and Motion*, a contribution to the relations subsisting between nerve and muscle. He contributed many papers on physiological subjects to current scientific literature, of which most appeared in the *Transactions and Proceedings* of the Royal Societies of London and Edinburgh; among the most valuable of these were papers dealing with physiological acoustics and experimental phonetics. Many of his books and papers were of high literary quality, although almost all he wrote had more or less connexion with his own special subject of physiology. Among these are included a *Life of Helmholtz*, which he produced in 1899, the *Boyle Lecture on Hearing*, delivered at Oxford in 1899, *Science and Faith*, also produced in 1899, and *Christianity and the Sick*, which appeared in 1901.

During the early days of his assistantship at Edinburgh he came to a great extent under the influence of John Goodsir, who was professor of anatomy, and of John Hughes Bennett, who occupied the chair of physiology. These master minds in medical research exercised a great influence upon his future attitude towards scientific inquiry. His subsequent work with Sir James Dewar, which showed that light produced electrical changes in the retina, was a contribution of the highest value to physiology. He was also one of the earliest workers upon the relation of chemical constitution to physiological action, which had a most important bearing on the development of pharmacology. Following Carl Ludwig, he was one of the earliest in this country to introduce graphic methods in recording physiological observations, and he used them especially in demonstrating the relations between nerve and muscle, which formed one of his most important lines of research. Another important study which he undertook was the explanation and experimental illustration of Helmholtz's work on the theory of musical and vocal tones. For this purpose he showed how the curves on the wax cylinders of the phonograph, reproduced on a magnified scale, illustrated the theories of sound and voice-production.

Perhaps Professor McKendrick's most outstanding gift was that of clearness and aptness of illustration, which made him a valued and popular lecturer. He had the ability of making his subject of intense interest to his students and attracting their attention. The same qualities gained for him the various appointments, which we have already mentioned, as lecturer to various institutions, and on several occasions he was chosen to deliver the popular lecture at the annual meeting of the British Association. When he retired from the chair in Glasgow in 1906 the General Council of the University presented to him his portrait, painted by Mr. J. H. Lorimer, R.S.A., together with a sum of £450, which was devoted to the equipment of a laboratory of experimental psychology in the physiology buildings of the University. After his retirement he lived chiefly at Maxieburn, Stonehaven, where he took an active interest in local affairs, and was Provost in 1910. Professor McKendrick, whose wife died

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in 1898, is survived by two sons and one daughter. One son is a medical practitioner in Glasgow, and the other is superintendent of the Royal College of Physicians' Laboratory at Edinburgh.

Dr. JAMES MURIE, who was, half a century ago, a well known African traveller and explorer, died in the infirmary at Rochford, Essex, on December 21st, 1925, aged 93. He was born at Glasgow in 1832, and was educated at the University in that city, where he graduated as M.D. in 1857, also taking the L.F.P.S.G. in the same year. He went out to Africa soon after he qualified, and there made the acquaintance of Livingstone and Speke. Consul John Petherick was appointed, in 1861, to lead an expedition in support of Speke and Grant, who had started on the journey in the course of which they discovered the source of the Nile, and Murie got the post of medical officer and naturalist on Petherick's staff. This expedition reached Gondokoro just four days too late to relieve Speke and Grant; it lasted over two years, and Murie made important collections of the flora of a country then almost unknown. After returning to England he applied for the post of medical officer with Livingstone's Zambesi expedition, but Dr. (afterwards Sir John) Kirk was chosen. Dr. Murie then settled in London, and became assistant secretary, and afterwards librarian, to the Linnean Society; also lecturer on comparative anatomy at the Middlesex Hospital, and physician to Bethnal House Asylum. St. Andrews University conferred the LL.D. on him in 1877. He was also a Fellow of the Royal Geographical Society, and of the Linnean Societies. Some thirty years ago he retired to Leigh-on-Sea, where he occupied himself in studying the fisheries of the Thames estuary. He was a member of the Kent and Essex Sea Fisheries Committee, and the author of two volumes on the subject. Latterly he had become almost altogether a recluse, and seems to have weakened in intellect, as was not unnatural at his great age. A few days before his death he had a stroke of paralysis, and was removed to the Rochford Workhouse Infirmary for treatment. When his condition became known the South Essex Division of the British Medical Association held a meeting to take steps to look after him, but it was then too late, as he died two days afterwards. Dr. J. F. Walker of Southend attended the funeral service on December 23rd at Leigh-on-Sea Parish Church, as representative of the South Essex Division.

Dr. JOHN PREST WIGHTMAN of Newby, near Scarborough, died on December 19th, 1925, aged 57 years. He studied medicine at St. Bartholomew's Hospital, and took the diplomas of the English Conjoint Board in 1891. He had served as house-surgeon to the Hospital for Children, Myrtle Street, Liverpool, assistant medical officer at the Sanatorium for Consumption, Bournemouth, and as medical officer to the York Dispensary. Some seven years ago he took up practice at Scalby and Newby, in conjunction with Dr. B. G. Forman of West Riding Medico-Chirurgical Society, the York Medical Society, and the Scarborough Division of the British Medical Association. He contributed several papers to the *BRITISH MEDICAL JOURNAL* and other periodicals on enteric fever in childhood, haemophilia, and empyema. Throughout his life he was a keen lawn tennis player, and was very fond of music and singing. He leaves a widow and one son, who is a medical student at Cambridge. At the meeting of the York Medical Society held on December 19th sympathetic reference was made to the loss the society and the profession generally had sustained by his death.

We regret to record the death, on December 1st, 1925, of Dr. JOHN JAGGER PICKLES. He was born in 1851, and received his medical education at Leeds, where he won the gold medal of his year. After obtaining the M.R.C.S. Eng. in 1873, and the L.R.C.P. Edin. and L.M. in 1874, he served as assistant resident medical officer, and later house-physician, to Leeds General Infirmary, and house-surgeon

at the Bradford Infirmary. For fifty years he carried on a large general practice in Leeds, retiring from it three years ago. He was honorary surgeon to the Leeds Tradesmen's Benevolent Society, a steward of the West Riding Medical Charitable Society for many years, and president in 1914. Dr. Pickles was one of the best known practitioners in the city. Of his six sons five became doctors, and all served in the war, two being killed. His wife predeceased him by eight years. A colleague writes that Dr. Pickles was a man for whom everybody had a good word. He was one of a group of medical practitioners who were closely bound together in a long-standing fellowship based upon mutual respect and cordial affection. No cloud of suspicion or misunderstanding was ever allowed to come within their circle. Dr. Pickles was one of the most highly appreciated stewards of the Medical Charitable Society for the West Riding of Yorkshire, a regular attendant at the meetings, and an enthusiastic advocate of its claims on the profession.

We regret to record the death of Dr. REGINALD WOOLSEY Stocks of West Bromwich, which took place on December 19th, 1925. He was the son of the late Dr. Frederick Stocks of Wandsworth, and received his medical education at St. Thomas's Hospital Medical School. He took the diplomas of M.R.C.S., L.R.C.P. Lond. in 1907 and that of D.P.H. Birm. in 1909. After serving as clinical assistant in the ear and throat department of St. Thomas's Hospital, Birmingham, he practised in London for some three years. In 1911 he was appointed deputy medical officer of health and school medical officer at West Bromwich, and two years later, on the death of Dr. Manley, was appointed medical officer of health. He took a keen interest in child welfare and clinic work. During the war Dr. Stocks served first as special sanitary officer to a hospital in India. He was afterwards as surgeon to a hospital in the British Medical Association, and deputy representative (nominated by the public health service members) in the Representative Body at the Annual Meeting at Bath.

Dr. WILLIAM NETTLE of Liskeard, who died on December 23rd, 1925, aged 77, was a native of Liskeard, and received his medical education at St. Bartholomew's Hospital. He took the diplomas of M.R.C.S. and L.S.A. in 1870, and after serving as house-surgeon to the Royal Cornwall Infirmary succeeded to the practice of the late Dr. Alfred Prideaux. For ten years he was a member of the Liskeard Town Council and was mayor on four occasions. He was a borough and county magistrate, was a late lieutenant-colonel in the R.A.M.C., T.F., and held the Volunteer Decoration. He was medical officer of health for the borough and rural district for a long period, but had resigned the latter appointment a fortnight before his death. Dr. Nettle, who was ex-chairman of the East Cornwall Division of the British Medical Association, is survived by his widow and one daughter.

Dr. DAVID RHYS JONES of Cardiff died on December 22nd, 1925. He was born at Ffynnon Wen on September 22nd, 1845, and was educated at the Grammar School, Newcastle Emlyn, and Carmarthen College, and subsequently at University College, London. He took the diploma of L.S.A. in 1875 and that of L.R.F.P.S.Glas. in 1881. After serving as a medical officer of the Three Counties Mental Hospital, Carmarthen, he started practice on his own account in Cardiff in 1889. Two years ago he resigned the post of medical officer and public vaccinator under the Cardiff Board of Guardians, which he had held for twenty-seven years. He took a warm interest in everything appertaining to Wales, and was highly esteemed by all with whom he came in contact.

Dr. DANIEL ALOYSIUS O'SULLIVAN, who died at Bath on December 30th, 1925, aged 82, was educated at the Catholic University, Dublin, where he gained the gold medal in

materia medica, medical jurisprudence, and practical chemistry in 1864. He took the diplomas of L.R.C.S.I. in 1869 and L.R.C.P. Edin. and L.M. in 1873, and subsequently the degree of M.D. (*honoris causa*) was conferred upon him by the National University of Ireland. He had practised in Cork, Burnley, Southport, and London. Dr. O'Sullivan took great interest in the work of the British Medical Association, was a member of the council of the Lancashire and Cheshire Branch for 1897 and 1898, became vice-president of the Branch in 1899 and one of its representatives on the Central Council of the Association in 1900-1, was a co-opted member of the Council for the period 1903-5, and was a member of the Parliamentary Bills Committee in 1901.

Dr. JOHN GOUGH NOLAN of Wigan died suddenly on December 15th, 1925, at the early age of 31. He was a native of Southport, and after receiving his early education at St. Edward's College, Liverpool, proceeded to the University of Manchester, where he graduated M.B., Ch.B., with distinction in surgery, in 1919. In the same year he took the diplomas of the English Conjoint Board. He served as resident medical officer at the Northern Hospital for Women and Children, Manchester, senior house-surgeon and house-physician at the Manchester Royal Infirmary, and assistant medical officer at the Barnes Convalescent Hospital at Cheadle. He subsequently removed to Wigan, and became assistant surgeon to the Wigan police. Dr. Nolan was assistant honorary secretary to the Wigan Division of the British Medical Association.

Dr. AGNES ELIZABETH HENDERSON, who died on December 29th, 1925, was the daughter of the late Sir William Henderson, LL.D., Lord Provost of Aberdeen from 1886 to 1889. She received her medical education at the London School of Medicine for Women, and in Vienna and Brussels, obtaining the diplomas L.R.C.P., L.R.C.S. Edin., and L.F.P.S. Glas. in 1889, and the M.D. Brux. degree in 1890. She was one of the senior medical missionaries of the United Free Church of Scotland, and went out to India in 1890 to work among the women in the Central Provinces, where she was in charge of the hospital at Nagpur. During the war she held an appointment for some time in England as a medical officer to the women and girls in munition factories. She retired from active work in 1922, but continued to live in Nagpur, and devoted her energies to raising funds for the new hospital. She received the M.B.E. in 1923 in recognition of her services to India. She returned to England in the early summer of last year.

Dr. DE-NOS, founder of the Société Internationale d'Urologie and member of the Académie de Médecine, has recently died at Pondicherry while in charge of a medical mission to India.

The Services.

DEATHS IN THE SERVICES.

Lieut.-Colonel James Sullivan Green, R.A.M.C. (ret.), died at Gleanworth, co. Cork, on December 1st, 1925, aged 64. He was educated at Trinity College, Dublin, where he graduated B.A., M.B., and Ch.B. in 1883. He entered the army as surgeon in August, 1885, became lieutenant-colonel after twenty years' service, and retired, on account of ill health, in September, 1916. He served on the north-east frontier of India in the Manipur campaign of 1891, receiving the frontier medal with a clasp; in Burma in 1891-92, with the Travaddy column (clasp); and in the South African war from 1899 to 1902, when he took part in the operations in Natal, including the actions at Elandslaagte, Reibfontein, and Lombard's Kop, and the defence of Ladysmith, and later in operations in the Transvaal, Orange River Colony, and Cape Colony, receiving the Queen's medal with five clasps, and the King's medal with two clasps.

Lieut.-Colonel Bernard Langley Mills, R.A.M.C. (ret.), died at Sheffield on December 28th, 1925, aged 64. He was born at Bishop's Lydeard, Somerset, on June 6th, 1861, and was educated at Edinburgh, where he graduated as M.B. and Ch.B. in 1882, and as M.D. with commendation in 1885. He also studied in Paris, and took the M.R.C.S. in 1892, the F.R.C.S. Ed. in 1896, and the D.P.H. of the Edinburgh Colleges in 1900. He served as surgeon on January 30th, 1886, he after twenty years' service, and retired. After his retirement from the army he got the appointment of medical officer to the education committee, Sheffield. He served

on the north-west frontier of India, in the campaign of 1897-98, on the Malakand, in the operations in Buner, Bajaur, and the Mammund country, and in the attack and capture of the Tanga Pass, receiving the medal with a clasp; and in South Africa in 1900-01, receiving the Queen's medal with five clasps. He also rejoined for service on the outbreak of the recent great war in 1914.

Lieut.-Colonel Maurice Forbes White, Indian Medical Service, died at Bombay on December 4th, 1925, after an operation. He was the youngest son of the late John Forbes White, LL.D., of Aberdeen, and was born on July 9th, 1877. He was educated at the university of that city, where he graduated M.B. and Ch.B. in 1901. He took the D.T.M. at Liverpool in 1910. After filling the posts of assistant house-surgeon of Leicester Infirmary and resident surgeon of the General Dispensary at Birmingham, he entered the I.M.S. in January, 1901, and attained the rank of lieutenant-colonel in July, 1923. He served throughout the recent great war—in Egypt in 1914-15, in France and Belgium in 1915, and with the Egyptian Expeditionary Force in 1916-18; he was twice mentioned in despatches (June, 1918, and June, 1919), and received the French Croix de Guerre (May 15th, 1917) and the O.B.E. (June 3rd, 1919).

Lieut.-Colonel Arthur William Tremblay, Bengal Medical Service (ret.), died at New Milton, Hants, on December 17th, 1925, aged 59. He was born on August 7th, 1866, the son of Frederick Henry Buist of Seane, Perthshire, and was educated at Edinburgh, where he graduated as M.B. and Ch.B. in 1883, and as M.D. thirty years later, in 1919. While a student he assumed the name of Sparks in addition to his own, and entered the service as Buist-Sparks, but dropped the name again in 1898. After filling the post of house-surgeon in the Edinburgh Royal Infirmary he entered the Indian Medical Service on January 31st, 1891, became lieutenant-colonel after twenty years' service, and retired on July 5th, 1921. He went into civil employ in the Punjab in 1893, and remained in that province for the rest of his service, except when delegated to military duty. He served in the Tchi campaign on the north-west frontier of India in 1893, gaining the frontier medal with a clasp, and in the recent great war from September, 1915, to January, 1919, when he was mentioned in despatches in the *London Gazette* of July 4th, 1916.

Universities and Colleges.

UNIVERSITY OF OXFORD.

As examination for the Christopher Welch Scholarship in Biology, 1926, will be held at the University Museum in March next. The scholarship is of the annual value of £100 and will be tenable for four years from the beginning of Michaelmas term, 1926. Candidates must be male undergraduate members of the University who have not exceeded the twelfth term from their matriculation. They may offer any one of the subjects botany, animal physiology, and zoology.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on December 16th. The following were recognized as teachers of the University in the subjects indicated:

Medical School.—Dr. A. T. Gow (medicine),
Laryngology.
School.—Dr. Anthony Peeling and Dr. Eric
Ham S. Dawson and Dr. Alfred A. W.
Thomas Benton (mental diseases).

The regulations for the second examination for medical degrees for internal and external students were amended by the substitution for lines 26-28 (Red Book, 1925-26, p. 233) and for lines 16-18 (Blue Book, September, 1925, p. 224) of the following words: "A practical examination, not exceeding six hours in length, including:—"

It was decided to instruct the examiners in physiology at the second examination for medical degrees that one optional question in physical chemistry, as applied to physiology, be included in each of the written papers in physiology at this examination.

The following have been constituted Boards of Examiners for the first and second examinations for medical degrees in 1926; the chairman of the respective boards is indicated by an asterisk:

Inorganic Chemistry.—H. J. Evans and *C. S. Gibson, together with the
r. falling him, W. Rushton) and *E. J.
Examiners.
mond, J. A. Hewitt, W. W. Huxley,
C. H. Candy, W. B. Tuck, G. W. Ellis,
*Professor G. S. Gibson,
arley-Smith, W. E. Le Gros Clark,
Wright, Mrs. Lucas Keene, J. E. S.
Frazer, together with the external examiners.
Physiology.—J. P. Hill, R. J. S. McDowall, C. A. L. Evans, J. Mellanby,
G. W. de P. Nicholson, *M. S. Pembrey, H. E. Roaf, Swale Vincent,
J. H. Woodger, B. J.
Pharmacology.—A.
N. Mutch, O. F. F.
B. J. Collingwood, together with the external examiners.

Sir Holburt J. Waring has been elected chairman of the Athletic Appeal Committee.

Essays or dissertations on "The value of the various methods of investigating diseases of the pancreas" intended for the Rogers prize of the value of £100 must be received by the Vice-Chancellor at the University by April 30th. It is open to all persons whose names appear on the *Medical Register*. Further information can be obtained on application to the Academic Registrar.

Medical News.

THE first social evening of the Royal Society of Medicine for 1926 will be held on February 1st, when Dr. F. J. Poynton will give an address on *aerostation and doctors*, a subject in which he has taken special interest for the last twenty years. For the social evening on March 1st Dr. Gustave Monod will come over from Paris to give an address entitled "From Cagliostro to Coué, or Imagination as a Method of Treatment." At the social evening in May Sir Humphry Rolleston, Bt., will mark his translation to the Regius professorship by giving an address on "Some Worthies of the Cambridge Medical School."

A NEW series of post-graduate lectures at the Hospital for Sick Children, Great Ormond Street, W.C.1, will begin on Thursday, January 14th, at 4 p.m. They will be continued on succeeding Thursdays, at the same hour, till April 8th. A series of demonstrations is being given at the hospital on Wednesdays until March 10th.

THE Fellowship of Medicine announces that the Prince of Wales's General Hospital is holding an intensive course from January 11th to 23rd, which will include morning demonstrations of clinical methods, lecture demonstrations of selected cases in the afternoons, and work in the general and special departments of the hospital; lectures at 4.30 p.m. will be given free to members of the North-East London Post-Graduate College and of the Fellowship. The opening lecture will be given by Dr. Eric Pritchard on the principles of nutrition. A series of demonstrations of acute infectious diseases will be given by Dr. Frederic Thomson at the North-Eastern Fever Hospital on Wednesdays at 2.30 p.m. and Saturdays at 11 a.m. from January 13th to 30th. From January 18th to 30th the Queen's Hospital has arranged a special course in diseases of children; morning and afternoon sessions will be held. Also from January 18th to 29th there will be an all-day course in cardiology at the National Hospital for Diseases of the Heart. The opening lecture of the Fellowship's new series will be delivered by Dr. Herbert Spencer on January 21st at 5 p.m. at 11, Chandos Street, W., on abdominal palpation in pregnancy (with lantern demonstration). These lectures are free to medical practitioners. A copy of each syllabus and of the programme of the general course arranged by the Fellowship may be had from the Secretary, 1, Wimpole Street, W.1.

THE annual meeting of the Society of Superintendents of Tuberculosis Institutions will be held at 122, Harley Street, on Monday, January 18th, at 3 p.m. There will be a discussion on occupational therapy, and papers will be read by Dr. J. E. Chapman, Dr. J. R. Lord, Mrs. Kimmins, Dr. Jane Walker, and Dr. Esther Carling. Dr. A. Lucas Hammond will read a paper on phthisical psychology.

AT the meeting of the Medico-Legal Society, at 11, Chandos Street, W., on Tuesday, January 19th, at 8.30 p.m., Drs. Godfrey Carter and Herbert Southgate will open a discussion on the excretion of alcohol in urine as a guide to alcoholic intoxication.

COLONEL R. J. BLACKHAM, C.B., C.M.G., C.I.E., D.S.O., M.D., has been elected a member of the Court of Common Council of the City of London.

DR. C. LEVADITI of the Pasteur Institute, Paris, will give an address on "Recent Advances in the Chemotherapy of Syphilis" at the Dermatological Section of the Royal Society of Medicine on Thursday, January 21st, at 5.30 p.m.

THE sixty-third annual issue of the *City Diary* has a full introductory section, giving particulars of the Corporation of the City of London and a complete record of the Masters, Wardens, and Courts of the Guilds, together with details of every other municipal organization of the City. The diary is published at 2s. by the *City Press*, 148-9, Aldersgate Street.

Revue d'Actinologie is a new French quarterly edited by Drs. E. and H. Biancani, and devoted, as its subtitle indicates, to the study of ultra-violet and infra-red light. The October-December issue contains original articles by Dr. C. Benoit on the physical and physiological properties of infra-red rays, new investigations on rickets by the editors, heliotherapy and the quartz lamp in local tuberculosis by Dr. Armand-Delille, the actinotherapy of endocrine glands by Dr. J. Saidman, and the treatment of generalized acne by ultra-violet rays by Drs. A. Fraikin and A. Buril, as well as reviews and abstracts from current literature.

THE following nominations have recently been made in the Swiss faculties of medicine:—Geneva: Dr. Charles Juillard, extraordinary professor of industrial accidents; Dr. François Naville, lecturer in medical jurisprudence; and Dr. Bujard, extraordinary professor of normal histology and embryology. Lausanne: Dr. Preissig, professor of psychiatry, and Dr. Ramel, professor of dermatology.

DRS. DE LAPERSONNE, Hutinel, Pierre Marie, Chauffard, and Weiss, formerly professors of the Paris Faculty of Medicine, have been nominated honorary professors.

M. MARCHOUX, professor at the Institut Pasteur, has been elected a member of the Académie de Médecine of Paris, in place of the late M. Mesureur of the Assistance Publique.

ON his retirement from the post of medical officer of health for the burgh of Peterhead and also from general practice in the town Dr. Norman Davidson was entertained at dinner by members of the town council and others on December 23rd, 1925, and received a presentation.

A STREET in Brussels near the university has been named after the late Professor A. Depage, and one of the principal streets in Valencia has been renamed after the celebrated histologist, S. Ramón y Cajal.

AN international post-graduate course will be held in Vienna from February 8th to 20th, with special reference to diseases of the digestive organs and disturbances of metabolism, together with their treatment. The course will be followed by practical work in small classes. Applications should be addressed to the Dean, Professor Richard Vasicky, Schlüsselgasse, 22, Vienna VIII, from whom further information may be obtained.

MESSRS. W. HEFFER AND SONS, LTD., Cambridge, hope to publish in February a new (seventh) edition of S. W. Cole's *Practical Physiological Chemistry*. It has been revised and two new chapters on biological oxidations and reductions and on the analysis of blood have been added.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

THE TELEGRAPHIC ADDRESSES are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

ORAL STENOSIS.

DR. J. HOYTE (Katanga) asks for advice in the following case: Two years ago (he says) a middle-aged native man came for treatment in the camp hospital here. He was suffering from severe tertiary yaws, with extensive ulceration affecting the lips and nose; in fact, these parts were almost completely destroyed and replaced by a dirty sloughing ulcer. Treatment by potassium iodide stopped further spread of the ulceration, and within four or five weeks the healing was complete. Unfortunately the accompanying cicatrization was intense, and resulted in reducing the "mouth" to a small circular orifice, not half an inch in diameter, in the centre of a tough scar. It is difficult to conceive how he talks, eats, and breathes through a hole which will only admit the tip of the little finger! However, he has subsisted for two years now, but is begging me to give him a more sizable sort of mouth. I would be most grateful if some surgeon would tell me of an operation (if any) which could be performed by a non-expert with reasonable hope of success.

We have referred this question to Mr. H. D. Gillies, F.R.C.S., who has been good enough to send us the following reply:

It is difficult to advise in a case such as this without examination or photographic record of the patient. The safest procedure in the circumstances would seem to be as follows:

First Stage.—Starting in the submaxillary triangle of the neck, two parallel incisions are carried down for eight inches over the

clavicle on to the chest. At no portion should the parallel lines be separated by less than two inches. This strap of skin and subcutaneous tissue is raised and sewn with its skin edges together on its posterior surface, making a tube pedicle flap, according to the method I have described in other situations. By suitable undermining the neck skin can be approximated beneath the pedicle flap, which is left attached above and below. Drainage should be provided in the neck.

(Interval of 1 to 2 months, preferably the latter, should be allowed.)

Second Stage.—(a) Division of pedicle from chest. Opening of seam of pedicle enough to cover two-thirds of lower lip. (b) Dense scar tissue excised from lower lip and pedicle sutured into raw area provided on both skin and mucous membrane aspects.

(Interval of 1 month or longer.)

Third Stage.—Division of neck end of pedicle; opening up of the seam; excision of the remaining scar tissue, and pedicle "draped" round new oral aperture.

The excision of scar tissue must be complete.

INCOME TAX.

Partnership; Decease of Partner.

"PUZZLED" writes: A, B, and C were in partnership and made up their accounts to December 31st; in January, 1925, A died and B and C took over the practice, and paid both instalments of the tax payable in 1925—that is, as for the year ended April 5th, 1925. A's executors refunded his share for the first instalment, but demur to refunding more than half of the second instalment, although by far the greater part of the money received up to April 5th was for work done before A's death, for which, of course, A's executors received his share.

* In our opinion the executors are right. "Puzzled" should bear in mind the fact that the tax in question is for the profits of the year 1924-25, not for the cash received in that year. Since A's death all the profits belong to B and C, and they are liable to account for tax accordingly. It is true that in computing the assessment the cash receipts have been taken as the gross income, but this is merely as a matter of convenience and because in the long run the amount of cash received over a period of years should be equal to the value of the professional bookings. Having arrived at an assessment by that means, the question of cash, as distinct from bookings, should be put on one side, and the matter looked at as if the assessment represented the profits or earnings of the practice for the financial year, whether received in cash or still on the books.

Bad and Doubtful Debts.

"G. H. G.'s" firm base their income tax returns on bookings rather than on cash receipts; are they justified in deducting a percentage of the bookings as representing the probable amount of bad debts, and if so, what percentage?

* This is one of the most difficult questions arising on medical practitioners' returns. The legal position is that the practitioner is entitled to a deduction for bad and doubtful debts, but the onus of establishing what is a fair amount rests on him. The final decision lies with the District Commissioners of Taxes, and we understand that in some cases they require evidence in the form of a schedule of outstanding debts setting out the nominal amount and probable value of each debt. However reasonable such a requirement may be in the case of a trader claiming an allowance in respect of a comparatively small number of doubtful debts, it is, we feel, unfair in the case of a medical practitioner whose fees are notoriously not only difficult to collect, but also subject to deductions on grounds which would not carry much weight as regards debts between, say, a manufacturer and his customers. In the circumstances we regard a percentage deduction as a legitimate form of computation. As regards the percentage that should be selected, it is impossible for us to suggest a figure. Bearing in mind that the practitioner can be called upon to defend his claim, and also that it must depend largely on the circumstances of the particular practice, the best suggestion we can offer is that the books for previous years should be examined to ascertain what has, in fact, been the average loss by bad debts, and the percentage so calculated applied to the amount of the book debts outstanding at the close of the period forming the basis of the average.

LETTERS, NOTES, ETC.

ESTIMATION OF SUGAR.

DR. J. BARFR SMITH (London, S.E.) writes: In the *JOURNAL* of November 26th, 1925 (p. 1040), I mentioned a crucible lid for easily ascertaining a glycosuric urine, even when it contains only small quantities of sugar, such as 2 per 1,000, from a droplet of urine. Permit me to say that the Thermal Syndicate, Ltd., make a small

silica disc (No. T/A9/121) for the purposes of my char test, etc. I have always used a silica crucible lid, and the small silica disc should be still more advantageous; its great smoothness, however, has no great advantage. When we realize that so small a quantity as a fiftieth part of a milligram of sugar will be evidenced by the residue char left after washing and rubbing the carbonized droplet of urine, it seems that the char test should be of universal use by medical practitioners, even for quantitative, as well as qualitative, estimation of sugar, both in blood and in urine. The stickiness of the extract, the odour of caramel when discolorization begins, and the adherent residue char, are all characteristic of quantity, and one droplet of urine the size of a large pin's head is sufficient.

RHEUMATOID ARTHRITIS: ITS SEPTIC ORIGIN.

DR. GAVIN A. E. ARGO (Nigbol, Upper Assam) writes: In his note on "Rheumatoid arthritis: its septic origin" (October 24th, 1925, p. 773) Major-General Sir Patrick Hehir states that all classes of Indians wash their mouths after every meal, and infers that by so doing pyorrhoea alveolaris is prevented. In the past few months I have examined the mouths of between 1,200 and 1,300 adult Indians, and approximately 91 per cent. of them have pyorrhoea alveolaris. I have not noted what percentage of these wash their mouths after meals, but am informed it is a more or less general custom. Washing their mouths with water after meals may get rid of a certain amount of food debris, but it is not clear how this custom gets rid of the tartar and pockets, which all these Indians show, and without getting rid of which it is difficult to see how the pyorrhoea is very much benefited.

ECHINOCOCCAL CYSTS IN CAMELS.

IN reply to Dr. J. C. Milne (Hurgada, Egypt), who asked a question about the occurrence of echinococcal cysts in camels (*BRITISH MEDICAL JOURNAL*, December 19th, 1925, p. 1206), Dr. G. W. Sudlow (Stoke-on-Trent) writes: Whilst serving as a temporary officer in the R.A.M.C. I was stationed, in the summer of 1918, in the Kharga Oasis, Libyan Desert. One unit under my charge was a company of Miknir Camel Corps. Their camels were Indian, not Egyptian. After several unaccountable deaths of camels in their lines the Special Service officer attached to them asked me one day to see a sick camel. It was a fine beast, as were they all, apparently in their prime, and much larger and finer than the Egyptian camel. The history was that it had been off its feed for a few days, and was obviously ill and in pain. It died that night, and next day I conducted a *post-mortem* examination—no mean task. I found practically every abdominal organ riddled with cysts, large and small. I sent specimens of liver and kidneys for bacteriological report, which in due course confirmed my diagnosis (*post-mortem*) of hydatid disease. In all I made five or six *post-mortem* examinations on similar cases occurring in their camel lines within a few weeks. In my series of cases I saw both pleural and peritoneal cavities involved by the disease, also lungs, liver, spleen, and kidneys. The Indian officers of the camel corps kept dogs, which had the run of the camp, and the surrounding desert abounded in jackals, so that the source of infection was not far to seek. The camels' fodder was tiffin; this was stacked in the open in the camel lines, and evidently was being urinated upon by the infected dogs and jackals.

THE FIRST LONDONERS.

DR. FERDINAND RHYNS (Southend-on-Sea) writes: If your annotation (December 12th, 1925, p. 1133) correctly represents what Professor Parsons said in his lecture on the prehistoric races, "The Mediterranean race, usually called the Celtic race, were the first race, the round Barrow or Beaker people, intervened between the Iberians and the Celts? I am not disinclined to believe it, but it certainly has not been stressed up to now. Taylor, in *The Origin of the Aryans*, says: "but as there can be little doubt that the people of the round barrows introduced into Britain what is usually called 'Celtic' speech, it will be convenient, though perhaps incorrect, to designate the people of the round barrows as the Celtic race." The question is, were they what we have been accustomed to call Goidels, or did the Goidelic wave of Celts come after them? Professor Rhys does not seem to know anything about these Beaker folk: he only talks of two Celtic waves, the Goidelic and the Brittonic. Professor Parsons is made to say that the Goidels or Gaels were believed to have passed rapidly to Ireland, Scotland, and the Isle of Man, and that the Brittones, reaching this country about 600 B.C., probably called themselves Cymry. But Professor Rhys makes it quite clear that the name Cymry, or Comrades, was only adopted by the Brythons after Cunedda came down from the Northern Wall with his Brythons, who conquered the Goidels who were then in power in the north-west and in a great portion of the south of what is now known as the Principality of Wales. The Princes of Wales always from this time claimed descent from Cunedda Gwledig, or Ruler.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 32, 33, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at pages 19 and 20.

A British Medical Association Lecture ON INSULIN TREATMENT OF DIABETES:

WITH PARTICULAR REFERENCE TO
THE COMPLICATIONS OF DIABETES AND TO SURGERY
IN DIABETICS.*

BY

J. A. NIXON, C.M.G., M.D., F.R.C.P.,

PROFESSOR OF MEDICINE IN THE UNIVERSITY OF BRISTOL; SENIOR
PHYSICIAN TO THE BRISTOL ROYAL INFIRMARY; CONSULTING
PHYSICIAN TO SOUTHMEAD HOSPITAL, BRISTOL.

The death of a diabetic patient is never strictly a death from diabetes; it is a death due to some preventable complication of diabetes or to an intercurrent disease. Diabetics certainly die of pneumonia, tuberculosis, cancer, nephritis, apoplexy, and even of old age, and it is true that their resistance to any disease is lessened. Yet the main causes of death in diabetes down to the present time have been coma and gangrene.

How frequently coma is accountable for the fatal ending in diabetes can be realized from the figures given by Joslin¹ from his own clinic, where 66 per cent. of the deaths down to 1915 were due to coma, and from von Noorden's clinic, where the figure was 58 per cent. Von Noorden and Joslin show by their statistics how much more common coma is in young than in older diabetics. Fitz and Murphy,² in their analysis of the causes of death in diabetes, demonstrate that death from coma without some complicating infection is relatively rare at any age. Joslin has observed that nearly all diabetics who die in the first year of their disease die of coma. The explanation of this appears to be that on the discovery of the disease there is a great risk that the diet will be suddenly changed. If carbohydrates are restricted while protein and fat are simultaneously increased, coma may ensue forthwith.

Infections and an ill balanced diet constitute the chief dangers, therefore, of diabetes. The dangers of a diet containing an excessive proportion of fat are not even now sufficiently recognized. Since the introduction of insulin coma has become avoidable in practically every case. Infections more than anything else are responsible for serious diminution of carbohydrate tolerance in diabetes. These infections may be classified under two headings—general and local.

GENERAL INFECTIONS.

Pneumonia was responsible for 52 out of 887 deaths in Joslin's series, yet diabetics do not all die when they develop pneumonia—there were 13 recoveries. Influenza appears very fatal amongst diabetics when it comes in epidemic or pandemic form; sporadic cases stand a better chance of recovery. Tonsillitis, whooping-cough, dysentery, and erysipelas are dangerous complications; but diabetics may pass unscathed through measles, mumps, scarlet fever, varicella, and even whooping-cough. It is interesting to note that acute rheumatism very rarely attacks a diabetic patient.

Tuberculosis deserves more particular attention. Banting³ has said that tuberculosis in diabetics usually progresses rapidly and ends fatally. This is not invariably the case; not infrequently the phthisical diabetic will live many years as a chronic invalid. Diabetes may sometimes disappear when tuberculosis intervenes. The intervention is often insidious. Pyrexia is characteristically absent, hæmoptysis is rare, so that any loss of weight can be mistakenly attributed to diabetes. I have been surprised occasionally to find in chronic diabetics extensive signs of pulmonary tuberculosis which had been unsuspected. Suspicion of tuberculosis should be aroused whenever an unexplained improvement of carbohydrate tolerance is seen in diabetes. Allen suggests a reason for this increased tolerance, in that fasting and loss of weight will improve

the tolerance of the severest diabetic patients. The advent of insulin enables us to feed tuberculous patients with adequate diets, so that the diabetic consumptive is now no worse off than the non-diabetic in respect of nourishment.

LOCAL INFECTIONS.

Local infections are really more important than general. Septicæmia is a commoner cause of death, for example, than pneumonia. Joslin gave 6.9 as the percentage death rate from pneumonia of his fatal cases of diabetes; the figure for the general population of Massachusetts was 6 per cent. of the total deaths.

Other important local infections are boils, carbuncles, and gangrene. It may cause surprise to find gangrene mentioned among the local infections. The form of gangrene seen in diabetes is not as a rule the sudden complete blocking of a large vessel. When this occurs, as it does occasionally, the patient generally shows advanced arterio-sclerosis, and the case should be regarded as senile rather than diabetic gangrene. Such a patient may not survive amputation because of diabetes; thus diabetes may contribute to his death. But true diabetic gangrene is commonly caused by some local infection to which the soft tissues respond by a rapidly spreading necrosis. Comparatively slight injuries may lead to severe gangrene. Without insulin surgical intervention may do no good; with insulin treatment it may prove unnecessary; if insulin alone is not sufficient to check the progress of the gangrene it will contribute wonderfully to the success of an operation. Joslin⁴ considers that the majority of cases of gangrene are due to injuries occurring to unclean feet, and he has therefore laid down an almost surgical drill for the care of diabetic feet.

Boils and carbuncles are important examples of local infection; they will be considered later with other skin complications.

Many local infections present grave problems when they complicate diabetes, although they may not result even indirectly from diabetes. Gall stones, cholecystitis, and pericholecystitis may be suspected of being in some instances the precursors or exciting causes of diabetes. Seeing that we are often called upon to consider their treatment after diabetes has been established for some time, in practice they become complications. No one should hesitate to operate in such cases on account of the diabetes. Operation may distinctly improve the state of the pancreas. The patient should, if possible, be given a preparatory course of insulin; it need not be long—two or three weeks are often sufficient to bring the blood sugar to normal, to restore the patient to an adequate carbohydrate diet, and to repair his nutrition.

Appendicitis and perinephric abscess may be so acute as to permit of no delay for preparatory insulin. In such cases large doses of insulin accompanied by glucose should be started at once, before or after the operation. Coma and suppuration are very grave dangers in these urgent operations. As an illustration of the dosage I may quote the case of a diabetic woman of 73 who underwent an urgent operation for gangrenous appendicitis. Before the operation she was living comfortably on 20 units of insulin (divided into two doses) daily. After the operation the insulin was increased to 20 units four times in the day. This dosage kept the urine sugar-free, but her blood sugar three hours after a feed was as high as 222 mg. per 100 c.c.m. of blood. During convalescence the insulin was reduced to 15 units twice a day.

Dental abscesses and pyorrhœa are chiefly dangerous by lowering the carbohydrate tolerance, and as such need treatment. In diabetics all bad teeth should be removed, and all pockets of pus must be cleared out. Without insulin, general anaesthesia brings the risk of coma, and infiltration of the gum with local anaesthetics may give rise to sloughing.

NON-INFECTIVE COMPLICATIONS.

Among complications other than the infections arterio-sclerosis takes an important place, especially in protracted cases. It seldom occurs in young diabetics, and when it does it should lead to a suspicion that congenital syphilis

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INSULIN TREATMENT OF DIABETES.

JAN. 16, 1926]

diabetes, and such patients show a terrible proneness to a low form of erysipelas and cellulitis." That was a true picture of pre-insulin surgery, but now it need never be seen. As Lawrence³ says, "with insulin to aid us operations can be undertaken with practically the same safety as in normal individuals." In general, minimal operative intervention is indicated in diabetic patients, yet it must be radical enough in gangrene and infection to rid the patient of a focus likely to diminish carbohydrate tolerance. Surgeons and physicians sometimes delay surgical procedures in diabetes which in non-diabetic patients would be resorted to early and with favourable results. Yet early recognition of surgical complications, acute appendicitis, suppurative cholecystitis, pelvic suppuration, strangulated hernia, and, above all, gangrene, brook less delay than in normal individuals. Joslin⁴ has remarked that the complaints of diabetes to-day are one-quarter surgical, and if surgical delays are dangerous in ordinary circumstances, in diabetes they are disastrous.

The two principal dangers of operation are coma and sepsis. Both these dangers can be done away with if insulin is administered adequately and persistently. Many diabetics do not require insulin while in their usual health; dieting alone suffices for them, but when any operation becomes necessary insulin may be urgently needed to render them fit for it. After operation they may be able to dispense with further insulin and resort to simple dietetic measures once more. It is not the case that when a patient begins insulin it must be continued during the whole of a lifetime. A sufficient degree of carbohydrate tolerance may be re-established by the very operation which rendered insulin temporarily needful. Operation cases are of two sorts—emergencies without time for preparatory insulin, and deliberate operations which allow time for preparation with insulin.

In emergency operations, where glycosuria is present without acetone or diacetic acid, 20 units of insulin may be injected before the anaesthetic is begun. It may be objected that there is danger in administering insulin without first determining the history of thirst, polyuria, and either obesity or emaciation, will distinguish the case from one of renal glycosuria with a low blood sugar. The probabilities of encountering renal glycosuria are not actually great. Moreover, glucose should always be at hand for oral, rectal, or intravenous administration in any event, since there is a chance that the dose of insulin given to a patient without previous blood sugar estimation will prove too large and produce symptoms of hypoglycaemia. This possibility would never deter me from giving insulin before an emergency operation. Hypoglycaemia is a less evil than an operation on a diabetic without insulin. As soon as possible the blood sugar should be estimated in order to regulate subsequent dosage. During after-treatment my practice is to tell the surgeon to order glucose rectally or in any other way he thinks advisable, just as though the patient had not diabetes. I then give insulin before each administration of glucose in the proportion of one unit of insulin for each gram of glucose ordered. If it is found that the blood sugar is high I add extra insulin; but as the case progresses I am careful to watch that the blood sugar does not fall below normal. It is carbohydrate that the post-operative case of diabetes needs; I give insulin so that the carbohydrate may be utilized, checking the intake of carbohydrate and the blood sugar in order to ensure that the patient is profiting by the carbohydrate. This, I believe, is the secret of making surgery safe for diabetics.

If there is time for deliberate preparation before operation, the blood sugar should be determined and the patient placed on an adequate diet *plus* insulin. There must be no attempt to prepare a diabetic for operation by starvation or undernutrition. This is inviting disaster. If on an adequate diet the patient's blood sugar is not at a safe level insulin sufficient for an adequate diet must be given forthwith. Further, a patient about to undergo an operation demands something above a barely adequate diet, particularly in its carbohydrate content. There are at least three reasons for raising the diet beyond the minimal

requirements: first, the condition which is making the operation necessary; secondly, the effect of the operation as regards shock; and thirdly, the anaesthetic.

ANAESTHESIA.

Anaesthetics by themselves constitute a grave peril to diabetics. For some reason at present not fully explained anaesthesia produces a rise in blood sugar, and it is an old experience that anaesthetics predispose to diabetic coma. Chloroform is the worst in this direction, and next comes ether. Gas and oxygen seems the least dangerous, but it is by no means invariably safe. Local anaesthesia is not devoid of risks. In dental practice, as in ordinary surgery, infiltration anaesthesia may lead to destruction of tissues with extensive necrosis and sloughing. Spinal anaesthesia may be followed by coma just as anaesthesia by inhalation. Dr. A. L. Flemming, my colleague and anaesthetist to the Bristol Royal Infirmary, long ago insisted on the fact that starvation before an operation could produce acetonaemia in non-diabetic patients; *a fortiori* starvation must be forbidden in preparing a diabetic for an anaesthetic. There is, in fact, no anaesthetic which is safe for a diabetic until he has been enabled to take an adequate amount of carbohydrate in his diet. For it must be always borne in mind that it is sugar that protects the diabetic, and insulin only renders the blood sugar utilizable.

PREGNANCY.

The subject of pregnancy and diabetes demands a few words. Whilst glycosuria without high blood sugar is common in pregnancy true diabetes is uncommon. Therefore a diagnosis of diabetes should not be made in pregnancy without blood sugar estimation. In the rare instances where a diabetic woman becomes pregnant or diabetes supervenes during pregnancy the prognosis is usually more serious for the foetus than for the mother. Premature labour takes place in nearly half the cases. Hydramnios is of common occurrence; the foetus may be enormous—overnourished apparently by the rich content of sugar in the maternal blood. It seems⁵ that the foetal pancreas is practically never deficient, and some observers go so far as to declare that the foetal pancreas helps the mother, so that occasionally the diabetes improves during pregnancy. But it is very rare for pregnancy to exert a permanently favourable influence on a diabetic mother. It rather tends to aggravate the disease. Now, since the introduction of insulin diabetic women are becoming more fertile, and with adequate diet and insulin the pregnancy and confinement may be passed through uneventfully by both mother and foetus. It is imperative to keep a close watch on the mother's blood sugar, nutrition, and, more than all, to be on the look-out for acidosis or acetonaemia. Hepatic insufficiency is a danger even for the non-diabetic mother; it is still more to be feared in diabetes. The coma of eclampsia and diabetes may be difficult to distinguish. The same kind of precautions will guard against each. During pregnancy a diabetic woman may require an increased dosage of insulin; during the puerperium it may be even more essential. Puerperal infections, however slight, will certainly diminish carbohydrate tolerance, and the general principles which apply to surgery must be even more clearly observed. Lactation calls for exceptional nourishment of the mother; her diet will need to be increased, and with it the dose of insulin.

INSULIN ADMINISTRATION.

This subject can only be briefly touched upon. When a case of true diabetes develops a serious complication or intercurrent disease, or when a surgical operation becomes necessary, the last thing that must be thought of is treatment by fasting or the slightest degree of undernutrition. The patient must receive a diet which contains an adequate amount of protein and calories. A useful gram of protein and 35 calories per kilogram of body weight. Several ways of determining these requirements have been suggested, but nearly all of them are based either on the body surface or weight of the patient as he is. In my opinion there is a risk of underestimating the real requirements by

weighing or measuring an unduly wasted body. I prefer to reckon how much the patient ought to weigh if in good health; for this purpose age, height, sex, and the general tendency of the patient's family should be taken into consideration. Having decided on this basis approximately how much the patient should weigh, I prescribe a diet which shall contain 1 gram of protein and 35 calories per kilogram of the assumed weight.

I use Woodruff's formula for the proportions of protein, fat, and carbohydrate—namely, that the fat in the diet shall be equal to twice the carbohydrate plus half the protein. On this formula the minimal diet for a weight of 50 kilos (or 110 lb.) is: fat 139 grams, carbohydrate 57 grams, and protein 50 grams. It is advisable to start immediately with the full adequate diet; there is no time when infection is present or an operation is about to be performed to commence with diets of the "ladder" type. The patient must be well fed from the start, and sufficient insulin must be given to keep the blood sugar at a safe level. It is not a bare subsistence the patient requires, but an allowance (of carbohydrate at any rate) which would nourish him if in good health and give a reasonable margin for combating the infection or facing the shock of an operation. I have already described how, in the after-treatment of operation cases, the surgeon is permitted to give the patient as much glucose, and in such a manner, as he would do if the patient were non-diabetic. Subsequently, as the surgeon modifies the diet, the insulin is adjusted to keep pace with it. But there must be no diminution of carbohydrate because the patient is diabetic. The insulin must be pushed in surgical emergencies as fearlessly as in the dreaded emergency of coma. For the treatment of coma the method recommended by Campbell¹² should be followed.

"Patients in diabetic coma who have not received treatment require larger doses of insulin. As speed is essential and the rate of action of insulin is only doubled by taking ten times the dose, we commonly use 100 units of insulin intravenously as the initial dose. Most of the coma patients are dehydrated and fluid must be supplied liberally. Some of this may be given intravenously as 10 per cent. glucose solution, at a rate not greater than 10 c.c.m. per minute. If the pulse rises ten beats per minute, discontinue the injection. Normal saline or 5 per cent. glucose may be injected interstitially and given per rectum by the Murphy drip method after a cleansing enema has been given. Many patients difficult to rouse will respond by automatic swallowing movements when a teaspoonful of fluid is poured into the mouth. Except by direct injection into the circulation it is doubtful if too much fluid can ever be administered to a diabetic in coma. Warmth must, of course, be provided. The room should be warm and warm blankets and hot-water bottles used. Circulatory stimulants should be begun early, digitalis and coffee by mouth or per rectum being the most satisfactory stimulants, pituitin and ether being used for more acute emergencies. In my opinion alkalis in moderate doses, 15 to 20 grams NaHCO_3 , are of value when administered by mouth or per rectum in 5 per cent. solution. The intravenous injection of sodium bicarbonate solution is to be employed with caution as it may induce cardiac dilatation and failure. Hypoglycaemia must be avoided and carbohydrate must be available to replace the defective fat metabolism as well as to burn up the ketones already produced. This is provided by giving the patient approximately 1 gram of sugar for each unit of insulin. The use of a retention catheter and testing the urine for sugar each hour will give ample warning of a deficiency of available carbohydrate."

THE TRANSMISSION OF BLOOD SAMPLES.

I have been asked how blood may be sent by post for purposes of blood sugar estimation. The following plan is one that I have found useful and effectual. With a hypodermic syringe withdraw 1 c.c.m. of blood and empty it into a small glass tube (such as is used in laboratories for precipitation tests. Widal, Wassermann, etc.) containing a few crystals of neutral potassium oxalate. Shake the blood thoroughly to mix it with the oxalate and prevent clotting. Wash the hypodermic syringe well with plain water and then absolute alcohol. Draw up into the syringe exactly 0.2 c.c.m. (or 5 minims) of oxalated blood, then fill the syringe exactly to the 1 c.c.m. mark (or to the 20 minim mark) with absolute alcohol. Shake well and empty the contents of the syringe into a second small glass tube. Cork tightly and dispatch, properly packed, by post. The mixture of oxalated blood and alcohol will contain a 1 in 5

solution if the syringe was graduated in cubic centimetres, and a 1 in 4 solution if graduated in minims. The blood sugar can be estimated accurately from the alcoholic solution.

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NOVASUROL AND OTHER DIURETICS IN CARDIAC OEDEMA.

BY

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THE value of mercury as a diuretic in the treatment of cardiac dropsy has long been recognized, the drug being usually prescribed along with digitalis, as in Guy's pill. The combination of digitalis with mercury was so much the rule that some doubt existed as to whether mercury possessed any diuretic action independent of its association with digitalis. This point may be said to have been settled, as mercury in the form of metallic mercury (pil. hydrarg.), for example, will increase the elimination of urine in cardiac dropsy apart from the administration of digitalis, though the diuresis may not be so marked as when the latter is given as well. The appearance, therefore, of an organic compound containing a large percentage of mercury, capable of being injected intramuscularly or intravenously, and exhibiting powerful diuretic properties, is of interest.

Novasurol has been studied in America and in Germany, but, save for a recent article by Dr. A. R. Gilchrist of Edinburgh, observations upon its clinical use do not seem to have been reported in this country. It contains 33.9 per cent. of mercury, and the dose is 1 c.c.m. of a 10 per cent. solution. The amount of mercury, therefore, in one dose is comparatively small—only 0.0339 gram, or about that contained in $1\frac{1}{2}$ grains of pil. hydrarg.; nevertheless, the diuretic action is much more pronounced than in the case of metallic mercury administered in the usual way by the mouth. As the mercury in novasurol is not in an easily ionizable form, it possesses a low toxicity and is non-irritating locally, provided that none escapes into the subcutaneous tissues. Moreover, gripping and a tendency to diarrhoea—drawbacks attendant upon the oral administration of mercury—are obviated. The solubility of the drug, permitting of its rapid absorption from the site of injection, probably favours a more intense and rapid action than that exhibited by metallic mercury or calomel.

CASE I.

This case appeared to be peculiarly suitable for the study of various diuretics. The cardiac failure was progressive, little influenced by digitalis and not complicated by any abnormal rhythm. A record of the output of urine over a period of 109 days, during which different diuretics were administered (see graph), shows that novasurol was capable of causing a profuse diuresis when all other diuretics, including metallic mercury, had failed. The patient was a man, aged 68, suffering from syphilitic aortitis, with aortic and mitral incompetence and oedema of the legs, together with some ascites. The urine contained traces of albumin, while the blood urea nitrogen was 22 mg. per cent., and the blood chlorides 450 mg. per cent., showing that there was no evidence of chronic nephritis. He was put on a light dry diet and the intake of water was kept approximately constant. During the first week no drugs were given and the effect of rest in bed was observed. Then tincture of digitalis $\text{m} \times \text{i} \times \text{i}$ was administered, and no increase in the urine was noted. On the twentieth day caffeine gr. iij $\text{i} \times \text{i}$ was added, but little if any change in the output of urine followed. The digitalis and caffeine were then discontinued and urea in large doses, 15 grams three daily, was given over a period of five days, when the volume of urine increased from 600 up to 2,500 c.c.m., after which it gradually returned to the previous level. When the output had decreased to about 400 c.c.m., digitalis and

being 180 seconds. Conjunctival anaesthesia under borocaine usually lasted well over five minutes with the 2 per cent. solution, and over ten minutes with the 4 per cent. solution. With cocaine anaesthesia the conjunctiva was always insensitive for at least five minutes.

After-effects.—To test the after-effects the anaesthesia was induced with 5 per cent. cocaine and with 4 per cent. borocaine, and the eye was inspected the next day. Borocaine was used in 31 cases and 16 returned. Cocaine was employed in 31 cases and 18 returned. The accompanying tables record the results, and so far as they go point to cocaine, even in 5 per cent. solution, as being less harmful to the corneal epithelium than borocaine. Removal of a foreign body appears to be more likely to be complete in the case of cocaine than in that of borocaine. The effect upon the tension is shown in Table III (some of the cases tested had glaucoma). It would appear that the effect of the two drugs is much the same, but borocaine appeared to cause a rise of tension in a greater number of cases than cocaine.

TABLE I.—5 per cent. Cocaine.

Subjective Condition.	Condition of Conjunctival Vessels.	Condition at Site of Removal.
Irritable	Injected	Irregular peeling of surface epithelium.
Irritable	Marked injection	Circumscribed ulceration.
Irritable	Marked injection	Irregular peeling of superficial epithelium.
Comfortable	No injection	Area circumscribed; no staining with fluorescein.
Comfortable	No injection	Area circumscribed; no staining.
Painful	Injection	Traces of foreign material; slight staining.
Comfortable	No injection	Area circumscribed; no staining.
Comfortable	Slight injection	No spread; no staining.
Comfortable	Slight injection	Slight staining; some ulceration.
Comfortable	Slight injection	Area circumscribed; no loss of substance.
Comfortable	No injection	Area circumscribed; no loss of substance.
Comfortable	Slight injection	No spread; no staining.
Comfortable	Slight injection	No loss of tissue; no staining.
Comfortable	Slight injection	Staining at site, but no spread.
Irritable	Injection	Circumscribed ulceration.
Irritable	Intense injection	Loss of substance; some spread.
Painful	Much injection	Circumscribed ulceration.
Comfortable	No injection	No loss of substance.

TABLE II.—4 per cent. Borocaine.

Subjective Condition.	Condition of Conjunctival Vessels.	Condition at Site of Removal.
Comfortable	Slight injection	No loss of substance; no staining.
Comfortable	" "	Staining; tendency to spread.
Irritable	" "	No loss of substance; no staining.
Irritable	" "	No loss of substance; no staining.
Irritable	Injection	Circumscribed loss; staining.
" Aching "	" "	Staining; loss of substance; trace of foreign matter.
Comfortable	" "	No loss; no staining.
" Aching "	" "	Circumscribed loss of substance; staining.
Comfortable	" "	Loss of substance; some spread; staining.
" Aching "	" "	Trace of foreign matter; staining.
Irritable	" "	Irregular loss of substance; staining.
Irritable	Injection, palpebral oedema	No loss of substance; no staining.
Painful	Injection	Widespread loss; staining.
Irritable	" "	No staining; no loss.
Irritable	" "	No loss; no staining.
Comfortable	" "	Circumscribed ulceration.

TABLE III.—Effect upon Tension.

No.	Age.	Method.	Tension, Schiotz units	Tension after 15 minutes, Schiotz units	Mydriatic.
1	19	Borocaine 4%	19	19	No.
2	42	" 4%	19	22	No.
3	62	" 4%	15	27.5	Yes.
4	68	" 2%	22	22	Yes.
5	42	" 2%	20	20	No.
6	51	" 2%	25	18	No.
7	74	" 4%	15	16	?
8	40	" 2%	22.5	22.5	Yes.
9	18	" 2%	65	67	Yes.
10	70	" 4%	16	22	No.
11	66	" 2%	21	25	Yes.
12	52	" 2%	12	10	?
13	21	" 2%	16	12	Yes.
14	60	" 2%	55	51	Yes.
15	55	" 2%	10	12	?
16	77	Cocaine 2%	10	12	Yes.†
17	75	" 2%	22	20	No.
18	39	" 2%	19	17	Yes.
19	39	" 2%	19	16.5	Yes.
20	74	" 2%	21	20	Yes.
21	63	" 2%	22.5	20	Yes.
22	32	" 2%	22.5	19	Yes.
23	52	" 2%	32	27	No.
24	59	" 2%	51	51	No.
25	55	" 2%	17	20	No.
26	52	" 2%	12.5	13.5	Yes.
27	25	" 2%	22.5	18	No.
28	26	" 2%	19	19	No.
29	63	" 2%	20.5	21	No.
30	32	" 2%	16	14	No.

The conclusion of the two authors is that borocaine is greatly inferior to cocaine as regards its surface anaesthetic effect. Cocaine is perfectly reliable, whereas the effect of borocaine is variable.

The cost of borocaine makes it an impossible drug for hospital use, the more so as it appears to have no advantages.

THE CLINICAL USE OF BOROCAINE BORATE AND BETA-EUCAINE BORATE FOR URETHRAL ANAESTHESIA.

BY

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BOROCAINE borate and beta-eucaine borate have both been used at All Saints' Hospital for Genito-Urinary Diseases to provide urethral anaesthesia before the passage of various instruments. In the cases here remarked two injections of half an ounce were given at an interval of five minutes. After waiting for three minutes the selected instrument was passed.

BOROCAINE BORATE.

In two cases 0.5 per cent. solution was used; in both of these 0.5 solution of cocaine hydrochloride was used as a local anaesthetic at previous instrumentation. The first case was for the passage of a cystoscope, and the second for a No. 20 French gum-elastic bougie. These two patients

reported that anaesthesia was not quite so good as it had previously been with the cocaine solution.

In 5 cases, all of whom had been previously anaesthetized with 0.5 solution of cocaine, 1 per cent. solution was used. In the first it was for the passage of a Kollmann's dilator, and in the second of a cystoscope; the remaining three were cases of gonorrhoea in which silver nitrate solution was being instilled into the posterior urethra. All the patients reported that borocaine gave them better anaesthesia than the 0.5 per cent. solution of cocaine.

In 3 cases 2 per cent. solution was used before the passage of a Kollmann's dilator. All these patients had had frequent previous injections of cocaine. It was also used for two cases of cystoscopy where there was no history of previous instrumentation. In the first three of these cases the patients reported perfect anaesthesia and relaxation was improved, as evidenced by the fact that dilatation was higher than usual. In the two cases of cystoscopy anaesthesia and relaxation were perfect, and I consider decidedly better than it would have been with a 0.5 per cent. solution of cocaine. A 5 per cent. solution was tried in the three cases of urethral stricture, with perfect results as far as anaesthesia and relaxation were concerned, but really there was no advantage over the 2 per cent. solution. One of these three patients complained for about two or three minutes of a feeling which he described as rather like a lump in the throat, but this passed off, and there were no further symptoms.

In two cases 2 per cent. solution of norocaine hydrochloride was used as a control. These patients had both had frequent injections of 0.5 per cent. solution of cocaine hydrochloride for the passage of a Kollmann's dilator. They reported that anaesthesia was not so good as before, and relaxation was less, in that dilatation fell short of the point reached on previous occasions.

Conclusions.

A 2 per cent. solution of borocaine borate was a considerable improvement over 0.5 per cent. solution of cocaine in respect both of anaesthesia and relaxation, and there was no sign of toxicity.

The 2 per cent. solution of norocaine hydrochloride fell short of a 0.5 per cent. solution of cocaine. A 1 per cent. solution of borocaine borate gives better anaesthesia than a 0.5 per cent. solution of cocaine.

A 0.5 per cent. solution of borocaine borate has no advantage over a 0.3 per cent. solution of cocaine.

The cocaine solution used at All Saints' Hospital is made up with 0.5 per cent. sodium bicarbonate and 1 in 40 camphor water. A 1 per cent. solution of cocaine has not been tried owing to the risk of toxicity.

BETA-EUCAIN BORATE.

This was used on patients who had previously had frequent injections of 1/2 per cent. cocaine hydrochloride solution. The following results were obtained.

Beta-Eucaine Borate 1/2 per cent.—This was used in two cases for dilatation of urethral stricture with a Kollmann's dilator. Both patients reported that they had never had such perfect anaesthesia, and relaxation was also very good.

Beta-Eucaine Borate 1/4 per cent.—This was used in two cases of urethral stricture before the passage of a Kollmann's dilator. Both patients reported that they saw no difference between this and their previous injection, and relaxation was the same.

Beta-Eucaine Borate 1/8 per cent.—This was used in two cases of urethral stricture, for the passage of a Kollmann's dilator in one case and a gum-elastic bougie in the other. Both patients reported rather more pain than they usually got with 1/2 per cent. cocaine.

Conclusions.

Beta-eucaine borate in 1/2 per cent. solution is a perfect urethral anaesthetic, and relaxation is also perfect. In 1/4 per cent. solution it is equal in its action to 1/2 per cent. cocaine hydrochloride. In 1/8 per cent. solution it is not so good as 1/2 per cent. cocaine.

A 1 per cent. solution of this borate was not used owing to the perfect result of the 1/2 per cent. solution.

THREE CASES OF MIDDLE-EAR DISEASE WITH INTRACRANIAL COMPLICATIONS.

BY

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It often happens that patients who have suffered from chronic suppurative otitis media imagine themselves to be cured because all discharge from the ear has practically ceased. They then return to their normal way of life, giving their condition no further thought; so that one or two striking instances of the risks so run may not be out of place. Instead of keeping their ears under the occasional observation of an aurist, they lull themselves into a state of false security until some disaster occurs and they are found to be in imminent danger of death, when nothing but prompt and drastic surgical intervention can save them. A typical pathological condition under which this occurs is cholesteatoma formation. Under local conservative treatment of the nose and ear all discharge ceases; but the irritation of infective matter still remaining in the attic or antral regions causes proliferation of epithelium, until an amorphous cheesy mass is formed in which cholesterol crystals are thickly deposited. Gradually the bone becomes eaten away until the dura mater is exposed, when the invasion of lateral sinus or brain is only a matter of time.

An ear which is dry but foul-smelling should always be suspect, and if a few fibres of cotton-wool twisted closely on a carrier are introduced through the perforation (often in the attic region) and come away coated with thick nauseous matter the diagnosis of cholesteatoma formation may be made with confidence and a radical mastoid operation advised. Unfortunately, as discharge ceases, patients often take matters into their own hands and disappear; but they should previously be warned that the ear requires occasional supervision, unless it is so obviously healthy that the patient can be dismissed with a clear conscience on the part of the aurist. Every aurist knows of cases where patients have neglected or have failed to understand such advice and paid the penalty of death. In the cases I have selected the patients were somewhat more fortunate; each case presents certain individual features which are interesting of themselves apart from any moral to be drawn therefrom.

CASE 1.—Cerebellar Abscess with some Unusual Features.

A young agricultural labourer had for some weeks been suffering from bad headaches, and after a short time became increasingly drowsy. He was accordingly admitted to the Romford Infirmary under Dr. O'Loughlin.

After an initial rise of temperature lasting three days the fever subsided and the body heat became if anything subnormal and remained so. The pulse also after a short period of increased rate became normal and of good quality. Meanwhile the mental condition progressively deteriorated and the patient was almost continuously in a state of coma, from which he could with difficulty be aroused to take a little food at intervals. He gradually lost weight and became very emaciated. His limbs were flaccid and no definite reflex responses could be obtained. There was a vague history of his having, some years previously, suffered from middle-ear disease, but there was now no discharge from either ear and he had for a long time been considered cured of that trouble. The condition seemed to warrant a diagnosis of encephalitis lethargica, and after a second concurring opinion the patient was treated from this point of view.

He gradually became worse, could no longer be roused from coma, and on Saturday night, August 30th, 1921, profuse discharge started from the left ear and a little from the right ear; the next day I was called to see him.

Examination showed the patient to be in the last stages of emaciation—resembling a case of cholera. All the bony prominences of his face were clearly defined, with deep hollows between them. He was quite unconscious and his mouth lay open, with sordes on both lips and tongue. He had lost his left eye in infancy, but the right was half closed, with the pupil turned upwards. All his limbs were flaccid and his knee-jerks absent, while Babinski's and König's signs were negative. The pulse (76) was of good volume and pressure; the temperature was subnormal; the respirations were only four to the minute, and the patient appeared to be moribund.

A diagnosis of left-sided intracranial abscess was made owing to the profuse discharge from the left ear, and an immediate

operation decided upon as the only chance of saving his life. Within half an hour he was on the table, and was given an anaesthetic of open ether in the hope of stimulating his respirations; this was successful.

Operation.—A rather wide post-auricular incision was made and the mastoid process opened. Pus was soon found, and, a little deeper, a cholesteatoma; there was an "overhanging" middle fossa and a "forward" lateral sinus. A considerable area of dura mater was rapidly exposed over both middle and posterior cranial fossae; everywhere the temporal lobe and cerebellum bulged into the field of operation under high pressure; the whole area was in a state of intense engorgement and of soft consistency, it being impossible to distinguish brain from dura mater. On gently probing the soft red mass in the direction of the cerebellum, pus was seen to come from a posterior direction, and a director was passed into a large abscess cavity backwards and inwards. The pus, which was liquid and foul-smelling, was allowed to escape slowly while the radical mastoid operation was completed with some difficulty owing to the bulging of the brain into the cavity. Pus escaped slowly for about half an hour, and I estimated it at 1 to 1½ ounces. The director passed into the cavity for 2 inches, but the width of this cavity was impossible to estimate owing to the surrounding encephalitis and high pressure, which was so great that a small-bore rubber drainage tube passed into the bottom of the cavity was squeezed out again in two or three seconds, and had to be transfixed by a safety pin and held in position by the dressings. The pinna was then packed forward, dressings applied, and the patient returned to bed.

The respirations had by this time become fifteen to the minute, due to the relief of intracranial pressure on the respiratory centre in the medulla oblongata following on the evacuation of the abscess.

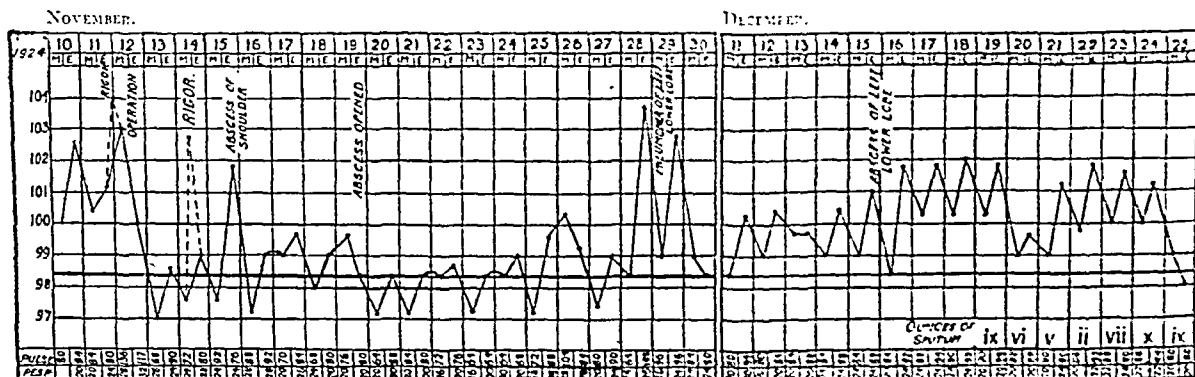
Progress.—The course of events was then as follows: Two days later the patient regained consciousness. The tube was replaced

CASE II.—Lateral Sinus Suppuration with Metastases in Lung and Shoulder.

A young man, aged 20, was admitted to University College Hospital complaining of headache. His temperature was raised and his pulse rapid, and it was thought that he had influenza. A year previously he had attended the hospital for a running ear, but believed himself to have been cured of that complaint as all discharge had ceased, and he discontinued coming.

Two days after admission he had a rigor, and his right ear became tender on pressure over the mastoid process; I then saw the case and made a diagnosis of lateral sinus thrombosis. The membrana tympani had a small perforation behind the handle of the malleus, was not inflamed, and only a little moist. An operation was performed without delay.

Operations.—The usual curved post-aural incision was made, and the mastoid opened. The cortex was thick and very dense, but pus was soon found in a large cavity, involving the atrium and the cells adjacent to its lower border, the greater part of which was occupied by a cholesteatoma. A radical mastoid operation was completed, during which the facial nerve, laid bare by the cholesteatoma, was unfortunately cut. A channel of soft bone was then found running through the dense cortex and was exposed until the lateral sinus was laid bare. As soon as a small piece of bone was removed from over it pus welled out and the sinus wall was seen to be collapsed. Accordingly the ear wound was temporarily covered with dressings, and the jugular vein was exposed in the neck. The common facial vein was divided between ligatures, and 1½ inches below its junction the jugular vein was divided between ligatures and the upper end brought out on to the neck through the upper part of the incision, which was otherwise closed. Dressings were applied and the mastoid wound was again investigated. More bone was removed from the sinus, and the outer wall of its dura mater, which usually lies in contact with the bone, was found partly destroyed and its remains rolled up



Temperature chart of Case II, showing the various stages of the patient's illness.

every day for a week, when it could no longer be introduced. The skin flap was allowed to fall back into place. The mental condition remained poor.

Three weeks later, when I again examined the patient, it was found that the wound had nearly healed and that there was no longer any discharge from the meatus. The right eye showed coarse nystagmus to the opposite side. There was some weakness of grip of the left hand compared with the right, and he had difficulty in pronating and supinating rapidly the clenched fists of both hands at the same time in a symmetrical manner, the difficulty taking place in the hand on the same side as the cerebellar lesion—a condition called dysidiadokokinesis; he also had some difficulty in carrying food to his mouth with the left hand. The knee-jerks were absent; Babinski's sign indefinite. His general condition was much improved; he had put on flesh and could take food well. His mental condition was poor, but he could ask for what he wanted.

During the next three months he put on 3 st. in weight, and then went back to his work as an agricultural labourer. His only inconvenience during convalescence was some inco-ordination of the left leg. His mental condition remained poor, but, on the other hand, he had never at any time shown any intelligence above a low bucolic level. He finds no difficulty in doing his work.

My thanks are due to Dr. O'Loughlin for the opportunity of operating on this case, and for himself successfully carrying out the after-treatment, on which so much depends; and to Dr. Boyce for giving the anaesthetic in difficult circumstances.

This case is interesting because of the large size of the cerebellar abscess, the long duration of coma, the extreme emaciation and moribund condition of the patient, and his remarkably complete recovery. In such cases death is frequently the result of failure of breathing brought about by pressure on the respiratory centre in the medulla oblongata. Here the respirations had been reduced to four to the minute. The result recorded well exemplifies the favourable outcome which may be hoped for if such pressure be relieved in time.

in one corner of the abscess cavity. Pus was pursued in the proximal and distal portions of the sinus until a little clot was found, and free haemorrhage obtained at both ends. These were then plugged with small strips of ribbon gauze. The wound was left widely open, dressings applied, and the patient returned to bed.

Progress.—The patient appeared a little cyanosed, but made good progress until another rigor announced the formation of an abscess in the left subacromial bursa, which was opened. The lower end of the upper segment of the jugular vein also started to discharge through the opening which was left in the upper part of the incision in the neck. He again appeared to mend, until another sudden rise of temperature was caused by a patch of pneumonia in, and partial collapse of, his left lung. But in spite of that he continued to make good progress until the advent of the fog of December 10th, 1924, when he took a decided turn for the worse, possibly owing to the effect of the foul air upon his lungs. An abscess gradually developed in the lower lobe of the left lung, accompanied by a rise of temperature for fourteen days; but its contents were gradually coughed up, and the condition settled down. The temperature chart shows the various stages of the patient's illness. The post-aural wound cleared up well, and there was no further discharge. But a small plastic operation will be necessary at a later date to secure a good cosmetic result. A facial-hypoglossal anastomosis is also a matter for future consideration, but its desirability in this particular case is doubtful. The lung and shoulder lesions already referred to have both made favourable progress, and the patient is now well.

Points of Interest.

(a) **Factors against the Patient.**—(1) At the time of the operation the clot in the lateral sinus was about 2½ in. long, of which about 1½ in. had already suppurred. (2) Although the jugular vein was tied before any surgical interference with the sinus had taken place, metastases had already occurred.

(b) **Factors in Favour of the Patient.**—(1) When suppuration occurred in the lower end of the upper and isolated portion of the jugular vein, there was drainage awaiting it in the neck owing to part of that incision having been left open. (2) As soon as practicable the abscess in his subacromial bursa was opened and drained. (3) A metastasis occurred in only one lung and

respirations were not at any time very rapid. (4) The patient's own courage and apparent indifference to matters concerning his health.

My thanks are due to Mr. Herbert Tilley for the opportunity of operating upon and permission to publish this case; and to Dr. Batty Shaw and Mr. J. R. Hunter for kindly looking after the medical and general surgical aspects of the case.

In both of these cases the ear was not at first suspected on account of apparent cure of the aural condition. The result was that neither was operation on until the disease was so advanced that recovery seemed doubtful.

The conditions governing and the symptoms associated with cholesteatoma formation are such as to warrant some such general rule as follows: "That when anything goes seriously wrong with a patient who is suffering from, or has at any time suffered from, aural discharge, the ear should be suspected unless a diagnosis of some unconnected disease can be made with certainty, and the ear excluded." In such a case, unless the ear can be absolved, operation is indicated; because the risks run by an early operation are as nothing compared with the danger of delay. The safest course of all is to keep chronic suppurative middle-ear disease under observation, and perform a radical mastoid operation as soon as it is clear that no simpler measures will cure it, and before any intracranial complications have had time to develop.

CASE III.—*Staphylococcal Meningitis of Otic Origin: Operation: Recovery after Trans-theatal Irrigation.*

The patient, a small girl aged 2 years, was admitted to University College Hospital under Dr. Poynton on April 19th, 1925, suffering from signs of early meningitis, which was at once recognized as being of aural origin.

History.—On September 1st, 1924, the patient had been admitted to University College Hospital with an acute mastoid abscess of the right ear. This was successfully operated upon. Three weeks later the tonsils and adenoids were removed, and in another fortnight she was discharged apparently cured. On December 4th, 1924, she was again admitted with a profuse discharge from the nose and throat, as well as from the right ear. There was also an abscess beneath the scar of the previous operation. A conservative operation was again performed, in the hope of saving the hearing of the right ear. Unfortunately the next day the child was found to have measles and was removed to a fever hospital. When she returned to the ward the posterior operation wound was soundly healed, but the discharge from the external auditory meatus still continued and became foul-smelling in spite of thorough treatment by irrigation, which was carried out as an in-patient. The parents were therefore advised that it was necessary to convert the conservative into a radical operation in order to make the ear safe; but further operation was refused and the child was discharged from hospital. She attended later as an out-patient, but made no progress. Operation was again advised, and was refused, and the parents no longer brought her to the aural out-patient department. On April 2nd, 1925, she became giddy and frequently vomited her food; but the parents paid little attention until she became drowsy, when they brought her to hospital on April 19th.

On examination the child was drowsy, with intervals of unconsciousness. When aroused she screamed, and resented any movement or interference. Temperature 102.5°, pulse 120. The eyes were upturned under half-closed lids. No nystagmus in any direction could be elicited. Hot and cold water tests were not attempted owing to the condition of the patient. There was foul-smelling discharge from the right external auditory meatus. The left ear also was now discharging, and pressure over the left mastoid process was evidently very painful. The head was retracted, and any movement of it was resented. König's sign was indefinite. The knee-jerks were brisk.

A diagnosis of meningitis of aural origin was made and an immediate operation decided upon.

Operation.—(1) Under a general anaesthetic a lumbar puncture was performed and a test-tubeful of turbid cerebro-spinal fluid was evacuated under considerable pressure. (2) The left ear being the most acute, a radical mastoid operation was performed on this ear first. The middle ear and mastoid process were found to be full of pus, and a search was made for a channel of infection of the meninges, but none was found. The wound was then plugged with gauze, soaked in bipp, and dressings applied. (3) A radical mastoid operation was then performed on the right ear, and a large fistula was found in the lateral semicircular canal. The labyrinth was thereupon opened above the canal of the facial nerve. The promontory between the fenestra ovalis and the fenestra rotunda was then removed and the vestibular cavity found to contain serum. It was evident that the infection had passed through the labyrinth and lamina cribrosa (through which the eighth nerve enters the labyrinth) into the internal auditory meatus and so to the basal meninges. The lamina cribrosa was therefore removed so as to allow the basal cisterns as free drainage as possible along the route of infection. (This method of establishing intracranial drainage is known as the Scott-West method.¹) No cerebro-spinal fluid escaped when this was done, which is unusual. A short rubber drainage tube was

then inserted into the deep part of the cavity, and gauze strips soaked in flavine were packed around it. Dressings were applied, and the patient was returned to bed after being under an anaesthetic for an hour and a half.

Progress.—The following day Dr. Goodhart's report on the cerebro-spinal fluid was: "Pus cells in large numbers. No organisms seen. No growth after twelve hours." The patient was slightly less restless, but otherwise the condition was unchanged. Temperature 102.5°, pulse 120.

Irrigation of the Internal Ear through the Spinal Canal.—The same evening another anaesthetic was given, and turbid fluid sufficient to fill a test tube and a half was removed from the spinal theca. The needle was accordingly left in position, and the operating table tilted until the patient's head was considerably lower than the pelvis. The dressing was removed from the right ear, which was downmost, and some Locke's solution at body temperature was perfused through the spinal canal by way of the lumbar puncture needle, in the hope that some infectious fluid might be washed out through the internal auditory meatus of the affected ear.² This was successful in so far that some 3 c.cm. of fluid escaped from the deep part of the mastoid wound on that side, whereas none had previously drained away. The dressings of both ears were changed, and the patient returned to bed. At this time the pulse rate had risen to 160, there was some collapse, and the condition gave rise to anxiety. But during the night there was continuous improvement, the temperature fell to 99.5°, and in the morning the child was conscious and sensible; at lunch time she sat up and asked for pudding. The recovery was remarkably rapid.

Dr. Goodhart's report on the cerebro-spinal fluid evacuated the night before was as follows: "Pus cells ++; staphylococci in large numbers." But there was no growth in culture, and it was evident that drainage of the basal cisterns of the meninges and the internal meatus and ear was effected sufficiently early to prevent their reinfection through the ear, thus allowing the cerebro-spinal fluid to overcome the initial contamination.

The patient subsequently made good headway, and ten days later the incisions for each operation were closed by sutures after cutting the meatal flaps usually made in a radical mastoid operation. This could not be done at the time of the first operation owing to the necessity of establishing as free drainage as possible for both ears, and of getting the patient back to bed in the shortest possible time.

The child is now well.

I have to thank Mr. Herbert Tilley for the opportunity of performing the various operations on this case and for permission to publish it.

Sir William Milligan has differentiated three types of meningitis of otic origin: (1) Meningitis benigna (or serous); (2) meningitis maligna, in which pus cells are present in the cerebro-spinal fluid; and (3) meningitis maligna (in which both pus and organisms are present). Of cases in Type 3 only 2 to 3 per cent. have been known to recover, whatever treatment they received.³ From what I have seen of such cases the majority of the few cases of meningitis maligna which do recover appear to be staphylococcal.

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THE NON-OPERATIVE TREATMENT OF PYLORIC STENOSIS.

BY

J. L. MEAGHER, M.B., B.S.M.E.D.

DURING a term in attendance at the Kaiser and Kaiserin Friedrich Kinderkrankenhaus, Berlin, in February and March, 1925, I was enabled, through the kindness of Professor H. Finkelstein, the director, to investigate the results of the non-operative treatment of pyloric stenosis. The following is an analysis of these results, and an attempt to estimate the value of the various kinds of feeding and medicinal measures.

The results of non-operative treatment are of interest because of the decided bias toward the operative procedure in England. German medicine has adopted a conservative attitude. Its resources are directed to postponing operation as long as possible. Statistics of successful treatment naturally are the criterion of the justice of this view. The results, so far as figures are available, appear to support it.

One of the points for decision concerning the treatment at the Kinderkrankenhaus was the efficiency of cereal feeding. The observations concerning cereal feeding are based on 14 cases. All were diagnosed as pyloric stenosis, and all were treated at the hospital in the period from November, 1920, to March, 1925, with feeding by cereals as a systematic part of the treatment. Various kinds of cereal mixtures were used of varying degrees of consistency. Whole-milk, half-milk, and buttermilk were used on occasion to form the basis. Maize flour was the chief stiffening agent employed. One of the mixtures was so thick that a spoon stood upright in it. In 7 cases the cereals were without beneficial effect; among them were 5 in which the effect was distinctly prejudicial. Particularly was this the case with the milkless cereals. In 5 cases cereal feeding was either a beneficial part of the treatment or was wholly responsible for the cure. In 2 cases the result was not discernible from the chart. My view of the evidence of the charts is that the disadvantages of feeding with cereals in the treatment outweigh the advantages. It is impossible from the point of view of a collator of results, in some cases years old, to say what were the factors responsible for the failure of the cereal feeding.

THE PERISTOLIC FUNCTION.

What is responsible for the failure of the cereal feeding? It should be noted that here there has been, not only a failure, but a failure attended with results threatening the lives of the patients.

The x-ray examination of the stomach of infants has served to reveal the existence of a peristolic function, exhibited by a marked change in shape of the organ and demonstrable through the use of thick cereals. Peristole in the stomach may be described as the capacity of the organ to accommodate itself to the mass of food ingested—a muscular action comparable with, and adjunct to, peristalsis. Rogatz of New York, working at the Kinderkrankenhaus, found that the stomach showed distinctly different contours with liquid and with semi-solid, or, more strikingly, with very thick feedings. With the fluid feeds the stomach shadow was of a pear or oval shape, horizontal in position, and extending to or beyond the mid-line, the air bubble being large or moderate in size; with foods of very thick consistency the stomach contracted to a circular or oval shape, barely reaching the mid-line, never extending beyond, and with a very small air bubble or none at all. The effect of thick cereals in producing this peristolic contraction was well shown by two babies suffering from pyloric stenosis, who for the occasion were fed with a milkless cereal. Observations I made in the Roentgenological Department in March confirmed in general the findings in respect of normal children.

Upon the basis of his observations Dr. Rogatz explained the vomiting in pyloric stenosis and of habitual vomiters by a mechanical action of the stomach musculature, and proposed a cure by mechanical means—thick cereal feedings. The action, in his opinion, is identical in both types. Peristole is the key to the control of the vomiting. It may best be evoked by cereals—the thicker the better. Vomiting occurs as a consequence of fluid feedings, which, so to speak, baffle peristolic action. With thick cereals less air is swallowed, the stomach content is correspondingly decreased and the organ has a greater area for surrounding and gripping the food.

If this view were correct it might have been supposed that successful results would have been gained in the treatment of pyloric stenosis by thick cereal feedings at the Kinderkrankenhaus. That they were not is explained by Finkelstein as due to a different mechanism of the vomiting in the two types of case. In pyloric stenosis, as in habitual vomiting, peristole is evoked by cereal feedings. The cause of the vomiting in the former class of case lies in the disordered function of the pylorus. On this ground the cure should be sought in treatment by antispasmodic drugs. The persistence of powerful peristalsis long after the vomiting has been controlled also suggests a constitutional cause for the vomiting which should be benefited by antispasmodic drugs. That the stomachs of these children are lacking in tone, at any rate in the later-developed stages of

the affection, is shown by the large residues which they contain, the lengthening emptying time, and the appearances on the x-ray screen.

THE TREATMENT.

A point of interest in connexion with the non-operative treatment is its justification by results. In a collection of statistics published in 1923, covering the experiences of German physicians since 1906, J. Ibrahim of Jena tabulates the mortality figures from eleven sources. These number 400 cases, and show a mortality of 10.2 per cent.—a more favourable percentage, he states, than that attending the then most recent surgery. The mortality in the 52 cases treated by him was 1 per cent. The mortality among the cases handled throughout by the non-operative treatment by Finkelstein in the last four years at the Kinderkrankenhaus amounts to 15 per cent. In this period 22 cases were treated; 16 recovered and 3 died. Among the deaths was that of a premature infant on the sixth day of treatment; another, admitted on the third day of life, died on the seventh; the third died of pneumonia after five weeks' treatment. The average duration of treatment to the time of cessation of symptoms was eleven weeks.

Feeding.

The aim of the feeding may be said to be to supply the baby with the maximum amount of nourishment he can assimilate. Concentrated feeding, therefore, holds pride of place, and it is immaterial which kind of concentrated food is used, so long as the caloric needs are met. The form of food used at the present time at the Kinderkrankenhaus is concentrated protein-milk (ciwies-milk) according to Finkelstein's prescription, without water, but with the addition of 20 per cent. of sugar (half cane sugar, half dextro-maltose). Breast-milk is used as well as the ciwies-milk, for its immunity value. Milk drawn from the mother's breast or, if this is not available, from a wet-nurse, is added to the ciwies-milk, and the mixture, heated to body temperature, is given to the baby in a flask. The feeds, small in amount, perhaps not more than 30 grams, are administered at intervals of two and a half hours. In the twenty-four hours eight feeds are given, or in the case of the youngest or weakest babies, ten feeds. Sometimes it is found of advantage to administer the food by means of a medicine glass or by a spoon instead of by flask. The baby is allowed to lie during the feeding, and afterwards is propped up at the side of the cot, supported by a pillow so that he may relieve his stomach of air by belching. Finally he is laid upon his right side.

During the entire period of the concentrated feeding, for months perhaps, the deficiency of fluid from which the baby suffers is made good by injections of Ringer's solution, administered rectally by means of a syringe, in amounts of 10 or 20 c.cm. five times in the day, or, if the need is urgent, peritonically or subcutaneously.

Manipulative.

The only practical manipulative procedure in the treatment is the washing out of the stomach. The indication is given by the size of the residues, as evidenced by the amount of the vomit and the measured quantity drawn off from the stomach. A weak solution of sodium bicarbonate, or a solution of "Karlsbad" salt, is used once, twice, or three times daily.

The Medicinal Treatment.

At the Kinderkrankenhaus, as elsewhere, atropine has proved of use. Even in large doses it is regarded as not attendant with danger to the child. It is given usually by the mouth as a 1 in 1,000 watery solution of atropine sulphate, half an hour before the feed. The precaution is taken to begin with a small dose, three or four drops, three times a day. The dose is increased if the indications warrant, until the child is receiving as much as 55 or 45 drops, given in doses of 7 or 9 drops five times daily. Ibrahim utters a warning against giving the drug in severe cases on an empty stomach. The drug is pushed until the symptoms of poisoning appear, if the severity of the vomiting warrants. Upon their appearance it is withdrawn, and

NON-OPERATIVE TREATMENT OF PYLORIC STENOSIS.

after an interval of one week or less, again given. This time the original dose is given and the amount is gradually increased. Reddening of the skin and dryness of the mucous membranes may be present without dilatation of the pupils. Sometimes the drug is administered subcutaneously. Ibrahim has given it for as long as nine weeks without observing ill effects.

It is difficult to assign to atropine with exactitude the part it plays in the success attending non-operative treatment. Of 25 cases in which the records were examined it seems to have produced good results definitely in 5 cases. The charts do not show that the efficacy of the drug was due to the larger doses, though this is the opinion of the director of the hospital. Where the larger dose has been used, naturally a happy result appears more striking. In the consideration of the efficacy of a particular line of drug treatment the task of freeing the operation of the drug from all the other factors present, of the working of the other drugs, of feeding, of infective complications, is a task of considerable difficulty. Clinically, therefore, the appropriate dose must be made the subject of trial. The charts are of cases treated with the drug in February and March, 1925. The action of atropine does not seem to consist in an immediate check to the vomiting; its good results are best perceived where it has been given for a period of weeks. The procedure followed at the hospital at the present time is to allow intervals in the administration of this and other drugs. In this way their influence is better seen.

Adrenaline has been used with success in the treatment, and it is claimed that it has been given at the Kinderkrankenhaus for the first time in association with atropine. In those cases in which the drug has been used in conjunction with atropine the practice has been to give them alternately in association with the feeding times.

Adrenaline is given intracutaneously in the forearm, ten minutes before the

feed, in the form of 1/4 mg. doses of suprarenin hydrochloride in a 1 in 1,000 solution. The child may receive this dose of adrenaline subcutaneously without effect. It has been given subcutaneously without effect. A definitely beneficial effect, due, as far as can be seen, to the drug itself, has been shown in the latest cases treated by it at the Kinderkrankenhaus. Where the feeding has remained unchanged in amount and nature the weight has increased and the symptoms modified distinctly toward the betterment of the patient; and charts show, what is surprising, that where there has been an intermission in the use of the drug the weight has fallen. It seems to have tipped the beam in the relative merits of atropine and adrenaline. Good results have been achieved in the use of both. The peculiarities of the individual may complicate the issue. Their action in combination in some cases seems fortunate. This partnership may be illustrated by the

analogy of a horse in harness. The removal of vagal influence may be likened to a slackening of one rein, and the stimulation of the sympathetic innervation to a corresponding tightening of the other. Other drug treatment at the Kinderkrankenhaus has not been successful. The following cases illustrate the medicinal treatment.

CASE I.

E. K., a girl, fed for four weeks at the breast, vomited explosively at the age of 5 weeks, and was admitted when aged 7 weeks, weighing 3,500 grams. Exaggerated peristalsis was visible and the pylorus was palpable. At the end of three weeks, having received atropine for nine days, the child was given adrenaline on two consecutive days, in the manner customary at the hospital. The weight curve showed an immediate rapid rise, and the vomiting, which previously had occurred from one to four times each day, became infrequent and ceased completely six weeks later. For whole-milk and cereal feeding, which had proved unsuccessful, breast-milk and concentrated eiweiss-milk was substituted, just before the adrenaline medication. The calorie intake was thus increased by 15 daily. The child was discharged after eleven weeks.

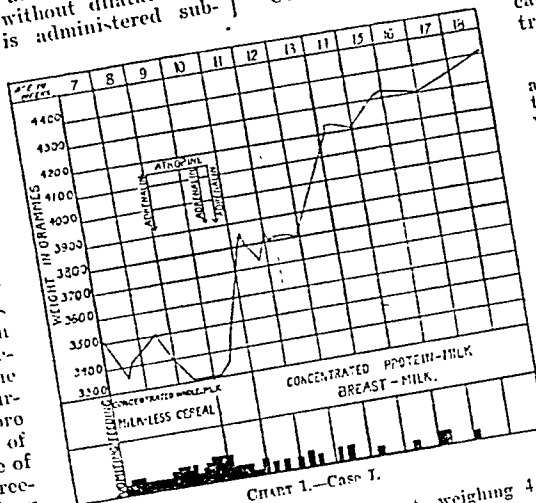


CHART 1.—Case I.

treatment, weighing 4,300 grams.

CASE II.

W. W., a boy, was described with justice by the sister in charge as possessing a tough constitution. He lost up to the time of his birth, which was at the age of 7 weeks, his weight betterment 35.6 per cent. of his body weight at birth, which was 4,350 grams. On admission, at the age of 7 weeks, his weight was 3,200 grams. He had been fed at the breast alone only for one week, and then received a supplementary milk mixture. He vomited with increasing frequency immediately after drinking, and on admission showed severe peristalsis and a palpable pylorus. He was weak and the water content of his tissues was lowered. He was approximately three months under treatment without benefit. The feeding at various times included concentrated eiweiss-milk, breast-milk, and whey. He was given a cereal feed composed of maizeena mixed with concentrated eiweiss-milk. The effect was greatly to increase the vomiting. He was given atropine until the appearance of a rash, and papaverine. Both were without effect. Washing out the stomach produced residues varying from 170 to 30 grams. After three months adrenaline was given on four successive occasions. The feeding at this time was concentrated eiweiss-milk and the vomiting decreased. The vomiting decreased. Afterwards his

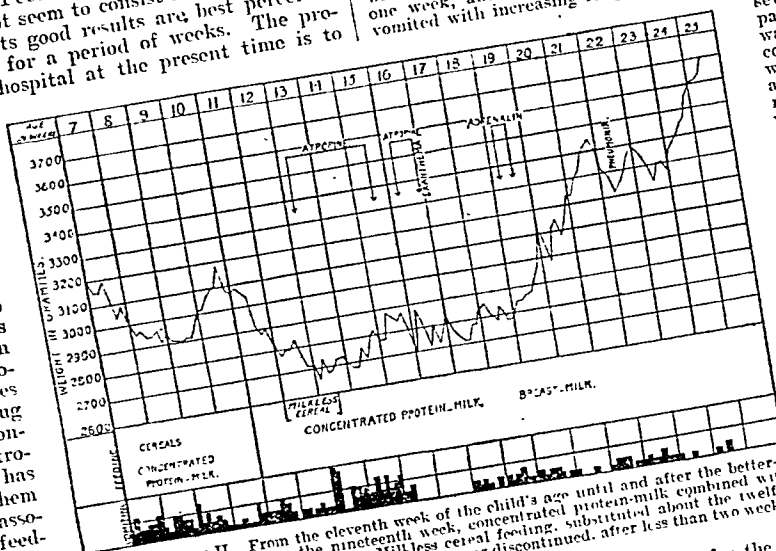


CHART 2.—Case II. From the eleventh week of the child's age until and after the betterment of his symptoms in the nineteenth week, concentrated protein-milk combined with breast-milk was the chief feeding. Milkless cereal feeding, substituted about the twelfth week, caused a marked drop in the weight and was discontinued after less than two weeks.

breast-milk. His condition for the first time showed rapid progress continued. He suffered a short relapse due to pneumonia. Afterwards his

CONCLUSIONS.

1. A study of the cases leads to the conclusions: That thick cereal feedings usually do not benefit the condition.
2. That their failure is associated with the atonicity of the stomach musculature.
3. That concentrated feeding, coupled with the administration of atropine and adrenaline, is a serviceable non-operative treatment.

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THE FUTURE OF GALL-STONES PATIENTS.

BY
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THE localization of stones in the gall bladder and the surgical problem it often poses have dominated for a long time the whole history of biliary lithiasis. Until recent times the classical treatises dealt almost exclusively with the calculus, its migrations, its dangers, its local complications, and the ultimate effect on the liver. Murchison, however, was one of the first to note the frequent relationship, either immediate or remote, of gall stones with certain lesions, and with certain alterations in the tissues and viscera, in particular with gouty nephritis.

In explaining biliary lithiasis by a hypothesis of hypercholesterinaemia, Professor Chauffard enlarged the limits of the subject. From a purely hepatic disease biliary lithiasis has become a very much more general one. We can even detect its presence before the painful crises, and we can follow its insidious progress after they have disappeared. In the light of this new knowledge the role of the liver loses nothing of its importance. Without waiting for the formation or the migration of the calculi, we are in a position to appreciate the defect of the liver, whether it be congenital or acquired, which is at the bottom of the lithiatic tendency and which controls the local or general phenomena.

After having systematically followed, since 1912, the basic disorder underlying cases of biliary lithiasis, we have adopted in this research work the scheme of examination published by one of us, and which consists in (a) the study of viscosity of the blood by the method of Hess, and of the blood pressure by Pachon's oscillogometer; (b) the estimation in the blood of biliary pigments, of cholesterol, of urea, of residual nitrogen, of uric acid, and of glucose; (c) the estimation of the urco-secretory coefficient of Ambard.

During the course of this work we have relied solely on complete clinical and biochemical observations of patients in whom the diagnosis of gall stones was well proved, and have not availed ourselves of cases in which we had no opportunity of controlling our diagnosis by operation or x rays, or the actual passage of calculi.

Of the ninety cases under observation, six underwent complete examinations at long intervals—in one case the interval amounted to nine years, by which time the clinical picture was completely modified; the others were seen either at the actual onset of their trouble or else very much later. As a result of being able to follow up the same patient, or different patients, it appeared to us that it would be possible to trace the complete pathological progress of this disease—progress followed more or less rapidly by the majority of our patients.

Whilst the troubles are primarily of hepatic or humoral origin they become generalized slowly, insidiously throughout the whole body, presenting eventually a clinical picture which may seem to have little or no connexion with the liver. The rare exception to this rule occurs in cases in which the biliary colic was incidental, following a sudden simple rise in the blood content of cholesterol. Such a crisis constitutes the whole course of the disease. Predisposition is, we may say, necessary: "Ne fait pas de la lithiase qui veut."

For purposes of convenience we have divided these ninety cases into four groups to represent four main points of a curve. Actually each type of case may follow its course more or less rapidly. Some patients may remain perpetually in *statu quo*.

FIRST GROUP. (See Table I.)

The characteristics of the patients in this group, who are young (20 to 40) and present a clinical picture of acute or subacute biliary colic, are the following:

(a) The viscosity of the blood is normal or slightly increased.

(b) The arterial pressure is normal.

(c) Cholaemia is constant, but rather low, if we except

those cases which are accompanied by a retention of bile due to calculi.

(d) Cholesterinaemia is increased, but rarely rises above 2.10, except in cases of complete biliary obstruction. In certain cases, however, it is not rare to find cholesterinaemia which is normal, or only slightly raised, after a crisis terminating in the expulsion of biliary slime or calculi, as if such a crisis represented an effort towards the elimination of cholesterol from the system. In a previous work we have cited six cases of this nature, which we may compare with cases of renal calculus in which hyperuricaemia is controlled by an abundant elimination of uric acid.

(e) Protein metabolism is fairly normal, if we may judge by the output of urea and residual nitrogen. Uric acid, however, is almost invariably increased, and this early association between the increased amount of cholesterol and uric acid in the blood is, in our opinion, evidence of some hepatic derangement leading to lithiasis. This hyperuricaemia gives rise to no clinical symptoms, since the kidney function can be shown to be intact by estimating Ambard's coefficient of excretion-secretion.

(f) Lastly, it is very frequent to find in these cases a slight increase in the blood sugar. Without doubt, in such an increase may be found the explanation of the fact that certain of these patients pass sugar or are liable to become diabetics.

To summarize, in this first stage towards lithiasis: so long as the clinical symptoms are purely liver symptoms, our biochemical examinations seem to prove that the trouble is rather biliary than hepatic, since the liver cell retains its activity and the cardiac and renal apparatus are unaffected. From this point patients may take either of two routes: some, the exception, remain subacute or chronic stone cases, the gall-bladder symptoms remaining pre-eminent and sometimes exclusive; these will be found in the second group. The others (the majority) cease to be purely hepatic cases; they tend towards complications of a more general character and will be found in the third group.

SECOND GROUP. (See Table II.)

In these cases the viscosity of the blood is raised and the arterial pressure is found to be variable. It is not uncommon to find dilatation of the right heart. Cholaemia is raised without a parallel increase in cholesterinaemia. Such a dissociation shows the cells of the liver to be affected—a fact which is further evidenced by the marked increase of the residual nitrogen, of the uric acid in the blood, and of the ammonia content of the urine. The blood sugar remains slightly raised. The urco-secretory coefficient goes somewhat up without an increase of the blood urea, and the urea concentration of the urine shows no deficiency of the kidneys.

Clinically we easily recognize this type of patient with active congestion of the liver and the resulting symptoms of portal engorgement. This defensive active congestion, by means of which hypercholesterinaemia is controlled, eventually hampers the general circulation, and, the right heart giving way, a secondary and passive congestion ensues. Under the influence of these repeated stages of congestion the liver cells gradually lose their activity, and biliary cirrhosis, especially of the left lobe, becomes the predominating feature. In these cases the renal and cardiac troubles maintain an obvious connexion with those of the liver. But more often these patients, as time goes on, suffer less: they have, perhaps, eliminated several calculi; they do not complain of their liver, and their general state improves.

THIRD GROUP. (See Table III.)

In these cases the following characteristics may be noted. Viscosity is increased, and this concentration of the blood can be explained by increased diuresis, which is the means adopted by the already damaged kidney to prevent an accumulation of toxic products. The uric acid concentration of the urine is gradually lowered from 15 to 12 or even 10 grams per litre, and the coefficient of Ambard may rise above 0.1, indicating a reduction of from a third to a half of the renal function. The arterial pressure is markedly raised, especially in the diastolic phase, but generally, owing to the raised systolic and hypertrophy of the heart, the circulatory compensation is adequately maintained. These are exactly the characteristics which Martinet described as pre-sclerotic.

TABLE I (26 Observations).

Case No.	Age.	Sex.	Viscosity.	Blood Pressure.		Bile Pigments.	Cholesterol in Serum.	Urea in Serum.	Residual Nitrogen.	Uric Acid.	Sugar.	Uro-secretory Coefficient.
				Systolic.	Diastolic.							
1	31	F.	5.1	13.5	9.5	1/25,000	2.13	0.26	0.130	0.061	1.22	0.063
2	29	F.	5.1	14.0	9.5	1/28,000	2.19	0.27	0.116	0.041	1.25	0.053
3	39	F.	4.5	17.0	10.0	1/25,000	1.47	0.28	"	0.045	1.18	0.080
4	34	F.	4.8	16.0	10.0	1/25,000	2.02	"	"	"	1.27	0.071
5	28	F.	4.4	13.0	8.5	1/25,000	1.86	0.47	0.122	0.050	0.98	0.066
6	37	M.	5.1	15.0	9.0	1/18,000	2.27	"	0.111	0.054	1.29	0.055
7	39	F.	4.9	"	"	1/24,000	1.92	0.175	0.119	0.059	1.42	0.069
8	29	F.	4.5	12.0	8.5	1/24,000	2.43	0.23	0.124	0.068	1.33	0.071
9	31	F.	4.9	19.0	11.0	1/27,000	1.86	0.38	0.100	"	1.29	0.077
10	34	M.	5.4	13.0	9.5	1/24,000	1.89	0.37	0.110	"	1.34	0.068
11	29	M.	4.9	13.0	8.0	1/28,000	1.53	0.34	0.118	0.053	1.41	0.074
12*	36	F.	4.2	12.5	8.0	1/30,000	1.80	0.24	0.107	0.049	1.01	0.061
13	27	F.	4.4	13.0	9.0	1/24,000	2.31	0.285	0.103	0.079	1.18	0.066
14	21	F.	4.2	14.0	9.0	1/28,000	2.08	0.182	0.087	0.074	0.98	0.072
15	24	F.	4.5	14.0	8.5	1/24,000	2.31	0.432	0.129	0.059	1.27	0.082
16	31	F.	5.2	15.0	10.0	1/28,000	2.34	0.305	0.119	0.052	1.22	0.071
17	44	M.	4.7	16.0	9.0	1/24,000	2.19	0.121	0.089	"	0.98	0.087
18	33	F.	4.4	14.0	9.0	1/27,000	1.77	0.235	0.113	0.059	1.51	0.081
19	28	F.	4.4	11.0	8.0	1/27,000	2.37	0.352	0.138	0.070	1.17	0.072
20	26	F.	4.6	14.0	10.0	1/25,000	2.01	0.185	0.091	0.042	1.35	0.084
21	30	F.	4.3	13.0	9.0	1/30,000	1.59	0.45	0.107	0.050	1.32	0.075
22	31	M.	4.6	15.0	8.0	1/30,000	1.85	0.295	0.101	0.059	1.48	0.078
23	31	M.	5.4	13.0	9.0	1/29,000	2.16	0.219	0.081	0.334	1.47	0.050
24	29	F.	4.4	15.0	9.0	1/26,000	1.85	0.252	0.131	0.068	1.33	0.073
25	27	F.	5.1	14.0	9.5	1/28,000	2.19	0.237	0.119	0.059	1.26	0.053
26	39	F.	4.7	14.0	9.5	1/25,000	2.04	0.27	"	0.049	1.15	0.069
Mean:			4.7	14.0	9.0	1/26,000	2.01	0.26	0.112	0.059	1.26	0.069

* First examination.

TABLE II (19 Observations).

1	37	F.	4.8	15.5	10.0	1/16,000	2.21	0.28	0.141	"	1.14	0.076
2	47	F.	4.8	15.0	10.0	1/20,000	2.04	"	"	"	1.36	0.070
3	46	F.	5.9	16.0	10.0	1/22,000	2.07	0.27	0.149	0.069	1.28	0.088
4	53	M.	5.6	19.0	10.5	1/24,000	2.17	0.29	0.186	0.076	1.03	0.092
5	51	M.	5.4	15.0	10.0	1/20,000	1.98	0.26	0.128	0.064	1.22	0.076
6	52	F.	6.3	18.0	9.0	1/22,000	2.01	0.33	0.147	0.052	1.39	0.076
7	47	M.	7.8	19.0	10.0	1/24,000	2.04	0.28	0.139	0.053	"	0.085
8	54	M.	5.4	15.0	10.0	1/25,000	2.28	0.32	0.165	0.066	1.01	0.084
9	36	F.	5.2	14.0	9.5	1/23,000	2.37	0.36	0.145	0.083	1.05	0.082
10	42	F.	5.4	17.0	8.5	1/22,000	1.89	0.25	0.135	0.085	1.33	0.093
11	39	M.	5.0	13.0	8.5	1/20,000	2.17	0.36	0.147	0.058	1.07	0.079
12	48	F.	5.0	16.0	7.5	1/23,000	1.56	0.36	0.160	0.061	1.16	0.092
13	53	F.	5.8	15.0	10.0	1/18,000	1.77	0.23	0.152	0.082	1.02	0.081
14	45	M.	5.7	16.0	10.0	1/22,000	2.01	0.48	0.169	0.082	1.16	0.091
15	51	F.	5.8	18.0	9.5	1/20,000	2.02	0.34	0.134	0.093	1.42	0.080
16	42	M.	5.1	16.0	9.0	1/25,000	1.95	0.29	0.138	0.097	1.38	0.069
17	54	M.	6.2	16.0	8.0	1/16,000	2.16	0.41	0.165	0.072	1.28	0.087
18	70	M.	5.2	18.0	10.0	1/22,000	2.16	0.25	0.179	0.084	1.19	0.085
19*	72	M.	5.8	19.0	10.5	1/20,000	1.92	0.36	0.167	0.073	1.26	0.097
Mean:			5.6	16.0	10.0	1/21,000	2.03	0.32	0.152	0.073	1.20	0.084

* Same case as No. 18.

TABLE III (27 Observations).

1	54	F.	6.4	19.0	11.5	1/26,000	2.49	0.205	0.138	0.074	1.29	0.099
2	53	F.	5.3	18.0	9.0	1/22,000	2.40	0.43	0.142	0.078	1.08	0.101
3	49	M.	6.5	22.5	13.0	1/30,000	2.40	0.285	0.149	0.055	1.22	0.081
4	54	F.	7.2	25.0	14.0	1/28,000	2.73	0.285	0.143	0.061	1.31	0.084
5	45	F.	5.2	21.5	12.5	1/27,000	2.64	0.22	0.157	0.062	1.07	0.092
6	51	F.	6.8	18.5	12.0	1/27,000	2.90	0.29	0.155	0.051	1.22	0.107
7*	52	F.	5.7	18.0	10.5	1/26,000	3.42	0.22	0.121	0.060	1.18	0.084
8	43	F.	5.8	22.0	12.0	1/28,000	2.67	0.38	0.139	0.064	1.21	0.099
9*	59	F.	7.2	23.0	12.0	1/28,000	2.28	0.41	0.177	0.099	1.47	0.126
10*	41	F.	4.9	15.0	10.0	1/26,000	2.79	0.31	0.139	0.068	1.28	0.089
11	50	F.	5.6	16.0	10.5	1/28,000	2.65	0.29	0.131	0.058	1.12	0.094
12	61	F.	5.2	15.0	9.5	1/23,000	2.39	0.37	"	0.052	1.08	0.106
13	55	F.	5.0	12.0	9.5	1/32,000	2.21	0.44	0.120	0.059	1.10	0.104
14	48	F.	5.1	18.0	12.0	1/30,000	2.57	0.47	0.136	0.068	1.04	0.097
15	47	F.	5.8	22.0	13.0	1/26,000	2.22	0.57	0.152	0.070	0.95	0.101
16	51	M.	6.1	18.0	10.0	1/28,000	2.19	0.45	0.148	0.072	1.32	0.093
17	43	F.	5.4	21.5	14.0	1/32,000	2.35	0.44	0.155	0.078	1.10	0.101
18	56	F.	5.9	21.0	11.0	1/26,000	2.49	0.37	0.156	0.066	"	0.102
19*	51	F.	4.6	23.0	11.0	1/28,000	3.55	0.20	0.157	0.088	1.02	0.092
20	60	F.	5.2	22.0	11.0	1/25,000	3.15	0.30	0.141	0.067	1.47	0.109
21	46	F.	6.3	18.0	10.0	1/25,000	2.76	0.41	0.136	0.062	1.15	0.103
22	37	F.	5.6	17.5	10.5	1/27,000	2.67	0.31	0.148	0.059	1.22	0.097
23†	51	F.	5.0	22.0	12.0	1/21,000	2.61	0.295	0.129	0.056	"	0.085
24	57	M.	5.8	21.0	11.5	1/32,300	2.60	0.31	0.128	0.046	1.60	0.086
25	53	F.	4.8	18.0	10.0	1/28,030	2.67	0.275	0.107	0.041	1.19	0.093
26	42	F.	5.1	13.5	10.0	1/28,000	2.79	0.36	0.117	0.051	1.31	0.091
27	58	F.	6.2	19.0	11.0	1/27,000	3.69	0.32	0.144	0.057	1.21	0.090
Mean:			5.8	20.0	11.0	1/29,000	2.65	0.34	0.139	0.064	1.19	0.093

* First examination. † Second examination.

TABLE IV (18 Observations).

1*	52	F.	4.4	20.0	11.5	1/28,000	2.73	0.54	0.169	0.088	1.22	0.152
2*	62	F.	5.1	19.0	12.0	1/28,000	2.52	0.61	0.178	0.097	1.09	0.149
3	—	F.	4.4	15.5	10.0	1/26,000	2.88	0.44	0.142	0.091	1.16	0.142
4*	53	F.	4.6	17.0	12.0	1/30,000	2.97	0.51	0.169	0.087	1.22	0.136
5	59	M.	4.4	17.0	11.0	1/28,000	2.76	0.53	0.139	0.053	1.37	0.140
6	62	M.	2.6	18.0	9.5	1/28,000	2.79	0.55	0.159	0.081	1.19	0.177
7	52	F.	3.9	15.0	10.5	1/28,000	3.10	0.43	"	0.051	1.16	0.112
8	58	F.	3.8	19.0	11.0	1/30,000	2.28	0.43	0.135	0.038	1.16	0.149
9	59	F.	4.9	17.0	11.0	1/26,000	2.15	0.54	0.149	0.055	1.26	0.115
10	62	F.	4.6	19.0	10.5	1/30,000	2.40	0.48	0.12	0.066	1.25	0.118
11	68	F.	4.1	18.0	11.0	1/29,000	2.37	0.58	0.144	0.072	1.19	0.145
12	66	F.	5.0	19.0	10.5	1/24,000	2.43	0.49	0.157	0.074	1.37	0.120
13	64	F.	4.4	15.0	8.5	1/24,000	2.64	0.49	0.122	0.072	1.07	0.137
14*	68	F.	4.1	18.0	11.0	1/30,000	3.16	0.37	0.147	0.079	1.33	0.154
15	71	F.	3.4	20.0	11.0	1/28,000	2.44	0.54	0.162	0.077	1.28	0.184
16*	67	F.	4.1	17.0	11.0	1/27,000	2.76	0.40	0.176	0.032	"	0.149
17	67	F.	4.1	20.0	11.5	1/30,000	2.43	0.43	0.161	0.038	1.35	0.160
18	61	F.	5.0	13.0	9.5	1/27,000	2.58	0.36	0.153	0.087	1.27	0.133
Mean:			4.2	17.0	11.0	1/28,000	2.70	0.49	0.155	0.078	1.22	0.141

* Second examination.

Cholaemia is slightly, and cholesterinaemia is markedly, raised. This is the period at which chronic gall-bladder cases present local deposits of cholesterol. Chauffard has well shown that the system endeavours by all possible means to eliminate from the blood stream any excess of cholesterol.

Residual nitrogen and uric acid, less markedly increased than in the second group, are nevertheless above normal; the cells of the liver are less affected than in the latter group, but the deficiency of heart and kidney is more marked. It is the factor which will assume the supreme importance in the fourth group.

FOURTH GROUP. (See Table IV.)

In this group heart failure sets in and the blood gets more and more diluted. Albuminuria appears at the same time. The urea concentration of the urine falls coincidentally and Ambard's coefficient, by its increase of value, shows a progressive degeneration of the kidney. Hypercholesterinaemia remains very high, as also does the nitrogen and uric acid content of the blood. In brief, the cases in this group present the humoral characteristics of Bright's disease. As a matter of fact, these results enable us to trace the connexion between lithiasis and the condition underlying Bright's disease, and tend to verify the hypothesis of Chabanier that such a nephritis is the final development of a general condition.

CONCLUSIONS.

From the preceding facts we can draw the following therapeutical conclusions.

The gall-bladder localization must not be considered as the only guide to correct treatment. It can only be used to determine the need for surgical intervention. The essential treatment must be based on the conception of a general metabolic disorder, previous to calculus formation, in which the liver plays the predominant part. The safety-valve furnished by the biliary apparatus is of the utmost importance; it can act by preventing general and local complications.

Whilst therapeutic measures are practically ineffective once complications of the cardiac and renal systems are established (when symptomatic treatment is the best that is available), it is possible in the periods preceding painful or insidious lithiasis to amend and correct the function of the liver by more effective therapeutic measures than have previously been employed.

TREATMENT OF SLEEPING SICKNESS.

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Previous to July, 1924, the routine treatment of sleeping sickness in the C.M.S. Hospital, Toro, had been by atoxyl injections, with varying success. In July 50 grams of "Bayer 205" were sent by the principal medical officer and six cases were selected for comparative observation. Two were of the severe cerebral type, showing the later stages of the disease; two were of early cerebral type, with considerable glandular involvement; two were fairly early cases, with slight involvement of glands, etc. All came from Katwe or the Semiliki river area. In only one instance (severe cerebral type) had the patient received any previous injections of atoxyl three and four with only slight improvement. The blood contained trypanosomes in each patient except one early case, in whom the gland juices were positive.

One gram of "Bayer 205" was, as advised by Kleine, given to adults intravenously, in 10 c.cm. physiological saline, on the first, third, fifth, twelfth, and seventeenth days. Routine examinations of the urine were made, but no albuminuria or other toxic signs, found by others, were observed, and no ocular symptoms.

The blood examinations after the first injections were negative in every case. I fully appreciated the need of observation of the cerebro-spinal fluid, and only abandoned

the attempt after very careful inquiry and consideration. The compound is a voluntary one, attached to a missionary hospital, and it was thought that such a painful operation would be extremely likely to drive the patients away and keep others from coming, thus negating the work of years.

The treatment was given in July and August, 1924, and in October and November all but the two severe cases were discharged at their own urgent request. Blood and gland examination in every case were then negative, and the patients had been completely free from every sign or symptom of the disease for three months (the single possible exception is detailed below).

I persuaded the two "cerebral" cases to remain for longer observation, by promising gifts, etc. One had, in September, a slight return of drowsiness in the day time, but trypanosomes were not found (he refused spinal puncture); I accordingly gave them both three further doses at weekly intervals. The history of these two cases is worth recording.

CASE I.

Juma, a man aged 28, when admitted on June 16th, was sleeping nearly all day; he was emaciated (weight 5 st. 13 lb.), incontinent, and there was coarse tremor of the tongue, etc.; glands much enlarged. Examination of the urine was negative. Trypanosomes were present in the blood. Temperature 92.2°, pulse 123.

An intravenous injection of atoxyl was given on June 17th and repeated on June 24th. On June 30th his weight had increased to 6 st. 1 lb., and he was not sleeping so much. On July 15th he was given 1 gram of "Bayer 205" intravenously. The following day the temperature was 99.6°; no trypanosomes were found in the blood, and there was no albuminuria. He had not slept all day. The "Bayer 205" was repeated on July 17th, 19th, and 20th, and on August 12th. On August 11th his weight was 6 st. 11 lb., and he was not sleeping in the daytime; there was some tremor; he was able to answer questions. By September 4th the patient's weight had increased to 7 st. 4 lb.; he was reported to have been drowsy in the daytime during the last two days. He was given 1 gram of "205" on this day, and again on September 11th and 18th. On October 7th his weight was 7 st. 6 lb., and he was free from symptoms; there was, however, some tremor, and the glands were still much enlarged.

CASE II.

Everina, a girl aged 16, when admitted to hospital on July 2nd was sleeping nearly all day; she had been incontinent, and answered questions only after repeating three or four times. There was coarse tremor, and glands were very much enlarged; no ocular symptoms were present. Weight 4 st. 9 lb.; temperature 92.4°, pulse 116. Trypanosomes were found in the blood.

On July 15th 0.7 gram of "Bayer 205" was given intravenously; there was no reaction; no albuminuria, etc. Temperature 99.6°. The following day there was no reaction; the patient did not sleep during the day; no trypanosomes in the blood. On July 25th her weight was 4 st. 12 lb.; she was smiling and answered questions; tremor less; no trypanosomes. On August 11th she was quite bright; weight 5 st. 4 lb. On September 4th she was given 0.7 gram of "Bayer 205", and again on September 11th and 18th. By October 7th her weight had increased to 5 st. 6 lb.; there were no symptoms, though there was still some tremor.

The later history of these two cases is very unfortunate, but interesting. It points to the necessity for prolonged observation and, if possible, examination of the cerebro-spinal fluid.

On October 16th I went on Safari. Both patients were then apparently quite well and still gaining in weight. No symptoms had been observed. They had both wanted to return to their homes and it had taken considerable persuasion to induce them to remain. While I was away on Safari, on October 19th, both patients, apparently without any premonitory symptoms, went into the comatose final stage of the disease. They became incontinent and died within twenty-four hours. Such a rapid course is unusual in my own experience, and I think might be considered by a biologist for his explanation. The native attendants are quite emphatic in saying that there was no return of symptoms up to within a few hours of the comatose stage, while I myself saw them four days before. It was unfortunate that I was away when this occurred. The blood had not been examined for two months.

The other four cases are reported to be still well after eight months (March, 1925).

Summary.

1. "Bayer 205" is immensely superior to any drug previously tried.

2. It caused trypanosomes to disappear from the blood in twenty-four hours in the severest cases.

ACUTE RETROBULBAR NEURITIS.

JAN. 16, 1926]

3. It cannot yet be considered to be a cure for late cases, though definitely ameliorating the patient's condition and restoring normal life for some months.

4. Late cases should be kept under compulsory control—for example, in some prison lines—with examination of the cerebro-spinal fluid.

In conclusion, I must add that I have also made a trial of tryparsamide, a supply of which drug was furnished in October, through the principal medical officer, by the Rockefeller Foundation. A similar series of six cases was selected, but was unfortunately broken up, after three injections, by five of the cases running away after a spinal puncture for cerebro-spinal fluid examination of one case. This misfortune points to the need of careful, plodding preparation before making any further attempt at spinal puncture, or else putting some cases aside for the purpose, but not in the same area. Each case, however, had improved remarkably and seemed completely free from the disease.

Three cases have now been under observation for over three months, apparently completely cured. No reaction or toxic effects were noticed after the tryparsamide injections.

The results are difficult to compare with the "205" results. However, the clinical impression left on my mind is that tryparsamide is equal, if not superior, and is easier to work. I intend to use the tryparsamide as a routine, as long as the supply lasts.

I am indebted to the Principal Medical Officer, Uganda, for permission to publish these notes.

TEN CASES OF ACUTE RETROBULBAR NEURITIS.

BY

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DURING the last six months an unusually large number of cases of acute retrobulbar neuritis were admitted to the ophthalmic ward of St. Bartholomew's Hospital. These cases are of interest inasmuch as in no one of them was any satisfactory cause of the condition found, and in all but two there was rapid recovery of vision.

There are a certain number of cases in which the cause is clear, such as disseminated sclerosis, diabetes, and various toxic conditions; but reference to writers on the subject shows the frequent occurrence of cases in which the cause is unknown. A very large list of diseases held responsible has been compiled; this includes rheumatism, gout, dysentery, intestinal stasis, tubercle, syphilis, sinusitis, septic tonsils, typhoid, and many others. Sphenoidal sinusitis has been blamed for a great many cases, and the sinus drained, with subsequent rapid improvement of vision. This, however, is the normal course of events in a majority of cases, and therefore not necessarily a result of the operation. Mr. Foster Moore states that he has never seen a case of retrobulbar neuritis that he was satisfied was due to paranasal sinusitis. All these cases, accompanied by skiagrams and x-ray reports, were examined, with negative results, by Mr. Rose in the throat and nose department of the hospital.

The outstanding features of the condition are rapid loss of central vision with neuralgic pain in the eyeball, made worse by movement of the globe or pressure of it back into the orbit; impairment of the activity of the pupil to light; absence of gross disc changes; and a tendency to rapid recovery. The following is a short summary of each case.

Case 1.—A woman, aged 27. Noticed pain in the right eye, followed a week later by defective vision in the same eye. Vision: right, 6/60; left, 6/9. The right pupil reaction was sluggish. The peripheral fields were complete, but there was a small central scotoma in the right field. The fundi were otherwise normal in appearance. The Wassermann reaction was negative. There was no evidence of any sinusitis. Dr. Hinds Howell reported the absence of signs of organic disease of the nervous system apart from the optic nerve. After eight weeks the vision was 6/9.

Case 2.—A woman, aged 20. Pain in the right eye, followed a week later by defective vision. For one year she has had a twitching of the left side of the face and neck. Vision: right, 6/12; left, 6/9. She complained of tenderness of the right eye. The reaction of the right pupil was sluggish. The peripheral fields were complete, but there was a relative scotoma in the lower temporal region of the right field. The fundi were of natural appearance. It was reported that there was no manifest sinusitis. Dr. Hinds Howell found no evidence of intra-ocular sclerosis.

Case 3.—A woman, aged 26. Left eye became misty two weeks before admission. Three weeks previously she had had pleurisy. Vision: right, 6/6; left, counts fingers at one metre. The left pupil was inactive to light. The visual fields were complete. The edges of the left disc were blurred, but the fundi were otherwise of natural appearance. No evidence of manifest sinusitis was found. There was no organic disease of the nervous system.

Case 4.—A woman, aged 32. Frontal headache and pain in the six days after admission the vision was 6/6. Vision: right, 6/6; left, 6/12. Both pupils were active to light. There was a general contraction of the peripheral field, and a small central scotoma. There was optic neuritis, but no haemorrhages and no exudates. The left fundus was of natural appearance. Mr. Rose reported that clinical examination did not arouse suspicion of sinusitis. There was no evidence of organic disease of the nervous system. Seven weeks later the vision was 6/9.

Case 5.—A woman, aged 20. Sudden fogging of vision and pain on touching the eyes. Vision: right, 6/24; left, 6/36. The right pupil was active, but the action of the left pupil was sluggish. The visual fields were complete. Both optic discs were swollen, the left more than the right. The Wassermann reaction was negative. Nothing abnormal was discovered in the central nervous system, and there was no sinusitis. Eighteen days later the vision was much improved: right, 6/12; left, 6/6.

Case 6.—A woman, aged 40. Right eye became misty three weeks before admission to hospital. No pain was noticed at any time. Vision: right, large moving objects; left, 6/6. The right pupil did not react directly to light, but reacted consensually. There was loss of the nasal half of the right field and of the inferior temporal segment of the left field. The fundi were of natural appearance. The Wassermann reaction was described as border-line. Mr. Rose reported that there was a small polyp in the left nostril, and he believed there was ethmoiditis on the right side, but he could find no evidence of it on the right side. There was no evidence of organic nervous disease. The vision was not improved one month later.

Case 7.—A woman, aged 22. Impaired vision of the right eye, and pain in the same eye on looking to the left. Vision: right, less than 6/60; left, 6/12. Both pupils were active. The peripheral fields were full, but there was a central scotoma in the right field. In the right fundus great tortuosity of the vessels and distension of the veins was to be seen. The disc was surrounded by small haemorrhages. The left fundus showed the same condition of the arteries and the veins, but no haemorrhages were seen. No sinusitis or organic nervous disease was to be seen. Three weeks later the vision was 6/24.

Case 8.—A woman, aged 24. Pain in the right eye, which became worse on looking to the left. Vision: right, less than 6/60; left, 6/6. Both pupils were active. There was a central scotoma in the right field, but no contraction of the peripheral fields. The right optic disc was swollen, and there were haemorrhages in the fundus. The left fundus was of natural appearance. The Wassermann reaction was negative. Mr. Rose reported that there was no sinusitis. Dr. Hinds Howell found no evidence of intra-ocular sclerosis, nor of any lesion in the nervous system beyond the papilloedema. Four weeks later there was no improvement.

Case 9.—A man, aged 39. Pain on looking to the left, followed two weeks later by failure of vision, especially of the left eye. Vision: right, 6/36; left, perception of light. Both pupils were active. There was some contraction of the nasal part of the right visual field. The right fundus was of natural appearance. There was some swelling of the left optic disc, but no haemorrhages. The Wassermann reaction was negative. There were two septic teeth in the lower jaw. Mr. Rose reported no manifest sinusitis. There was no disease of the nervous system. Three weeks later the vision was: right, 6/9; left, 6/24.

Case 10.—A man, aged 45. Pain on movement and failure of vision in the left eye. Vision: right, 6/6; left, less than 6/60. Both pupils were active. There was a general contraction of the left visual field. The left disc was slightly swollen, and one haemorrhage was to be seen. The Wassermann reaction was negative. There was no sinusitis and no evidence of organic disease of the nervous system. Four weeks later the vision was 6/36.

Diagnosis.

Although in one or two of the cases the diagnosis was reached by a process of exclusion, it may in general be accepted as correct. In all but two of the cases there was pain as well as defective vision. In four this pain was made worse on movement of or pressure on the globe. A scotoma was found in five of the cases, and in four there was some peripheral contraction of the field of vision. In five cases there were marked pathological changes in the disc. In five of the cases the activity of the pupil was

impaired, and in the remaining five the contraction was not maintained.

Cause.

Although all the reputed causes mentioned at the beginning cannot be excluded with certainty, there is no positive reason for thinking that any one of them was responsible. The most important cause to be considered is disseminated sclerosis, and in these cases careful examination failed to reveal any sign of the disease at the present time. Cases have, however, been reported where retrobulbar neuritis has been the first and only sign of the disease, and other manifestations have only come to light so long as ten years or more afterwards.

Neither tubercle nor syphilis requires serious consideration, and in this series in all but one case, which was described as doubtful, the Wassermann reaction was negative.

The controversial question in a group of cases of this sort is that of paranasal sinusitis. As already stated, many cases have been operated on by rhinologists and the sphenoidal sinus drained, with subsequent rapid improvement of sight, but that this is in most cases the normal course of events is not realized. Consequently, an improvement which may be none other than the ordinary course of progress of the disease has been attributed to the operation. As already stated, thorough examination of the air sinuses was carried out in all these cases, and no evidence of any infection was revealed.

This series of cases seems to demonstrate the existence of a group of cases of acute retrobulbar neuritis, which have no demonstrable cause, and which are certainly not due to sinusitis. There is no doubt that a considerable proportion of them will ultimately reveal themselves as cases of disseminated sclerosis.

I am indebted to Mr. Foster Moore for his assistance with these notes, and for permission to publish the cases.

REFERENCE

Medical Ophthalmology, second edition, p. 156.

DIATHERMY IN THE TREATMENT OF PROSTATIC OBSTRUCTION.

BY

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THE idea of burrowing a channel through the prostate in cases of obstruction to the outflow of urine is probably as old as the hills. In more modern times it was recommended by John Hunter. In 1834 Guthrie invented a catheter containing a concealed blade for dividing the bar at the neck of the bladder; and in 1876 Bottini of Pavia introduced his galvano-cautery incisor with the aim of preventing haemorrhage. In spite, however, of opportunities that were only too numerous, the one method which was regarded as of any value at the end of the last century was the passage of a full size metal bougie, which was retained in the urethra for a few minutes. When the more modern methods of perurethral treatment are considered it should be remembered that a certain amount of relief was thus obtained. When more precise instruments became available "forage of the prostate" was recommended by Luys and the "punch operation" by Young. The operator, however, worked in the dark and under great difficulties; severe haemorrhage was common, and the obstructing mass was either crushed or burnt away with the cautery. The immediate results in cases that came under my observation were poor. Though I have not been able to follow up any series of cases, it would seem that scars resulting from such wounds must follow the course shown in other parts of the body and later contract and give rise to a stricture at the neck of the bladder. These methods received little support in other countries, and never came into favour in this.

In 1910 Beer first applied diathermy to growths of the bladder, which were destroyed by electro-coagulation. This

was the first practical method of treating such growths through the urethra, and had the advantage of being carried on in a water medium. Though sloughs were produced that took two weeks to separate, no infection followed and haemorrhage was never severe. The scar, unlike that resulting from open operations upon the bladder, did not contract and pucker up. This feature of the diathermy scar is well seen in the face, where, after the removal of rodent ulcers, the scar remains soft and supple, and differs very markedly from those which follow burns and scalds. At that time the difficulty in

applying diathermy to prostatic lesions was that, while the obstructing mass could be clearly seen, the electrode could not be applied to it through the ordinary cystoscope. About 1916 cysto-urethroscopes of the Brown-Bunger type were introduced, with which the surgeon worked from the prostatic urethra; with these not only could the parts adjacent to the neck of the bladder be seen, but the electrode could be applied to the obstructing mass under the control of the eye. Since 1913 I have by means of this instrument treated cases of prostatic obstruction by diathermy with much success; but it takes two or three weeks for the slough to separate, and during that time micturition may become more difficult and the passage of a catheter may be necessary. The diathermy punch of Mr. Kenneth Walker is a great improvement, as now we have an instrument by which the obstructing mass can be seen, destroyed by diathermy, and removed at the same time. In the series of cases I have been able to follow up no stricture has formed.

When the operation of prostatectomy became popular in the beginning of this century, it was limited to the senile or so-called adenomatous enlargement. A perfect functional result followed, provided no malignant changes were present, and a mucous membrane flap was prevented from forming over the prostatic cavity. As the technique of the operation improved and the mortality diminished, it was found that in some cases the functional result was not so good. If from these cases were eliminated those where the symptoms were due, not to lesions of the prostate, but to diseases such as tabes, and those where malignant changes were present, the remainder fell into three main classes: (1) Those in which the prostate was atrophied or there was slight thickening round the bladder neck, the so-called "prostatitis sans prostate" of Guyon, or the prostatic bar to which Guthrie first drew attention in 1830. (2) Those in which the prostate was small and fibrous. (3) Those in which the prostate was large and fibrous. These cases were characterized by the difficulty in removing the prostate, which was torn out rather than enucleated, by the shock and the amount of bleeding that followed, and by the prolonged convalescence, during which it was often necessary to pass sounds to keep the orifice dilated. Urinary symptoms persisted after the operation, and many of the cases died after a year or two with wasting and cachexia. Some surgeons regarded this as due to malignant changes, though none was found in the part of the gland removed, nor could any signs be detected on rectal examination. Death really resulted from renal failure and an infection ascending to the kidneys, both secondary to a stricture at the neck of the bladder.

When studying the pathology of the prostate it should be borne in mind that it is a secondary sexual gland, which, like the breast, undergoes involution about the age of 45. The adenomatous enlargement has been compared to the cyst-adenoma of the breast, and, like it, can be easily shelled out from the surrounding tissues. The different conditions found in the prostate are sometimes regarded as modifications of this; that, I think, is a mistake, for if they are not distinct pathological entities, they are at any rate very definite types of the same disease. Just as in the breast there may be a hypertrophic or an atrophic mastitis, so in the prostate there may be a large or a small fibrous prostate, and even atrophy of the gland itself, quite apart from the local changes in the glands of Albarran that are situated round the bladder neck. While the adenomatous enlargement tends to become progressively larger, this is not the case with the other varieties, for they are fibrous in type, and after reaching a certain size

remain stationary, or even tend to become smaller. Whether the fibrosis is the result of an inflammatory or a degenerative change I am not prepared to say; possibly both types occur. When an attempt is made to enucleate such prostates there is a tearing through of the fibrous tissue, which later contracts to form a stricture. And it is this tearing through of a gland that is richly supplied with nerve fibres, instead of enucleating in a plane of cleavage, that is largely responsible for the operative shock.

When the adenomatous enlargement affects the lateral lobes the urethra is compressed throughout its length. Removal of the obstructing mass by diathermy is very difficult, and, as the enlargement is progressive, the relief obtained is at the most temporary. On the other hand, when the middle-lobe alone is enlarged, the obstruction is limited to the bladder neck, and if not of a very large size can be removed by the diathermy punch. But both these types of enlargement are those most suitable for enucleation, and should not be submitted to diathermy, except, perhaps, where the middle lobe is slightly enlarged and the symptoms are not sufficiently severe to justify a major operation.

With the fibrous and atrophied prostates the urethra is not compressed throughout its length, and the obstruction is at the bladder neck. When the bladder is opened in these cases it will be found that there is a narrowing of the internal meatus, but that when the finger is passed through this the prostatic urethra appears more dilated than usual. Here we have a type of prostate that does not tend to become progressively larger and where the obstruction is localized to the bladder neck; the latter can be easily destroyed and removed, and does not tend to recur. After treatment by diathermy shock and haemorrhage are never severe enough to cause any worry, the convalescence is much shorter than after prostatectomy, the functional result is better, and the mortality is less. In 20 cases done so far by me there has been one death. When it is remembered that the type of prostate which is treated by diathermy is that which is largely responsible for the mortality after prostatectomy, it is obvious that a careful selection of cases will lead to an improvement in the statistics of this operation.

Should infection of the bladder or signs of renal failure be present and no improvement follow catheterization, a preliminary cystostomy is advisable. It may appear reasonable that, as there is now an opening in the bladder, the best line of treatment at the second stage would be removal of the gland. A preliminary cystostomy, however, does not make the operation of prostatectomy easier; it makes it, if anything, more difficult, and merely improves the condition of the patient so as to diminish the operative risk. Consequently the indications for treatment by diathermy will be all the more urgent here.

There is, of course, a danger of malignant disease arising in the part of the gland left behind; this has happened in one of my cases. Surgeons with a large experience of prostatectomies will, however, have come across cases where, after the removal of an apparently simple adenomatous prostate, malignant changes have developed in the part of the gland left behind. The temporary relief I had hoped for from diathermy in malignant prostates did not ensue; and here the operation is not worth while. This is probably due to the obstruction being throughout the prostatic urethra and not localized to the neck of the bladder.

So far as the clinical selection of cases suitable for diathermy is concerned, little difficulty will be experienced in the small fibrous and the atrophied prostates. When a rectal examination is performed in the latter the finger comes up against the posterior wall of the pubis, the hardness of which may lead to the impression that one is dealing with a malignant prostate. The examination carried out with a metal bougie in the urethra enables this error to be avoided. With the large fibrous prostate a careful cystoscopic and rectal examination is essential, and sometimes the differentiation between this and the adenomatous enlargement is by no means easy. The fibrous prostate is somewhat firmer, and on rectal examination there is not that projection backwards into the rectum, nor on cystoscopic examination that projection into the bladder, which

is found with the adenomatous prostate. The following cases are typical of my series.

1. W. C., aged 50, was sent to me by Dr. Bowen-Jones with a history of difficult micturition for five years. In August, 1922, the symptoms became worse, and were not relieved by the passage of metal sounds. In December, 1922, attacks of retention occurred, and in January, 1923, he was admitted under the surgical unit. Rectal examination showed atrophy of the prostate, and cystoscopy a bar over the internal meatus. The bar was destroyed by diathermy applied through the cysto-urethroscope, and he was discharged from hospital with a good stream and no difficulty. In August, 1923, obstruction to micturition again developed. Cystoscopy showed a tag of mucous membrane attached to the posterior lip of the internal meatus, which was destroyed by diathermy. Since that time he has been able to micturate without difficulty and has now no urinary symptoms.

2. W. R., aged 66, was sent to me by Dr. Jeffrey Jones with a history of frequent micturition since 1918 and difficulty for three months. In November, 1921, there was a diffuse enlargement of the prostate to be felt on rectal examination, and the bladder was midway between the pubis and umbilicus. In December, 1924, he was admitted under the surgical unit. There were marked signs of renal failure, and the blood urea was 80 mg. No improvement followed the tying in of a catheter, and a preliminary cystostomy was done on December 18th; during the next two days the tongue became dry and the blood urea rose to 120 mg. The general condition then improved, and as cystoscopy showed no large intravesical projection, diathermy was applied to the region of the internal meatus on January 7th, 1925, and again on January 26th. Following each of these applications there was no shock and no signs of uraemia, the blood urea not rising above 60 mg. The suprapubic tube was later removed and the fistula closed. When seen one month ago he had a good stream, there was no undue frequency of micturition, and no residual urine.

Summary.

1. The application of diathermy is useful in certain cases of prostatic obstruction.
2. It should not be employed in the adenomatous prostate where such good results follow enucleation.
3. It should be reserved for the large and small fibrous prostates and the atrophied prostate.
4. Its application in these cases leads to a better functional result and a lower mortality than after prostatectomy.

In conclusion, I wish to express my indebtedness to Professor A. W. Sheen, director of the surgical unit, for the facilities he has placed at my disposal and for many useful suggestions.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ERYSIPELAS TREATED BY FOREIGN BLOOD INJECTION.

THE note by Dr. Pines (December 5th, 1925, p. 1062) on the value of haemotherapy in erysipelas leads me to record the following case treated last May.

A Moroccan Jewess, aged 49, on whom I performed a submucous resection of the septum, was discharged from hospital after the usual forty-eight hours' stay. When she returned for inspection on the fifth day after operation a patch of erysipelas the size of half a crown involved the left ala nasi and extended towards the left lower eyelid. She had not used the nasal wash provided. In spite of nasal washes, followed by careful drying and dusting of the site and the usual methods adopted in such cases, the erysipelas spread rapidly, the left eye becoming involved.

On the seventh day, with the patient lying on her right side, 20 c.c.m. of blood was removed by a cold non-cituated syringe from a vein in her right arm, and without delay injected intramuscularly into the left buttock, which had been previously prepared. The whole procedure was a matter of seconds, and so much was her attention concentrated on the withdrawal that she was quite unconscious of the buttock injection, for before leaving she asked how long the blood analysis would take, and would not believe that the blood had been injected. The effect was dramatic, for in the course of the next two or three days the erysipelas rapidly faded away.

When a wound is complicated by erysipelas the subsidence of the latter is usually followed by rapid healing or cleaning of the former, and so it was in this case, for with the clearing of the eruption the infection of the nasal mucosa rapidly diminished.

In making blood injections the longer the blood remains in the syringe the greater the colloidal change occurring in the protein particles of the plasma; such change is beneficial, and so some slight delay should be made in transferring the blood. In this case, owing to climatic conditions in Tangier, delay was inadvisable.

London, S.W.

J. NISSEN DEACON.

LABOUR COMPLICATED BY UTERO-VESICAL FISTULA.

The unusual conditions present in the following case are the reason for placing it on record.

A woman, pregnant for the second time, was brought to me from a distance of about a hundred miles for confinement. She had been married four years, and had a child after a difficult labour two years ago. Convalescence was fairly normal, but she had continuous dribbling of urine. She was sent to me as a case of difficult labour, the local midwives having failed to do anything for her. She was seven months pregnant, and labour pains had started three days before her admission; the membranes had ruptured about the same time. On admission the pulse was 120 and very feeble, and the temperature was 102°. A foul red discharge was present and her general condition was bad. Abdominal examination showed no signs of any focus, but by rectal examination a foetal head was felt lying on the perineum.

The vagina was very shallow, admitting a finger to the depth of 1½ inches only; no signs of cervix or fornices were present. One inch from the urethral orifice there was a small opening admitting a finger with difficulty; the edges of the opening were rounded and hard, almost cartilaginous in consistency. A red discharge was seen coming out of the opening. On passing a soft rubber catheter through it a small quantity of urine and blood was withdrawn. There was obviously a large utero-vesical fistula, both the uterus and bladder communicating with the vagina through a small opening. As no abdominal operation was possible I incised the posterior edge of the opening, and, on exposure, another hard band was felt higher up, obstructing delivery of the head. This also was divided and the decomposed foetus was removed. The patient died thirty-six hours later of septicaemia.

Apparently there had been much sloughing after the first delivery. She menstruated through the fistula, and had also conceived through the same opening. The second band I divided was probably the os, but as no necropsy was possible I cannot be quite certain.

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APPENDICITIS IN A HERNIAL SAC.

The chief interest in the case here recorded is the youth of the patient.

A Malay boy, aged 5, was transferred from an out-station hospital, whither he had been taken for treatment for subtertian malaria, to the Malay Hospital in Kuala Lumpur on September 18th, 1925, because a right inguinal hernia, present since birth, had been irreducible for twenty-four hours; there was no great disturbance of pulse or temperature; vomiting had occurred, but was not severe or persistent. The hernia was serotol, and presented a tense, rounded, non-resonant swelling without impulse.

Before I saw him he had been given an enema, and an ice-bag had been applied. The enema produced an action of the bowels, in which were thirty-five round-worms, but the hernia remained unaltered. As operation is not, as a rule, one of the treatments in favour with Malays, I was relieved to get the father's consent to it.

On exposing the sac and opening it the appendix was found. Both were intensely congested, and the sac tore easily. On making traction on the distal end of the appendix it was found to be held in the fundus of the sac by a mass of oedematous fat, which readily broke away from the appendix, and was extracted separately. It was at first thought that the appendix was strangulated by the neck of the sac; on passing the finger up, however, no constriction was found, but a necrotic patch on the appendiceal wall. The caecum was lightly adherent above the internal ring, and enough of it was easily drawn down to permit of the usual removal and invagination of the stump. There was no sign of constriction of either the appendix or its mesentery. The sac was separated from the cord and ligatured as high as possible. The tunica vaginalis was reconstituted by a purse-string suture. A small drain was left in the inguinal canal for twenty-four hours and only the external oblique muscle and the skin were sutured.

The wound healed by first intention, and no trouble ensued for lack of drainage of the iliac fossa; a collection of pus in the tunica vaginalis had, however, to be evacuated by incision six days later. Recovery was otherwise uninterrupted.

I think it is safe to assume that the appendix had occupied the sac for some considerable time, and that the symptoms were due, not to strangulation, but to appendicitis.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

SOUTH-WESTERN BRANCH.

At the annual meeting for 1925 of the South-Western Branch of the British Medical Association, held last summer, Mr. L. C. PANTING, F.R.C.S., honorary surgeon to the Royal Cornwall Infirmary, Truro, delivered his presidential address. His subject was the present position with regard to malignant disease, and the lines along which advance in its treatment may be hoped for. The following is an abridged version of Mr. Panting's address.

Malignant Disease: The Present Position.

There seems to be no doubt that the incidence of cancer has considerably increased in recent years. Deaths from this cause have about doubled in number between 1830 and 1920; during this period the average age of man has considerably advanced, but the incidence of cancer does not seem to have altered proportionately, and cancer cases occur at least as early in life as they did forty years ago. I will therefore discuss the efforts being made to find its cause and the way Nature attempts to deal with it; along these lines only can we look for cure.

Turning to the experimental method, which is the only scientific method, we find two general lines: (1) investigation of the normal and of the malignant cell, together with their mutual relation; (2) investigation of the relation of the malignant growth to its host. These lines converge and sometimes cross as the work proceeds, but I think that the division is broadly true.

There is at the outset, unfortunately, great difficulty in deciding what may be considered as a true malignant growth. There is a gradation between what is called a pre-cancerous condition and true cancer; and there is also the question of the relation of experimentally produced conditions to cancer. In recent years a technique has been developed by which individual cells can be cultivated and transplanted in much the same way as bacteria are dealt with. It is found that a simple saline medium, such as tyrode, is sufficient for cellular life, but for growth and multiplication the addition of some organic material is necessary. Tissue cells are divided into two classes—those which require embryonic tissue extract, and those which can digest and utilize serum. Of the first class fibroblasts and pavement epithelium have been obtained in pure culture and maintained in healthy condition for a year or more. The addition of serum inhibits their growth, and this inhibition becomes more marked as the age of the donor increases. Of the second class—those cells which digest serum—large mononuclear leucocytes, thyroid cells, and other types have been obtained in pure culture. In both classes the cells remain true to type, and do not revert to their embryonic forms. The growth of the cells appears to depend entirely on the medium; waste products must be removed and certain necessary ingredients be present. Fibroblasts and epithelial cells require stimulants for their growth (hormones) and food for their sustenance (trephones); these are absent from adult serum, but present in embryonic tissue. We must hence conclude that embryonic cells can produce these substances from the protein of the egg or the blood of the mother, while the cells of the adult have no longer this power. It is further believed that the blood contains stimulating and inhibitory substances acting in opposition and that in post-natal life the inhibitory substances are in excess. Considering the medium and not the cell as the controlling factor, it follows that fibroblasts do not find the substances required for their growth in the blood, since otherwise they would overgrow rapidly and block up all the vessels. Mononuclear leucocytes and cells of the second class can, however, multiply on serum, digest it, and, since leucocyte extract contains hormones and trephones, it is probable that they can convert the serum into these substances and so enable the fibroblast and epithelial cells to grow in certain circumstances, as in the case of tissue reaction in a wound.

The next step was to investigate similarly the malignant cell: for this purpose a Rous sarcoma was chosen, since from the ground-up growth a filterable virus could be obtained which, when inoculated, reproduced the original growth. The sarcoma consists chiefly of fusiform cells, but when cultivated in a suitable medium several forms of cell appeared—polymorphonuclears, large mononuclears, and lymphocytes, as well as fibroblasts. From this growth pure cultures were obtained of large mononuclears and fibroblasts, the other types of cell disappearing. Each of these cultures, after sufficient time had elapsed for the disappearance of the virus from the medium (it soon disappears in the presence of serum), were injected into fowls. From the fibroblasts no result was obtained, but with

the large mononuclears the birds developed malignant growth with metastases and died. The next step was to attempt to convert a normal mononuclear into a malignant cell by inoculation with the virus, and to compare the cell thus infected with the normal. Normal mononuclear cells were obtained in pure culture from blood, and this culture was infected with filtered Rous virus. All the cells were found to be malignant in inoculation, and though some few behaved like normal cells the majority underwent a specific change after three or four days. The cells became granular and vacuolated, multiplication decreased, then agglutination occurred and brought about digestion of the medium. Later the mononuclears disappeared progressively from the coagulum, and from the mass of amorphous tissue there migrated triangular and spindle cells with their cytoplasm full of granules, some resembling normal fibroblasts; digestion proceeded rapidly, and finally all the cells died out. The filtered supernatant fluid was virulent. The conclusion drawn from this observation is that normal mononuclears can absorb the Rous virus and protect it from the destructive action of the blood serum; that in absorbing the virus the cell becomes diseased and short-lived; that the dead cells then infect other cells, and so the process goes on; that the tissue of the dead cells forms nutriment for the fibroblasts and other cells of the host, which increase and form the bulk of the tumour as seen in the affected animal. While the tumour cell is not anarchic or endowed with unusual vitality, but is short-lived and diseased, the tumour can grow rapidly and persistently.

This work of Carrel seems to open up a new field of research which may lead to far-reaching results. We want to know what happens when an epithelial cell is infected, and what is the virus to which it will react. The virus of Rous sarcoma has been studied by Gye, who obtained it by grinding up the original sarcoma, filtering the fluid, first through sand and paper pulp, and finally through porcelain. The filtrate, which reproduces the original sarcoma when inoculated, contains a particulate organism, which can be cultured; it differs, according to Gye, from the ordinary micro-organisms only in its minute size. Similar filterable organisms have been described as the cause of small-pox, chicken-pox, and encephalitis lethargica. Hort, however, has put forward the view that the micro-organisms which we are accustomed to look upon as fixed types are in reality only one phase in the life-history of the organism, and that the other is the minute form just mentioned. Further work is clearly needed before this question can be settled.

On the second line of research—namely, the relation of the malignant growth to its host—the chief work has been the study of the conditions associated with the development of cancer in man and in animals. It has long been known that workers in tar, crude paraffin, arsenic, and some other chemicals are liable to cancer of the parts exposed to their action to an abnormal extent. Mice, painted on the back with tar thrice a week, lose the hair on that part, and almost invariably develop warty growths in from three to six months. Of these growths one only becomes malignant, with atypical cells and metastatic growths, the others gradually disappearing. If this malignant growth is removed surgically no further malignant development can be obtained by repeated paintings with tar. If the painting is stopped shortly before the time at which warts usually develop, the condition progresses just as if the painting had been continued. Thus the cancer has, so to speak, a long incubation period, and some sort of immunity is developed. Cancer is often found in association with other diseases: the ova of bilharzia may be associated with cancer of the bladder in man, and the ova of *Taenia crassicolis*, given to rats in food, produce liver cysts which may be accompanied by sarcoma. Febiger found that in rats with the rare condition of carcinoma of the stomach a minute nematode worm was present in the carcinoma. When he learned that nematodes had been found in rats fed on cockroaches, he fed some normal rats on this diet, but without results until he tried a particular kind of cockroach, *Periplaneta americana*, with which he obtained cancer of the stomach in 50 per cent. of the rats and found the nematode in the cancer. To determine whether purely mechanical irritation is the cause of cancer as opposed to chemical irritation, Leitch implanted gall stones and ordinary pebbles into the gall bladders of guinea-pigs, and obtained growths in 25 per cent. of the animals. These growths invaded the liver directly, but there were no metastases, and the cells lining the tubules of the growth formed only a single layer. There is, therefore, some doubt as to the malignancy of the growth, but the conclusion drawn is that irritation alone is a sufficient cause of cancer.

One general conclusion from this work is that cancer, however local it may appear, inhibits the development of another cancer in the same subject—that is, it produces a certain immunity. That immunity can be developed in animals by breeding has been proved by Maud Slye, who succeeded in breeding a strain of mice immune to sarcoma, and another strain so sensitive to it that every inoculated mouse died. Another

conclusion is that specific forms of irritation assist in the production of cancer, and that the cancer arises at the site of the irritation. The irritation theory is largely held by clinicians and pathologists, especially in America, where surgeons have stated that some 50 to 60 per cent. of cancers of the stomach arise from old gastric ulcers. Moynihan believes that some 20 per cent. of gastric ulcers become malignant, and Sherren gave this figure as 25 per cent. Dible, however, after a special inquiry, stated that out of 126 cases where the clinical and naked-eye appearances indicated gastric ulcer, no single case showed malignant change on microscopic examination, and that out of 164 stomachs removed for ulceration, simple or malignant, only 5 cases were found in which, on histological evidence alone, the appearance might be taken to mean that malignant disease had been grafted upon a chronic ulcer. Finsterer, on the other hand, out of 145 apparently simple ulcers found 31 cancers. There is similar doubt as to the pre-existence of chronic inflammatory disease in cancer of the breast; general opinion favours this view, but Raymond Johnston is strongly opposed to it.

There appears to be a reaction against the general doctrine of irritation as a cause of cancer, and there are certainly conditions of chronic irritation, such as ulcers of the leg, which rarely lead to cancer. The alternative view, moreover, must be considered, that cancer is the cause and not the result of some at least of the chronic inflammatory changes seen. It is now generally believed that in chronic cancer some at least of the cancer cells are destroyed by the body tissues, and it may be asked whether it is not possible that the earliest formations of cancer also are sometimes destroyed and never mature, but leave behind them a condition of chronic inflammation. Cancer is believed to spread by the lymphatics and the blood stream as well as by direct infiltration; and along each of these lines we find evidence that the body tissues resist its invasion. In the primary growth this is shown by the small cell infiltration always present at the growing edge, and by the masses of fibrous tissue surrounding the islands of malignant cells. The same process is shown where the cancer is growing as a solid cylinder along the lymphatics, or, to use Handley's term, "permeating" them.

In our complete ignorance of the relation of sarcoma to carcinoma, it has been assumed that they are of the same class and probably arise from a similar cause. Sarcoma is a disease of youth and is rare; carcinoma is a disease of advancing years and is becoming more frequent; is it not possible that this may be explained by the gradual development of racial immunity against sarcoma, which affects man before the age of reproduction, while this has not been developed against carcinoma, since it hardly affects the multiplication of the race?

We are no longer in the hopeless position when cancer was looked upon as a disease apart from all others in which some of the body cells had for no reason become anarchic and turned traitor to the body, and for which no other treatment could be conceived than that of total extirpation. This method holds the field to-day, but we can reasonably expect better things to come. We have seen that a disease resembling closely, though probably not identical with, cancer can be produced by a virus; that individual types of cell can be cultivated *in vitro*; that some of these can be infected with a filterable virus and its effect observed on the infected cell, as well as on the animal as a whole. May we not hope to learn soon which of the cells, in cancer as we know it, are the real agents; and what is the cause, living or otherwise, which leads to their activity? This would be a long step towards rational treatment. On the side of the host we have found evidence that the tissues are not entirely overwhelmed, but do react against the invasion by cancer, though their efforts nearly always fail. This should surely guide treatment. Even now it would seem that we have learned something of the lines on which to work, for by means of radiant energy rodent ulcer or basal-celled carcinoma can be cured. This is not a mere caustic action such as could be obtained by a red-hot iron, but an action which enables the cells of the body to deal with the lesion themselves. Knox is advising repeated small doses of α rays to stimulate the reparative powers of the cells in their fight against malignant disease rather than the single massive dose of the Erlangen school, aimed at destruction of all the cancer cells—and others. Scott takes a similar view, and says that for the cure of carcinoma with α rays certain unknown biological factors play an important part: radiations do not destroy or remove unwanted cells like the cautery or knife, but profound changes are set up by which malignant cells are replaced by normal tissues without necrosis occurring—a metamorphosis without cellular death. In practice he irradiates the whole body. Lazarus-Barlow suggests that irradiation produces antigens, which in turn produce antibodies, for if certain tumours are given a heavy dose of irradiation outside the body, and a portion is then injected into an animal, that animal becomes immune to inoculation with the tumour.

Various metallic salts, including copper, selenium, and potassium, and the injection of toxins (Coley's fluid) have been

tried without much success, but the use of a lead compound is on a different plane. Blair Bell has stated that the chorionic foetal cells invade the pregnant uterus in the same way that cancer cells invade surrounding tissues, but that after a certain period this invasion ceases in normal cases. Under abnormal conditions invasion continues, and chorion-epithelioma follows. Since this disease does not appear before the foetus has either died or been expelled, it is argued that some foetal substance may inhibit this persistence of growth, to the withdrawal of which malignant development is due. Blair Bell considers chorionic cells as malignant cells under control, and cancer cells as normal cells freed from control. This cell tension theory of cancer appears to have been contradicted by Carrel's work. Blair Bell, having failed to obtain from the foetus the inhibitory substance, has employed lead, which has long been known as an abortifacient, and has shown that it has a specific poisoning effect on embryonic cells, as well as on nerve cells, blood cells, spermatozoa, and malignant cells. All these cells contain phosphatides, and the action of lead is thought to be concerned with this chemical group. To lessen the danger of lead poisoning a colloidal preparation is employed, and there appears to be a specific clinical effect, shown by the appearance of pain localized in the growth in two to eight hours after injection, as well as some local reaction. The amount of lead found in the growth is far larger than that in any other portion of the body except the gonads. Some cases which had failed to react to x rays improved with lead, and, conversely, some previously treated with lead improved when x-ray treatment was instituted.

For the present, however, total extirpation by surgery must hold the first place in the treatment of cancer, though, apart from some improvement in technique and greater knowledge of the lymphatic spread, but little advance can be expected.

Reports of Societies.

LIFE ASSURANCE MEDICINE: ITS PROGRESS AND LIMITATIONS.

At a meeting of the Assurance Medical Society on January 6th Dr. OTTO MAY delivered an address from the chair, taking for his subject the progress of life assurance medicine and the obstacles still in the way of an ideal assessment.

Dr. May began by remarking on the increasing responsibilities of the medical examiner. Originally the medical examiner had only to advise acceptance or rejection of a proposal; now, in the case of an impaired life, he was required to investigate the nature and extent of the impairment and its effect on the prospects of longevity. With this increasing range of duties had gone a rapid advance during the last thirty years in clinical, and particularly in laboratory, methods for the investigation of bodily function. Some of this advance was more apparent than real. It was not to be assumed that all change was progress, and that each new discovery was a milestone on the road to omniscience. When he looked through the early *Transactions* of the society, which was founded in 1894, and saw the wealth of clinical knowledge and judgement displayed in the papers, he had an uneasy feeling that the more recent elaboration of methods had not proved an unequivocal blessing. True, if one were able to command for life assurance work all the resources of the modern hospital or clinic, it might be possible to arrive at a better estimate of the proposer's condition than was customary thirty years ago. But life assurance was essentially a business proposition, not an exercise in the niceties of laboratory methods. The examination was limited by the extent to which the proposer would submit to the trouble and expenditure of time involved and by the amount of cash outlay which the assurance company was prepared to sanction. When, as often happened, the proposer was indifferent to the outcome, it was obviously difficult to get him to submit to, for example, a test of his sugar tolerance curve. It was obvious also that a company would hesitate to sanction any large outlay except in the case of proposals for large amounts; in the case of doubtful proposals for smaller sums the company would prefer either to decline them outright or to come to a decision on such information as was contained in the ordinary report. It followed, therefore, that in the large majority of proposals

even now a decision had to be reached on the findings of the ordinary clinical examination, and it was at least arguable that, owing to dependence on laboratory methods, which in these cases were not available, the modern practitioner was less, rather than more, skilled than his predecessor of thirty years ago.

Examination for Arterial Pressure and for Heart Function.

One point in routine examination in which there had been real advance was the measurement of arterial pressure. In Dr. May's view the introduction of the sphygmometer into clinical medicine had been one of the few real diagnostic and prognostic advances of recent years. He hoped that the time would soon come when the measurements of both systolic and diastolic pressure by the auditory method would become an essential part of every life assurance examination. This would enable, in the course of a few years, a large quantity of statistical material to be amassed, which would furnish results of considerable interest as to the relation of diastolic pressure to mortality. He summarized certain statistics which he contributed to the discussion on hyperpiesia in the Section of Medicine at the last Annual Meeting of the British Medical Association.¹

Another respect in which there had been some progress in routine examination during the last three decades was the increasing recognition of the importance of tests for myocardial efficiency. The estimation of the field of cardiac response by an exercise tolerance test in which attention was paid, not only to the variations of pulse rate, but to the amount of distress and the nature of the sensory symptoms evoked, was a definite advance. As far as he was aware, he was a pioneer when, in 1913, he introduced an exercise tolerance test as one of the items in the examination forms used by his company. In passing, he gave it as his opinion in all seriousness that it was a bad day for life assurance when the stethoscope was first applied to the heart; this had done more to confuse the issues between proposer and company than many people realized. An enormous number of perfectly good lives had been rejected, and, what was worse, made unhappy and invalided, by the discovery of a perfectly harmless "murmur," and a number of thoroughly bad lives had been accepted as a result of the examiner's reliance on the stethoscope as the practical arbiter of the heart's condition. He felt that, in spite of the undoubted advances due to the "new school" of cardiology, the stethoscope still loomed too large in the perspective of the heart examiner. A third respect in which advance had been made was in the recognition of different types of pulse irregularity, especially the ability to differentiate that due to premature contractions (extra-systole) from that due to a fibrillating auricle.

Albuminuria and Glycosuria.

Dr. May turned next to certain special methods of investigation placed at the disposal of life assurance examiners for the estimation of functional efficiency, such as tests of renal function, sugar tolerance tests by estimation of blood sugar, skiagraphy, especially of the chest and abdomen, the Wassermann test, and the electro-cardiograph. What he had said with regard to the application of the stethoscope applied also to some extent, though less strongly, to the introduction of urinary tests into the routine examination of the individual. Was there any medical examiner who was not tired of the recurring problem presented by the apparently healthy proposer in whom was found a trace of albuminuria or glycosuria? For medical prognosis the most useful methods of estimating the functional capacity of the kidney as an excretory organ appeared to be the estimation of the blood urea (and non-protein nitrogen) and the urea concentration test associated in this country with the name of Maclean. With regard to the former, he thought it might be accepted that a urea content greater than 40 mg. per 100 c.cm. was evidence of renal impairment; the converse, unfortunately, was not true, and the urea figure might be little, if it

¹ Mortality in Relation to Hyperpiesia, BRITISH MEDICAL JOURNAL, December 19th, 1925, p. 1166

all, increased in cases of serious kidney disease. The test, therefore, was useful in confirming the presence of serious kidney trouble, but not in excluding it. With regard to the urea concentration test, its place in life assurance medicine might be summarized as follows: a proposer whose urine failed to attain a urea concentration of 2 per cent. after the oral administration of 15 grams must be regarded as suffering from definite impairment of renal function; if the examination of the urine and the general condition of the proposer suggested the presence of "granular kidney" the attainment of this concentration must be regarded as a favourable sign that the kidney involvement was slight. If the urine examination, on the other hand, suggested the presence of parenchymatous nephritis, the test had no value in assisting to a favourable prognosis, as many cases had been recorded in which the urea concentration was normal in the presence of advanced parenchymatous nephritis. As to the other tests of renal function, he doubted whether any of them would find a practical application in this branch of medicine, and altogether, except for a limited help from the urea concentration test, there did not seem to have been any appreciable progress in the last twenty years in attempts to assess the risk in cases of albuminuria.

The position with regard to the assessment of glycosuria was very different. Thanks to improvements in the technique of blood sugar estimation, the curve of the blood sugar percentages following the administration of 50 grams of dextrose was now comparatively easily obtained, and was a most valuable help in determining the significance of glycosuria. This represented a very real advance in method, and enabled guess-work to be replaced by accurate knowledge. He had availed himself of this test in a good many cases of glycosuria; some of them had been shown to be of undoubted renal origin—an abnormally low threshold—and these had been accepted at ordinary rates if all other conditions were favourable. Others had been proved to be diabetes of slight or grave degree; in a few the result was of doubtful significance.

Altogether, he thought it might fairly be said that there had been some definite advances in the thirty years under review, and that there were reasonable hopes of still further advances in the future. But when all was said and done, there was something in the examination of a proposer which was beyond the range of clinical instruments or laboratory analyses. He meant, the general impression conveyed to an experienced examiner. An examination might fail to reveal any definite defect, and yet the examiner felt instinctively that the proposer's prospects of longevity were below par, that what, for want of a better term, might be called his vitality was poor. This was one of the most important factors in assessment, and the more the methods of examination were elaborated the greater was the risk of overlooking this aspect.

Assessment of Impaired Lives.

In the assessment of the extra risk for impaired lives there was less evidence of progress during the period under review. For all practical purposes the methods remained entirely empirical, and the examiner was left to translate some physical defect into terms of time or money with little to guide him except tradition and instinct. The assessment in most cases implied a compromise between hopes and fears, a desire to protect the company from undue risk, and yet not to kill the company's business. Very rarely indeed was it based on any actual knowledge of the effects of the particular impairment on the expectation of life. Not many life assurance examiners, he feared, possessed the true statistical mind; still fewer realized exactly what was involved in the ordinary method of assessment. It would be an excellent discipline for them to try their hands at superposing on a normal mortality curve their idea of the curve for some particular case which they were attempting to assess. To what extent did a moderate degree of myocardial damage affect the expectation of life? It would be entertaining, if not flattering to the pride, to compare the answers of all the members of that society in an examination paper set on such lines. Yet this was the problem that implicitly they set them-

selves to solve whenever they ventured to rate up a proposal. Was it not rather futile to go to considerable trouble to determine the exact degree of impairment of the proposer when the translation of this into assessment rested on so vague and unsubstantial a basis?

The fault, if there was any fault, did not rest entirely or chiefly with the doctor. Strictly speaking, the doctor should never be called upon to make an assessment; that should be the duty of his colleague the actuary. In actual practice, perhaps, it might best be done, as it frequently was, by the two in consultation. There was need for a joint medico-actuarial investigation on a wide scale, aiming at the production of mortality experiences for all the ordinary impairments, from data large enough to eliminate the fallacies arising from insufficient cases. Dr. Otto May's conception of the ideal basis for assessment was for medical men, in committee, to draw up a list of all the important defects likely to be encountered in their work, for the actuaries then gradually to accumulate the experience of the offices, and in course of time evolve from this material the mortality for these different classes. It might be advisable to subdivide some of the classes into slight, moderate, and severe. In the case, then, of a proposer suffering from one or more of these defects the essential duty of the medical officer would be that of stating to which class or classes the proposer belonged, and the actual assessment would be made by the actuary from these data. In this way the assessment might ultimately become more rational and consistent than at present, though, in view of the enormous amount of data required and labour involved, he was afraid it might be many years before this was ultimately achieved.

DISCUSSION.

Dr. H. M. ANEL agreed as to the value of the special and up-to-date methods of investigation, but feared that time and expense would continue to bar the way. Only the previous week his office had to postpone practically *sine die* a proposal because an electro-cardiographic examination was not possible. More might be done, however, in the way of enlisting the co-operation of the private medical attendant of the proposer. He had been glad to hear Dr. May's references to blood pressure, and he thought everyone would agree that some of the opinions expressed about five years ago needed revision. The estimation of the diastolic pressure was of the utmost importance, and without both diastolic and systolic the picture was inadequate. It must be admitted that difficulties and fallacies surrounded the estimation of diastolic pressure. At some future time it might be possible in this and other matters to establish a standard method.

Dr. G. G. HOWITT said that it was sometimes useful to impress upon proposers that for their own sake, in order to know where they stood, it was desirable that more elaborate tests should be undertaken. Some of them would, when this point was put to them, promptly undergo such tests for their own satisfaction. With regard to blood pressures, he was afraid these were often taken by men who had not read up or thought out the uses of the instrument they were employing.

Dr. H. W. COLLIER said that if the chief medical officer of a company was confronted only with the record of a high systolic pressure in a comparatively young proposer, he was in a position of considerable difficulty. In many cases if further investigation were made it would be found that the diastolic was perfectly normal, and that the increase in the systolic was simply due to an overacting heart at the time. The speaker thought that the society might well take the initiative in a very important advance in assurance science by encouraging the collaboration of the medical officer and the statistician, by pressing for uniformity in methods of accumulating and presenting statistics, by gathering together the experience of British life offices in connexion with substandard lives, and by arriving at some general agreement on the assessment of extra risks.

Dr. R. A. YOUNG said that assurance work, naturally, having regard to its particular conditions, had to be eclectic and utilitarian. The special methods of investigation mentioned by Dr. May had established themselves as extremely useful, but the difficulty was the expense and time involved,

TREATMENT OF PHTHISIS WITH SANOCRYSLN.

which sometimes made them prohibitive to the proposer. With regard to the diastolic pressure, he hoped no office would insist on this finding until that society or some similar body had established it, and also a table or list universal method of recording it, and also a table or list giving its indications. He knew what he himself meant by diastolic pressure, but he did not know what anybody else meant, and he was not at all clear yet as to the significance of a high diastolic pressure; he was inclined to a thing to be looked at askance. Nor did he know the effect of emotion on diastolic pressure; he was inclined to think that the diastolic was a more permanent and less alterable factor than the systolic, but of this again he was not sure. He hoped at all events that the diastolic would not be put on the forms of any office until definite instructions were given as to what should be the criterion. Dr. May had touched upon the different points of view of the medical officer and the actuary. The speaker had always maintained that the medical officer was concerned with the individual, and the actuary, of course, with the collective results. It was all very well to bid medical examiners to take a wide view and to consider things from the collective standpoint, but it was forgotten that their work was judged by their assessment of the individual case. He approved Dr. May's suggestion that the actual assessment should be done by the actuary on the basis of the report by the doctor. He also agreed with what Dr. May had said with regard to the undefinable something about certain proposers which led one instinctively to think of them as bad lives. What the examiner hoped when confronted with this class of person was that he would find some defect sufficiently definite to justify him in advising his company to decline or postpone the proposal.

Mr. KELHAM (assistant actuary, Prudential Assurance Company) agreed that it was inevitable that medical men should look on their cases as individuals, while actuaries were in search of a type to which every case could be referred. But when Dr. May spoke of the need for collecting and tabulating statistics somewhat along the lines of the American investigation of 1912, it must be borne in mind that the actuary was in the same difficulty as the chief medical examiner who received various reports without knowing exactly how they had been arrived at. It was very difficult to get together a homogeneous set of facts; one could never be quite sure how they had been compiled, and what material had come together in the various offices making up the whole experience. It was difficult also to get a wide enough experience which was sufficiently modern, for, of course, it was of no use going back over a long period, because much of the experience gathered in the early part of it would not be relevant to the experience gathered in the later. But because there were difficulties in the way, that was no reason for turning the suggestion down.

Dr. STANLEY BORSFIELD said that it was often found that the one doubtful factor in assessing a report was the systolic pressure. Before any proposer was rated up or declined on the ground of the systolic pressure, a second examination, and possibly (if there were wide differences between the first and second) a third, should be made, and he had always found the examining doctor ready to fall in with a polite request to verify his first figure.

Dr. P. R. INGRAM said that his office had given up the idea of putting on so many years for a life; it had gone back entirely to the old mortality basis. It was much better to think in terms of mortality, and leave the actuaries to deal with it, than with a number of years—for example, 150 per cent. would represent so many years' load at a certain age, 175 per cent. so many more. From the medical aspect he thought it much better for the companies in this country to deal with the matter on a mortality basis altogether. With regard to blood pressures, his office had insisted on both the systolic and the diastolic, but those conducting the examination had had to be educated in a definite way of taking these pressures. In his opinion the right time to take the diastolic was at the sudden drop in sound, but obviously that would lead to so many errors in examination that the method had been adopted of recording when all sound disappeared. The diastolic reading, he thought, was the most important part of the whole record.

Any reading over 100 meant a very suspicious case, and if the systolic dropped with a rise in the diastolic this was even more suspicious.

Dr. ORRO MAY, in replying, said that it seemed to him that to think in terms of mortality was likely to be quite as illusory as to rate up so many years. The medical assessor had to draw upon his imagination in the one case as in the other. With regard to blood pressures, there seemed to be a difference of opinion as to whether the diastolic should be asked for at present. It was well not to be in too much of a hurry; there were enough fallacious figures as it was, and this figure was likely to be more fallacious than the rest. It was desirable to await the spread among practitioners of further knowledge as to the value of these methods. In regard to a joint medical-actuarial investigation with a view to improving the method of assessment, he thought it might be useful to suggest such a course to the Life Offices Association.

TREATMENT OF PULMONARY TUBERCULOSIS WITH SANOCRYSLN.

A COMBINED meeting of the Sections of Therapeutics and Pharmacology and Medicine of the Royal Society of Medicine was held on January 12th. with Dr. GRONER, Chairman, the president of the Section of Therapeutics, in the chair, when a discussion on the treatment of pulmonary tuberculosis with sanocrysin was opened by Professor T. R. ELLIOTT, F.R.S.

Professor Elliott referred briefly to the passage of sanocrysin through the body; after intravenous injection it was rapidly excreted by the kidneys and to a less degree by the intestine. After four or five days its concentration in the blood and lungs fell rapidly, and the salt tended to accumulate elsewhere, particularly in the kidneys. The symptoms following its injection were as a rule very slight, unless there was a vascularized area of infection in the body, when a severe reaction might follow. If the drug was unduly pushed, hyperpyrexia and shock might ensue, with evidence of poisoning of the skin, liver, and kidneys. These conditions had been attributed by Danish observers to tubercle toxins, and they were a real danger. Professor Elliott had treated eleven cases, including three of tubercle infection and one in which no definite diagnosis of tuberculosis was made. Of the seven other cases, two patients had died, but this was not attributable to the salt, since both patients had very advanced disease before the treatment started, and there was no evidence that the sanocrysin had in any way hastened the end. In one case there was for some time considerable doubt as to whether the treatment was of any value. The physique of the patient was very poor and no benefit had followed any other treatment. After receiving the high doses which were customary at that time, anorexia, vomiting, and albuminuria followed, and the patient lost ground generally. During subsequent residence at home, however, under not very good conditions, she made good progress, and at the present time it appeared that complete arrest of the disease had been obtained, nor was there any sign of kidney trouble. Sanocrysin appeared to produce an increased local vascularization around the sites of infection, but there was no evidence yet that it killed tubercle bacilli. No benefit had followed its use in a case of tuberculous glands. In another case, a lad aged 18, with early but rapidly spreading pulmonary disease, great improvement followed the administration of an initial dose of half a gram, followed a few days later by a second dose of a gram. There was a reaction with the appearance of a rash, but no albuminuria. The temperature fell to normal, and the three following doses, each of a gram, produced only slight reactions. The sputum became free from tubercle bacilli, and the patient remained well during the course of sanatorium treatment which followed. Professor Elliott believed that the best results were seen in cases which reacted with some pyrexia and a rash, albuminuria seemed to be related to the amount of the salt given and the interval between the doses. In another case of pleurisy and peritonitis in which other treatment had failed over a period of three months, sanocrysin cleared the fluid out of the abdomen in three weeks. A boy aged

14. with infected glands in the neck and chest, developed pulmonary disease after surgical treatment, and became critically ill. He reacted sharply to sanocrysin, and the temperature dropped to normal, while the weight improved markedly, though there was but little change in the consolidation of the lung. At present, though he had returned to work, he was not well, and the improvement appeared to have been only temporary. Professor Elliott believed that sanocrysin produced quicker improvement in pulmonary tuberculosis than did any other treatment.

Professor JYLE CUMMINS had treated twenty-five cases and reported the results obtained in six patients who had been dealt with not less than six months previously. Very decided improvement had occurred in four cases, but relapse had followed. In the first case there had been definite improvement in disease at the left apex, as shown by radiological examination; weight was lost during the treatment but was regained later. The patient was then transferred to a sanatorium, but left it six weeks later, contrary to advice, and returned to rather unsatisfactory home conditions. Although there had been no haemoptysis or sputum yet the cough and general weakness had returned, and a second course of sanocrysin was now being given. The second case, a lad with apical disease, improved very much under sanocrysin treatment. He returned to work in a mine without having any sanatorium treatment and gained weight while at work. The sputum, however, reappeared, and was found to contain tubercle bacilli, so a second course of sanocrysin was commenced. The sputum then ceased and a course of sanatorium treatment was given. In the third case there was a cavity in the right upper lobe and the sputum was crowded with tubercle bacilli; the patient's general condition was good, and the cavity contracted when sanocrysin was given. The weight dropped during treatment but rose subsequently. Sanatorium treatment followed and a relapse occurred. After another course of sanocrysin good health returned and was still persisting, though albuminuria, which had commenced during the treatment, was still present. The fourth case was characterized by a very irregular temperature, and there were definite lesions in the upper half of the right lung; these were cleared up by sanocrysin. The patient refused sanatorium treatment and returned home; at first the improvement was maintained, but more recently a slight chill had followed and the sputum was again found to contain tubercle bacilli. Another course of sanocrysin was therefore started. Sanocrysin was found useless in a bad pneumonic case; no harm was done other than the production of a rash and albuminuria. Professor Cummins thought that sanocrysin gave rise to definite improvement, but that repeated short courses would be found to be necessary. Examination of the sputum showed that it tended to the destruction of tubercle bacilli in the body, and he illustrated this point by several charts of cases. He then gave a short account of animal investigations which had produced evidence that there was definite improvement in the lungs following the use of sanocrysin in rabbits infected with human strains of the tubercle bacillus. He believed that one of the chief uses of sanocrysin would be raising the hospital type of case to the sanatorium level.

Professor F. R. FRASER gave a general account of his investigations and the conclusions he had reached. He had treated fifteen cases of tuberculosis, and one case of lymphatic leukaemia had been used as a control. Two cases were non-pulmonary, and two others had combined abdominal and pulmonary disease. He had started with the dosage recommended by the Danish. His first patient, a man aged 30, had had attacks of haemoptysis for eight years, but was in good condition when the treatment started. Tubercle bacilli were present in the sputum, the signs in the lungs were clear, the fingers were clubbed, but there were no signs of any recent extension of the disease. The first dose of half a gram produced no reaction. Three days later one gram was given; nausea and vomiting started later in the day, and the temperature began to rise. During the course there was a great increase in the amount of sputum. On the fourth day the temperature was 104°, there was a morbilliform rash over the body, and albumin was present in the urine. The patient complained of

a metallic taste in the mouth, and felt very ill. By the eleventh day he had quite recovered, but had lost weight. On the next day another dose of one gram of sanocrysin was given. The ensuing reaction was even more severe; collapse occurred, and he remained ill for a week, no further repetition being possible until the twenty-third day, when another injection was given. The following reaction was short and sharp, and the subsequent doses were attended by much milder reactions. At the end of the course no tubercle bacilli were present in the sputum, no râles were heard in the chest, and the radiographical appearance of the lungs had improved. He then went to Frimley, and regained his weight, but the sputum returned and contained tubercle bacilli. He was now much as before the treatment started, but certainly no worse. As a result of this case Professor Fraser decided that such severe reactions ought to be avoided. He concluded also that the unpleasant symptoms were due to heavy metal poisoning, and proceeded to raise the doses more gradually, with longer intervals between them. No dose over one gram was given. The serum treatment had proved disappointing, so it was thought best that the doses should not be so high as to call for its use. In a later case, in which there was recent and active disease extending over both lungs, with steady loss of ground for some months, this smaller dosage was found to be much more satisfactory. The first dose of half a gram gave rise to no reaction; the second injection of three-quarters of a gram produced a slight and transient response. The third dose was therefore reduced to half a gram, and no increase on this was permitted until subsequent doses were without any response. No loss of weight occurred. By the seventh dose the amount of one gram was reached. Seven days were allowed to elapse between all the injections except the first and second, where an interval of three days only occurred. Râles disappeared from the chest, and the tubercle bacilli diminished in numbers. There was some clearing of the x-ray shadows. It had been expected that this patient would continue getting progressively worse, as had been the case before treatment started, but the disease appeared to be checked by the sanocrysin, and the patient was now at a sanatorium. Similar doses and intervals were used in the third case, in which there was extensive disease with excavation at the right apex and slight involvement of the left. The first dose of half a gram was followed by some vomiting, and the second dose of three-quarters of a gram by a little rise of temperature, nausea, and retching, with a slight rash. On the fourth day the râles were no longer heard over the right lung and the resonance had improved. The third dose of half a gram was unattended by any reaction, and the next dose of three-quarters of a gram only evoked a mild response. Nine days later a dose of one gram caused vomiting and retching. Professor Fraser thought that the good result in this case might have been produced equally well had the treatment terminated at the second dose. In another case tuberculous masses around the ovary and Fallopian tube disappeared in a most remarkable manner after the injection of sanocrysin. It was, however, doubtful whether the advantages of the treatment outweighed the dangers. Lower doses, with longer intervals between them, might prove more satisfactory, and the treatment deserved further trial.

Dr. TATTERSALL reported on ten cases, four of which were still under treatment; six patients had had one full course. All the sputums contained tubercle bacilli, and the disease was in the second or third stage of the Turban-Gerhardt scale. All the patients were afebrile at rest, but they were hospital, not sanatorium, cases. Three were of the chronic proliferative type and three of the exudative. Dr. Tattersall had experienced complications in the course of treatment similar to those mentioned by previous speakers. His first case was a girl, aged 20, who had been ill eighteen months, and, in spite of breaking down twice, had a fair degree of resistance. The disease involved the upper part of the left lung and the right apex; there was pleurisy at the left base. She received one dose of half a gram of sanocrysin, followed by four one-gram doses. The tubercle bacilli disappeared, and in six weeks there

was no sputum. Her general condition improved greatly, a troublesome cough ceased, and radiographical examination showed that the lung condition was very much better. In the second case, a girl with twelve months' history of disease, there was widespread disease, and she was losing ground. Five doses of sanocrysin brought about the disappearance of the sputum in five weeks, the lungs cleared well, and the cough stopped. His third case, a man aged 31, had had a "weak chest" for many years, with definite tuberculous symptoms for twelve months. There was dense consolidation at both apices, and scattered areas of disease elsewhere. After five doses of sanocrysin the temperature had become normal, the lung condition cleared with evidence of fibrosis, and the tubercle bacilli were reduced in numbers but were still present. The sputum had lately increased, however. In a lad, aged 18, with the recent exudative type of disease, six doses of sanocrysin had stopped the cough and sputum. A curious feature about this case was that weight had been gained during the course of treatment.

Dr. G. MARSHALL had spent three weeks in Denmark in June and had seen many hundreds of cases. Only one or two Danish practitioners still used the large doses originally recommended by Secker; others were getting as good results from the smaller doses. Disastrous results still occurred in patients with short histories, and it seemed as though in the early stages of the disease the patient was not in a condition to resist heavy onslaughts of toxins. The use of serum was mostly abandoned, though Secker still employed it. Two patients were known to have died from the use of the serum only, but without any signs of anaphylaxis, and it was obvious, therefore, that this agent was very dangerous. Dr. Marshall gave brief details of his treatment of nine cases of tuberculosis, and of one case of infective endocarditis. The last patient had had a swinging temperature of 103° to 104° for three months. Small doses of sanocrysin were ineffective, but with high doses of two grams the temperature was reduced to normal for several days. Suppression of the urine occurred, however, and, though it passed off, completion of the treatment was prevented by the patient leaving the hospital. The spleen was much diminished in size by the treatment.

Dr. F. R. G. HEAR described the use of sanocrysin at the King Edward VII Memorial Sanatorium, Warwick, and emphasized the importance of commencing with such small doses as one-tenth of a gram. By gradual stages a final dose of one gram was reached, but not exceeded; these doses of one gram were continued over a long period. No severe reactions occurred. He believed that sanocrysin would be found to be of great value in conjunction with collapse therapy of the lungs.

Sir ALMOND WRIGHT referred to his experiments, which had demonstrated that sanocrysin dilutions of 1 in 250 were without effect on tubercle bacilli in blood. He doubted whether it had been shown that the remedy had any real effect on the clinical condition or on the disappearance of tubercle bacilli from the sputum. Similar claims had been made when tuberculin had first appeared. There was no evidence that sanocrysin as a chemotherapeutic agent was able to destroy tubercle bacilli.

Professors ELLIOTT and LYLE CUMMINS replied briefly.

RELATION OF OPTIC NEURITIS TO SINUSITIS.

THE Sections of Laryngology and Ophthalmology held a combined meeting at the Royal Society of Medicine on January 8th, with Sir ARNOLD LAWSON in the chair. The subject under discussion was "Optic neuritis in its relation to sinusitis."

Dr. LOGAN TURNER explained that the present debate was the outcome of the work of a committee which had been formed some time ago to collect illustrative cases and to consider the matter. In each centre where the work was being done the services of a neurologist, a radiologist, and a pathologist had been secured to assist the ophthalmologists and rhinologists in the examination of the cases. He himself was about to present the results of the Edinburgh section. The method adopted had been to collect cases of typical retrobulbar neuritis (excluding the conditions of

syphilis, Leber's atrophy, and the toxic amblyopias) and to investigate the nasal condition in them all. In some of them operations were performed on the nose and the subsequent condition studied, in others the treatment was non-operative. One must not, in attempting to estimate the effect of operation, lose sight of the fact that a large number of cases of retrobulbar neuritis tended to recover spontaneously, and also that some surgeons, over-zealous perhaps, were apt to diagnose and stress a condition known as "latent sinusitis," in which none of the ordinary clinical signs of sinusitis were present. In his series of cases two clinical features stood out—namely, the almost entire absence of complaint on the part of the patient of any nasal symptoms whatever, and the complete absence of any signs of sphenoidal sinusitis on nasal examination. In all but two of his cases (whether operated on or not) recovery took place with restoration of vision to 6/6, 6/8, or 6/12, and this factor of tendency to spontaneous improvement was, he felt sure, of the utmost importance in estimating the effect of operation. Five of his cases were proved to be early cases of disseminated sclerosis; in one the infection was believed to be from the teeth, and in none of these operated on was any pus or evidence of disease found in the sphenoidal sinus. He urged the need for further investigation.

Mr. M. S. MAXON then read a paper on the pathological side of the question. He began by a consideration of the forms of optic neuritis which might be associated with sinus disease. These fell into two groups. In the first group were cases with marked ophthalmoscopic signs, obvious venous obstruction from pressure on the nerve sheath giving rise to the appearance known as "choked disc." In the second group were the cases of so-called retrobulbar neuritis, or, better, "interstitial neuritis." In these the papillo-macular bundle was affected first, and the fields of vision showed a central scotoma. Disseminated sclerosis would serve as a definite example, in which the pathology was well known, of this group. He wished to point out that actual inflammation of the nerve need not be present to produce the clinical picture, since pressure on the nerve would alone be sufficient to cause it. In the first group the pathological findings at *post-mortem* examination were often very marked, cerebral abscess, orbital abscess, and meningitis being sometimes present. He considered briefly the anatomical relations of the optic nerves and the sphenoidal sinuses, and discussed the possible modes of spread of the infection. More light would probably be thrown on the subject if the colour fields were more often carefully examined. Contraction of the field did not necessarily occur. He stated in conclusion that he considered retrobulbar neuritis secondary to sphenoidal sinus disease to be very rare.

Mr. E. D. D. DAVIS then gave a most careful analysis of the results of examination of 76 cases. Of these cases 41 proved on investigation to be due to definite causes, such as syphilis, pituitary tumour, disseminated sclerosis, Leber's atrophy, and albuminuric retinitis. Of the other 35, 5 were associated with manifest nasal sinusitis, while for 30 no cause could be found at all, and nasal disease could certainly be excluded. He considered four possibilities of spread from the sinus to the nerve—namely, by direct extension, by thrombosis of veins, following acute nasal catarrh, and as a toxæmia associated with bacteraemia. He noted that the very severe cases of sinus infection were practically never associated with optic neuritis. In those cases associated with definite nasal signs there were changes in the optic discs, but in the idiopathic cases there were no ophthalmoscopic signs at all. Three of the idiopathic cases were operated on with no improvement. Of the remainder, two subsequently proved to be disseminated sclerosis, five remained stationary, fourteen recovered completely, and the rest were insufficiently examined for a report as to the final condition. In conclusion, Mr. Davis stressed the point that a large proportion of cases tended to recover spontaneously, and he mentioned also that in certain of the idiopathic cases where recovery was retarded operation might be justifiable, as it was unlikely to do any harm.

Mr. FOSTER MOORE said he wished to deal only with

cases of typical retrobulbar neuritis characterized by the presence of a central scotoma, pain on moving the eye, a characteristic pupil reaction, absence of ophthalmoscopic signs, and a tendency to spontaneous recovery. In his opinion an association of this condition with a definite sinusitis was very rare indeed. He did not consider the condition of "latent sinus disease" had any real connexion with the neuritis. Of the large group of idiopathic cases probably a number of them were disseminated sclerosis. In conclusion he said that the frankly septic cases of direct spread to the nerve from the sinus did not give rise to true retrobulbar neuritis, and that true retrobulbar neuritis in association with sphenoidal sinusitis, if it ever occurred, was certainly very rare.

In the ensuing discussion Sir STCLAIR THOMSON cited cases of his own and of Mr. Greeves and Mr. Collins in which operation apparently led to recovery, since the condition had been stationary for some months before operation was resorted to. Mr. TREACHER COLLINS explained that in the case mentioned by Sir StClair papillitis was present, so that it could not be considered a typical case of retrobulbar neuritis. Mr. WILLIAMSON-NOBLE spoke of the possible connexion between the size of the optic foramen and the etiology, and quoted a paper of van der Horst in which it was stated that the foramen was abnormally small in all the cases. Dr. P. WATSON-WILLIAMS considered that toxæmia was more likely to arise if the sinus disease was latent, as there would then be a comparative absence of polymorphonuclear leucocytes and resistance would be less. He was doubtful whether both sinuses were always opened at the operation, and spoke of the difficulty of doing this with certainty.

Mr. GIBB, Dr. LEIGHTON DAVIES, Mr. TRIQUAIR, Dr. JOHNSON HORNE, Mr. GRAY CLEGG, and Mr. WHITEHEAD also took part in the discussion.

PRESERVATION OF FOETAL LIFE.

At a meeting of the Edinburgh Obstetrical Society on December 9th, 1925, the President, Dr. R. W. JOHNSTONE, in the chair, a paper was read by Professor R. P. RANKEN LYLE (Newcastle) on the ethical and scientific aspects of the prevention, conservation, and destruction of intra-uterine life.

Professor Ranken Lyle began by stating that the whole trend of medical thought with regard to the conservation of intrauterine life had been slowly changing during the last twenty-five years, and that the child's life was now considered nearly as important as that of the mother. The intrinsic duty of the medical profession was to preserve and prolong life, from the ovum stage to the death of the individual. Sterilization of patients used to be practised after a single Caesarean section, but in his opinion sterilization was an insult to surgery, and prevented a woman carrying out her mission in life. He himself had only once sterilized a patient after Caesarean section twenty-five years ago, and he had performed that operation as often as seven times on one patient. Induction of abortion for medical reasons ought to be prohibited, as it was contrary to medical practice. In hyperemesis gravidarum hygienic treatment, suggestion, and psychotherapy cured practically all patients, and toxic cases which required abortion were very rare. In tuberculosis pregnancy should be allowed to proceed without interruption; also in cases of heart disease, at any rate until the later months, when pressure was being caused by the growing uterus, and then the question of induction of labour or Caesarean section must be considered; chorea gravidarum very rarely nowadays warranted induction of abortion. Craniotomy on the living child was never necessary, Caesarean section having taken its place, and by this means the maternal, and, of course, the foetal, mortality would be greatly improved. Caesarean section was replacing bipolar version for placenta praevia; the foetal death rate was thus considerably lowered and the maternal death rate was not increased. Even in prolapse of the cord, especially in a primipara, Caesarean section was advocated to save the child's life. Ante-natal care had been instrumental in revolutionizing abnormal obstetrics and in preventing the majority of cases of difficult labour; eclampsia had been checked to a large extent, with a great

saving of maternal and foetal life. Abnormal presentations could now be rectified before the confinement, and breech, face, and transverse presentations converted to normal vertex positions; this allowed many children to be born alive who would have perished if the case had not been under ante-natal supervision. Contracted pelvis could be diagnosed early and the necessary treatment decided upon before labour began, which was a different proposition from seeing the case advanced in labour, when any treatment was likely to be dangerous to both mother and child.

Dr. J. HAIG FERGUSON said that Professor Lyle aimed at high ideals, but sometimes these were unattainable. He did not agree with the non-sterilization of Caesarean section cases, and thought that if a woman had been through the ordeal of three Caesarean sections she had a right to be sterilized if she so desired. With regard to induction of abortion, if the mother's and child's interests clashed the mother should be the first to be considered, and he thought induction should be permitted in some cases of tuberculosis, insanity, diabetes, recent heart disease, and hyperemesis gravidarum. Craniotomy was a repugnant operation, but in domestic practice it was sometimes necessary.

Dr. W. FORDYCE agreed with Dr. Haig Ferguson that the maternal life was the first consideration. He did not think the cases of hyperemesis gravidarum in Newcastle could be quite so severe as they were in Edinburgh, where induction of abortion was sometimes the only treatment that would save the mother's life. Some cases of chorea gravidarum also warranted obstetric intervention. He agreed with Professor Lyle on the question of Caesarean section for central placenta praevia in primiparae. Careful ante-natal treatment would clear away many of the difficulties Professor Lyle spoke of.

Professor B. P. WATSON stated that when an infallible treatment for hyperemesis and other conditions was discovered no foetal life would have to be sacrificed, but at present there were cases that defied all treatment, and in these abortion had to be induced to save the mother's life. With regard to sterilization after Caesarean section, the patient's view must be taken into consideration, and this was especially so when performing the operation for a decompensated heart lesion. There were some cases which warranted craniotomy—for example, a primipara badly lacerated, with a raised temperature and the foetal head jammed in the pelvis.

Dr. JAMES YOUNG expressed surprise at Professor Lyle's assurance that 80 to 90 per cent. of children could be saved by Caesarean section in cases of placenta praevia, and thought it a great argument in favour of such an operation. He agreed with Professor Watson on the value of craniotomy in the definitely septic case.

Dr. FARQUHAR MURRAY (Newcastle) considered that craniotomy was never justifiable on the living child, but on a dead child it might be performed when the head was low down and easily accessible. He urged a fuller discussion in the future on the question of induction of abortion, especially in cases of tuberculosis, and suggested that tuberculosis specialists should be invited to take part.

Dr. G. KEMP PATERSON admired Professor Lyle's high ideal, but doubted if it could be achieved. He thought craniotomy on the living child was still a necessary evil.

THE PRESIDENT said that ante-natal care in the future would help them to realize the ideals of Professor Lyle, but at present there were still some cases which required induction of abortion and craniotomy. Sterilization by deliberate operation was hardly ever justified, but after several Caesarean sections he thought it was often indicated in the best interests of patients.

Professor RANKEN LYLE, in the course of his reply, said that in hyperemesis patients should be treated early before jaundice occurred; up to 1925 he had never induced abortion in such cases, and he had only seen one patient die. Caesarean section, he was convinced, would give better results than craniotomy even in septic cases.

Dr. G. W. LYLE then read a communication on a case of post-mortem Caesarean section in a twin pregnancy with the survival of one child.

A primigravida, aged 25, an albuminuric, eight and a half months pregnant, who had been about twelve hours in labour, was anaesthetized in preparation for the application of low forceps to terminate the labour. Some degree of hydrannia was suspected, but no signs of either maternal or foetal distress were noted. Upon a catheter being passed she suddenly collapsed and died. All attempts at resuscitation having failed, a Caesarean section was performed five minutes after death and a child was extracted. This failed to respond to treatment, but when preparing to close the abdomen fully ten minutes after the mother's death a second child was discovered. This was at once removed, responded to prolonged treatment, and left hospital quite well ten days later.

DEEP X-RAY AND RADIUM THERAPY.

At a meeting of the Chelsea Clinical Society on December 16th, 1925, with Dr. SRYMOUR-PURCE in the chair, a discussion on deep x-ray and radium therapy was opened by Dr. W. L. WATT.

Dr. Watt stated that deep therapy radiations caused direct cell destruction, the chief effect being on the nucleus. Complete obliteration of every individual cell was the ideal towards which all treatment was directed; the tumour then simply disappeared. This happened in many different conditions, such as in parotid tumours, in hyperplastic glands, in sarcomas of bone, in fibroids, in hypertrophy of the prostate, and in carcinoma of all parts of the body. Less complete treatment might lead to incomplete cell destruction, with an apparent loss of malignancy; this was commoner than the ideal result. In a third group in which there was a mixture of cell concussion, effects, together with what might be termed cell concussion, the tumour diminished for a varying period and then began to grow again. This type of effect occurred in deep parts, but nevertheless had given increased comfort to the patient. An immunizing factor might be produced owing to antibodies being set free by the destruction of cells. There was no deleterious effect on the corpuscles of the blood nor on the haemoglobin content. It was possible that a serum might be obtained which would be the third link in the curative chain, the first being operation and radiation, and the second the autogenous production of antibodies.

Mr. SIDNEY FORSDIKE had found radium most useful in the treatment of essential uterine haemorrhage, and patients suffering from this condition had been cured by one application in 90 per cent. of the cases. Repetition of the application might be necessary. In the treatment of carcinoma of the cervix radium was most useful, and might be combined with deep x rays. In some cases this form of treatment in his hands had given better results than an operation, but for early cases operation, in his opinion, was still the best form of treatment.

Dr. HERMAN-JOHNSON said that the evolution of deep therapy had been going on for ten years. He objected to the phrases "cancer dose," "sarcoma dose," and "lethal dose." He thought that tissues became "stale" as regards their response to any given treatment, and that when a patient ceased to respond to deep x rays a course of ultra-violet treatment should be adopted, after which the use of deep x rays might be beneficial. A good result might be obtained by any one of several procedures, the one unpardonable sin being overdosage.

Dr. C. E. INEDELL thought that the actions of x rays and radium were very similar. In a typical case of cancer of the breast, for example, both treatments could deal with the discharge, bleeding, and pain, and reduce the size of the swelling to such an extent that the patient looked forward to cure. Unfortunately, however, both x rays and radium gradually, but surely, lost their beneficial action, and, as a rule, before the swelling had completely disappeared. Deep x rays, and radium after an operation, had undoubtedly effected cures in some cases. One advantage of radium was that the patient need not be moved about whilst undergoing an operation without disturbing the patient. He thought that radium was more destructive to the cancer cell than the deep x rays.

Mr. CECIL ROWNTREE spoke hopefully of the treatment of cancer of the cervix by buried radium needles, and had had good results in this disease as well as in cancer of the tongue.

CAESAREAN SECTION.

CAESAREAN section is an operation which is stated to be the most abused of all operations in America, and in this country also it is probably that the indications for its performance are sometimes interpreted with more width than judgement. It is therefore timely and interesting to have the views on the subject of a British obstetrician so experienced as Dr. HERBERT SPENCER. These views are presented in a small volume entitled *Caesarean Section*. It contains a table of the 120 such operations which he has personally performed at University College Hospital and in private. None of the material in this little book has appeared before, and it is intended as a frank record of personal experience and as a challenge to those who are unable to support his views to furnish full details of their own experiences upon the points raised by him.

Dr. Spencer begins with a brief but interesting historical study in which, among other points, he attempts to trace the name of the operation. "It is not unlikely," he concludes, "that this—the greatest of all operations, as being it directly affects two lives—was called Caesarean, as being too grand to have been first performed on ordinary mortals," though the evidence of any of the Caesars having been thus born is wanting. The indications for the operation in Professor Spencer's series were contraction of the pelvis in ninety-eight cases, myoma in nine, pelvic enchondroma in one, vaginal and uterine cicatrices in three, previous ventro-fixation following myomectomy in one, advanced cancer of the cervix in one, ovarian or parovarian tumours in three, and accidental haemorrhage in four. The author discusses other reputed indications, such as eclampsia, in which resort to it is generally condemned by most obstetricians, placenta praevia, advanced age of the mother, and heart disease, in which last he regards the operation as inadvisable. With the exception of four cases in which the Porro technique was followed (Dr. Spencer regards this as still the best method of operating in the presence of advanced cancer of the cervix), all the operations were of the classical variety. He has not himself tried the lower segment operation, and gives the reasons for his conservatism. In seven cases his operation was combined with panhysterectomy. In twenty-nine cases the operation was repeated—in eighteen for the second time, in eight for the third time, in two for the fourth time, and in one for the fifth time. The total maternal mortality was 3.3 per cent., and the foetal mortality 10 per cent. Dr. Spencer explains in some detail his preference for chloroform as the anaesthetic up to the moment of the child's removal from the uterus; he believes that it prevents the child being born apnoeic. Since being told of this some years ago by Dr. Spencer, the reviewer has practised it in all cases, and can bear out his claims on this point. With regard to the all-important point of sutures, the author is an enthusiastic supporter of carbolized silk, and condemns catgut emphatically. He also condemns out and out the practice of sterilizing a patient on account of contracted pelvis, which he regards as a procedure "justifiable neither by midwifery nor by morals." Others may be inclined to think that in both respects this dogmatic statement is open to argument, and that, while it is essential that such a step should be taken only after careful consideration of all the circumstances and with the full and willing consent of both the parents, there yet remain cases where considerations of humanity make the proceeding not only justifiable but desirable.

The relatively small number of Dr. Herbert Spencer's operations is due to the practice of inducing premature labour in contractions of the pelvis, which is done at University College Hospital about three and a half times as often as over a period of three years works out at 5.5 per 1,000. Dr. Spencer quotes the statistics of the Rotunda Hospital, Dublin, where the figure is 5.1 per 1,000, and also that of Potter (of version fame), whose record is 88 per 1,000, "a frequency which involves many patients in unnecessary

¹ *Caesarean Section*. With a table of 120 cases. By Herbert R. Spencer, M.D., B.S., F.R.C.P. London: John Hale, Sons, and Danielsson, Ltd. 1925. (Demy 8vo, pp. 71; 5 figures. 6s. net.)

risk and is not calculated to bring about that advance of obstetrics which is the avowed intention of that author." We observe, however, that in four recent hospital reports which happen to be at hand, the figures for the St. Mary's Hospitals, Manchester (1924), work out at 117 per 1,000, with a maternal mortality of 3.6 per cent.; those of the Liverpool Maternity Hospital (1924) at 110 per 1,000, with a maternal mortality of 1.07 per cent.; those of the Jessop Hospital, Sheffield (1924), at 57 per 1,000, with a maternal mortality of 2.4 per cent.; and those of the Edinburgh Royal Maternity Hospital (1923) at 37 per 1,000, with a maternal mortality of 3.7 per cent. Dr. Herbert Spencer's figures are therefore strikingly low. This raises the question whether the present generation of obstetric surgeons (and we use the words advisedly) have the same experience of and faith in the natural processes of labour, especially in cases of contracted pelvis, as those who, like Dr. Spencer, have a longer experience dating back to the time when this operation in particular was more dangerous.

Enough has been said to show the scope of this book, whose importance is not to be measured by its size, and it is to be hoped that in so far as it is a challenge it will be taken up by those who have possibly a larger personal experience of the operation. It is perhaps unnecessary to state that it is written with all the author's well known lucidity and dogmatism, and that the various points are made with an emphasis which suggests a characteristic degree of gusto. The literature of modern British obstetrics is unquestionably enriched by such a frank and full statement.

OSLER, McCRAE, AND FUNK'S "MODERN MEDICINE."

THE third edition of *Modern Medicine*, originally brought out in seven volumes by the late Sir WILLIAM OSLER and Dr. THOMAS McCRAE in 1907-10, and revised and reduced by them in the second edition (1913-15) to five volumes, is now coming out again under the editorship of Professor McCrae, with the assistance of Dr. ELMER FUNK. The first two volumes of this third edition are now published²; the first contains about 250 pages less than the corresponding volume in the second edition, and though it is not stated how many volumes the present edition will consist the omens point to more than five volumes. The late Sir William Osler's introduction to the original work in 1907, which was omitted from the second edition, is now reproduced verbatim, thus providing a valuable record of the position of medicine as it appeared eighteen years ago to a broad-minded leader, and in the main being as much to the point as it was then.

As before, Dr. Ludwig Hektoen contributes an introduction to the study of infectious diseases, and the rest of the first volume, with the exception of some twenty-five pages by Professor Homer Wright on mycoses, is devoted to bacterial diseases, the diseases of doubtful or unknown origin, which in the last edition came in the same volume, being dealt with in the second volume. Twenty bacterial diseases are described, including a new article on tularaemia and one on scarlet fever, which has now been transferred from the category of doubtful origin on the ground that it is due to a haemolytic streptococcus; both these articles are by Dr. Elmer Funk. Tularaemia, like melioidosis, of which there is a short account, is an infection of rodents and is communicated to man by the bite of the horse-fly. The mode of transference of melioidosis is unknown, but it may be through food contaminated by rats; its mortality is very high, for out of fifty patients two only recovered. The article on the important subject of the pathology of tuberculosis, formerly written by Professor W. G. MacCallum of the Johns Hopkins Hospital, is now contributed by Dr. Allen K. Krause of the same school, who has made this subject so eminently his own. Dr. F. T. Lord's account of influenza is fortified by statistics and information derived

from the experience of the pandemic of 1918, and probably with wise caution the vexed question of the relation of the influenza bacillus to the disease is left open. The account of undulant fever, originally written by Sir David Bruce, is again revised by Dr. G. C. Low. In the article on meningococcus infections, including cerebro-spinal fever, which is illustrated by four out of the seven coloured plates in the volume, Dr. W. W. Herrick says that he has never seen haemorrhages in the retina in a routine examination of three hundred cases at all stages—a clinical investigation which must compel admiration. The article on diphtheria has been revised by the senior editor, who summarizes the application of the Schick test.

The second volume, about the same size as the first, begins with the diseases of doubtful or unknown origin, such as small-pox, measles, typhus, rheumatic fever, Rocky Mountain spotted fever, and trench fever. Protozoan infections, spirochaetal infections (a new heading), diseases due to animal parasites, diseases due to physical agents and to chemical and organic agents, are then considered in turn, and the volume closes with a new section devoted to the deficiency diseases pellagra, beri-beri, scurvy, and rickets; of these, the two former were in the previous edition included under the heading of diseases due to chemical and organic agents, while the other two were described among the diseases of metabolism. There is a new article on yaws by Dr. Lewis A. Conner, who has also revised the account of syphilis written by the late Sir William Osler and Dr. J. W. Churchman. Yellow fever has now, as a result of Noguchi's discovery of the causal *Leptospira icteroides*, been transferred from the category of unknown etiology to that of spirochaetal infections, and has again been thoroughly revised by the senior editor; spirochaetosis icterohaemorrhagica and rat-bite fever are described by Dr. Elmer Funk, who has also provided the account of diseases due to physical agents—namely, heat-stroke, the bad effects of altered atmospheric pressure, and of electricity. In a new and thoroughly up-to-date article on food poisoning Professor Ernest C. Dickson of the Stanford University Medical School, who has done much outstanding work on botulism, considers the subject under the three headings of poisoning by foods inherently poisonous, bacterial food infections, and bacterial food intoxication, which is synonymous with botulism, as the latter is the only form of food poisoning in which a bacterial toxin has been proved to be the responsible cause of the symptoms and morbid changes. During the period 1904 to 1923 inclusive there were in America 126 recognized outbreaks of botulism, and of the 429 patients 280, or approximately 65 per cent., died; as the intoxication is of limited duration and there is not any new formation of botulinus toxin in the body, the patient should be supported until its effect has subsided and given intravenous injections of the antitoxin at an early stage. Dr. Edward Jenner Wood's article on pellagra contains interesting historical references dating back to 1762, and shows that from 1907 to 1915 it was common in the United States, and then gradually got less, so that now it has become rare in many States of the Union. For historical and other reasons it is appropriate that rickets, "the English disease," and scurvy should be in the capable hands of Professor G. F. Still and Dr. Robert Hutchison respectively.

In conclusion, these two volumes belong to the best type of medical literature, and there can be no doubt of their success; this forecast rests on wise editorial care displayed, including the selection of the contributors. The editors must be cordially congratulated on the results of their labours, and especially the senior, Professor T. McCrae, who in the last six months has also brought out the tenth edition of *The Principles and Practice of Medicine*.

THE HISTORY OF HUMAN ANATOMY.

It was said of Macaulay that, when he reviewed a book, he dismissed his author with a few words of praise or blame, and then drew on his own resources entirely for his review. However that may be, it is certain that no man can review Dr. CHARLES SINGER's book entitled *The Evolution of Anatomy*³ without referring constantly to its

² *Modern Medicine, its Theory and Practice*. Edited by Sir William Osler, Bt., M.D., F.R.S. Third edition, thoroughly revised. Re-edited by Thomas McCrae, M.D., assisted by Elmer H. Funk, M.D. Vol. I: Bacterial Diseases—Non-bacterial Fungus Infections—the Mycoses. Vol. II: Diseases of Doubtful Etiology; Diseases caused by Protozoa, Spirochetes, and Animal Parasites; Diseases due to Physical, Chemical, and Organic Agents; Deficiency Diseases. London: H. Kimpton, 1925. (Roy. 8vo. Vol. I, pp. xxxii + 845; 7 plates, 51 figures. Vol. II, pp. x + 851; 4 plates, 106 figures. Six volumes and desk index, sold in sets only, 42s. net a volume; 412 12s. a set.)

³ *The Evolution of Anatomy*. By Charles Singer, M.A., M.D., D.Litt., F.R.S. London: Regan Paul, Trench, Trubner and Co., Ltd. 1925. (Demy 8vo, pp. xii + 203; 117 figures, 22 plates. 12s. 6d. net.)

luminous pages. For long we have been well acquainted with the extensive knowledge, the scholarship, and the unflinching enthusiasm of Dr. Singer, and the history of medicine and science already owes him a large debt for what he has accomplished in that particular field of research. But although we have followed his work with admiration, we have sometimes been oppressed with the fear that he might become submerged by the opulence of his learning to such an extent that his humanism would become obscured by his scholastic attainments. But in his new volume we discern a new spirit in which Dr. Singer, without sacrificing any of his great learning, has taken full advantage of the humanist ideals, and has produced a noteworthy book from which the learned, the casually acquainted, and the uninitiated may equally derive pleasure and profit. This we deem to be a great advance, and we look forward with pleasure to more work from Dr. Singer in the same strain, now that he has broken with the tradition of the "schools," and has shown himself to be the holder of such a vigorous and descriptive pen. To emphasize what we mean, we would direct readers to the opening paragraph of the fourth chapter, which has nothing of dreary scholasticism about it, but is conceived in the finest spirit of lofty humanism.

Now, it is a surprising fact that anatomy, the foundation of the biological sciences, has had to wait until the present time for the historian capable of writing in bold hand the gradations through which the science progressed until its destiny was accomplished. It is true that some half-hearted attempts have been made to do justice to a great subject, but the result has been disappointing. Dr. Singer does not carry the history of anatomy further than the epoch of Harvey, when the dawn of its application to physiology was just breaking, nor does the period he has chosen permit him to deal more than briefly with the extension of the boundaries of the subject of anatomy until it embraced histology and physiology—an extension which took definite shape towards the end of the seventeenth century. He foreshadows, however, the prospect of a continuation of his story at some date, when he hopes to deal with the final results of anatomical study—when the evolution of the subject had so progressed that it embraced both physiology and other allied sciences. We shall then have a complete picture of this evolution of the science of anatomy, and that picture will serve the great purpose of asserting the fact that physiology and its subdivisions, though constantly regarded as definite and distinct subjects, are in fact the worthy children of anatomy their great father.

Perhaps in the picture of the evolution of anatomy, as presented by Dr. Singer, the features of uninterrupted progress are too strongly drawn, and we should have preferred greater insistence upon those "stationary periods" which succeeded almost every important advance in the knowledge of the subject. But as a whole the picture is truly and admirably drawn, and can be accepted as an authoritative account of the rise and progress of the science of anatomy.

It is only in recent years that the history of science has received adequate attention at the hands of those qualified to speak concerning the subject, and this book is a shining example of the way in which such work should be done. We recommend all who desire to acquire a knowledge of the history of anatomy to accept it as a safe guide.

FACIAL SURGERY.

IN the preface to his book *Facial Surgery* Mr. H. P. PICKERILL, whose work in dental research is already well known, apologizes for putting the cart before the horse—that is, for describing the methods and technique for plastic surgery before discussing the surgery of the lesions to be treated. But in fact no such apology is needed. The possibilities of facial surgery opened up by the wonderful work carried out at Sidcup are entirely dependent on plastic surgery, and the author himself was one of those who out of an apparently hopeless welter of sepsis

and injury evolved rational and successful methods of treatment. Asepsis and apposition are the watchwords for the surgeon, and for the patient—patience. Some of the results are almost too good to be true, but there is no gainsaying the photographic records, and when every allowance is made for artistic pride the results stand out as triumphs of surgery of which the British school may well be proud.

But it is not as a record of war work that this book claims most attention. Its value lies in the chapters devoted to conditions occurring in everyday life. The methods evolved through the necessities of war can be used to mitigate many conditions of civil life, and of these the author makes an excellent showing. The results of injuries and burns, of operations for tumours, of specific infections, of facial paralysis, offer a wide field for plastic surgery, but perhaps the most hopeful field lies in hare-lip and cleft palate. Not unjustifiably does Mr. Pickerill say that "The operations for hare-lip and cleft palate may, I believe, also be entirely revolutionized," and the chapter on this subject alone justifies the book. The successful use of Thiersch skin grafts in restoring an obliterated buccal sulcus, and of "tube" grafts to make good lost portions of the lip, are points on which the author claims originality, and on the results of which he may be congratulated.

The whole book breathes a healthy optimism, and the general surgeon, as well as the ophthalmologist and the dental surgeon, will find these notes (for the book is commendably brief) on facial surgery both stimulating and practical.

VISCERAL NEUROLOGY.

A THIRD edition of Dr. F. M. POTTSER's *Symptoms of Visceral Disease*,⁵ which has previously been reviewed in these columns (1920, ii, p. 881; 1923, i, p. 109), has given the author the opportunity of broadening the scope of his message by considering the neuro-cellular reaction rather than the nervous reaction alone, and of altering the arrangement of the different parts of the work. In order to bring out the broader conception just mentioned, a new chapter has been written on the relation of the ionic content and physical state of the cell to activity and nerve stimulation, and to this addition attention will be directed. As before, the work is divided into three parts, but what was formerly Part III, the vegetative nervous system, now, with the new chapter just mentioned, becomes Part I, and the former Part I, the relationship between the vegetative nervous system and the symptoms of visceral disease, and the former Part II, innervation of important viscera with a clinical study of the more viscerogenic reflexes, now follow as Parts II and III.

Eppinger and Hess's well known conception of the two morbid conditions of excessive irritability of the sympathetic (sympatheticotonia) and of the parasympathetic (vagotonia) is accepted, though too much stress is thought to have been laid on the effects of drugs, such as adrenaline, atropine, pilocarpine, and physostigmine, in differentiating these antagonistic states of the vegetative nervous system. The underlying cause of this disturbance in the equilibrium of these two mechanisms is a matter for speculation, but recognition of the effect of the ion content of the cell upon nerve activity and the dependence of the ions upon the permeability of the cell membrane and its electrical discharge suggest to the author that the entire neuro-cellular mechanism must be taken into account in explaining the nerve response, and also the need of investigating the metabolism of calcium, potassium, sodium, and magnesium. In this connexion the influence of the endocrine glands on calcium metabolism naturally attracts attention. From investigation of supposedly vagotonic syndromes, such as anaphylaxis, serum disease, urticaria, asthma, hay fever, and eczema, and their relation to calcium, the author concludes that, although calcium must not be regarded as a panacea, it exerts a favourable influence on all purely vago-

⁴ *Facial Surgery*. By H. P. PICKERILL, C.B.E., M.D., M.S. With an Introduction by Sir W. Arbuthnot Lane, Bart., C.B., M.S., Edinburgh: E. and S. Livingstone. 1924. (Sup. roy. 8vo, pp. xvi + 352; 255 figures, 21s. net.)

⁵ *Symptoms of Visceral Disease. A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine*. By FRANCIS MARION POTTSER, A.M., M.D., LL.D., F.A.C.P. Third edition. London: Henty Kimpton. 1925. (Med. 8vo, pp. 394; 85 figures, 10 coloured plates, 18s. net.)

tonic symptoms. It would be natural to have found some reference in this connexion to the work of Drs. H. W. C. Vines and Grove.

The book, as hinted in previous reviews, is somewhat difficult to read, but it deserves consideration in virtue of the manifest thought and labour bestowed upon it.

CHEMICAL ANALYSIS.

THE fifth edition of *Allen's Commercial Organic Analysis* is in course of production, and volume iii^a is now before us. Its subject-matter is hydrocarbons, bitumens, aromatic acids, and explosives. In this volume, as in those preceding it, each section is the monograph of a writer expressly chosen on account of his acknowledged experience of the subject. The adoption of this plan of production was an inevitable outcome of the growth of matter to be included and of the world-wide demand for the book. It is pre-eminently a work of reference for the practical analyst and for the chemist having charge of manufacturing operations. Each section treats at length of the origin of materials and of their production and uses, and contains full descriptions of the particular observations of those who have encountered unusual conditions of quality or character. Nearly sixty pages are devoted to salicylic acid, its salts and derivatives; a very complete account of the characters and uses of these substances is given and of the nature of the impurities they are liable to contain; these impurities are of particular importance in medicine, having been formerly the cause of much inconvenience in the therapeutic use of salicylates. It is a little deplorable to note in directions for analysis a growing tendency towards the style of a cookery-book. That style is perhaps an inevitable consequence of the nature of the information to be furnished, and we may agree that harm only begins when the book is made the source of learning the facts of chemistry instead of serving merely to give directions for the application of knowledge; when that happens the worker is rendered helpless to determine the validity of his conclusions, whenever there is, as must frequently happen, any disturbing factor in the constitution of the sample. Attempts to provide for such difficulties by amplification of the text generally render the context confusing. The writers responsible for the treatise have performed their task with credit. If we may be allowed to bestow exceptional praise on one of them, it is the writer of the section on modern explosives. The volume is a fitting part of the series to which it belongs.

NOTES ON BOOKS.

IN a book entitled *Chronic Disease: A Working Hypothesis* Drs. BACH and WHEELER trace a great many chronic ailments to harmful groups of bacteria within the bowel, and in particular to that ill classified group of microbes the irregular non-lactose fermenting bacilli. The presence of these particular germs is ascribed by the authors to our sedentary occupations and too much cooked food: we need more cereals and nuts. The remedies they offer for the relief of a surprisingly large number of different complaints are, first, a new set of intestinal germs, to be provided by a more rational diet; and secondly, a skillfully prepared vaccine to be administered in a novel way. From the bacteriological point of view the book is disappointing because the authors add nothing to our knowledge of the significance of this particular group of germs and provide no convincing evidence to warrant the bad character they give them. From the clinical point of view we can only congratulate the authors on the success they have obtained by means of a form of treatment which on theoretical grounds seemed to have little to recommend it.

In a thesis for the doctor's degree of the University of Buenos Aires Dr. BLAS L. ITURRALDE discusses complications due to exploratory thoracentesis.⁸ He adopts Cordier's

classification into the syncopal, the convulsive, and the hemiplegic, although in practice the different forms are often associated. The syncopal form is the commonest; it is embraced by 21 of the 31 cases collected by the author; 17 of these were fatal and 4 ended in recovery. Seven examples have been recorded of the convulsive form, of which 4 recovered, though in one psychical disturbances persisted, while in 3 death took place in two to five days. In the hemiplegic form, of which only three cases with two deaths have been reported, the paralysis was transient, lasting only a few hours. Two theories have been put forward to explain the occurrence of such accidents following an exploratory puncture of the chest—namely, that of gas embolism and that of a pleural reflex. In view of the relative harmlessness of entrance of air into the veins, the author rejects the theory of gas embolism, and accepts that of a pleural reflex originating in the rich nervous network in the pleura and transmitted by the pneumogastric nerve to the bulbo-cerebral nuclei. Prophylaxis consists in subcutaneous injection of morphine about twenty-five minutes before the operation so as to prevent the development of the reflex. The thesis contains the histories of 30 cases, 14 of which have been recorded by British writers, as well as one hitherto unpublished which was under the care of Professor Destéfaro and the author.

Dr. WERNER SCHULTZ in the preface to his excellent book on the acute diseases of the pharyngeal tonsils⁹ says somewhat cynically that "the anginas have long been a stepchild. Residents and specialists have until lately divided between them the task of leaving this domain unnoticed, or, if that is saying too much, undeveloped." The book which Dr. Schultz has produced as the result of his study certainly atones for this sin of omission, if indeed his reproach is justified, but he points out with good reason that many of these very acute cases run a course so rapid and difficult to interpret that without an intimate knowledge of their pathology the quick and accurate action required is not possible. The work actually is a complete account, with special reference to pathology, of the inflammations of the tonsil which occur both as local diseases and as a part of such general diseases as diphtheria, leukaemia, the venereal diseases, and the various infectious fevers. If one part in particular merits praise it is that in which the affections of the pharynx and tonsils in blood diseases are described. The illustrations, which are coloured and faithful to life, are excellent, and should there be another book which covers the same subject we will venture to say that it can hardly be better.

The first edition of Dr. EUGEN KISCH's book on heliotherapy, and Bier's method in bone and joint tuberculosis, was reviewed in this JOURNAL four years ago (1921, vol. ii, p. 658), and there is little change in the second.¹⁰ Dr. Kisch still holds that in heliotherapy it is the heat rays and not the chemical rays that cause deep pigmentation, and that, as in Bier's congestion treatment, it is the resulting hyperaemia that is responsible for improvement. With these methods he combines the administration of iodine. If his theory is correct it follows that high altitude stations are unnecessary, for as good results can be achieved by means of the oxy-acetylene lamps which he uses, and even without mercury vapour or quartz lamps. There are a number of figures which appear to show that under such treatment sequestra may be absorbed and the resulting cavities filled by new bone.

The second volume of *Fortschritte der Sexualwissenschaft und Psychanalyse*,¹¹ of which the first appeared nearly two years ago (see JOURNAL, August 16th, 1924, p. 280), has recently been issued under the editorship of Dr. WILHELM STEKEL, assisted by Dr. ANTON MISSENGER and Dr. EMIL GUTHRIE. The volume contains seventeen original articles dealing with such subjects as the relations of narcissism to homosexuality by Dr. Wolfgang Gerster, the dynamics of sado-masochism by Dr. Walter Schindler, the neuroses of pregnancy by Dr. Sándor Feldmann, the psychology of pain by Dr. Stekel, dream analysis by Dr. Marciniowski, and psycho-analysis in general practice by Dr. Zygmunt Siegel; there are eleven shorter communications, including papers on the treatment of epilepsy, impotence, and dipsomania, and medico-literary articles on Martin Luther and Ibsen's *Peer Gynt*; abstracts from current literature and notes on books.

⁹ *Die akuten Erkrankungen der Gaumenmandeln und ihrer unmittelbaren Umgebung*. Leitfaden für Ärzte und Studierende. Von Dr. med. Werner Schultz. Berlin: Julius Springer. 1925. (Demy 8vo, pp. vi + 149; 18 figures. G.M.9.69; bound, G.M.10.80.)

¹⁰ *Knochen- und Gelenktuberkulose; mit Theorie und Praxis der Sonnenbehandlung*. Mit einem Vorwort von Prof. August Bier. II Auflage. Leipzig: F. O. W. Vogel. 1925. (Imp. 8vo, pp. 295; 367 figures, 6 plates. M.40; bound, M.43.)

¹¹ *Fortschritte der Sexualwissenschaft und Psychanalyse*. Herausgegeben von Dr. Wilhelm Stekel. Redigiert von Dr. Anton Misinger und Dr. Emil Guthrie. II Band. Leipzig und Vienna: Franz Deuticke. 1925. (Med. 8vo, pp. iv + 575. 2fs.)

⁸ *Allen's Commercial Organic Analysis*. Vol. iii. Editors: Samuel S. Sadtler, S.B., Elbert C. Lathrop, A.B., Ph.D., and C. Ainsworth Mitchell, M.A., F.R.C. Fifth edition, revised and in part rewritten. London: J. and A. Churchill. 1925. (Med. 8vo, pp. ix + 732; 35 figures. 30s. net.)

⁹ *Chronic Disease: A Working Hypothesis*. By E. Bach, M.B., B.S., D.P.H., and O. E. Wheeler, M.D., B.S., B.Sc. London: H. K. Lewis and Co., Ltd. 1925. (Cr. 8vo, pp. vii + 142 + xi. 7s. 6d. net.)

¹⁰ *Accidentes por puncion exploradora de la pleura*. Por Blas L. Iturralde. Buenos Aires: "Las Ciencias" de A. Guido Buffarini. 1925. (Sup. roy. 8vo, pp. 73.)

A course of lectures given at the Birkbeck College in connexion with its centenary have been published in a book¹² which has a preface by the Right Hon. J. Ramsay MacDonald, and a centenary foundation oration by the Prime Minister, the Right Hon. Stanley Baldwin. The six lectures included in the volume are all on the progress made during the last century in the special subjects selected for review. Viscount Haldane deals with progress in philosophy, Sir William Ashley with evolutionary economics, Sir Michael Sadler with progress in education, Sir Joseph Thomson with progress in physical science, Professor William Bateson with progress in biology, and Dr. G. P. Gooch with progress in historical studies. Altogether it is an extremely interesting collection of essays.

E. MERCK'S *Report on Recent Advances in Pharmaceutical Chemistry and Therapeutics, 1917-1921*,¹³ is an English translation and summary of the volumes of Merck's *Jahresberichte* which appeared during those years. The publication of the German editions has been noticed from time to time. The reports give particulars of experimental and clinical observations on new and important drugs, and the volume under notice contains an account of such drugs as Bayer 205, cocaine, silver salvarsan, novarsol, and hundreds of other drugs on which important work was published during the years with which it is concerned. In view of the interest aroused by sanocrysin it is interesting to note that three pages are devoted to the description of the action of organic gold compounds on tuberculosis and twenty-one references are given to work done between 1915 and 1921. The volume forms a useful work of reference for anyone who desires to find out what has recently been done with regard to almost any new drug.

¹² *Birkbeck College Centenary Lectures, 1920-1921*. London: University of London Press, Ltd. (Extra post 8vo, pp. xiv + 177. 5s. net.)

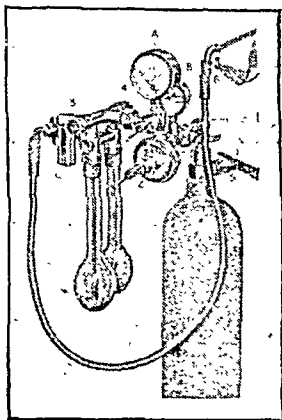
¹³ *E. Merck's Annual Report on Recent Advances in Pharmaceutical Chemistry and Therapeutics, 1917-1921*. English translation. Darmstadt: E. Merck, 1925. (Demy 8vo, pp. 492.)

PREPARATIONS AND APPLIANCES.

The Spiess-Drager Inhaling Apparatus.

Dr. S. D. BHABHA (Inhalation Therapy Clinic) writes that according to Hubener and Huckel of the Pharmacological Institute of Göttingen, the vapour produced by the Spiess-Drager apparatus reaches the alveoli of the lungs, whereas other types of apparatus carry the vapour to the bronchioles only. Microscopic measurements have shown that the average diameter of the vapour particles is 5 to 10 μ , and that it can be further reduced by increasing the pressure of oxygen. With this apparatus drugs which are used internally and hypodermically can be brought into direct contact with the mucous membranes of the respiratory tract and produce a physiological effect with the minimum dosage. Even an irritating drug like iodine can be administered without any disagreeable effects. The apparatus is not designed for giving anaesthetics but for the inhalation treatment of asthma and other diseases of the lungs and air passages.

The apparatus is mounted on an oxygen cylinder, and the inhalant drugs are placed in two glass tubes, one amber colour and the other white; the former is for the use of photo-sensitive drugs. Each of these tubes has a vulcanite nebulizer inserted in it; the oxygen facilitates the nebulizing process and is inhaled with the drug vapour, thus enhancing its effect. The vapour is inhaled through a face mask or through a nasal vulcanite inhaler. The mechanism is such that two drugs, one aqueous and the other oily, can be mixed and reduced to vapour. The oxygen under high pressure is brought to a low working pressure by valve 2; the manometer A indicates the low pressure, while the finimeter B indicates the high pressure.



Before releasing the oxygen from the cylinder, by turning the handle at valve 5, it is essential to see that the regulating handle 2 and the two valves 3 and 4 which control the flow of oxygen into the two phials are all unscrewed. When the oxygen has been turned on at valve 5 the larger handle 2 should be slowly screwed up. When this is done the oxygen will gradually flow and the indicator in gauge A will register the amount that is being used. The usual amount per minute is from 3 to 5 litres. The apparatus can be seen working at the Clinic for Inhalation Therapy, 30, Grosvenor Place, S.W.1. It is very simple, and nurses are easily trained in the working of it.

UNITED STATES VITAL STATISTICS.

In a preface by Professor Winslow of the Yale School of Medicine to a book entitled *The Principles of Vital Statistics*¹ it is indicated that it is intended primarily for the instruction of public health nurses. That is a very modest claim. The volume does not go into the technicalities of statistical methods, the construction of life tables, Poisson's formula, definitions of statistical terms, and so forth, but it gives, in a fashion comprehensible to any intelligent reader who possesses a knowledge of arithmetic and a reasonable amount of common sense, a most valuable account of the statistical facts illustrative of and resulting from the health conditions of the United States. Not only so, but in a concluding chapter devoted to the interpretation of statistics, the subject of errors and fallacies is dealt with clearly and simply by way both of example and exposition.

Owing to the independence of individual States, and the limitation of control over them by the Federal Government, the Registration Area does not embrace the whole population of the Union, but Dr. Falk's data show that it includes 81 per cent. of the total. It may be noted in passing that in the volume the word "data" is used as though it were singular; "data usually appears" and "the data . . . is not typical." Is this an Americanism or an individualism? The distinction between "urban" and "rural" is drawn at the population figure 2,500, any geographic unit under that being rural, and all else urban, but there is a further distinction (p. 165) between cities and urban places. A problem which does not seriously trouble us in this country, either statistically or otherwise, is that of racial differences. The negro population is, of course, the outstanding instance. In the experience of the Metropolitan Life Assurance Company, which takes a scientific as well as a financial interest in all such questions, the death rates per 1,000 of population in the period 1911-16 were, in the white population 11, and in the coloured 17.2, the combined rate being 11.8. The male white death rate was 11.8, and the female 10.4, the corresponding rates for the coloured population being 17.6 and 16.9. Another question dealt with by Dr. Falk is the death rate according to nativity, and the following table, though relating only to a single year and a single State, is worth quoting in full.

Mortality of Persons of Different Nativities Living in New York State in 1910.

Nativity.	Death Rate per 1,000 Persons.	
	Males.	Females.
Native	13.8	12.4
Italian	12.9	13.7
Russian	15.1	12.5
Austro-Hungarian	14.3	12.4
English, Scottish, and Welsh	16.6	15.8
German	17.9	14.4
Irish	25.9	23.5

For the same year and State statistics are given of deaths from tuberculosis, and here Russia comes out best, Ireland occupying the same bad pre-eminence. As regards progressive diminution of the total deaths since the beginning of the present century, it is claimed that the improvement now extends to all ages for the United States Registration Area as a whole, and with trivial exceptions the figures given support this contention. As between the two years 1910 and 1920, there has been, per 1,000 of population, a percentage decrease as follow: All ages 12.7; under 1 year, 26.1; 1 to 14 years, 24.5; 15-44 years, 4.6; 45-74 years, 11.6; 1 to 74 years, 10.5; and 75 years and over, 6.1.

These are merely examples of the valuable contents of the volume, which deals with morbidity as well as mortality, with birth rates as well as death rates, with the census results of 1920, and various other matters. It is freely illustrated by excellent charts and diagrams.

¹ *The Principles of Vital Statistics*. By I. S. Falk, Ph.D. Philadelphia and London: W. B. Saunders Company. 1924. (Post 8vo, pp. 238; 31 figures. 12s. 6d. net.)

THE CONSTRUCTION OF THE SENNAR DAM, SUDAN.

ANTIMALARIAL ORGANIZATION.

LAST summer the work on the Sennar dam and the Gezira canalization was completed, and on July 15th the sluice gates were opened and the water flowed through the canals on to the land. This dam is two miles in length and 107 feet in height at the deepest part of the river. A reservoir 50 miles long is formed above the dam, holding one hundred and forty-four thousand three hundred and seventy-five million gallons of water. The Nile level is raised 50 feet when the dam is full. The area at present under irrigation is 300,000 acres.

The work took five years to complete, and was carried out in a section of the country which during the rains was intensely malarious. This fact was really the crux of the situation, and a description of the sanitary organization that enabled the work to be carried to a successful conclusion will be of general interest.

THE DAM CONSTRUCTION WORKS AND THE WORKMEN'S TOWN.

Makwar was chosen as the site of the new town for the men working on the construction of the dam. The European houses, railway station, hospital, workshops, cement factory, and the workmen's permanent camps were placed on the high ground on the west bank of the Nile about a mile away from the river.

Between Makwar and the Nile a khor or broad depression extends; it is over five kilometres long and half a kilometre broad. In the rainy season it becomes a marsh of alternating thick wood, open water, and long grass, being flooded by the surface water from the higher land and inundated by the Nile at the crest of the flood (see Fig. 1). The higher ground above the marsh was covered during the rains with tall thick grass interspersed with pools and marshy areas. Mosquitos swarmed everywhere in the marsh and higher land alike. The conditions on the east bank were similar, but not so difficult.

In addition to Makwar there were three subsidiary working stations—one wood-cutting and boat-building station in a forest twenty miles south of Makwar, and two stone quarries thirty miles to the west of Makwar and ten miles apart. The medical and sanitary arrangements for these places were controlled from Makwar.

LABOUR.

The labourers employed were for the most part Egyptians, brought up from Southern Egypt for periods of six months, and Sudanese recruited locally. In the season 1923-24, when the work was at its height, the labour roll reached 19,000.

The Sudanese possess a certain limited degree of immunity to malaria, but it is insufficient to prevent them from being largely incapacitated unless they are adequately protected from the disease. The Egyptians, on the other hand, are very susceptible to malaria, and need most careful protection.

About 70 British engineers, foremen, clerks, and crane drivers were employed, and working under them were a large number of Italian stone cutters, Greek foremen, mechanics, Egyptian clerks, Maltese engine drivers, and Egyptian artisans. In addition 200 Italian stone cutters were employed at the quarries.

SANITATION.

The special sanitary objectives were mainly three: (1) The prevention of malaria by the elimination of the mosquito, by the screening of dwellings with mosquito-proof wire, by the segregation of the partially immune Sudani from the non-immune Egyptian labourers in camps apart from each other, and by the issue in certain cases of protective quinine. (2) The prevention of dysentery by eliminating fly-breeding spots, by multiplying bucket

latrines, and, where these were impracticable, smoke fire latrines, and thus preventing the dissemination of faecal material in dust or by flies, and by installing a piped water supply. (3) The prevention of the spread of ankylostomiasis by the detection and treatment of all cases among imported Egyptian labourers at the Wadi Halfa quarantine station.

A British medical inspector was placed in charge of the medical and sanitary work, and a British sanitary inspector was appointed to assist him in the conservancy and anti-malarial work at Makwar and the outlying stations; a mosquito squad of Sudanese worked directly under the British sanitary inspector. A hospital with accommodation

for 120 patients was built at Makwar. Two Syrian medical officers assisted the medical inspector at the hospital and in the medical supervision of the staff and labourers. First-aid stations were organized at various parts of the works and at the outlying stations.

Antimalarial Works.

The first step was to drain the higher ground on which the houses and workshops had been built through the marsh to the river. Grass and bushes to a

depth of 100 metres from the houses were cleared. Later the marsh itself was drained, bushes and scrub cleared, and the holes filled in. The deep drains through this marsh into the river were protected by sluice gates, and when the Nile rose above the level of these drains the water was pumped out by petrol pumps. As the river flood occasionally rose above its banks at this point a strong earth embankment was constructed along the river bank for a distance of three kilometres. By means of these works, which were gradually

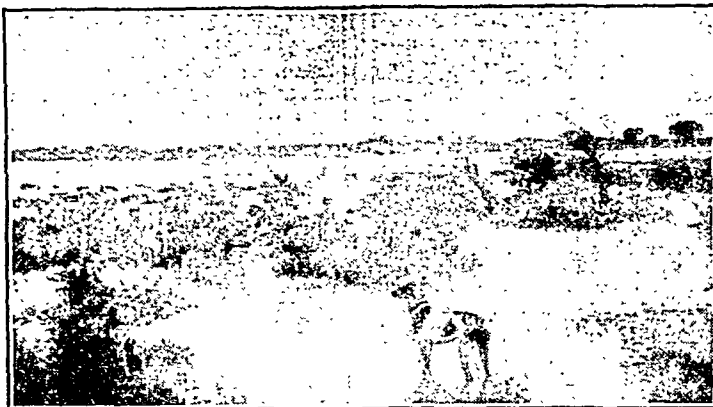


FIG. 1.

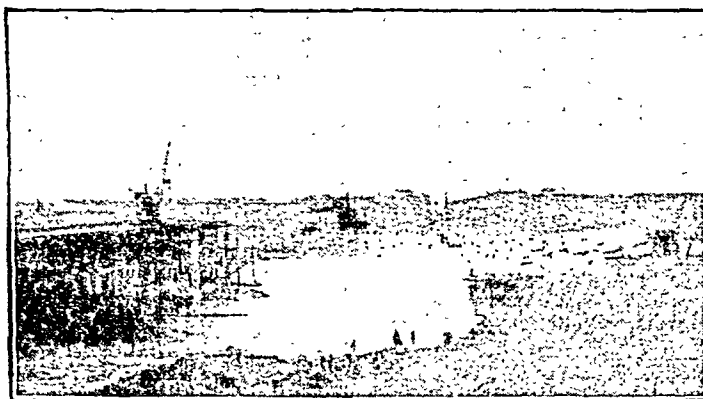


FIG. 2.

CONSTRUCTION OF THE SENNAR DAM.

carried out over a period of years, the principal mosquito breeding grounds were abolished.

Quarantine Station at Wadi Halfa.

A quarantine station was opened at Wadi Halfa, the northern frontier station of the Sudan, and all labourers from Egypt were detained there for thirty-six to forty-eight hours. The very old, the very young, those unfitted for hard work by organic disease or profound anaemia, and those suffering from fevers, active syphilis, or other infectious diseases, were rejected. The remainder were deloused and their clothing and belongings were disinfected. They were also examined for bilharziasis and for intestinal parasites, and particularly for ankylostoma parasites. All cases of ankylostomiasis were treated. Nominal rolls were prepared giving details of each labourer, and sent with them to their destination. There they were again treated for ankylostomiasis.

The quarantine station was capable of passing 500 labourers through in two days, and in emergencies this number could be increased to 600. The largest number of labourers passed through this station in one year was 14,336, and the total number for the period 1919 to 1925 was 45,029. No cases of typhus or relapsing fever occurred among Egyptian labourers after they had passed through the quarantine.*

For oiling pools, etc., the most efficacious and cheapest larvicide was found to be heavy crude engine oil. Pegs wrapped round with sacking soaked in this oil were stuck in the pools, and the oil continued to exude slowly for four or five days, and so kept up a continuous film.

General Results.

The results obtained are shown in Table I. It will be seen that there was a progressive decrease in the malaria rate as sanitary precautions were more completely elaborated, but the risk of a malaria outbreak was always present.

TABLE I.

Season October 1st to September 30th.	Average Monthly Number Employed.	Malaria.		Dysentery. Percentage Attacked.	Enteric Fever. Percentage Attacked.	Rainfall in mm.
		Percent- age Attacked.	Death Rate per 1,000.			
1919-20	Egyptians 840	33	31.0	2.3	—	403.5
1920-21	Egyptians 2,555	8	1.9	3.1	—	343.4
1921-22*	Egyptians 1,375	2	1.5	0.6	0.25	477.7
1922-23	Egyptians 2,161	8	0.3	—	—	453.1
	Sudanese 2,640	1	0.4	1.3	0.26	475.2
1923-24	Egyptians 2,590	10	0.4	—	—	357.4
	Sudanese 1,740	1	Nil	0.14	0.16	—
1924-25	Egyptians 4,497	3	Nil	—	—	—

* Work closed from the end of March till December 1st, 1922.

Table II gives the number of mosquito infections found in collections of water each year. As the construction work spread over a larger area on both banks of the river each year, so the ground covered by the mosquito squad increased.

TABLE II.

	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
Anopheline ...	372	2,229	1,673	1,213	1,651
Etegonia ...	20	6	2	3	6
Culex ...	235	1,011	2,312	857	882
Total	627	3,237	3,937	2,073	2,539

With the drop in the number of cases of malaria there was a fall in the number of subtertian infections. For the

* A detailed description of the organization of this quarantine was given by Major B. Spence in the R.A.M.C. Journal, November, 1924.

period 1919-21 the prevailing type of infection was subtertian. For 1922-23 benign tertian was the prevailing type. In 1923-24 only one case of malignant malaria was admitted to the hospital, and during the following year there was not a single case of subtertian malaria.

Prophylactic Quinine.

This was not given as a routine measure, but only in special cases where it was essential that the work should be carried out in malarious places and where the length of stay did not warrant extensive antimosquito precautions, etc. The following example points to the value of prophylactic quinine in special cases: 170 Egyptian labourers were employed in the Sagadi quarries during the rains. A count taken before the rains began showed that 3 per cent. of them had enlargement of the spleen, and they were all put on 10 grains of quinine daily. Only two out of this number fell ill with malaria, while the two British officials in Sagadi, who lived under very much better conditions but did not take quinine daily, both had attacks of malaria.

CANALIZATION OF THE IRRIGATED AREA.

This involved the digging of the main canal from the dam to a point 35 miles to the north, where the first branch canal takes off, and the complete canalization of an area of 300,000 acres. The canalized area is approximately 52 miles long, with an average width of 12 miles. The main canal is 71 miles long. There are 711 miles of branch canals and 8,750 miles of subsidiary canals and feed channels.

The sanitary control of this area was a more difficult problem than that of the dam construction area at Makwar, as the employees and workmen, instead of being collected into one main centre and three subsidiary centres, were divided into small groups scattered over a wide area.

Work was started on the main canal in 1920, but it was not until January, 1923, that the detailed canalization was begun. At this date the number of mechanical excavators worked by British drivers was greatly increased, and in addition 8,000 natives, of whom half were Egyptians, were employed. The sanitary control of the area now became very difficult. The labourers were split up into gangs and were scattered over the whole area; the gangs were constantly changing ground, and it was difficult to keep in touch with them. Each of these gangs had to be supplied with water from the river; the water was pumped into small canals, which had to carry it in some cases over twenty miles.

The control of these water canals was a matter of great difficulty; the native drivers in charge of the pumps did not know when the carrying capacity of the canals had been reached, and water oftentimes continued to be pumped long after the canals were overfull. A messenger dispatched to inform them would arrive three or four hours too late. As a result bursts were frequent and considerable areas of low-lying ground would be flooded. Inspection even by car was slow and difficult owing to the canalization cutting across the old roads and tracks.

At the commencement of the rainy season the Egyptian labourers were sent back to their homes, but the British drivers continued to work the excavators on the minor canals. Sudanese labourers were also working on the minor canals. During the rains miles of partially excavated canals became filled with water, and during this season it was impossible to get about the country except on a few main roads, so that matters had to be left as they were till the rains had ended and inspection once more became possible. It was then a race to get the canals pumped out or treated with larvicides in time to reduce the mosquitoes before work began again.

MEDICAL AND SANITARY ORGANIZATION.

Wad Medani, a large town situated about the centre of the canalization area but on its eastern edge, was made the centre for the sanitary and medical organization of this area, and the hospital there was considerably enlarged to meet the increased work.

Two subsidiary centres were established—the one at Hag Abdulla, the southern end of the canalization area, and the other at Kilo 114, to the north-east of Wad Medani. Small temporary hospitals were built at these centres to deal with minor cases. In addition six mobile dressing stations were established, each consisting of a reliable hospital attendant, with a bell tent, a box containing drugs and dressings, and a donkey for transport.

Two motor ambulances were allotted to this area, and were stationed at the northern and southern centres. They brought in the milder cases of sickness or injury to the subsidiary centres, and the more severe cases they took direct to Wad Medani hospital. From Wad Medani they brought back the recovered cases, and also drugs, dressings, and larvicides.

The medical and sanitary organization of this area was directly under the charge of a British medical inspector detailed especially for this work. He was centred in Wad Medani, and had a car at his disposal. He inspected every working party at least once in ten days, seeing that they were in good health, adequately fed, and that the sanitary conditions were satisfactory. He also frequently visited the British drivers in charge of the large mechanical excavators, and the British and European engineers and overseers.

The medical inspector was assisted in the sanitary work by a British sanitary inspector, who was provided with a motor lorry for transport. With this, while on his inspection work, he was able to take small gangs of mosquito men or labourers to any point where they were urgently needed, and to replenish the central dumps with larvicides from Wad Medani. The mosquito brigades made a complete inspection of their sections once in ten days.

The condition of the workmen as regards malaria and general health showed progressive improvement as these arrangements were elaborated. In the early months of 1924, however, it had become impossible for the sanitary gangs to keep pace with the widespread leakage of water and the consequent mosquito infections. A sharp epidemic of malaria occurred, which threatened to bring the work to a standstill. Certain sanitary recommendations with regard to mosquito control and transport of mosquito gangs, which had been neglected in the high pressure of work, were at once carried out, and the outbreak died down and there was no further epidemic. The malarial incidence among all workers for 1924 and 1925 was 5 and 4 per cent. respectively. These percentages cannot compare with the Makwar figures, but the area, though less naturally malarious, was more difficult to control. The workmen as a whole were maintained in a high degree of health efficiency.

Careful watch was kept on the local population for fear that they should become infected with bilharzia from the Egyptian labourers. Frequent inspections of the villages have been made, but up to the present there is no indication that this infection has occurred.

We are indebted to Dr. O. F. H. Atkey, Director of the Sudan Medical Service, for the information on which this article is founded.

PREVENTION AND TREATMENT OF TINEA CRURIS IN BOYS' SCHOOLS.

In 1925 the Medical Officers of Schools Association was invited by the Headmasters' Conference to appoint representatives to meet them to discuss the subject of tinea cruris and to suggest measures for treatment.

A special committee, consisting of Dr. L. R. Lempriere of Halesbury, Dr. N. F. Hallows of Marlborough, and Dr. A. I. Simcy of Rugby, was appointed by the association to draw up recommendations for the Headmasters' Conference. The committee has presented to the Headmasters' Conference recommendations for prevention and treatment, which are here reproduced.

RECOMMENDATIONS FOR PREVENTION.

Tinea cruris is a skin disease caused by a vegetable parasite which is apt to occur where adolescents and adults live in close quarters. It is probably spread by dust and by garments and

towels which have become infected. It is certainly much more prevalent in the community at large than is generally supposed. It chiefly affects the groins, armpits, and toes, but if neglected may appear elsewhere on the body.

We recommend:

1. That to prevent the importation of fresh infection at the beginning of term the medical officer should, at his discretion, obtain the necessary permission to examine all boys in senior houses at the beginning of term, and at such other times as the circumstances may warrant.
2. That where this has not already been done, parents, house-masters, and boys be informed of the nature of the disease and their co-operation sought in the early detection of cases.
3. That boys be instructed to report redness and/or irritation of the thigh. Neglect to do so is a serious offence against the community.
4. That changing-rooms, drying-rooms, and lavatories be adequate for their purpose; that every care be exercised to ensure cleanliness and tidiness after use; and that inquiries be made to ensure that the laundry arrangements in the school are entirely satisfactory from a hygienic point of view.
5. In our opinion the danger of infection would be greatly decreased if pants were worn with cloth clothes throughout the year, and if, where serge shorts are used, bathing drawers were worn underneath them.
6. That O.T.C. uniforms be disinfected whenever a change of ownership takes place.
7. That studies be kept tidy and overcrowding avoided; that curtains, hangings, and draperies be discouraged; that boots, flannels, uniform, and toilet articles be not kept in studies; that any floor coverings used in dormitories be removed and washed periodically.
8. That a period of isolation accompanied by adequate disinfection be carried out as an essential part of treatment in every case.
9. In order that the period of isolation and treatment of tinea cruris be as short as possible, the treatment recommended in the leaflet should be followed.
10. We further suggest that by reason of the length of time often required for the cure of cases during the holidays, and inasmuch as the medical officers of schools have better opportunities for acquiring a more intimate knowledge of the incidence and treatment of the disease than doctors in private practice, a concession be made to parents, allowing infected cases to return for sanatorium treatment at the beginning of term, but to prevent abuse of this privilege, and to protect the authorities against financial loss, the usual home medical fees be charged.

RECOMMENDATIONS FOR TREATMENT.

1. The naked-eye appearance of tinea cruris is usually so characteristic that a diagnosis can be made without microscopic examination. The fungus is not always easy to detect, even in obvious cases of the disease. Experience shows that the very large majority of rashes in the groin area in schoolboys are due to this fungus. The whole surface of the body, especially the axillae and internal cleft, should be carefully examined to determine the extent of the disease at the outset.
2. The case should be isolated at once and kept in bed during sanatorium or bedroom treatment.
3. For at least six days apply thickly spread dressings of either ung. chrysarobini B.P. or ung. ararobae B.P.C. once daily and retain them in position by means of bandages or bathing drawers, or else use liberal inunctions of the same twice daily. Where only one thigh is found to be infected, both must be treated. It is essential to use a reliable and active sample of the ointment (that supplied by the General Apothecaries' Company has been found uniformly good).
4. During the period of treatment in bed the patient should be examined daily.
5. At the end of this period, provided that the applications have been adequate, it will be found that the central infected area has become smooth and pale with a surrounding red line and erythematous band at the junction of the infected and normal skin.
6. When a satisfactory result has been obtained the patient should have a hot bath and wash the affected area thoroughly with soap. (Baths are not advised during the period of treatment.) Clean disinfected clothing is then put on, and the patient may then be discharged as free from infection.
7. As an additional precaution after discharge, ung. ac. benzoici co. B.P.C. should be applied daily to the affected parts for from two to three weeks.
8. It is advisable that boys, after the course of chrysarobin treatment, should be inspected at weekly intervals and should report to the medical officer on return to school.
9. Disinfection is an essential part of the treatment, and should this be inadequate reinfection is almost certain to occur. Towels and all articles of clothing and bedding which may have come in contact with the infection should be either boiled or treated in a steam disinfectant.
10. Desquamation between the toes should be carefully treated whenever it exists, either with the ointments above mentioned or by painting with tinct. iodi fort.

British Medical Journal.

SATURDAY, JANUARY 16TH, 1926.

DIABETES AND PREGNANCY UNDER INSULIN TREATMENT.

THE profound influence of diabetes on the nutrition of the tissues made it fairly certain from the first that the study of the effects of insulin on the resistance of the body to infectious and other stresses would yield much information of value, not only for the elucidation of the individual diabetic patient, but for the importance of the general subject, which is one of the utmost importance to the general practitioner, and that in which his special skill is perhaps most conspicuously shown.

Professor J. A. Nixon has done a service by the review of the present position he gives in the very practical and comprehensive lecture published this week. He illustrates the change which has come over the prospect of the diabetic patient in whom an emergency operation is indicated by an apt quotation from Treves's *Surgery* (1896), and gives sound detailed advice as to the way to use insulin in a surgical emergency. We propose, however, to make here a few observations about another emergency, that of pregnancy, to which also he briefly refers.

The association of true diabetes and pregnancy has always been a cause of grave anxiety. It is never a very common combination, because the diabetic state produces changes which militate against the occurrence of pregnancy; but when pregnancy did occur in a diabetic woman in pre-insulin days the outlook was gloomy for both mother and child. The foetus not infrequently perished and was born prematurely, and in a large proportion of the more severe cases, the mother also succumbed. It is quite true that in some instances, as stated by Whitridge Williams, Joslin, and other experienced observers, spontaneous improvement occurred in the mother's condition in the later months of pregnancy; but a relapse followed after delivery. Recent experimental work upon animals indicates that this may be explained by the fact that the pancreas in the foetus is able to supplement the functions of the maternal organ, although the actual passage of the pancreatic internal secretion has never been observed. Such supplementary action on the part of the foetal pancreas could only occur after the islands of Langerhans have developed, and this in human foetus occurs about the fourth month of gestation. Accordingly, any beneficial action could not be expected until the last few months of pregnancy. Such experiences are, however, by no means uniform, and more frequently the mother's condition became gradually worse as pregnancy went on.

Evidence is now accumulating in regard to cases of diabetes and pregnancy treated with insulin, and the general conclusion seems to be that careful dietetic treatment combined with adequate administration of insulin may so modify the diabetic condition as to make the prognosis decidedly more favourable than in the pre-insulin days. We recently published an abstract (*Epitome*, November 14th, 1925, para. 441) of a paper by Hennberg and Bickel to this effect, and an even more

successful and instructive case was reported recently to the Académie de Médecine by Marcel Labbé and Couvelaire.¹ Their patient was a woman of 32 with a strongly diabetic heritage, who had become diabetic at the age of 27, during her second pregnancy. After delivery the disease continued to progress, and she became seriously emaciated. When the third pregnancy occurred she was advised in Athens to have abortion brought about as soon as possible. However, she came under the care of the authors in Paris, and they determined to try the effect of rigorous dietetic treatment and insulin, more particularly as she was very anxious to have another child. For the first few months the patient carried out the treatment conscientiously, and the improvement was all that could be desired. But about the sixth month her natural appetite overcame her, and she broke all her dietetic rules, with a resultant serious relapse. There was marked acidosis and an associated rapid increase of the quantity of the liquor amnii, which threatened of itself to necessitate the interruption of pregnancy. The danger of the situation was explained to the patient, who promised faithfully to behave better, and a resumption of the rigorous treatment was followed by immediate improvement. It is interesting to read that the condition of hydramnios disappeared *pari passu* with the condition of acidosis and the general improvement. In this way the patient was tided safely up to the time of the confinement, which was normal and resulted in the birth of a healthy, well developed child. The puerperium was normal, and the patient regained her usual strength and weight, while the diabetic condition subsided to the level at which it had been before the occurrence of pregnancy. One of the most interesting features of this case is the fluctuation observed in the patient's condition according as she did or did not observe the rules of treatment.

More clinical records of similar cases are required, and it may be confidently expected that where the insulin treatment is started early and is carefully and adequately carried out the results will be successful. The diagnosis of true diabetes is a matter of importance in this connexion in view of the now recognized possibility of a temporary lowering of the renal threshold to sugar in pregnancy. Blood sugar estimations and the presence of typical symptoms are the essential criteria.

SEXUAL OFFENCES AGAINST THE YOUNG.

No kind of wickedness arouses the anger and disgust of our fellow-countrymen more than sexual depravity when this takes the form of assault upon the body or mind of a child. The sensational way in which the trials of such cases are sometimes reported tends perhaps to obscure the general feeling of detestation, but of its reality there can be no doubt. Anything, therefore, that can be done by statute or procedure to safeguard the young from this evil, to care for those who have suffered, and to deter the wrongdoer, will be welcomed by public opinion. The subject was debated in the House of Commons two and a half years ago, when attention was drawn to these offences, and to the prevalent belief that those who committed them were often mentally abnormal. Early in 1924 conferences were held at the Home Office at which persons representing various organizations interested in the matter were present. The outcome of all this was the appointment by the Home Secretary in the

¹ Bull. de l'Acad. de Méd., November 17th, 1925.

following July of a committee to investigate the prevalence of sexual offences against young persons in England and Wales, and to consider any measures that might be taken to prevent their occurrence.

The Departmental Committee's report,¹ of which a copy has just reached us, is in the nature of things a document of sociological rather than medical interest, and the recommendations (no fewer than forty-three in number) are for the most part legal and administrative. But the subject has medical bearings, direct and indirect; for the state of mind, and the physical state too, both of the person accused and of the child, are very often an important factor in such cases. This aspect of the inquiry was acknowledged by the appointment of a medical member of the Committee—Dr. A. H. Norris, Chief Inspector of Reformatories and Industrial Schools under the Home Office—and it was emphasized by the inclusion among the seventy-five witnesses of ten medical men and women with special experience in one direction or another. So far, therefore, as the problem concerns our profession, it may be supposed that the medical point of view was adequately put forward, though we cannot speak with certainty as to this because, for reasons of economy, the evidence is not printed with the report.

The Committee's terms of reference were "to collect information and to take evidence as to the prevalence of sexual offences against young persons and to report upon the subject, indicating any direction in which in their opinion the law or its administration might be improved." On certain points, we learn, there was striking unanimity among the witnesses; on others, as might well be expected, the evidence was most conflicting; and on one (the question of whipping as a punishment) the Committee was itself as divided as those who appeared before it.

Many of the Committee's recommendations will no doubt receive general approval. Everything possible should, of course, be done to protect the interests and the feelings of young persons before, during, and after the hearing of these unsavoury cases, and the detailed proposals regarding administration of the law and provision for child welfare seem wise and practicable. The same may, we think, be said of the recommendations for expert mental examination of offenders and for prolonged detention of those who offend again and again. While the injured child is naturally its first and chief care, the Committee recognizes, in so many words, that the offender too has rights. It is aware also that among its forty-three recommendations are some that "may appear somewhat drastic at first sight." Presumably the Committee has in mind its proposals for changes in the law, which include raising the "age of consent" to 17, and abolition of the defence by a young man of 23 or under that he had "reasonable cause to believe" that a girl was 16 or over. The difficulty here is one that always lies in the path of would-be reformers of the penal code: the means may defeat the end. Multiplying offences and stiffening penalties may in the long run swell the number of acquittals; experience proves that too severe laws lead to soft verdicts and light sentences. The chairman of the Committee, Mr. J. C. Priestley, K.C., and Mr. T. W. Fry (Metropolitan Police Magistrate) and Sir Guy Stephenson (Assistant Director of Public Prosecutions) are evidently well aware of this hard fact, for the report, though signed by all the members, is followed by a cogent memorandum, signed by

these three, dissenting from the recommendation in favour of raising the age of consent to 17 years. Mr. Fry and Sir Guy Stephenson also put in a memorandum dissenting from the recommendation that the defence of "reasonable belief" should be abolished. On the other hand, another member, Miss E. H. Kelly, signs a memorandum arguing that the age of consent for a girl cannot be considered apart from the raising of the age of criminal responsibility for a boy, and that in each case it should be 18.

The report is drawn up in nine sections. The first consists of some preliminary observations, from which one passage may be quoted, since it indicates the Committee's evident desire to take a wide view of its responsibilities: "A difficulty which has been present with us throughout our deliberations has been to reconcile measures which are in the best interests of the young victims of these offences with the essential requirements of the administration of justice. On the one side are the law and procedure which are inevitably and properly framed to ensure a fair and impartial trial, and which entail formality and publicity and the necessity for strict legal proof. On the other side are children who, on account of their immaturity, are unfit to be associated with courts of justice, and for whom, on account of the nature of the wrongs they have suffered, publicity may be harmful in the extreme." The second section deals with the prevalence of these offences, from which it seems fair to draw the inference that on the whole they are not on the increase, more especially when the growth of population is borne in mind. The next three sections are devoted to procedure before trial and the administration of the law. Section six deals with matters relating to the offender, who for some reason or another is assumed throughout to be invariably a male, and we cannot find a word in the report showing that sexual offences are sometimes committed by women against boys and youths, though the Committee expressly states in regard to the victims of sexual offences that its recommendations and suggestions are directed towards the care and protection of boys as well as of girls. Section seven is concerned with the welfare of young persons involved in trials for sexual offences, and with methods for the control of adolescents who persist in undisciplined habits of life. The eighth section indicates certain improvements in social conditions which, in the Committee's view, should lead to a better moral standard, and thus tend to diminish the occurrence of sexual offences. The concluding section gives a summarized list of the recommendations scattered throughout the preceding pages.

DEATH OF MR. BASIL HALL.

WE have to announce with the deepest regret the sudden death, on Tuesday morning, January 12th, of Mr. John Basil Hall, M.Chir.Cantab., F.R.C.S., consulting surgeon to the Bradford Royal Infirmary, and immediate Past-President of the British Medical Association. At the Autumn Dinner, held in October last at the Association's new House, Mr. Basil Hall was the principal guest of the evening, when he was welcomed on returning safely from his tour of Canada and the United States as the representative of the Association; and less than a month ago he was among us again, apparently in excellent health, at the December Council meeting. All who attended the Bradford Annual Meeting in 1924 will remember how largely its success was due to the genial personality of the President. We hope to publish a memoir in our next issue.

¹ Report of the Departmental Committee on Sexual Offences against Young Persons. Cmd. 2561. London: H.M. Stationery Office, or through any bookseller. 1925. 2s. net.

RUTHERFORD MORISON TESTIMONIAL.

It will be remembered that last year a committee was formed at the suggestion of the Newcastle-on-Tyne Division of the British Medical Association to raise a fund for a presentation to Professor Rutherford Morison in recognition of his great services to the medical profession, especially in the North of England. As part of this it was resolved to present Mr. Morison with his portrait in oils. The portrait has been painted by Mr. Harold Knight, and will be presented to Professor Morison by Professor H. Brunton Angus on behalf of the subscribers at a meeting to be held at the College of Medicine, Newcastle-on-Tyne, on Thursday next, January 21st, at 4 p.m. It is hoped that as many subscribers as possible will attend.

CONTINENTAL SURGERY IN 1818.

EXTRACTS from the diary of a young Dutch surgeon when on a visit to Belgium, France, and Germany more than a century ago have recently been published, and are now translated into English by Joseph Bles.¹ The writer of the diary was Dr. C. B. Tilanus, who was afterwards professor of surgery at the University of Amsterdam, having only succeeded in shaking himself free from obstetrics, with which surgery was combined, after years of patience. In those days of dirty surgery the union of the two chairs was a great misfortune for the lying-in woman, and it may have been some alleviation of her lot that the professor took no interest in practical midwifery. Tilanus, who was accompanied by two other young surgeons, made his way to Brussels, but after a short stay there the party went on to Paris, then the Mecca of surgical pilgrims, for Dupuytren and Larrey were at the height of their fame. What with sepsis and free and frequent blood-letting, the Hôtel-Dieu at Paris appears then to have been as deadly as it was some years later, and until Listerism changed its ways. The three young Dutchmen seem to have taken little interest in anything but operations, and apparently Dupuytren gave them plenty of *tours de force*, followed in nine cases out of ten, perhaps, by *post-mortem* examinations. Strangulated hernias seem to have been submitted to operation only when gangrene was at hand, and the results were generally fatal. Much praise is given to Dupuytren for his skill and daring, but nothing is said of the desperate courage of the patient who submitted to the "long and difficult" operation of resection of the lower jaw—of course, without an anaesthetic—only to die a week later of sepsis. We are told that Dupuytren did not think that the *post-mortem* appearances accounted for the death. Dupuytren's treatment of fractures is described. In one case of fracture of the forearm splints were applied so tightly that gangrene and necrosis followed, and the patient died. But Dupuytren was "*chirurgus incomparabilis nemini secundus*." From Paris the trio went to Strasbourg, and, chiefly on foot, visited sundry university towns in Germany, where they met various celebrities, such as Chelms and Nägele, and examined curiosities and natural history and other museums. It is worthy of note that at Marburg in Hesse, Professor Bünger "believes in sutures made of gut, and thinks they are absorbed. at least, he noticed this in a calf (which he showed us) after tying the *carotis* and cutting the ends of the suture" (from the context it is obvious that for "suture" we should read "ligature"). This anticipation of one of Lister's great innovations was rendered valueless, no doubt, by the prevalence of infection in open wounds. At Cassel they were shown the museum by Professor Matsko, who warmly resented their criticisms, but was not above accepting two thalers for his pains.

His salary was so small that he had to make what he could in this way. Tilanus had a long and successful career in Holland, but even he could not see far into the future of surgery, for at the jubilee meeting of the Society for the Advancement of Surgery, in Amsterdam in 1840, he said that though surgery "was not quite perfect it was within measurable distance of being so." At that time surgical anaesthesia was not known in Holland. We may not laugh at such confidence; it should rather make us sad to think that there are improvements in the womb of the future of which we do not dream. The translator of this interesting little book is unfortunately not familiar with the English equivalents of Dutch and Latin technical terms, so that we are occasionally left in doubt as to his meaning.

CHARLES DICKENS.

It is more than ninety years since *Sketches by Boz* appeared, and half as long ago since their author died, yet the fame of his works and the interest taken in his personality, and even the trivial details of his life, are probably as great as ever they were, if not greater. Writing a few years after the death of Dickens, Anthony Trollope said he was "probably the most popular novelist of any time"; and Trollope was by no means a blind adorer, for he adds: "To me it almost seems that I must be wrong to place Dickens after Thackeray and George Eliot, knowing as I do that so great a majority put him above those writers." Even Sir Walter Scott has not had such a huge and enthusiastic circle of admirers. We are prompted to make these reflections by the receipt from the Dickens Fellowship of the coming-of-age number of *The Dickensian*, the organ of that society, which this month completes its twenty-first year of publication. The fellowship has its branches all over the English-speaking world, and to judge by their reports they are vigorous and flourishing. Last year it acquired the house in Doughty Street in which its hero lived, and has opened it as a museum of Dickensiana and a meeting place for Dickensians. In this coming-of-age number there is an article on Tavistock House in which the paper on the site of the Association's new house which Mr. Muirhead Little contributed to our issue of July 18th, 1925, is freely drawn upon, and some of its illustrations reproduced with due acknowledgement. Among several other articles of interest is one on "Those wonderful eyes," in which the brilliancy and colour of Dickens's eyes are discussed and many observers quoted. All are agreed as to their brilliancy, and there is a consensus of opinion that they formed the most striking feature in his face, but the statements as to colour are of a bewildering inconsistency. They range all through the list of possible iris pigments from black to light blue. Carlyle, in a characteristic slapdash statement, in which he described Dickens as very small, said that the eyes were "clear blue." Trollope that they were "not blue; but of a very distinct and brilliant hazel." Marcus Stone, R.A., who knew him well, said that "they were green-grey in colour, an unusual eye." But as this statement was made as late as 1810 it is possible that the artist's memory had played him false; otherwise it is difficult to believe that a man of his training and intimate knowledge of Dickens should make a mistake, as seems to have been the case. This wide diversity of evidence affords food for thought as to the descriptions and identity of persons wanted by the police, whose eye-colour is always recorded with unflinching definition. The colour of the iris in Frith's portrait, now in the Forster collection at the Victoria and Albert Museum, is distinctly brown, such a brown as goes with the sitter's hair, but it is remarkable how little of the iris is clearly visible owing to dilatation of the pupil. In the portrait by Ary Scheffer, now in the National Portrait Gallery, also

¹ *Surgery: A Hundred Years Ago*. Extracts from the Diary of Dr. C. B. Tilanus, afterwards Professor of Surgery at the University of Amsterdam. Edited by H. T. Doelman, Professor of Pathology at the University of Groningen, Holland. Translated from the Dutch by Joseph Bles. London: Goldrey Bles, 1925. (Ct. 8vo, pp. 156; 20 plates. 6s.)

the eye is brown; but, on the other hand, the much praised portrait by Maclise, which hangs in the same room, has distinctly grey eyes. So much do painters differ in their interpretations of their own perceptions. The impression of brilliancy and darkness of eye is mostly conveyed by a wide pupil, a fact said to be appreciated by ladies who enhance their attractions by the use of belladonna. An eye with a dark brown iris and a pin-point pupil will seem lighter than one with a light grey iris and a widely dilated pupil. In our experience it is the slightly prominent eye with the brown iris, clear cornea, glistening conjunctiva, and wide pupil which seems the brightest, and these, as appears from the portraits, were characteristic of Dickens's "scintillating" eye.

OFFICIAL SURGERY.

If we give expression to the surmise that the present generation will not attain to the summit of moral perfection, it must not be inferred that we fail to appreciate or desire to belittle the determined efforts of America to effect the "moral uplift" of mankind. People, in this country at least, are slow to assimilate new ideas, and of this tendency no better instance can be cited than the comparative indifference with which the teachings of those two great schools of American thought, chiropractic and osteopathy, have been received by the medical profession here. Although the doctrine of those schools has been widely preached for a generation or more, no convert was to be found in this country until very recent times; the representatives of the cults were all imports. In the face of this failure to impress the British medical profession, it would appear that a change of policy has now been thought desirable, and it has lately been decided to sow the good seed on less stony ground. The intention is to appeal to our legislators, and it is hoped that they, though necessarily less informed, and conceivably for that very reason, will more readily see the light and make confession of the innate futility of orthodox medicine. We refer to this matter in order to make the suggestion that our legislators, while they are engaged in discussing the project of grafting certain American ideas on to our medical system, should take a broad outlook and include in their view other institutions as deserving. There is, for instance, the School of Official Surgery of Chicago, which would seem to deserve consideration. The director of that establishment, who signs himself master of surgery and doctor of medicine, expressly states that there is nothing of the nature of faddism about the school teaching, and that one of its main objects is, as we might expect, the "uplift" and the training of "bigger, broader, better" physicians. The name adopted for the school appears to indicate that, in pursuance of this laudable aim, the several orifices of the body have been chosen, not inappropriately, as the basis of study. It means, the director says, "an inside view of life." We do not wish to suggest that his school is more deserving of attention than the numerous other institutions of an analogous kind with which the United States of America abounds; we feel sure that our legislators would derive instruction and amusement from the study of any of these institutions—if they have time to devote to such matters.

SMOKE, FOG AND SEA FOG.

THE Meteorological Office of the Air Ministry, through its advisory committee on atmospheric pollution, has issued its eleventh annual report.¹ It deals with observations made during the year ending March 31st, 1925. There are now forty-eight observation stations, an increase on previous years. It is satisfactory that the Midlands area, which suffers most from smoke pollution, is taking a very

active interest in the investigations. But many parts of the country are unrepresented. There are no stations in Wales, and none south of Kingston-on-Thames. Elaborate tables are given of the records for the year. The rainfall was higher than the average in most stations, while the deposit of tar was lower. There was little difference in the deposit of sooty matter, but the total impurity was somewhat less than the average in most stations. Perhaps the most striking observation is the inclination towards a double maximum of impurity on weekdays, which is absent from the Sunday curves. The times of the peaks are affected by the incidence of summer time. The tendency to fewer hazes on Saturdays and Sundays in the last year's curves appears to be due to the fact that factories are usually closed on Saturdays for the half-day and all day Sunday. The first peak of the double wave is due to the factories, the second is due to domestic fires. In the heavy fogs of December, 1924, many observations were made in and about London. At Cheam, eleven miles from London, visibility was less than in London itself; there the fog held much more water in condensation than in London, where there was fifty times as much impurity by weight. It appears justifiable to infer that the "London particular" is formed rather by the replacement of water particles by smoke than by the dirtying of the condensed water by smoke; this appears a reasonable result to expect from the higher temperature of the air over London. A further inference from this observation is that if the smoke of London were materially reduced there would be less liability to fog in London than in the country, for two reasons: first, the heat of the air over the great city, due to the general heating of the buildings, would reduce the condensation of water in the atmosphere; and secondly, the rapid running off of rain from the almost impervious surface of roads and roofs reduces the water in the air due to evaporation. The requisite of suspended matter for the production of fog is well shown in the observations of Dr. Owen off the coast of Portugal. During a sea haze on a bright sunny day the material trapped was almost entirely crystalline. The crystals could be liquefied by heat, and on further warming developed again into crystals. There is little doubt that the crystals consisted of sea salts. Investigations are proceeding on the selective absorption of light by impurity in the air.

THE MOSQUITOS OF EGYPT.

THE recently published report on *The Mosquitoes of Egypt*¹ contains much more information than the title would lead one to expect. At the request of the Antimalaria Commission of Egypt, the author was detailed by the Ministry of Agriculture to undertake a survey of these insects, and was instructed to have it completed within a year. The research worker who is also a capable administrator is a *rara avis*, and the accomplishment of all that is presented in this report is a permanent testimony of the wisdom of the Ministry's selection. Under Mr. Kirkpatrick's guidance three subordinates were relegated to Upper Egypt and three to Lower Egypt, each with his appointed district for collection of specimens, which were sent to headquarters with descriptions of the breeding places in which they had been found. Over 2,000 samples of larvae were thus obtained, and from these more than 30,000 mosquitoes were bred out and identified. After a brief introduction, detailing the arrangements made and enumerating the twenty-two species determined, together with a most useful list of their synonyms, a section is devoted to a systematic study of mosquitoes in general, descriptions being given of the various stages from the egg to the imago, their external and internal anatomy, and their classification. Part III is the application to Egyptian mosquitoes of what

¹ Meteorological Office of the Air Ministry. Eleventh Report of the Advisory Committee on Atmospheric Pollution, for the year ending March 31st, 1925. London: H.M. Stationery Office. Price 5s. 6d. net.

¹ *The Mosquitoes of Egypt*. By T. W. Kirkpatrick, B.A., F.E.S., Senior Entomologist, Ministry of Egypt, Cairo: Government Press, 1925. (Imp. 6vo, pp. xi + 224; illustrated. P.T. 59.)

has gone before. Each of the twenty-two species is fully described, and at the head of each account are given references to the literature which will save future workers an immense amount of trouble, not only those employed in Egypt, but those engaged in similar investigations in other countries in which any of these species is found. Part IV, on the oecology and biology of mosquitos, is of great interest to the general worker. It deals with the variations in their life-history in different climates, with the influence of temperature on their period of development, on their breeding places, and, by the study of the reaction of the various waters, suggests reasons for the presence of certain species in certain districts and their absence from others. It is shown that, contrary to general belief, some species of anopheles inhabit swiftly running streams, that some of the males, and not females only, suck blood, and that females as well as males are phototropic, to name but a few of the interesting questions dealt with. In a subsequent part of the work these points are applied in the consideration of each of the species found during the survey. An excellent instance is given of the apparently uncanny power possessed by mosquitos of avoiding deposition of eggs in places which seemed to be eminently suitable at the time, but which, it was noticed later, dried up before the period of development of larvae and pupae would be completed. There is an instructive subsection on the natural enemies of mosquitos, both in the larval and adult stages. Part V deals with the geography, geology, climate, rainfall, water supply, and so forth, at first in general and then with these conditions in relation to the mosquito fauna. The work of the Suez Canal Company has practically stamped out mosquitos, and therefore malaria, from Ismailia, formerly one of the worst infested parts, but in spite of drainage operations the oases of the Western Desert remain the most mosquito-ridden parts of Egypt. Mr. Kirkpatrick is strongly of opinion that mosquitos are not a necessary concomitant of Egyptian agriculture, and that when antimalarial drainage operations are intended in uncultivated land they should aim primarily at increasing the area of cultivation, control of mosquitos being the natural consequence. The book is furnished with two maps and twenty-four plates, containing 144 carefully drawn figures of various details of the mosquito anatomy, and in fact the whole work not merely constitutes a survey of the mosquitos of Egypt, but certainly merits the subtitle of "a short textbook on mosquitos, a study of their anatomy and life-histories as illustrated by species occurring in Egypt."

THE INVESTIGATION OF THE HUMAN FACTOR IN INDUSTRY IN JAPAN:

IN the report of the Institute for Science of Labour, which was issued at Kurasiki, Japan, in the autumn of 1925, it is stated by the director of the institute, Dr. Gito Teruoka, that the fate of Japanese civilization will be governed by the expansion of its industrial civilization. The number of industrial workers in the country has increased very rapidly of recent years, and it became more and more evident that numerous social problems were being raised which needed special study. To this end Mr. Oohara, the president of a cotton-mill company, founded institutes for agricultural research and for social research, and in 1921 he founded the Institute for Science of Labour. The institute itself is an extensive building of the bungalow type, and contains a large number of small laboratories and office rooms. It has a staff of six investigators, who undertake inquiries in industrial physiology and psychology, nutrition, social hygiene, and industrial diseases. The results of their labours are published quarterly in the Japanese language, whilst the report under review gives a brief account, in English, of some of the main investigations. Most of these investigations were

made at a cotton mill, and the need of them may be gathered from the fact that the operatives appear, as a rule, to work ten hours a day for seven days a week, and to go on to night shift and day shift in alternate weeks. The temperature conditions of the mill must be very trying, for the mean wet bulb temperature ranged from 55° F. in winter to 80° F. in summer. The high summer temperature caused a fall of about 20 per cent. in the output of the workers in the rolling, reeling, and ring-spinning rooms, while the women, when on night shift, regularly lost about 2 lb. in weight during the course of the week, the girls under 18 being specially affected. Numerous observations were made on the body temperature and blood pressure of the workers, but they did not lead to any conclusions of general importance. The chief psychological investigations carried out related to the selection of mill hands. Some 600 to 1,000 persons were subjected to a series of tests which gave a measure of their visual powers and their dexterity, and these tests, after standardization, were used in selecting new applicants. Apparently in consequence of such selection the labour turnover has fallen. The investigations on general social problems are not yet published, but they include biometrical measurements of 8,000 children, and of other measurements on female operatives, in order to determine the effect of industrial work upon growth. Other series of observations relate to mental development and to fertility. Taking the report as a whole, it indicates a promising beginning of a movement towards improved industrial conditions, and it is to be hoped that the investigators will, in course of time, be able to extend their inquiries over a wider range, and include many other industries.

MEDICAL SOCIETY OF LONDON.

THE programme has been issued for the second half of the present session of the Medical Society of London, now, in the 153rd year of its existence. Discussions have been arranged on a variety of topics, some of perennial interest and others that have come only recently into prominence. The first of these debates, on January 25th, will be on manipulative treatment in medicine and surgery, and the openers are two orthopaedic surgeons, Mr. R. C. Elmslie and Mr. W. Rowley Bristow. The second, on February 8th, on pain in the right iliac fossa, will be introduced by a surgeon, Mr. H. W. Carson, a physician, Dr. A. F. Hurst, and a gynaecologist, Dr. T. W. Eden. The third, on February 22nd, on the etiology and diagnosis of gall stones, has been arranged on corresponding lines, the openers being a physician, Sir Humphry Rolleston, Bt., a surgeon, Mr. R. P. Rowlands, and a radiologist, Dr. Robert Knox. The fourth, on March 8th, on obscure pyrexia in adults, will be introduced by Sir Thomas Horder and Dr. C. E. Lakin. The last discussion, on March 22nd, on the use of lead in the treatment of malignant disease, will be opened by Professor W. Blair Bell, Dr. J. G. Adami, and Sir Lenthal Cheate. Each of these Monday evening meetings will begin at 8.30. The three Lettsomian Lectures will be delivered at 9 p.m. on Monday, February 15th, Wednesday, February 24th, and Monday, March 15th, by Dr. E. Farquhar Buzzard, whose subject is "The principles of treatment in relation to diseases of the nervous system." After the annual general meeting on Monday, May 10th, the Oration for 1926 will be delivered by Sir Berkeley Moynihan, and, as in former years, this will be followed by a conversazione. All meetings are held at the house of the society, 11, Chandos Street, Cavendish Square.

To the list of birthday honours published last week (p. 63) should be added the name of Dr. F. J. Willans, M.V.O., Surgeon Apothecary to H.M. Household at Sandringham, who has been promoted to be a Commander of the Royal Victorian Order.

THE SECOND AUSTRALASIAN MEDICAL CONGRESS.

UNDER THE AUSPICES OF THE BRITISH MEDICAL ASSOCIATION,
DUNEDIN, NEW ZEALAND, FEBRUARY, 1927.

WE have received from the Executive Committee in Dunedin of the second Australasian Medical Congress, under the auspices of the British Medical Association (Australian and New Zealand Branches), the following note prepared by Professor Malcolm.

The second Australasian Medical Congress will be held in Dunedin early in February, 1927, and although this notice may seem premature we are anxious to bring the matter before our colleagues at home in order that those who intend to be present may be able to make arrangements in time. We say "at home" because here in New Zealand, probably more than in any part of the Empire, that phrase is commonly used to designate the Mother Country.

It may seem superfluous to say that New Zealand is not a part of Australia, although it is included in that awkward, comprehensive word "Australasia." To many this is indeed well known, but, to practically all who travel so far for the first time, it is a matter of surprise that New Zealand is so far separated from Australia as it is. On the map of the world it seems but a step, and yet it is actually as far as half across the North Atlantic, and in the absence of Atlantic liners the voyage takes nearly as long as from Liverpool to New York.

The shorter route to New Zealand is not by Australia, but either by America, via the Panama Canal, or across Canada (the All-Red Route), or by San Francisco. On the other hand, the Suez and Australia route enables one to see more varied parts of the Empire.

It is not our intention in this article to describe at length, or even to enumerate, all the attractions that New Zealand holds for visitors, but something may be said of the wonderful variety of scenic beauty and other features of interest. From the subtropical regions to the north of Auckland the Dominion stretches south to Stewart Island, the last port of call of those adventurous voyages of discovery to the Antarctic associated with the names of Scott and Shackleton. Because of this wide range of latitude and the varying altitudes, from near sea-level to over 12,000 ft. in the Southern Alps, all sorts of climatic conditions can be obtained, from the cold South to the almost tropic heat of the far North, and from the humid air of the West Coast to the high and dry plains of Central Otago.

The products of this interesting country are as varied as its climatic conditions, and range from oranges, lemons, and subtropical fruits in the North to apples in Nelson and in Central Otago; while in the South the agricultural

products closely resemble those of Scotland—namely, oats, barley, wheat, turnips, etc.

Trout fishing is excellent, and is free to all holders of a licence, a privilege which costs but a guinea a year. Deer-stalking is also under licence, and in certain parts the deer have become so numerous and destructive that Government employs men to shoot them down. The sea-fishing in the North and along the shores of Cook Strait has also begun to attract sportsmen.

By way of scenic attractions the Dominion can show volcanoes, geysers, thermal springs, and other forms of volcanic activity that equal, if they do not surpass, those of any part of the world. In those regions also the

interesting native Maori race can be studied. Partly owing to volcanic activity in the past, the landscape in many parts shows bold natural features covered with native bush, in which the abundant and, in some instances, unique bird life of New Zealand finds its home. Many of the rivers are snow-fed, and flow through wooded valleys of great beauty, such as the Wanganui River and the Rai, Buller, and Otira Gorges.

Both islands have a good rainfall, and the abundant streams supply water for irrigation in certain areas, while in recent years the development of hydro-electric schemes has added to the amenities of life by supplying cheap electric lighting and power. In the South Island are found the famous Southern Alps, where mountaineering, equal to that of Switzerland, may be indulged in. The Mount Cook region is easily reached by train and motor, and the Mount Cook Hermitage provides up-to-date hotel accommodation within easy walking distance of several glaciers, while from the verandah one can hear the rumble of avalanches falling on the slopes of Mount Sefton.

The North Island also has mountain resorts, at Mount Egmont, Tongariro, and Ruapehu.

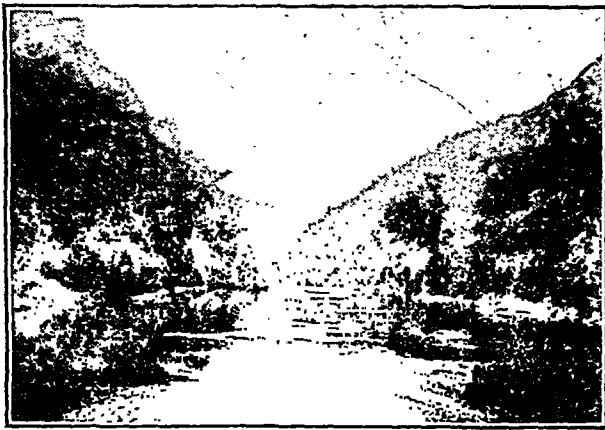
The south-west coast of the South Island presents features closely resembling the west coast of Norway. While the greater part of this region is as yet unexplored, one of the inlets has been made accessible to tourists.

The famous Milford Track (33 miles) leading from the head of Lake Te Anau to Milford Sound, over the MacKinnon Pass (3,500 ft.), traverses the great belt of forest that is characteristic of the whole West Coast, and leads past glacier-covered mountains and a 2,000 ft. waterfall (Sutherland Falls) to one of the most

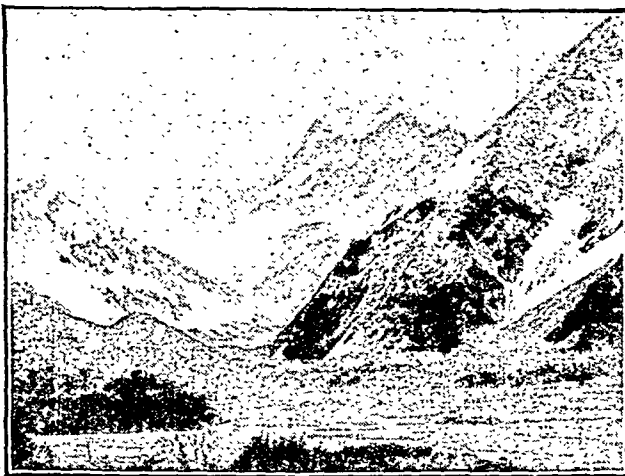
beautiful sounds to be seen in the world. During the summer months the track is open for traffic, and the accommodation huts are furnished and provisioned. These are arranged at easy walking stages, so that even children of 12 can accomplish the journey without undue fatigue.

A visit to any one of these three great wonderlands—Rotorua, Mount Cook, or Milford—would be enough of itself to repay the trouble of the journey to New Zealand.

Space will not allow more than brief mention of a few



WANGANUI RIVER.



MOUNT COOK (12,349 ft.).

of the many other scenic beauty spots of the Dominion—Hammer (hot springs and medicinal baths), the Otira Gorge, the Buller Gorge, the Franz-Josef Glacier, where hot springs issue close to the ice of the glacier, Pieton and Nelson, each on one of the numerous beautiful sounds on the southern shores of Cook Strait, the Waitomo Caves (stalactite, with an underground river), Mount Egmont (the Fujiyama of New Zealand), the cold lakes of Otago—Wanaka, Wakatipu, Manapouri, and Te Anau.

During the Congress it is fully expected that the New Zealand Government will give members liberal concessions on the railways. In each of the large towns there is an office of the Tourist Department, where every assistance and information is given. Information about New Zealand can also be readily obtained in London from the office of the High Commissioner in the Strand.

In a subsequent article it is proposed to give some account of the universities and the medical school in Dunedin.

England and Wales.

MATERNITY AND CHILD WELFARE IN NEWPORT, MONMOUTHSHIRE.

DR. HOWARD-JONES, medical officer of health for the County Borough of Newport, in his annual report on maternity and child welfare, states that of all live births in the town during the calendar year 1924 all except twenty-five were duly notified, and that there had been no prosecution for breaches of the Act. During the last twenty years a marked decrease in the infantile death rate during the first year of life has been obtained. In 1904 this rate was 152.9 per 1,000 births, since when it steadily fell to 63.7 in 1922, which was the lowest year on record. In 1923 the rate rose to 64.7, and in the year under review to 72.4. The increased rate was due chiefly to deaths from wasting disease and prematurity, most occurring under one month of age. There was an increase in deaths due to respiratory diseases, and ten inquests on infant deaths were held—the highest number since 1912. The diarrhoea death rate during 1924 was below the average for the last ten years. The maternal death rate of 1.44 per 1,000 births was the lowest since 1904; the corresponding rate for England and Wales was 3.70. Antenatal hygiene is being studied increasingly by expectant mothers and midwives, and 3,004 children between 1 and 5 years of age received treatment. Dr. Howard-Jones remarks that there is a definite need for more voluntary help in the homes during the lying-in period, and for better training of midwives in ante-natal hygiene. More beds are required for infants and young children suffering from defective nutrition and epidemic diarrhoea, and for complicated maternity cases. Arrangements were made during the year for the treatment of orthopaedic cases in conjunction with the Prince of Wales Hospital, Cardiff, part of the cost of the treatment to be recovered from the parents or guardians of patients when possible.

OXFORDSHIRE HEALTH SERVICES.

The Rural Community Council of Oxfordshire has issued a report on the existing health services, statutory and voluntary, in the county. Oxfordshire is not one of the largest counties in England—its population is estimated at 135,180—but the number and ramifications of its health agencies are very surprising when brought together and set forth in consecutive order. The list begins with the statutory authorities—county council, local sanitary authorities, insurance committees, and boards of guardians. The report explains in considerable detail the powers and duties of these bodies, and supplements this by a schedule of particulars. Then it proceeds to the voluntary associations, which it groups under four heads—the medical profession, voluntary hospitals, other voluntary organizations, and financial assistance in sickness. It deals with every hospital, stating the accommodation it provides, its departments, rules of admission, payments by patients, clinics, and so forth. The class "other voluntary organizations"

includes an association for the prevention of tuberculosis, a nursing association, a midwives' association, a branch of the Red Cross Society, and a society for the blind. The report will be most helpful to all in the county who already give, or may by its perusal be stimulated to give, personal or financial aid to the work which is being done. It will be a ready reference book to the benevolent who may know of cases requiring institutional services or trained assistance at home; also, it should be the means of preventing overlapping of work by the various bodies concerned, and, in so far as there may be any incompleteness in the schemes of public helpfulness, it should lead to the supplementing of them. At the same time, we have no doubt that by co-operation and communication the several agencies are protecting themselves against being imposed on by the unworthy, for in every community that is a danger which has to be guarded against. The report is further of value in setting out concisely the ramifications of local health and medical services, and should serve a useful purpose by interesting and educating the public in this aspect of social affairs, the importance of which is emphasized by the provisional proposals for Poor Law reform recently issued by the Ministry of Health. We do not chance to know whether such reports as that issued by the Health Group of the Oxfordshire Rural Community Council are available for many other areas, but if not, then this little manual should encourage the production of such handbooks. We congratulate the Oxfordshire Council on the happy thought which has inspired it to the doing of an excellent bit of work for the welfare of the community which it serves.

Scotland.

EDINBURGH ROYAL INFIRMARY.

At the annual meeting of the Court of Contributors to the Royal Infirmary of Edinburgh, held on January 4th the Lord Provost, Sir William Sleight, who was in the chair observed that during the year a number of extensions and additions had been carried out. These have already been mentioned in the *BRITISH MEDICAL JOURNAL* for December 12th, 1925. The position of the finances of the institution was a great triumph for the advocates of the voluntary system of hospital administration. The total ordinary income was £109,931, an increase of £2,023 as compared with the preceding year. These figures, he said, not only gave testimony to the beneficent activities of their great institution, but were also evidences of the system under which it was carried on, and which he believed the people of Edinburgh were determined to maintain. Negotiations were still taking place with regard to additional ground to meet the ever-increasing needs of the Royal Infirmary extension, and he trusted that an agreement would soon be reached on terms satisfactory to both parties. He expressed regret that the infirmary was not at present able to take in all the cases waiting admission, for the average waiting-list numbered 1,932. Sheriff G. L. Crole referred to the relief of pressure on the wards which would be gained in about two years by the completion of the Astley-Ainslie Institution, which would then be in full operation. Plans were also in course of preparation for Moredun House, and it was hoped that in eighteen months or two years this also would be in full operation. The Court of Contributors elected as its representatives on the board of management for the year 1926 Mr. G. S. Carfrae, Lady Susan Gilmour, Dr. George Mackay, F.R.C.S.E., Sir Malcolm Smith, K.B.E., Mrs. George Kerr, LL.D., and Mr. John Aitchison.

NOTIFICATION OF ENCEPHALITIS LETHARGICA.

The Scottish Board of Health has intimated that from January 1st, 1926, cases of infantile paralysis, poliomyelitis, and encephalitis lethargica shall be notified by the medical practitioners in attendance. The notification is to be made direct to the medical officer of health for the district on the usual form for infectious disease. The

usual fee of 2s. 6d. for notification of infectious diseases is payable to the medical practitioner by the local authority. In cases where the medical officer of health becomes aware of a case suspected to be one of infantile paralysis, poliomyelitis, or encephalitis lethargica, he may take such steps as he may consider necessary or desirable in order to confirm the diagnosis of the case. Notification of infective jaundice, which was compulsory in certain districts during 1925, has been continued for the year 1926.

Correspondence.

THE ULTRAMICROSCOPE IN CANCER RESEARCH.

SIR,—That the microscope has been medicine's right hand in the progress it has made is a statement that will not be questioned, and there will be equal agreement in the admission that there are forms of living organisms so minute that even with all its modern improvements this instrument cannot reveal them to us—they are ultramicroscopic, and the proof of their existence rests solely on their effects. Among these are the filter-passing germs.

This state of matters has naturally led to efforts to improve the power of vision of the microscope, the basis of such attempts being the recognized fact that the limits of that vision depend on the wave-length of light employed. The greatly extended spectrum of rays that science has now put at our command is being utilized in this work, a point well illustrated by the recent researches of Gyo and Barnard. Their investigations seem to show that there are two factors at work in the production of cancer—namely, (1) an intracellular germ, and (2) a "specific factor," whose presence is necessary to enable the germ to exercise its harmful activities. Gyo and Barnard have also demonstrated that although the germ taken from the cancer of one species of animal can be used to produce cancer in another species, the tumour extract of one species will not produce any effect in a different species. They also suggest that in all probability each form of cancer demands for its production its own "specific factor."

In connexion with the germ, a very important piece of work has been done by Barnard, in that he has been able, it is said, to demonstrate it and photograph it by using ultra-violet and even x rays as illuminants in his microscopic work.

It is admitted by all that if the above results receive confirmation by independent investigators a great advance has been made in our knowledge of the actual cause of cancerous tumours. A great deal, of course, hangs on the correctness of the interpretation put on the work done by Barnard with his special apparatus in which he utilizes for magnification the ultra-violet and x rays, which are themselves invisible and do not illuminate objects to the human eye but affect the chemicals of a photographic plate, so that the images of objects unseen by us may be recorded. One asks oneself in this matter if Gyo and Barnard, in coming to the conclusions they have done, have given full consideration and weight to the discovery, by Professor Baly of Liverpool, of artificial photo-synthesis. It will be remembered that he and those working with him found that the very short wave-lengths of the light from a mercury vapour lamp were able to build up formaldehyde from water and carbon dioxide; and, further, by using light with a somewhat longer wave-length the molecules of formaldehyde united to form simple sugars. Under these conditions, it seems to be a possibility that Barnard, by the use of his ultra-violet and x rays, with their short wave-lengths, may have created synthetically new combinations from the materials on which the rays are played, and that he has assigned to these the individuality of germs. Precautions may have been taken to obviate this, but upon this point no information is given in the papers contributed by Gyo and Barnard.

A good deal of stress has been laid on the double factor in tumour growth that Gyo's work has indicated, but this is not a new fact, as Cramer and he have previously demonstrated that the bacterium of gas gangrene is innocuous by itself and requires an accessory substance such as calcium chloride to act as a "catalyst" and

allow the germ to come into play. This, however, is not a feature peculiar to germs; it is seen in the activities where enzymes are concerned, as in the mode and origin of melanin. This pigment, according to Bloch, is due to the interaction within the cell of an enzyme with the mother substance melanogen or chromogen, which has been brought to the cell by the blood and lymph to allow the enzyme to act and convert it into the pigment melanin. Here the enzyme is the "specific virus" in producing the pigment of the cell.

Of late years I have been attracted to the possibility of a pigment being the exciting cause in cancer, and Gyo may yet find that the chemical substance he is in search of is of that nature. I will not go further into this theory, that cancer has a pigmentary origin, as I have fully given my views on this subject in an article published in the *Lancet*, 1922, ii, 655. All I would say is that such a pigment would account both for the cell proliferation characteristic of cancer and for the fact that cancer can only be transferred to a member of its own species. Further, the action of a pigment would explain the excess of unsaturated fatty acids in the fat in carcinomatous areas, an action probably brought about by the cancer cell to allow of the adipose tissue furnishing nutriment for the tumour cells. Consequently, for the solution of the cancer problem, I am inclined to pin my faith more to the pigment than to the ultramicroscope, even with the new and original method of Professor Bechold, which claims by the use of gold chloride to gild bacteria and filter-passers so that ultramicroscopic particles one thousand times smaller than those observed by Mr. Barnard by the aid of the ultra-violet light may be rendered visible. —I am, etc.,

Glasgow, Jan. 7th.

GEORGE THOS. BEATSON.

CANCER OF THE COLON.

SIR,—I have read with much interest Mr. Charles Pannett's paper on cancer of the colon in your issue of January 2nd (p. 1). Mr. Pannett brings out one very important point—namely, that if good results are to be obtained the diagnosis must be made before the onset of obstruction. Fifteen years ago it was very unusual for surgeons to see a case of carcinoma of the colon which was not already complicated by acute, or semi-acute, obstruction. During the last few years, however, thanks partly to improved methods of diagnosis, but chiefly to the greater acumen of the family doctor, quite a large proportion of such cases are now sent to the surgeon before the onset of obstruction. The difference in the operation mortality which has resulted is very considerable, and when we consider that acute obstruction of the colon has a mortality alone, apart from resection of the diseased bowel, of 30 per cent., this is easily apparent. The actual mortality for resection of the colon for cancer, apart from obstruction, is somewhere under 20 per cent.

I agree with Mr. Pannett that no form of cancer gives such excellent operation results as cancer of the colon, both from the point of view of absence of mutilation as a result of the operation and freedom from recurrence afterwards. There is one important point on which I do not agree with Mr. Pannett, or perhaps it would be better to say that I do not agree with what his words appear to mean. Mr. Pannett says that "diarrhoea may occur in addition to the constipation when the growth is left-sided." I would say that diarrhoea is practically always the earliest symptom of a growth in the colon, no matter where the growth is situated. My experience is that the earliest symptom is always intermittent diarrhoea, or marked irregularity of the bowel movements. Although this may seem a small point, I am convinced it is one of very considerable importance, as everything in these cases depends upon early diagnosis.—I am, etc.,

London, W.2, Jan. 11th.

J. P. LOCKHART-MUMBERT.

PUERPERAL MORBIDITY AND MORTALITY.

SIR,—An important fact which emerges from the interim report upon puerperal morbidity and mortality (printed in the SUPPLEMENT of January 9th) is that in more than 60 per cent. of pregnant women the vagina is infected

with streptococci. These can be only on the surface and should be removable by antiseptic douching before labour. This could be done by midwives as well as by doctors, and would probably do more to lessen infection than the system now so strongly advocated of leaving the patient severely alone. If the incidence of sepsis was lessened by this simple means it would go far to prove what many general practitioners have stoutly maintained, that puerperal sepsis is mainly autogenous and is not due to manipulation.—I am, etc.,

Wainstead, E.12, Jan. 10th.

A. CAMPBELL STARK.

SIR,—Sir John Robertson's letter in your issue of January 9th (p. 66) raises points of interest to the general practitioner undertaking maternity work.

He suggests that careful records of the results of maternity cases conducted in special institutions under the care of experienced obstetricians should be collected and published with the object of demonstrating to the profession and to maternity nurses the results of midwifery under good aseptic conditions.

Now surely it is flogging a dead horse rather too obviously to suggest that statistics of confinements under ideal conditions are required to impress upon the practitioner the necessity for that strict asepsis for which he strives in circumstances that are sometimes wellnigh impossible. Furthermore, what remedy is suggested in the compilation of these figures in a case such as Dr. Layton describes when the doctor conducts the giving of the anaesthetic himself, at the same time undertaking an instrumental delivery, with aseptic technique?

Surely there is more at the root of the question of the causation of puerperal sepsis than can be accounted for in terms of operating-room aseptic technique. There is a small but persistent percentage of "septic" cases occurring in private nursing where there has been no manipulation of any kind, and in institutional treatment where the aseptic technique has been flawless. The occurrence of one of these cases when no examination or operation has been made, where there is no reason to suspect any "focal sepsis," and where the case has been watched throughout, is in itself enough to postulate the existence of an *s* factor in maternity that is not related to external aseptic or antiseptic measures of a highly complicated nature.

If such a factor is not admitted, the morbidity of "distinct" maternity work should be something like 100 per cent. and puerperal sepsis in institutional cases unknown. It is surely to the bacteriologist, and possibly even more to endocrinology, that one must look for a reduction in puerperal morbidity, rather than to the perfection of an aseptic technique that, no matter how ideal it may be, can never be practised in its entirety in those homes where the vast majority of confinements still, and will, take place.—I am, etc.,

Harrogate, Jan. 10th.

FAULKLAND L. CARY.

SIR,—I heartily agree with everything in Mr. Comyns Berkeley's article (January 2nd, p. 4) up to the following point: "As someone has remarked, there are two things known for certain about puerperal sepsis: one is nothing, and the other is that the medical attendant will be blamed." If absolutely (not relatively) true, there would seem to be no use for "save the women and children" campaigns and practically no use for interim reports on the subject until we do know something.

Regarding the first point in the quotation above, I think all general practitioners who attend confinements will agree that there appears to be no connexion between "puerperal septicaemia" and "puerperal sepsis." Puerperal septicaemia is without doubt a highly infectious disease commencing soon after labour and occasionally before labour. I doubt if it is known bacteriologically what organism causes it, and more might be done in the investigation of this complication of labour, but no case of septicaemia that I have had in twenty-two years of midwifery work followed undue interference or instrumental delivery, and in two bad outbreaks the infection appeared

to follow in the trail, in one case of the doctor, in the other case of the nurse.

Puerperal sepsis may be caused by the streptococcus or some other germ, and since some part of the genital canal is sure to be lacerated (at any rate in first labours), infection must be a very easy matter, but with ordinary care the risk should be slight, and vaginal douching, and, if necessary, as shown by uterine pain and enlargement, intrauterine douching, can be easily carried out by the medical attendant, and it certainly needs no bacteriological aid to deal with such cases.

Regarding notification, if the rule of reporting all cases with a temperature of 100° F. lasting for over twenty-four hours were instituted it would seem essential to report all cases of whitlow, suppurating sores, mammary abscesses, and every kind of septic condition, as liable to infect some other parturient woman. "Puerperal septicaemia" should certainly be notified, and the nurse and doctor should refrain from attending a further confinement for at least one week. I have certainly seen five deaths follow rapidly from this precaution not having been taken: I do not think either the nurse or the doctor would be blamed if the occurrence was explained to the relatives.

Incidentally, I note that in the interim report of the British Medical Association on the causation of puerperal morbidity and mortality (SUPPLEMENT, January 9th, p. 13) irrigation of the uterus is given last place in the prophylaxis and treatment of puerperal sepsis. It should have been printed in large type at the head of the list and the other remedies in small type.—I am, etc.,

A. H. TERNER, M.R.C.S., L.R.C.P.

Garston, Liverpool, Jan. 10th.

THE METHODS OF INVESTIGATION OF NEO-CARDIOLOGY.

SIR,—Will you allow me to make a few comments on the correspondence, under the above heading, initiated by my letter of November 28th, 1925? I must confess to much disappointment that the simple issues raised by me as to the trustworthiness of the interpretation of the tracings of the polygraph, on the one hand, and the clinical value of the electro-cardiograph on the other, have been practically ignored. As to the former, I pointed out that Professor Starling endorsed (approved) my investigation of this problem in *physiology*; as to the latter, I quoted Sir James Mackenzie ("New outlook in cardiology," BRITISH MEDICAL JOURNAL, January, 1924), to the effect that the electro-cardiograph was of little or no help in determining "the functional capacity of the heart or heart failure." Surely it is of fundamental and primal importance that we should make certain that our interpretation of the records of these two instruments is true and available for clinical use. How, then, is it possible to ignore criticism of modern methods when it challenges the claims of current teaching and practice, and is, moreover, supported by names of such authority as the above?

Dr. Samways, with whom I am in general accord, says that these new instruments introduce "accurate methods"; but of what use is accuracy if we have not the key to the interpretation of the findings? It is a great comfort to learn from Dr. Donald Hall that those who are "familiar with graphic methods" do not relinquish the older methods of heart investigation: but when he proceeds to enumerate the virtues of the electro-cardiograph we find bare assertions, with which we are all too familiar. Indeed, the electro-cardiographer is apt to overstate his case, as when Dr. John Hay (*Graphic Methods in Heart Disease*) says of him: "And he will gradually find that he becomes less and less dependent on these instruments, with which he has served an apprenticeship, for he has learned to do without them. His fingers, his eyes, and his ears are enough in themselves. He has made an advance as a clinician." It is constantly being asserted of the polygraph and the electro-cardiograph that they are instruments of *precision*; is there any science in the world which, having acquired an instrument of precision, proceeds to relinquish it? Dr. L. F. Bishop (*A Key to the Electro-cardiogram*, 1923) quotes the above passage with approval.

The value of the electro-cardiogram in analysing cardiac arrhythmia is generally insisted upon, and Dr. Hall alludes to this; but clinically, as physicians, arrhythmia, as such, concerns us not at all, except it be associated with heart failure—that is, the mechanical failure of the heart to furnish an effective circulation. We are all familiar with cases of delirium cordis (auricular fibrillation type), which through a long life are unaccompanied by heart failure. Such cases are benign, but it is the passage of time which reveals this; other cases, of course, develop a progressive heart failure. Mackenzie's pronouncement, then, is that the electro-cardiograph does not assist us in gauging the all-important functional capacity of the heart as a *power chamber*; herein lies its gravamen.

"A General Physician" deploras the use of the word "neo-cardiology," and he is quite right; let us agree to delete it; but it is the modern school of graphic methods which is responsible for the introduction of the term; witness the title of Sir James Mackenzie's contributions to the *BRITISH MEDICAL JOURNAL*, quoted above. Again, then, let me plead for collaboration in the sifting of this matter; perhaps the younger men coming along, and uncommitted, will bring their fresh energies and open minds to the study and solution of these problems. —I am, etc.,

London, W.1, Jan. 10th.

HARRINGTON SAINSBURY.

* * This correspondence, having served its purpose, is now closed.

HIGH BAROMETER AND SUDDEN DEATHS.

SIR,—It may be of interest to note that so far back as 1732 Dr. Nicholas Robinson published "A discourse upon the nature and cause of sudden deaths; and the reason why such numbers of people died suddenly in the years 1730 and 1731."

"During the year 1730" (he says) "the barometer generally stood at $28\frac{1}{2}$ to $7\frac{1}{8}$. This was occasioned from the moist vapours and dampy Rains that affected the spring, summer and autumn; whereupon the Spring of the Air was extremely relax'd and consequently fitted to produce Palsies, Apoplexies, and Sudden Deaths from a Depression of the Vital Organs beneath the standard of Nature. But in the year 1731, rarely did it fall beneath $29\frac{1}{2}$ " and was often buoy'd up to $29\frac{1}{2}$ inches and sometimes to 30 and $30\frac{1}{2}$; and this was occasion'd from the extreme Dryness of the Season; a Drought so universal as scarce to be parall'd in the Memory of Man. By all this it appears, that the Air was Epidemical in the year 1730 and 1731; and that these sudden Fatal Effects did arise from either the extremes of its sudden Rarefaction or Condensation; which occasioned in the Nerves of the Vital Organs either an absolute Convulsion, or an absolute Palsy, and consequently a sudden Death.

"In the year 1729 there died of Apoplexies and sudden Deaths only 182, but in 1730 although there were 3,000 fewer deaths altogether, the number of sudden deaths swell'd to 238 and in 1731 to 237. To be alive and dead, almost in the same Instant of Time is a scene extremely shocking to humane Nature. . . . To be at once struck off from the List of the Living, is a change very extraordinary, and which must affect the Stoutest Heart with Terror and Surprise."

He goes on to discuss the nature and causes of these sudden deaths. He affirms that the less quantity of blood which animals have, the slower will be their progressive movements.

"There is such a Harmony, Consent and Agreement between the Organs of the Heart and of the Cerebellum, that if an Obstruction or Oppression happens to the one, the other is always affected and exerts a Force and Motion superior to what is Natural in order to remove the Impediment and give a freedom to the oppress'd Organ. In all cases of Paining, if the Brain and Cerebellum did not exert an extraordinary Motion of Systole and Diastole, and immediately detach a considerable Quantity of Animal Fluids to the Heart's assistance, the Patient would assuredly suffer a sudden, fatal Stroke, under every fainting Fit.

"When people fall down dead without the least Struggle, this assuredly happens from a sudden Jerk of the vital

solids, or from a sudden breaking of an Imposthume in the Organ of the Heart, Brain or Medulla. When the Nerves of the Vital Organs are wound up to the highest stretch they can bear, then the least higher Impulse, from either a sudden change in the Air, or setting in to a thorough Debauch, may crack those noble Springs of Life. Such sudden changes in the Air as from Dry to Moist, cold to hot, may lead to a sudden Death." Joy and grief often cause sudden death, but "a great, a generous and a gallant man, bears up in the World like a ship in the sea well-ballasted; so let the Billows rage, the sea roar, and the Madness of the People combine against him, yet he will stand his ground in spite of Fortune, and bear up his Virtue in opposition to the most shocking Ills of Life."

Dr. Robinson was a voluminous writer and practised as a physician in London. He invented a sovereign remedy for the stone, and wrote a "Compleat Treatise of the Gravel and Stone" in 1721; "A New Theory of Physick" in 1725; "A New Method of Treating Consumptions" in 1727; "A New System of the Spleen, Vapours and Hypochondriack Melancholy" in 1729; "Treatise on Venereal Diseases" in 1736; and an "Essay on Gout" in 1755.—I am, etc.,

W. G. AITCHISON ROBERTSON, M.D.,
F.R.C.P.E., Barrister-at-law.

Bournemouth, Dec. 21st, 1925.

ANAESTHETICS IN CHILDHOOD.

SIR,—Two letters on anaesthetics in childhood (December 12th, 1925, p. 1150) appear to call for some comment. With Mr. Harrison Butler I agree that ether is much safer for eye operations than chloroform, but there are times when ether is contraindicated—such as when the patient has bronchitis or is liable to it—and then the anaesthetist should use his own judgement, for it is on him that the blame will rest if the operation is successful but the patient dies some days later from pneumonia. I am glad to say the surgeons for whom I have given anaesthetics leave the choice of the anaesthetic to me. Ether is in some cases more dangerous than chloroform, and in some a mixture of chloroform and ether is preferable to either, and the anaesthetist should know better than the surgeon what anaesthetic to give.

It is impossible to take Dr. Primmer's letter seriously. First he says he is acquainted with the theory and practice of present-day anaesthetics, and in the same letter refers to Shipway's oxygen and ether apparatus as a "contraption" which reminds him of a mechanical milker. I have used this excellent apparatus—the inhaler, not the milker—for the last five years, and have found it the safest and also the easiest method of giving an anaesthetic. It is especially useful if one has to give chloroform, for the oxygen certainly diminishes the danger. Dr. Primmer is "particularly unfortunate" in quoting this method as dangerous; the explosion he refers to was due to a naked flame, not to Shipway's apparatus, and I hardly like to remind him that ether is inflammable and not "the Shipway." His second statement is that chloroform in the hands of a competent administrator is safe. This is not so; chloroform is a dangerous drug even in the hands of a specialist, much more so than ether. His third statement is that chloroform has stood the test of time. Well, has it? I think not. There are too many deaths due to it every year, and chemists and anaesthetists are still looking for a better and safer anaesthetic than either chloroform or ether.

I have tried to use chloroform wisely, and by that I mean I give it as rarely as possible; whether this is wisely and well is not for me to say; but I would always prefer to use a substitute, and that is ether with oxygen, until a better one is found.—I am, etc.,

ERNEST W. STRANGE, M.D.

Wolverhampton, Dec. 15th.

PALE BABIES AND DEEP PERAMBULATORS.

SIR,—In your issue of December 26th, 1925, attention is called to the improved colour and health of a baby through the raising of its position in the perambulator. There can, I think, be no difference of opinion as to the favourable influence on infants of an increased exposure to sun and

air, in any circumstances and however effected. Dr. Astley Weston has pointed out in a later issue that the particular baby was grossly overfed. Its diet was further entirely ill balanced as compared with the physiological standard—breast milk. Dr. Weston rightly notes that the energy requirements of babies living in the open air are raised, so that they require a more generous supply of calories. It is also true that in an overfed baby enhanced colour may be a danger signal and not a sign of improved health—witness the rosy and beautiful complexioned babies who develop eczema (see A. M. H. Gray, *BRITISH MEDICAL JOURNAL*, December 26th, 1925, p. 1230). In this particular case I think there is probably an improvement.

We are familiar at the Infants Hospital with the pale complexions and toxic-looking appearance of the overfed or wrongly fed infant, and how quickly improvement follows suitable adjustment.

In this case the baby was suffering from a food supply too ample for its energy requirements. Any change, therefore, whether a reduction in food supply or a raising of demand, as effected by the action in question, would assist towards the readjustment needed in the case in question.—I am, etc.,

AMY HONGSON, M.D., M.R.C.P., D.P.H.,

January 11th. Medical Registrar, Infants Hospital, London.

** Professor J. A. Nixon, one of the signatories to the memorandum of December 26th, 1925 (p. 1224), which started this correspondence, asks us to draw attention to a paper by Dr. G. B. Fleming of Glasgow on the theoretical food requirements of infants (*BRITISH MEDICAL JOURNAL*, 1924, vol. ii, p. 1093). Dr. Fleming gives reasons for believing that infants should be given quantities of food suitable for their age rather than for their actual weight. He concludes that during the first year of life infants who are within 30 per cent. of the accepted weight for the age should receive daily a diet of a value of 100 calories per kilo of expected weight. This would be equivalent to about 50 calories per lb.

THE RELATIONSHIP OF THE MEDICAL PROFESSION TO UNQUALIFIED PRACTICE.

SIR.—It was not to be expected that Dr. Manson (*BRITISH MEDICAL JOURNAL*, January 9th, p. 68), even with his unflinching courtesy, would be content with my "general principles" and "philosophic generalities." He is nothing if not thorough. Hence, as of yore, his cry is for the strong arm of the law and for pains and penalties unnumbered and undefined.

His plea is quite to the point. A new offence is to be created—namely, that of unqualified practice—and the alleged offender is to be "haled to the bar of justice." When he arrives there a method not now practised in English criminal procedure is to be applied to him. He is to be "examined and cross-examined," though such forms of discipline are at present restricted to occupants of the witness-box. In a delightful euphemism Dr. Manson names this series of events "the analytic method," and it is indeed a searching enterprise.

Even yet, however, there is a loophole of escape. Suppose that the prisoner-witness, as is possible, refuses to reply. He is now contumacious and mute of malice. Would imprisonment for contempt of court extract his secrets? It may be doubted. In such circumstances Dr. Manson, I am sure most reluctantly, might be driven to a revival of the *peine forte et dure*—that is, the accused must be pressed to death under heavy weights in accordance with a precedent so recent as 1741.

Such may be the inevitable consequences of the "analytic method" when this is applied in all its ruthlessness to the exposure of "pretensions and humbug." Its several stages are: (1) detection of an offender by the medical profession; (2) offender "haled to the bar of justice"; (3) "there examined and cross-examined"; (4) imprisonment for contempt; and, this failing, (5) the thumbscrew, the rack, or even *peine forte et dure*. The collapse of "a soap bubble in the sunlight" is scarcely an adequate figure for so tremendous a programme.

In the meantime I may remind Dr. Manson, while he is waiting for his larger ambition, that it is the right or even the duty of every individual citizen to expose, if he can do so, any fraud which he knows is being practised on the community. It is true that the risk of law courts and actions for libel suggests discretion. But why hesitate at these when the "bar of justice" is welcomed as the most efficient instrument for the triumph of truth and the exposure of humbug?—I am, etc.,

London, W.1, Jan. 9th.

C. O. HAWTHORNE.

CATARRHO-PYOGENIC AND TUBERCULOUS INFECTIONS.

SIR,—May I be allowed to state with what satisfaction and relief I read Dr. Batty Shaw's lecture (December 26th, 1925, p. 1212) putting forward a new nomenclature in connexion with tuberculosis; it is so refreshing to find oneself off the beaten track.

As a bacteriologist I have felt for some years that the activity of tubercle is secondary; that seems to be the only explanation for the fact of tubercle bacilli lying dormant for years, perhaps for life, and only found by chance during a catarrhal cold or else *post mortem*. When examining sputa from various cases one cannot help being struck by the types of bacterial flora found, which seem to bear a relation to the type of case. There is the commonest type with insidious onset and marked catarrhal signs, which usually goes to the bad; this seems always rich in many sorts of bacteria, usually associated with the influenzal group; again, there are cases in which the initial symptoms are haemorrhages, with few if any catarrhal signs, and in these also the bacteria differ.

Is this the key of the puzzle? We hunt for defences against the tubercle bacillus; ought we not rather to tackle the front line first? We all have met cases whose sputa persistently show the presence of tubercle bacilli, and yet seem none the worse and lead useful lives; they obviously have somehow found a clue, but cannot tell us. Perhaps the vitality of the bacilli has been weakened by lack of nourishing soil void of other bacillary toxins.

Of course, we are still left with the problem; yet surely breadth of thought and a readjustment of ideas, as set forward by Dr. Batty Shaw, will all help progress.—I am, etc.,

DOROTHY DALY, B.A., M.B., B.Ch.

Bosford, Wores, Jan. 5th.

Obituary.

EDWARD GRANVILLE BROWNE, M.B.,

F.R.C.P., F.B.A.,

SIR THOMAS ADAMS'S PROFESSOR OF ARABIC; PRESIDENT OF PEMBROKE COLLEGE, CAMBRIDGE.

ON January 5th pneumonia, supervening on other morbid conditions of some duration, brought to a close the life work of Professor E. G. Browne, a phenomenal scholar who, though fully qualified, never practised our profession. His health had been precarious for some time, and the loss of his wife in September last was really his death sentence.

Born on February 7th, 1862, at Uley, near Dursley in Gloucestershire, he was the eldest son of the late Sir Benjamin C. Browne, a member of the famous engineering and shipping firm of Hawthorne, Leslie and Co., Newcastle-on-Tyne, who was Lord Mayor of that city (1885-87), and, being largely responsible for the success of the Royal Jubilee Exhibition and Royal Agricultural Show there in 1887, received the honour of knighthood. The son went to Glenalmond and then to Eton, but his experience was not happy, and in his autobiographical answer to the question so often put to him "What first made you take up Persian?" he wrote: "The most wretched day of my life, except the day when I left college, was the day I went to school. During the earlier portion of my school life I believe that I nearly fathomed the possibilities of human misery and despair" (*A Year among the Persians*, p. 7, 1893). Originally destined to be an engineer, he left school at the early age of 15½ years, partly, at any rate, because the teaching of "the modern side" was then rudimentary.

The Russo-Turkish war in 1877 first attracted his attention to the East, and he became such an ardent admirer of the Turks that his whole ambition then was to become an officer in their army, and with this object in view he plunged with enthusiasm into the language. But his father, who did not smile on the army as a profession, proposed medicine as an alternative to engineering, and as this seemed more compatible with his aspirations he went up in October, 1879, to Pembroke College, Cambridge, and thus began "a new and most happy era of life." He at once studied Arabic under the late Professor E. H. Palmer, the Lord Almoner's Professor of Arabic, thus learning more of Arabic in one term than he had of Latin and Greek during five and a half years; in the long vacation of 1880 he started Persian. In June, 1882, he was placed in the second class of the Natural Sciences Tripos Part I, and in July went for two months to Constantinople as a paternal reward for passing this and the second M.B. The two succeeding years at Cambridge were a period of undiluted pleasure, for his whole time could now be devoted to Oriental languages, and as a result his name was the only one in the first class of the Indian Languages Tripos which included Persian as well as Hindustani, a language from which he "never succeeded in deriving much pleasure." He then returned to medicine by entering St. Bartholomew's Hospital in October, 1884, and came under the influence of Sir Norman Moore, to whom, when President of the Royal College of Physicians, Browne dedicated his FitzPatrick Lectures (1919-20) on Arabian medicine, "in gratitude for his inspiring teaching, and in memory of three fruitful years passed under his guidance." In 1887 he proceeded to the M.B. degree at Cambridge and took also the Conjoint Board qualification; on May 30th of that year he was elected a Fellow, afterwards becoming President (1912), of Pembroke College, Cambridge. It was then arranged that he should come on as house-physician for a year from April 1st, 1888, for Dr. Samuel Gee; but in September, 1887, he went to Persia and did not return until October, 1888, when he went into residence at Cambridge, where in the previous May he had been appointed the first holder of the lectureship in Persian. Accordingly the late Dr. W. H. R. Rivers took his place as house-physician, and, as fate decided, followed him, though in quite another capacity, to Cambridge, where he, too, made a great name.

In 1902, in succession to C. P. H. Rieu, Browne was elected Sir Thomas Adams's Professor of Arabic, and, holding this post until his death, was extraordinarily successful as a teacher of Arabic and Persian. Though he concealed it, he was a most generous benefactor and did much for the Botanic Gardens at Cambridge. In 1903 he became a Fellow of the British Academy. On January 26th, 1911, a new by-law, XL (b), was enacted by the Royal College of Physicians of London whereby "registered medical practitioners not members of the College who have distinguished themselves in any branch of the science or practice of medicine can be elected Fellows," and in the following April Professor Browne and Sir David Bruce were the first to be elected under this by-law. This is an honour carefully considered, and of the thirteen elected in fifteen years eleven are Fellows of the Royal Society, and Professor Browne is the first to leave us. The FitzPatrick Lectures delivered before the College on Arabian medicine were published in 1921 by the Cambridge University Press. This was his main but not his only medical contribution, for in January, 1897, he gave as the mid-session address at the Abernethian Society of St. Bartholomew's Hospital "A chapter from the history of cannabis indica," containing much that was interesting about the assassins and their victims (*St. Bartholomew's Hospital Journal*, 1896-97, iv).

His contributions to the literature of Oriental history and religion were numerous and of a very high order. His great work on Persian literature in four volumes (1902-24) is regarded as beyond comparison the outstanding authority, and contains many admirable renderings of Oriental poetry into English verse. His translation of the Chahâr Maqala ("Four Discourses") (1889) has the special interest that it contains the only contemporary

account of Omar Khayyâm. He also performed a great service in the various accounts of Bábism he published, data for which he obtained after surmounting great difficulties. Among his other works are *A Year among the Persians: Impressions as to the Life, Character, and Thought of the People of Persia, received during Twelve Months' Residence in that Country in the Years 1887-8*; *The Persian Revolution of 1905-1909*, showing his deep sympathy with the Persian reformers, and vigorous detestation of the Russian policy; *An Abridged Translation of the History of Tabaristan*, 1905; and catalogues of Persian and Mohammedan manuscripts. With characteristic unselfishness he completed and saw through the press E. J. W. Gibb's *History of Ottoman Poetry*, of which one volume only of the five was seen by the original author. As a like labour of love he also administered the "E. J. W. Gibb Memorial" which, since its establishment in 1904, has brought out thirty volumes of the texts and translations of Oriental works. As a master of English style his travels are fascinatingly told; he records, like a second De Quincey, how in 1888, from force of circumstance, he temporarily took to opium smoking in Persia. In February, 1921, on the occasion of his fifty-ninth birthday, he received a complimentary address (accompanied by very beautiful presents) signed by a number of representative Persians, expressing their appreciation of his services to their language and literature. He was buried on January 8th at Elswick, Newcastle-on-Tyne, and leaves two young sons, his aged mother, and many friends to mourn his loss.

H. R.

SIR GERALD GIFFARD, K.C.I.E.,

Major-General Madras Medical Service (ret.).

We much regret to record the death of Major-General Sir Gerald Giffard, K.C.I.E., C.S.I., Madras Medical Service (retired), which occurred from heart failure in London on January 5th, a few days before he attained the age of 59.

Gerald Godfray Giffard was born on January 19th, 1867, the son of Agnew Giffard, civil engineer of St. Peter's Port, Guernsey. He was educated at Elizabeth College, Guernsey, and at St. Bartholomew's Hospital, taking the diplomas of M.R.C.S. Eng. and L.R.C.P. Lond. in 1889; also the M.R.C.P. London in 1907. Entering the Indian Medical Service as surgeon on March 31st, 1890, he became lieutenant-colonel after twenty years' service and major-general on July 6th, 1918, retiring on January 10th, 1924. After a few years' military duty he was appointed resident surgeon of the Madras Medical College in 1897, and spent most of his subsequent service at headquarters. In 1899 he became district medical and sanitary officer of Chingleput district, but in 1901 returned to Madras as professor of materia medica in the Madras Medical College and second physician to the hospital. In 1903 he was transferred to the chair of surgery, and in 1906 to that of midwifery. In his first year he served in the Manipur campaign on the north-east frontier of India, gaining the frontier medal with a clasp. Soon after the beginning of the recent great war he was appointed commandant of the Madras War Fund hospital ship *Madras*, and later served as A.D.M.S. of the 6th (Poona) Division of the Indian Army, being mentioned in dispatches in the *London Gazette* of May 18th, 1918.

He received the C.S.I. on June 3rd, 1913, was appointed honorary surgeon to the King on December 29th, 1917, and K.C.I.E. on January 1st, 1923. In 1898 he married the daughter of Mr. James Grose, C.I.E., of the Indian Civil Service, and had two sons and two daughters. Sir Gerald Giffard was for many years a member, and from 1919 to 1923 president, of the South Indian and Madras Branch of the British Medical Association; in 1923-24 he was a member of the Naval and Military Committee of the Association, and also a member of the committee appointed by the Association in connexion with the Royal Commission on the Superior Civil Services in India. At the funeral service at Hampstead Parish Church on Saturday, January 9th, Dr. C. Courtenay Lord, Assistant Medical Secretary, represented the British Medical Association.

Medical News.

THE courses of lectures at the Royal College of Surgeons of England will be resumed on Monday, January 18th, when Professor Sir Arthur Keith, F.R.S., will give the first of six lectures on fossil remains of ape and man, and their bearing on the evolution of human races. Other lectures will be by Mr. Arthur Edmunds, C.B., on pseudo-hermaphroditism and hypospadias and their surgical treatment (February 1st); Mr. J. E. Adams, on the surgery of the jejunum (February 3rd); Mr. Musgrave Woodman, on malignant disease of the oesophagus (February 5th); Mr. Tudor Edwards, on the surgical treatment of phthisis and bronchiectasis (February 8th); Mr. Lawrence Abel, on the treatment of cancer of the oesophagus (February 10th); Mr. H. W. B. Cairns, on neoplasms of the testicle (February 12th); Mr. Stanford Cade, cholecystography (February 15th); and Dr. Alfred Piney, two lectures on the importance of haematology in surgery (February 17th and 19th). The lectures will be given at the College at 5 p.m. on each day.

A NEW series of post-graduate clinics arranged by the University of Sheffield began on January 15th and will be continued on each Friday, alternately at the Royal Infirmary and the Royal Hospital, at 3.30 p.m., up to and including March 19th. On Tuesdays, January 26th and February 23rd, clinics have been arranged at the Jessop Hospital for Women, and on February 9th at the South Yorkshire Asylum. They are open to all medical practitioners without fee.

THE opening lecture of the new series, free to members of the medical profession, arranged by the Fellowship of Medicine will be given on Thursday, January 21st, at 5 p.m., in the lecture hall of the Medical Society of London, 11, Chandos Street, W., by Dr. Herbert Spencer, on abdominal palpation in pregnancy. A course in venereal diseases will take place at the London Lock Hospital from February 1st to 27th. At the Blackfriars Hospital for Diseases of the Skin an afternoon course in dermatology will be held from February 1st to 8th. A three weeks' combined course in diseases of children will be given from February 8th, in which the Paddington Green Children's Hospital, Victoria Hospital, and the Children's Clinic will participate. A late afternoon course (4.30 to 6) will take place at the London Temperance Hospital from February 8th to 19th for the convenience of general practitioners. The Queen Mary's Hospital (Stratford) has arranged a general intensive course in medicine, surgery, and the special departments daily from February 15th to 27th. Opportunity will be given for practical study in gynaecology and obstetrics. A copy of each syllabus of the foregoing courses and of the programme of the general course arranged by the Fellowship may be had from the Secretary at No. 1, Wimpole Street, W.1.

THE General Council of King Edward's Hospital Fund for London at its meeting on January 12th adopted a resolution of regret at the death of Dame Louisa Aldrich-Blake and of its high appreciation of her services as visitor, and as a member of the Council and of the Hospital Economy Committee.

A SPECIAL two weeks' course in cardiology will be held at the National Hospital for Diseases of the Heart, Westmoreland Street, W.1, from January 18th to 29th. Systematic and clinical instruction in the wards and out-patient department each day. The fee for the course, which is limited to sixteen, is £7 7s.

A POST-GRADUATE course, consisting of clinical lectures and demonstrations, teaching in the out-patient department, and lectures on the anatomy, physiology, and pathology of the nervous system, will be held at the National Hospital for the Paralyzed and Epileptic, Queen Square, W.C.1, from February 1st to March 26th.

A LECTURE on insanity, legal and medical, will be given at University College, London, by Sir Theodore Piggott (late Judge in the Allahabad High Court), on Wednesday, January 20th, at 5.30 p.m. The chair will be taken by Sir Archibald Garrod, Regius Professor of Medicine in the University of Oxford. The lecture is addressed to students of the University of London and to others interested in the subject. Admission is free without ticket.

THE annual general meeting of the Medical Officers of Schools Association will be held at 11, Chandos Street, Cavendish Square, W.1, on Friday, February 5th, at 4.15 p.m. After tea Dr. R. A. O'Brien, C.B.E., D.P.H., Director of the Wellcome Physiological Research Laboratories, will read, at 5 o'clock, a paper on the prevention of diphtheria and scarlet fever by modern methods. If possible, reactions will be shown.

THE title of the address to be given at the social evening of the Royal Society of Medicine on February 1st, by Dr. F. J. Poynton, has been changed to "The part taken by doctors in the early days of aeronautics."

At a meeting of the Royal Sanitary Institute in the Town Hall, Bradford, on Friday, February 5th, a discussion on child welfare centres and their adjuncts will be opened by Dr. J. R. Kaye, M.O.H. West Riding, at 3 p.m. The subject of town planning and improvement areas will be discussed at 5 p.m.

A MEETING of the Central Midwives Board for England and Wales was held on January 7th. A penal session was held first, followed by the ordinary monthly meeting. Business dealt with included the appointment of Dr. Jervis to represent the Board at the Congress of the Royal Sanitary Institute to be held this year. Dr. T. O. Halliwell was approved as a lecturer at Dewsbury for a period of twelve months, and approval as teachers was granted to a number of applicants. The next meeting will be held on February 4th.

THE Royal Society of Medicine announces that the William Gibson research scholarship for medical women will be awarded in June, 1926. Applications, with schedule of proposed research, two testimonials, and a statement of professional training, and appointments, should be sent to the Secretary of the society, 1, Wimpole Street, London, W.1, by June 1st.

THE International Stomatological Association has been reorganized with Dr. Chompret of Paris as president, Dr. Allaës of Antwerp as general secretary, and Dr. A. Asgís of New York as assistant general secretary.

DR. C. ACHARD has been elected general secretary of the Académie de Médecine for a further period of five years, and Professors Sabrazès of Bordeaux and Pic of Lyons have been elected corresponding members.

MR. HENRY KIMPTON announces for early publication a *Descriptive Atlas of Visceral Radiograms*, by Drs. A. P. Bertwistle and E. W. H. Shenton, and an *Introduction to Clinical Perimetry*, by Dr. H. M. Traquair.

SURGEON CAPTAIN M. H. KNAPP, R.N. (ret.), has been appointed a Knight of Grace and Dr. G. P. Meldoun an Esquire in the Order of the Hospital of St. John of Jerusalem in England.

THE Hastings Town Council has taken over the White Rock Baths on the sea front and is about to remodel them. It has, we are informed, received the collective opinion of the medical men in the district and is now making inquiries as to arrangements at other spas.

THE Committee for Public Health Education, Federated Malay States, has issued a semi-popular pamphlet, written by A. Viswalingam, assistant medical officer, on yaws, which is there called "puru." It is an example of the interest now taken in the prevention of disease in tropical countries.

SIX new cases of leprosy have been notified in Norway this year, the highest number for several years. In five cases the source of infection was known and in one the infection probably originated in Sweden. In 1922 there were no new cases, and in 1923 only two.

At the third congress of the Italian Society of the History of Medicine and Natural Sciences recently held at Venice the president, Professor D. Giordano, unveiled a bas-relief of Tommaso Rina, a Venetian surgeon who died in 1843.

FOLLOWING the examples of Brussels and Toulouse, Montpellier, Marseilles, and Bordeaux are to hold medical congresses under the name of Journées médicales in 1926, 1927, and 1928 respectively.

MEDICAL art-lovers within reach of London should not fail to visit during the next few weeks the forty-ninth winter exhibition of the Royal Academy of Arts at Burlington House, which is devoted entirely to the works of the late John S. Sargent, R.A. This wonderful loan collection of more than 600 oil-paintings, water-colours, drawings, sculpture, and architectural decorations, brings together, in almost overwhelming abundance, examples of the artist's work at every stage in his career. The versatility of Sargent's genius will impress everyone who makes a tour of the galleries. If he had never painted a full-dress portrait, his landscapes and studies alone would proclaim him master; and if he had never touched oil and canvas, the charcoal heads and pencil sketches, and above all the water-colours, would assure him a place among the great pictorial craftsmen. There are three medical portraits in the exhibition: the quiet and sympathetic oil-painting of Dr. Elizabeth Garrett Anderson, contrasting with the flamboyant society figures around her; the charcoal drawing of Sir St. Clair Thomson, dated 1913, and recognizable at a glance both as a Sargent and as the urbane President of the Royal Society of Medicine; and an interesting study in oils of Dr. William Playfair painted in 1887. War pictures include the immense mural decoration entitled "Gassed," showing parties of men blinded with mustard gas arriving at a dressing station on the Doullens-Arras road in August, 1918.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

The **GRAPHIC ADDRESSES** are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitiology Westcent*, London.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent*, London.

MEDICAL SECRETARY, *Mediscera Westcent*, London.

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Incillux*, Office, 6, Edinburgh).

QUERIES AND ANSWERS.

A RETIRED medical officer, aged 45, with some tropical experience, asks for information regarding the method of obtaining a post as medical officer on a rubber or tea plantation in India, Ceylon, or Malay States, and as to the usual pay and term of service.

INCOME TAX.

Depreciation on Motor Car.

"W. F. W." inquires whether in claiming depreciation on a car bought in 1922 the percentage allowance should be based on the depreciated value or on the original cost.

* * The allowance is for depreciation by wear and tear during the year of assessment, and the depreciated value has been held to be the correct basis. Where this view is taken by the authorities (and it seems to have become general) it is not practicable to resist it. At the same time it is not likely to make much difference in the long run, inasmuch as the greater the depreciation allowances made the less will be the deduction due for the net renewal cost when the car is replaced.

Partnership Expenses.

"R. H. W. D." proposes to take a junior partner and to reserve the two motor cars used in the practice as his individual property. Will this affect the allowance to be claimed when a car is purchased in the joint names of the partners in replacement of either of the two present cars?

* * It certainly should not do so, as a matter of common sense, and neither should it, we think—though this is not so free from doubt—as a matter of law. If, as we gather, a new car will be purchased on the joint partnership account there seems to be no reason why the existing cars should not be included (as "R. H. W. D." suggests) in the partnership valuation and any possibility of objection to the future claim thereby extinguished.

LETTERS, NOTES, ETC.

HOSPITAL PROVISION FOR ANTE-PARTUM HAEMORRHAGE.

"G. P." writes: May I draw attention to a problem in midwifery practice still more urgent and unsatisfactory than that of puerperal fever? I refer to the lack of adequate hospital provision for cases of ante-partum haemorrhage. The Poor Law Institution may be several miles distant from the patient's own home; in any case, the difficulty and expense of sending the patient to stand by for many hours, and the difficulty of finding a hospital near the home, yet, following tradition which dates from before the days of Lister, these acute surgical emergencies—in this district and, I believe, in others—are refused by the local general hospitals.

THE NATURAL FOOD OF A BABY.

DR. J. T. MACLACHLAN (Giffnock, N.B.) writes: I was many years in practice before I realized that cow's milk is not the natural food of a baby, but the natural food of a calf. I believe that it is in the way of pain from colic, due to indigestion in the stomach or bowels, or both. I have seen milk diluted with plain water,

barley water, lime water, etc., fail to give the baby peace. I remember being called to see a baby whose sole complaint, in its mother's eyes, was it cried so much at night that the father had to pace about with it that he was not fit to go to his work in the morning. I prescribed the following mixture with complete success: Liq. pancreatic. ʒiij, sod. bicarb. ʒj, sp. chloroform. ʒj, glycerini ʒss, aquae ʒiv; a teaspoonful with each feed. It seems that the curd of cow's milk in the baby's stomach is too hard to be broken up with ease, and that the pancreatic extract solves the difficulty. I remember attending a baby who could not tolerate milk. It vomited persistently and wasted away and seemed to be dying. Horlick's malted milk, cooked with water, was prescribed for it, and it immediately stopped vomiting. On this food it was fed for six months, and, undoubtedly, Horlick's malted milk saved its life. Let me impress on young practitioners the dictum that cow's milk is not the natural food of a baby.

PRICES OF MOTOR CARS.

The *Motor* has supplemented its issue of January 5th with a little pamphlet containing the prices and condensed specifications of 1926 motor cars arranged alphabetically. With this pamphlet the prospective purchaser of a car is able to compare the prices and to study the differences in valves, horse-power, and body of the cars of nearly 150 makers. The patriotic motorist will be pleased to see that about sixty of these makes of car are of British origin, and that, on the whole, the price of British-made vehicles compares very favourably with that of similar cars made abroad. The pamphlet forms a useful little handbook.

MEDICAL INSURANCE AGENCY.

THE Medical Insurance Agency (British Medical Association House, Tavistock Square, London, W.C.1) has received three inquiries about various forms of insurance unaccompanied by the name and address of the inquirer:

1. For partnership insurance and for insurance of a Daimler car (1924), 16-h.p.; the applicant, who probably lives in London, states his age to be 62.
2. For insurance of Renault 8.3-h.p. car, 1926 model, two-seater.
3. For insurance of Morris-Cowley car, 1925 model, four-seater.

THE LATE DR. LLOYD OWEN.

DR. Y. M. JONES-HUMPHREYS (Cemmaes Road, Montgomeryshire) writes: It may be of interest to Welsh members of the British Medical Association to know that the late Dr. David Lloyd Owen of Birmingham (of whom an obituary notice appeared in the *JOURNAL* of January 2nd, p. 37) was twenty-third in descent from Einion ap Seisyllt, Lord of Ardudwy in North Wales, whose motto was "Goreu Gledwr Galoudig."

ACUTE INTESTINAL OBSTRUCTION.

DR. A. J. CAMPBELL (Edinburgh) writes: This is what another general practitioner thinks. Sir William Taylor's paper (November 28th, 1925, p. 935), and those which followed, were not pleasant reading to me. They raised some disquieting questions in my own conscience. They roused no resentment. Frequently we are disturbed by the fact that we sound advice we need to us sound advice we need years have been full of tears to anticipate complete diagnosis has been that complete diagnosis is made earlier than it used to be. The sum total of the discussion was a great advance on general practitioners. For this we owe men who conducted it. I hope my shaken out of my peace of mind by people like Sir William Taylor.

TOBACCO AMBLYOPIA.

DR. J. E. S. OLD (Nyasaland) writes, with regard to Mr. A. S. Percival's reference to tobacco amblyopia (September 19th, 1925, p. 513), to point out that tobacco contains several alkaloids. The amount of these depends on the relative proportions of nitrogen and various salts in the soil in which the tobacco has been grown. Amino-acids are formed during curing and fermentation, and the grower submits tobacco to special treatment to eliminate all objectionable compounds. Dr. Old suggests that it is possibly one of these compounds occurring in coarse low-grade tobacco which gives rise to amblyopia.

INFLAMMABLE COMBS.

DR. T. WILSON AIRD (Hove) writes: The letter of Colonel Elliot (*JOURNAL*, December 5th, 1925, p. 1089) respecting inflammable toys, hair-combs, etc., reminds me of a case to which I was called some years ago. It was that of a young girl who had been lying on the hearthrug in front of a brisk fire, reading. She was suddenly aroused owing to her celluloid hair-comb becoming violently ignited. Her sisters promptly put out the fire with cold water, but the victim sustained not only a severe shock but a serious burn on the scalp and a resulting scar about half the size of the palm of the hand, which of course remained bald.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 52, and 53 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at pages 22 and 24.

A British Medical Association Lecture ON POST-ENCEPHALITIC PARKINSONISM;

WITH SOME REMARKS ON THE RESULTS OF
TREATMENT BY BELLADONNA.*

BY

ARTHUR J. HALL, M.A., M.D. CANTAB., F.R.C.P.,
PROFESSOR OF MEDICINE, UNIVERSITY OF SHEFFIELD.

Of all the later manifestations of epidemic encephalitis that which is known as Parkinsonism, to distinguish it from Parkinson's disease (paralysis agitans), is not only the most common but the most serious. It has been estimated to occur in about 25 per cent. of all cases of epidemic encephalitis. Probably this is too high, and as a matter of fact there are many difficulties in making an estimate at all. Thus, the figure will vary with the time after the epidemic at which the estimate is made. It is by no means uncommon for the condition not to show itself for six, twelve, or eighteen months after the acute attack, or even, in rarer cases, not for years.

In the second place, the original number of cases of encephalitis in any single epidemic can only be estimated by the number of cases which are notified as such. As time goes on, however, it is found that a large number of Parkinsonian cases appear among patients who were not included in the original list of notified persons, the acute attack having been so slight as not to call for medical attention. If these are added to the list it is obvious that the proportion of Parkinsonian cases must become improperly raised, because it is likely that quite as many other inhabitants also had mild attacks without developing sequelae. If, on the other hand, one takes the figures of notified cases only, there is the fallacy that probably the mildest cases are omitted from the list. Out of 300 cases of encephalitis notified in the city of Sheffield during 1924 about 20 per cent. were definitely Parkinsonian at the end of 1925, so that the rough estimate given above is not very far out for notified cases; but there are almost as many Parkinsonian cases in the district traceable to the same year's outbreak who were not among the notified.

GENERAL FEATURES.

The general features of the disease are so familiar that it is not necessary to devote much time to their description. One of them is an increase of muscular tone. This leads to the postural changes which make the condition so easily recognizable at first sight. Whatever part is affected the resultant posture assumed when at rest is, with certain exceptions, the same in all cases. These postures are not the natural postures of rest, nor are they postures habitually assumed by the neuro-muscular system in ordinary life. Indeed, they cannot be said to be restful postures, using that term in the ordinary sense. To a normal person they are distinctly irksome and tiring, yet in the Parkinsonian condition their continuance appears to cause no undue fatigue. They are most noticeable in the head, upper trunk, and arms. The bowed head, which at first sight suggests muscular weakness allowing it to fall forwards, is in reality an active pull. It may continue just the same against gravity when the patient is laid on his back and the supporting pillows removed. It is sometimes more marked on one side than the other, so that the pull forwards is oblique. In one of my cases it was so marked as to cause caries of the cervical spine to be suspected.

Hypertonus and Tremor.

This hypertonic condition leading to postural changes is, of course, a familiar feature of ordinary paralysis agitans, but its importance in that disease is usually overshadowed by the accompanying tremor, which dominates the picture. In post-encephalitic Parkinsonism tremor also occurs, but its amount is, as a rule, considerably less. In a few cases it is severe, or becomes severe; in most, at any rate

for considerable periods, it is only slight; and in a certain number it is practically absent, and remains so.

It must not be forgotten that in making these statements I am speaking of cases of which nobody has yet seen the end. The oldest recognized post-encephalitic case cannot be of more than eight or nine years' duration, even if infected in the first known epidemic, whilst in this country by far the greater number of Parkinsonian cases date from the outbreak of 1924, and their duration is thus under two years.

There seems little doubt that "tremor" and "hypertonus" are distinct processes. Walshe has shown that hypertonus may be for the time completely removed in an affected muscle by the local injection of novocain, whilst tremor is not at all reduced thereby. Other drugs which also remove the hypertonus to a considerable extent and for considerable periods do not as a rule cause similar improvement in the tremor.

Sialorrhoea.

Sialorrhoea is a striking and often an early symptom. In its mildest degree there is merely a sense of increased moisture about the lips, which becomes rather inconvenient when talking or about meal times. It may often be recognized by the presence of a few bubbles between the lips when the patient is telling his history. In more marked conditions it is obviously inconvenient, and the saliva requires frequent efforts to swallow it. At times it even escapes from the angles of the mouth. In the severe stage it is a more or less continuous "drooling."

Frequency of Pulse Rate.

Another sign which appears to be common is an increase in the frequency of the pulse rate. This has been noted by various observers. My attention was called to it by Dr. Howitt of York, with whom I saw a typical case in a young woman. Her pulse was persistently 120 or over. A few days later an examination of the pulse rates of all the Parkinsonian cases attending my hospital out-patient clinic on one morning was made, and we found that the average in 13 cases was 109. The highest was 128, the lowest 96. An examination of the records of the pulse rate in five in-patients, taken over periods varying from two to twenty-six weeks, when they were lying in bed and afebrile, was 96.

Slowness of Action.

The most characteristic feature of Parkinsonism is the extreme slowness of action. It is this which gives the chief early clue to the condition in many cases. It may be limited to one part, or it may be generalized. It may be obvious to the patient even when very slight, or it may be hardly realized by him even when obvious to the onlooker. This difference appears to depend partly on the extent of its distribution. Thus it is quite common for the onset of the disease to be noticed by the patient himself, as an inability to use one hand as freely or as quickly as the other.

A musician told me that his first trouble was an inability to keep up with the right hand at the same pace as the left. A shorthand typist whose right hand was alone affected found a similar difficulty. A married woman found that in her housework her "right hand was lazy." A man with the left hand only affected said that when "dealing" he could not get the cards away with his left thumb and finger. In all these cases the patient had the opposite healthy limb for purposes of comparison.

When, however, both arms and the head and neck are affected I have seen cases in which the patient, although extremely slow, failed to appreciate that he was slower than before. Two young men whose Parkinsonism began somewhat insidiously were discharged from their posts because of their slowness. Both of them complained bitterly that so far as they knew they did things just as quickly as before.

Such slowness, when generalized, shows itself in everything, but is necessarily most noticeable in the ordinary daily actions in which the arms are principally involved—such as dressing, washing, feeding, putting on boots, etc. Whether really appreciated by the patient himself or not, this soon becomes a source of trouble in the household, and it is not long before someone has to assist him. So that

* Delivered before the Tunbridge Wells Division on December 18th, 1925.

whether they actually appreciate the slowness subjectively or not, it is daily and even hourly impressed on them from without. What, however, they do complain of is the constant overwhelming efforts that are required to perform these and all other actions of daily life.

We have recently been attempting to measure this rate of ordinary actions, and find that it presents some very interesting features. In the case of unilateral arm affections the difference in rate of movement on the two sides is very clear, whilst in the generalized cases with extremely retarded action the rate of movement may be at least ten times slower than normal.

The amount of actual muscular weakness is variable. That the muscular power does eventually fail in most cases is certain, but that it may remain fairly good for long periods is equally so. One of the most striking differences between Parkinsonism and paralysis agitans is the unexpected muscular strength which the former may at times exhibit. Possibly this may be due in part to the different ages at which the two conditions arise.

Time does not permit of more than a passing reference to many other interesting and important features. The mentality of these cases is most varied. Some are profoundly depressed and melancholic; a certain number have attempted suicide, some with success. Another group appear quite apathetic, they seem to have given up the struggle, or accepted it from the first as hopeless. There is, however, a third type, whose cheerful sanguine optimism appears to be pathological. They are always "better" in spite of the complete absence of any improvement. Nor is it possible to discuss the phenomena of micrographia, of the festinating gait and quick speech, or the curious changes in the blink reflex.

TIME OF ONSET.

Whilst in a few cases the onset is early, in the greater number it is late. Among 120 cases of Parkinsonism which have come under my personal notice the most common time of onset has been six to twelve months after the initial attack. Occasionally it has been longer, and, as is well known, cases have been recorded in which there have been intervals of five, six, or even seven years. It is, however, often difficult to fix the exact time of onset, as this is often insidious, and in many cases the beginnings are not recognized as such, hence the date of onset is too late.

Careful inquiry often shows that Parkinsonism really dates back much further than is supposed. Thus in one patient in whom it was said to have begun in the spring of 1924, I found that slowness had been noticed two years before—in June, 1922—and that he was actually discharged from his work on that account in October, 1922. As a matter of fact, it was the shaking which began in 1924 and led to the diagnosis. His initial attack of encephalitis had evidently been in March, 1921, when he was feverish, drowsy, and had "religious" delirium.

In some cases the interval between the initial attack and the onset of Parkinsonism is said to be one of complete recovery. In my experience that is rare. In most cases the recovery has been anything but complete, and in many there has been a series of changing phases—insomnia, respiratory anomalies, changes in moral character, mental abnormalities, rapid increase in weight, in some polydipsia, neuralgic pains, and so forth. With the onset of Parkinsonism some of these symptoms may persist, modifying the clinical picture, though not an essential part of it.

PARKINSONISM FOLLOWING INJURY.

In two of my cases the Parkinsonian syndrome first showed itself in recognizable form soon after an injury. This is obviously of importance in relation to the question of compensation, and deserves consideration.

The first case which I saw was that of a man aged 45. He was a farmer, and in this case no question of compensation arose. There was no history of previous illness, and no date for the encephalitis could be obtained. In December, 1924, he wounded his right hand. This was followed by an axillary abscess. After this he complained of stiffness in the back, from which he could not get relief. He said that when he turned "all of a sudden" it persisted during the first half of 1925. In July the feeling of stiffness extended to the neck and sialorrhoea was

noticed. Stiffness of the jaws when eating also occurred, so that they became fixed. I saw him in August. He was then a typical case of Parkinsonism, with tremor of the tongue and lips, sialorrhoea of the second degree, marked rigidity of the trunk, slight tremor in the right arm and leg, and "monotone" speech.

In this case the date of infection must remain unknown. It may have been at or subsequent to the date of injury to the right hand. Seeing, however, that there were no symptoms pointing to this, and that as a rule Parkinsonism is delayed until six to twelve months after infection, it seems much more likely that his primary infection was one of those which occurred, unnoticed, during the big outbreak in the first half of 1924. The second case presents no such element of uncertainty.

The patient, a man aged 51, had a definite attack of epidemic encephalitis in March, 1924, with diplopia, insomnia, and, later, lethargy, and was notified at the time. He recovered sufficiently to continue his work as a cutler—a skilled trade requiring sureness of eye and arm—until May, 1925. He then bruised the left thumb, which became septic. This was followed by swollen painful axillary glands. I saw him on September 17th, 1925. The wound had not healed; he presented typical Parkinsonian symptoms, with head bent forward, tremors of tongue, sialorrhoea, unequal pupils, loss of convergence, weakness of left face.

In this case the question of compensation did arise and it was impossible to say that the injury played no part in causing his symptoms. There are several reasons for thinking that it is more than coincidence. Paralysis agitans may follow very soon after an accident. This possibility is mentioned in the textbooks, and I have myself seen more than one such case. Again, in a somewhat similar form of nerve poisoning—namely, syphilis—the frequency of cerebral lesions appearing as the result of trauma is universally recognized.

Finally, some interesting observations have recently been made on cases of encephalitis following vaccination, which may have some bearing on this point. If trauma plays a part at all, it is probably that of unmasking a latent Parkinsonism and precipitating its onset.

PROGNOSIS.

The question of prognosis is one of considerable difficulty. A complete answer to it is still not possible because sufficient time has not yet elapsed to follow most of the cases to their termination. It is, however, now possible to say more than two years ago. Some of the cases progress very rapidly. Two of my cases from the 1924 epidemic died within six months from the onset of Parkinsonism. Others from that and from previous epidemics have died after rather longer periods. The total number of deaths, however, from Parkinsonism has not been large. In a second group the disease has progressed so that the patients have become helpless, and require constant attention. In this stage, however, they seem to remain stationary: their general health keeps good, and the disease does not seem to alter much one way or another. There is a third group in which the condition does not develop into more severe or crippling phases; indeed, it hardly seems to change at all. Weeks and months go by, and the syndrome does not extend its original limits or change its character. Indeed, in some respects they appear to be rather better, probably because with the adaptability of youth they are able to compensate for their partial disability.

One man attending my clinic, a tall powerful fellow in the thirties, had his primary infection in March, 1919. In 1920 he had marked festination and retropulsion. The face and arms, however, were less affected, and there was hardly any bending forward. Now, five years later, he has to a considerable extent overcome the festination by walking slowly and deliberately. He is very clumsy, and if he has to go through a difficult or narrow place, or if he has to hurry, the festinating gait returns at once. In ordinary circumstances, however, it has gone. After five years he has not recovered, but is not in any way worse.

Another patient, a married woman, aged 33, began also in 1919. In her case no part except the face and the right arm has ever been involved. The latter is hypertonic and slower than the left, with definite postural change. This has not increased at all in five years; in fact, she has learned to make the arm more useful, and it does not inconvenience her so much.

It is clear, then, that the condition may remain stationary for long periods. But in arriving at a prognosis in any individual case it must be remembered that, besides these stationary cases, instances do occur in which temporary improvement may take place of a surprising

character, even in patients who have been bedridden and helpless for long periods. I am not here referring to the condition known as "kinesia paradoxa," with which everyone who has seen many of these cases is familiar. Striking examples of this momentary alertness and agility of patients whose habitual slowness of action is extreme have been frequently quoted in the literature.

Among my cases a man with extreme rigidity and marked tremor, who can only shuffle along, will suddenly go off with a "hop, skip, and jump" for a few yards, as agile as a boy. Directly afterwards he returns to his Parkinsonian shackles. A youth with a similar advanced condition was one day persuaded to bathe in the sea; on coming out of the water he sprinted along the beach to his mother as well as ever he did in his life, only to relapse into his previous state when he reached her.

The periods of improvement to which I wish to call attention, although not so sudden in onset or so dramatic in character, are surprising in extent, and last, at any rate, for a considerable time.

TREATMENT.

Hyoscine.

In 1901 Erb first pointed out that hyoscine hydrobromide (scopolamine) has a definite effect in relieving the rigidity in paralysis agitans, and since then it has been frequently used for that purpose. More recently various observers have recorded its value in cases of post-encephalitic Parkinsonism. In a certain number of cases it produces quite definite and even marked improvement.

Hohman¹ has reported its effects in eighteen cases under his care; he made three groups, according to whether the improvement was slight, definite, or marked. Of the 18 cases, in 6 the results were slight, in 5 definite, and in 7 marked. As indicative of "marked improvement" he mentions "return to work after months of invalidism, and ability to attend to personal wants after being bedridden and helpless." Unfortunately there is no statement in his paper of the length of time over which these observations continued.

Personally I have tried it in a few cases, and in one or two the improvement has been quite definite. Probably my lack of success in other cases has been due to giving insufficient doses, for I have felt somewhat reluctant to prescribe considerable quantities of this powerful drug to out-patients seen only once a week, or perhaps even less often. Had I seen Hohman's encouraging paper earlier I might have been bolder, and more successful.

Belladonna.

That it is possible to obtain results from the administration of belladonna, in cases of Parkinsonism, has been known for some time, but perhaps insufficiently emphasized. I began to give it at first in order to check troublesome sialorrhoea, and for some time found it rather disappointing in this respect.

About six months ago it occurred to me that the doses were too small: 10, 20, or even 30 minims of the tincture were therefore given thrice daily. With these doses the sialorrhoea in some of the cases was considerably relieved, but much more striking than this was the improvement in the patients' general condition. They were obviously much more alert.

It was then tried systematically on a number of Parkinsonian patients, quite irrespective of whether they had sialorrhoea or no. The results were briefly as follows:

Out of 19 cases, 6 did not benefit at all; 3 stated they felt better, but there was little definite objective confirmation of this; in 10, however, there was no question about the improvement. In some of these the change was astonishing.

One, a youth aged 17, who had begun in March, 1924, with a most violent epileptiform and myoclonic onset, of long duration, developed Parkinsonism about six months later, with severe "drooling" of saliva. He had not washed, dressed, or fed himself without assistance for several months. Tincture of belladonna, 45 minims daily, was begun on September 16th, 1925. When he came to hospital a week later the salivation had stopped, and he was bright and alert. His mother said that he had begun to wash and dress himself. Now, three months later, although, of course, still a very obvious case of Parkinsonism, the salivation has not returned, and the improved condition persists.

A second youth, of about the same age, began similarly, with an extremely severe insomnia choreiform phase, and developed generalized Parkinsonism within a few months. He lost flesh rapidly, and became completely helpless. In the summer of 1925 he was in hospital, where he was bedridden, had to be fed, and could not stand up without support. After a few weeks he was discharged from hospital in the same helpless condition. He was brought to the out-patient clinic from time to time in an ambulance, and wheeled into the room. Tincture of belladonna was begun on October 14th, 1925, and the following week he walked into the clinic, having come by train and tram from his home—about eighteen miles away. Two months later he was still better. He now does everything for himself, chops the sticks, and helps his mother in household work every day.

Other records are briefly as follows:

Male, aged 29. After treatment with tincture of belladonna, 30 minims a day, began to wash and dress himself; he no longer requires helping with his meals. Two months later the improvement was maintained on the same dose.

Male, aged 30. Received 45 minims of tincture of belladonna daily. Salivation less; feels more brisk and lively; not so drowsy. Feels quicker in action.

Female, aged 15. Given 15 minims of tincture of belladonna daily. Not so tired; less saliva; now able to wash and dress herself; washes pots and helps in household.

Female, aged 25. After treatment with tincture of belladonna, 45 minims daily, showed great improvement: dresses and washes herself; walks better. Two months since treatment was begun. Later, this patient had a relapse. She was a 1920 case, and had recently been losing flesh rapidly.

In addition to these cases I may quote from two letters received from medical men with regard to advanced Parkinsonian cases under their care in whom belladonna has been tried at my suggestion.

The first case was that of a married woman, who had her primary attack of encephalitis in April, 1919. Parkinsonism was first noticed three years later. Although not actually bedridden, she was able to do very little, and was soon exhausted. She was put on tincture of belladonna about October 20th, 1925. On November 26th the doctor writes as follows: "Mrs. X has been on belladonna since you saw her. I pushed it up to 25 minims, but this was more than she could tolerate, and she is now having 20 minims thrice daily. The effect has been more than one could have possibly hoped for. . . . The other day she went a walk of about three and a half miles, and although very tired came home smiling and tremendously pleased with herself."

The second case was in a young single woman, of the 1924 outbreak. She could hardly stand by herself, and had to be assisted in washing, dressing, or feeding. The doctor writes: "M. has made a great deal of progress. She has even walked three miles. It is hard work to sound a note of warning to the very delighted parents."

It is obvious that a large part of this improvement is due to something more than the mere action of belladonna. In all these Parkinsonian cases the "functional" element is pronounced and "suggestion" is potent. But there are many facts which indicate that in most of these cases suggestion has not been the starting point of their improvement. Thus, at my clinic, nothing was said in the first instance to the out-patients about the virtues of the "new medicine" for the simple reason that these were quite unanticipated by the prescriber. Many drugs had been tried during the previous months without any benefit whatever, and a mere change of medicine was nothing new. Secondly, in the case of Mrs. X quoted above, the factor of personal suggestion, so far from acting favourably, rather did the opposite. The patient asked me at our interview some very pointed questions about her prospect of recovery, and I was obliged to answer them, which evidently depressed her considerably, and as the immediate result of my visit she was worse than ever. But the most convincing evidence that this is not primarily due to suggestion came from a quite independent and outside source. A few weeks ago I was asked by the representative of a large manufacturing concern to examine and report on one of their head managers, who had been off work ill for some months. He had been diagnosed as a case of neurasthenia until two weeks before, when he had consulted a leading neurologist in the district where he lived, who had recognized that it was post-encephalitic Parkinsonism. The representative, though not a medical man, gave a description so characteristic as to be easily recognizable. He said the patient was bent over, imitated the posture of his arms, and mentioned the shuffling gait, salivation, and extreme slowness. Next week the man was brought to see me. At first sight it seemed as though there must be some mistake. There was a well set-up, straight, active-

looking man without any postural changes at all. On examining him carefully, however, there were evident stigmata of his condition—a slightly tremulous tongue and lips, a suspicion of too fixed a gaze, and so forth, but everything was minimal. He said that this surprising change had begun within a few days of taking the medicine ordered by the neurologist; that for the first time for some months he had ceased to have the feeling of being "tied up by his muscles," that he could move them freely, and that, two days before, he had walked ten miles! The prescription contained three ingredients—chloral hydrate, tincture of hyoscyamus, and tincture of belladonna. It is possible that the good effects may have arisen from the hyoscyamus, and not from the belladonna. The doses were small, about six minims of each. My previous experience with the latter, however, makes me feel sure that, even in such doses, it is quite capable of producing the result by itself, and of the three ingredients was probably the chief agent.

In thus laying stress on the effects of belladonna it must be admitted that the bulk of the improvement is something inherent in the patient's nervous system—an auto-suggestion set going by a feeling of release from some constant oppression. In these cases the oppression is described by the patients as the effort required to perform any action. Directly even the slightest relief is felt from that a condition of "euphoria" is produced, which extends its beneficent influence over every part. This soon leads to the disappearance of that great mass of functional symptoms which often, in these cases, mask the extent of the real disorder. One is familiar with a similar course of events in many purely psychasthenic cases. Once a start can be made and a definite sense of improvement in one factor obtained, the reaction of the patient's own nervous system continues the process at compound interest—a circle not "vicious," but turned to a good purpose.

The difficulty in cases of Parkinsonism is to obtain the initial change, because here we have a very definite substratum of organic disease in which mechanical factors are involved. Belladonna, by acting in some way on some part of the neuro-muscular arc which is being over-stimulated in the Parkinsonian patients, relieves the hypertonia, allows the muscles to be used with less effort, and the higher centres do the rest.

That belladonna can act in this way is not remarkable if hyoscyne can do so. Both drugs belong to the atropine group, and have many pharmacological actions in common. Theoretically, the advantage should be with atropine, seeing that it has not the same tendency to a sedative action on the higher centres as hyoscyne. Possibly some combination of atropine and hyoscyne may be found to be more useful than either drug alone. My own experience in that direction, however, does not favour such a view. One of the cases in which belladonna failed signally found relief, both before and since, from hyoscyne.

Many points of interest arise in connexion with this action of the atropine group. How long can it be maintained? How can its effects be prolonged? Is the prognosis better in those cases which respond well than in those which do not?

There is also the question why some cases in whom the hypertonus seems equally well marked do not respond at all. It is interesting to note that in Hohman's series of cases treated by hyoscyne a certain number responded only slightly. Szyska² has recorded successful results with atropine pills, given for periods of three to six days, then a two to three day interval. Very large doses may be required and tolerated.

Before concluding, some reference must be made to cases recorded from time to time in which apparently considerable improvement follows divers forms of treatment. Thus, intrathecal injections of the patient's own serum are from time to time recorded as proving temporarily useful, also various forms of mechanical therapeutics are sometimes of benefit. It is, of course, possible that in any or all of these procedures some relaxation of the hypertonus may be brought about, as effective as when the atropine group is used. Our knowledge of the exact pathological process at

work is so slight that it would be foolish to deny such a possibility.

It is, however, rather more difficult to eliminate the factor of suggestion from without in any form of treatment which involves active intervention or daily personal influence. The very fact of a lumbar puncture being performed is in itself a powerful factor of suggestion. We are all familiar with Hutchison's "chronic abdominal woman" who recovers completely for a few weeks after each successive laparotomy!

Whilst, therefore, not for a moment denying the possibility that other methods may give as much relief as the administration of the atropine group, it seems possible that the former act more directly upon the reduced mental energy of the Parkinsonian patient, whilst in the latter the approach to the patient's higher centres is through the relief given to their neuro-muscular apparatus, and is indirect. Pharmacologically, the atropine group is said to have little or no effect on voluntary muscle. Whilst this may be true in normal conditions, it is not necessarily so when these are pathological.

There is no evidence that the actual lesion is in any way affected in its condition or progress by administering these drugs. Meanwhile, amidst all that is so dark and sombre in this disease, any measure that will give even temporary relief is worth our attention.

REFERENCES.

¹ *Bull. Johns Hopkins Hosp.*, 1924, xxv, 335. ² *Munch. med. Woch.*, 1923, lxx, 47.

An Address

ON

INTESTINAL DIVERTICULA.

DELIVERED BEFORE THE MANCHESTER CLINICAL SOCIETY

BY

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(With Special Plate.)

DIVERTICULA, or accessory pouches of the intestine, have been noted occasionally by pathologists from the eighteenth century onwards. In recent years we have become familiar with the condition known as diverticulitis, which is due to inflammation extending from the multiple colic diverticula to the wall of the bowel and surrounding parts. This was described in this country by Sir Berkeley Moynihan¹ eighteen years ago, and has been exhaustively studied by Dr. Maxwell Telling.² More recently the development of accurate radiology has made it possible to recognize diverticula in the course of a routine examination of the alimentary canal. A good many records have been published, including two short papers of our own some five years ago³; but in most of these the association of diverticula with symptoms has either not been recognized or has received but little attention.

Some years ago I suggested that the term "diverticulosis" be used to embrace all phases of the disease, and particularly the existence of diverticula before gross inflammatory phenomena have involved surrounding tissues and given rise to the clinical signs of diverticulitis. Since then my colleague, Mr. Marxer, has been able to show that in the colon the outset of the disease can often be recognized before the little pouches have formed. This we call the prediverticular state. The nomenclature we adopt may, therefore, be set forth as follows:

- | | |
|-------------------------------------|-------------------|
| I. Prediverticular state (in colon) | } Diverticulosis. |
| II. Quiescent diverticulosis | |
| III. Diverticulitis | |

Each stage passes by gradations into the next; indeed, all the stages may be present in the same patient.

Our investigations have brought out three points. The first is that diverticulosis is much commoner than has been recognized hitherto. The second is that it is frequently associated with symptoms. The third point is that, contrary to the conclusions of nearly all writers on the subject, these symptoms are frequently amenable to treatment.

Diverticula may be found in each part of the alimentary canal, but are most frequent in two regions. The first is the duodenum or jejunum. These pouches are large, up to the size of a walnut, or bigger; they are often single, but there may be two, three, or, rarely, even more. The second region is the colon, from which small pouches arise up to the size of a pea, seldom as large as a blackberry; these are usually multiple and sometimes very numerous.

A review of the literature with references and details of our cases, which time does not permit us to deal with now, is in course of publication.*

DUODENAL DIVERTICULA.

Fig. 1 shows the radiological appearance of a typical pouch of the duodenum, a mushroom-shaped shadow being seen to lie on the inner side of the second part of the duodenum; it is connected with the gut by a fairly wide mouth, which is often indicated by streaks of barium lying in the folds of the mucous lining. These streaks are more obvious in Figs. 2 and 3.

Duodenal diverticula have been detected 38 times in the last 1,000 consecutive radiological examinations of the alimentary canal. The sexes were about equal—20 women and 18 men. In 32 of these patients only one pouch was seen. In 6 there were two or more, one patient showing half a dozen duodenal diverticula as well as several in the jejunum. In all there were 51 duodenal pouches, of which 30 were in the second part, 16 in the third, 4 in the fourth, and one in the first part.

The incidence in this series was rather larger than the above figures show; for we have learned recently that certain tiny shadows which had been thought to be due to a little barium having entered the ampulla of Vater were really incipient diverticula, as shown by re-examination of the patients after some years.

If a careful routine examination of the duodenum is made, with proper manipulations of the tube so as to get the different aspects of this part of the bowel into profile, no other special technique is needed. Details of the method will be found in the above-mentioned paper.⁴ In all cases the buttermilk meal was used.

It was assumed that these pouches, detected formerly at autopsy, were congenital in origin, and no doubt congenital pouches may, and do, occur. But the facts that they are nearly always found in later life (only two of these patients were under 40 years of age), and that we have seen the shadows grow in the course of years from a small dot to the size of a walnut or more, make it clear that, whether or no there be a congenital predisposition, the actual pouches arise in adult life. In Fig. 3 such a minute pocket can be seen lying close to a well developed diverticulum. A year later the small one had doubled its size. In the large bowel there is evidence, of which I shall speak shortly, that a local inflammation precedes the formation of diverticula. In the duodenum also it is possible that a local catarrh, by weakening the wall, predisposes to extrusion.

As a rule duodenal diverticula are not associated with duodenal ulceration, but are pushed out at weak parts of the wall, which are uncovered by peritoneum, and particularly in the region pierced by the common duct. In these patients there was only one pouch from the outer aspect of the duodenum (Fig. 4).

The largest diverticulum we have seen is shown in Fig. 5. Its vertical measurement was 4 inches. It arose from the second part of the duodenum. This photograph (left oblique) was taken one and a half hours after the opaque meal. The stomach was empty at five hours, but the pouch had not evacuated all its barium in three days, when the rest of the alimentary canal was clear. A large pocket arising from the third part of the duodenum is shown in Fig. 6.

Pouches of the jejunum can be seen in Figs. 3 and 7. They were observed in 7 patients in this series, in 4 of whom there were also pouches of the duodenum. In a recent case in which a solitary pocket of the jejunum was observed the abdomen was opened, for other reasons, and the pouch examined. It showed no pathological feature.

In the ileum diverticula (excluding Meckel's) were observed in 7 patients (0.7 per cent.); they were small (see Fig. 8), and more like those found in the large intestine, of which I shall speak in a few minutes. The appendix showed little pouches in 6 cases, one of which is illustrated in Fig. 9.

Symptoms.

Duodenal diverticula may give rise to no symptoms, and in such cases are found, if at all, during a routine radiological examination, made for some complaint of a different nature. In about half our cases, however—namely, in 18 (47 per cent.)—symptoms were present which, after careful clinical, radiological, chemical, and bacteriological examinations, were not otherwise explained, and were attributed to irritation from the pouch. Indeed, it is obvious that a blind alley, often slow in emptying, in which the contents of the alimentary canal can accumulate and decompose, will, on occasion, be a source of inflammation and discomfort. Further, the distension of a pouch by food, especially during contraction of the duodenum, or the pressure on surrounding structures, would be expected to cause disturbance.

The typical symptom is a heavy, tired, or distended feeling about the epigastrium coming on after food. The earliest interval given was half an hour and the longest three hours. In 6 patients the discomfort amounted to pain or aching, and in others nausea (6 cases), vomiting (3 cases), or diarrhoea (3 cases) was complained of. It appeared clear that in two cases symptoms of colitis were set up by the discharge of putrefactive matter from such a pouch.* In 2 cases blood was vomited. Headache, jaundice, and pain in the back were noted in one case each. In 5 of these patients the diverticulum was tender when gently pressed upon on the x-ray table; in one of them there was pancreatitis.

The symptoms are therefore various, as would be expected. They are usually, however, referred to the affected area. They sometimes suggest vaguely duodenal ulcer, but the time relations are less definite and relief with food is unusual; it was present in one only of this series.

Diagnosis.

The diagnosis is made by x rays. An exploration is much less certain, as these pouches are commonly not detected at an operation since they are extraperitoneal.

Treatment.

Treatment may be medical or surgical. In 13 out of the 18 patients whose complaints were due to irritation from duodenal pouches the symptoms were relieved entirely by a few weeks of medical treatment. The measures adopted were devised to aid the pouch to empty, to prevent or lessen putrefaction of its contents, and to promote the health of the rest of the alimentary canal.

It is often possible to observe on the x-ray table that a pouch will empty more quickly in a certain position. To this end it is necessary to define the relation of the mouth to the pouch itself and to the bowel from which it arises. For example, in the case shown in Fig. 5 the evacuation was helped if the patient lay on the right side. She was therefore directed to assume that position for half an hour at a time when most of the food would be leaving the duodenum—that is, about three hours after a meal, or, in practice, just before the next meal.

For lubrication of the pouch, liquid paraffin is given night and morning, and the patient is advised to take it always, in a minimum dose of a teaspoonful, and more if the bowels are not loose. Kerol is given two hours after a meal. The diverticulum lies so near the stomach that it is reasonable to expect the antiseptic to be effective. The kerol is omitted for about three days a fortnight to avoid any possible poisoning. Cream of magnesia or a carminative medicine often relieves discomfort or distension after food. If the gastric juice is deficient an acid drink is given after the chief meals. Food should be plain and well chewed; condiments and excess of meat should be avoided.

* In another patient in this series, who has since returned for treatment, intermittent epigastric pain, from duodenal pouches (Fig. 3), which goes through to the back, is followed for a few days by mucous colitis.

* This paper has since appeared (see Reference 4).

We have not found it possible to empty a diverticulum by manipulation; and if there is any tenderness or irritation it is better not to massage above the navel. The following are detailed examples of cases.

No. 2855.—Woman, aged 66. Eight months' history of discomfort in the epigastrium about an hour after food. Nausea in the night, vomiting bile in the morning; flatulence. The fractional test meal gave a normal gastric juice, but slow emptying, as of duodenal irritation. There was a diverticulum of the second part of the duodenum, which was tender (Fig. 2). No other lesion was found in the alimentary canal or elsewhere. The symptoms disappeared with treatment.

No. 2433.—Woman, aged 75. Thirty years' history of indigestion. The patient had been operated upon three years before for strangulation of bowel. Pain was present in the upper abdomen on waking; it was eased by food. There was also a tearing pain two to three hours after food, leaving a sore feeling in the epigastrium; also pain in the left flank, worse after motoring, and achylia. A very large double pouch (see Fig. 5), which retained material seventy-two hours, was connected with the second part of the duodenum. There were multiple small diverticula of the splenic flexure which were probably the cause of the pain in the left flank. Operation was not advised on account of great improvement with treatment, and of age.

No. 1424.—A man, aged 54, gave at least seventeen years' history of attacks of nausea and vomiting, discomfort in the lower abdomen three-quarters of an hour after food, and diarrhoea. Haematemesis three times. There was a double pouch, or two pouches, of the second part of the duodenum. Subacid gastric juice. There was no x-ray or faecal evidence of colitis. He recovered with treatment. Two and a half years later he wrote that he had kept well.

Surgical treatment was employed in one of these patients on whom an operation was performed for the diverticula.

No. 1571.—A man, aged 54, complained of nausea, with occasional vomiting, and attacks of diarrhoea. He had brought up blood three times in twenty-three years. Six or seven diverticula of the duodenum and three of the jejunum could be made out. X-ray photographs showed a maze of air spaces and levels of fluid secretion and of opaque food. The gastric juice contained no free hydrochloric acid, and suitable treatment for achylia, especially the administration of acid, gave much relief for a time. Vomiting recurred, however, and in 1921 gastro-enterostomy was performed. At the operation all but the postero-internal diverticula were traced. Three were seen in the second part of the duodenum, three or four in the third part, and three in the proximal jejunum. The largest pouch occupied the head of the pancreas; it showed a cicatrix at its mouth. Those in the proximal jejunum showed no evidence of former inflammation. After operation some nausea was complained of for a year, but now, four years later, it is rare. He has no other symptoms and follows an active life of work and recreation.

In cases which do not respond to medical treatment it appears that excision of the pouch would be beneficial and justifiable. It might not be possible in the case of diverticula which are embedded in the pancreas, and in these gastro-enterostomy might be done with advantage. Sir Harold Stiles, in a letter of May 24th, 1922, described the removal of a diverticulum 2½ inches long from the duodenum. "It was the size of a hen's egg, and the fundus of it presented between the stomach and the colon, covered by the upper layer of the transverse mesocolon. The neck, which admitted the forefinger, sprung from the region of the opening of the pancreatic duct, and the wall of the diverticulum contained small areas of pancreatic tissue. The muscular coat ended abruptly at the neck."

The pouches may be missed, as I have mentioned, by competent surgeons, to the detriment of the patient, even when their situation is known. We suggest that the mouth, which is seldom narrow, should be palpable, and that the opposite wall might be intussuscepted into it by the finger. It would be necessary to go behind the peritoneum to find the usual form of duodenal pouch. Mr. D. P. D. Wilkie, in a letter, states that from his experience there should be no difficulty in exposing the pouches by dissection.

Operation would have been recommended in at least two other of these patients had it not been that there were contraindications, including age, that the patients were no longer active, and that medical measures gave a reasonable degree of relief.

DIVERTICULA OF THE COLON.

The first point I wish to make about diverticulosis of the colon is that it is common. It was found in no fewer than 100 cases in this series of 1,000 radiological examinations of the bowel, of which 71 were men and 29 women. Like duodenal diverticulosis, it occurs in the latter part of life.

The average age was 58 years, whereas the average age of the 1,000 patients was 45 years. It is unlike the duodenal form in that the pouches are small and multiple, and that no one has seriously believed that they can be congenital in origin.

Diagnosis.

The diagnosis is made by x rays. The pouches may be detected with a barium enema, as shown in Fig. 10. They may be well shown with a barium meal, especially in those parts of the bowel in which the lumen is empty and the pouches remain filled, as in the descending colon in Fig. 11. They show up best, however, after the whole of the barium has left the lumen, as in Fig. 12. If the pouches are fairly large with wide necks the material in them empties readily; in those with narrow necks it breaks up and passes out in small fragments; a trail of such is shown in this figure in the left-hand part of the transverse colon at the top of the plate. If the neck of the pocket is exceedingly narrow it may, however, retain its material to form a stercolith. Faint shadows of stercoliths can be recognized along the descending colon in this photograph, and were obvious in the negative.

Diverticulosis is most frequent in the pelvic colon, though the descending part is also a common site. It may occur in all parts of the large intestine. We have also observed multiple diverticula of a similar nature, as I have already mentioned, in the terminal ileum. Fig. 13 shows graphically the distribution in the large bowel in these cases. The

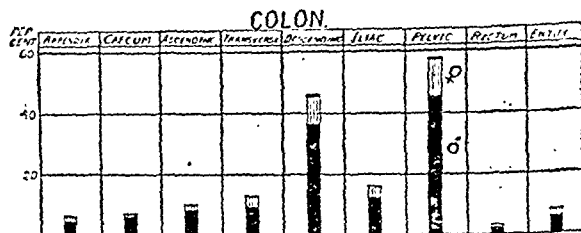


FIG. 13.

sex incidence is also shown, the upper striped part of each column representing the females.

The *prediverticular state*, the first stage of diverticulosis, was discovered by Mr. Marxer, and described briefly about two years ago.³ Part of the wall of the bowel, instead of showing its natural free curve of outline, appears fixed and contracted, with a profile of minute irregularities. This may only be seen on one side of the bowel, but if it involves the circumference there is the appearance of a stricture, as in the left-hand photograph of Fig. 14. In Fig. 15 several inches of bowel are involved. At the upper part formed diverticula are present, and further up there is the typical appearance of the second stage of diverticulosis, with pouches, and a normal or nearly normal segmentation of the bowel. When the *prediverticular state* involves the whole circumference the large bowel shows an appearance not unlike the normal outline of small gut. This is illustrated in Fig. 16. The *prediverticular appearance* is not the result of irritation from small herniae, as it precedes their formation. This appearance was detected in 20 out of the 100 cases in this series. If, however, we add cases investigated since, we have now recognized it in 37 cases. The areas affected are usually small and limited; but patches may be seen all about the colon, and in one case the whole of the descending colon and sigmoid were involved. It is while this stage is in progress that the minute herniae begin to be pushed through. Small diverticula can frequently be recognized in or near to the affected areas. In our experience the buttermilk meal is the best for showing the *prediverticular state*, or, indeed, for any other fine detail in the alimentary canal.

The second stage, of formed diverticula, may be associated with some irregular segmentation, but frequently is not. The small pouches are seen upon an otherwise normal bowel, as in Fig. 10. If the necks are narrow, material is retained within them and the barium extends partly round this residue, but does not displace it, giving a crescentic appearance, such as is seen in some of the pockets in



FIG. 1.—No. 612; male, aged 51. One hour after opaque meal; supine, right oblique. A diverticulum from the second part of the duodenum. Agastrojejunostomy is seen on the right.



FIG. 2.—No. 2855; female, aged 66. Half an hour after meal; prone. A diverticulum from the second part of the duodenum. Note the plication of its mouth.



FIG. 7.—No. 2112; female, aged 69. One and a half hours; left oblique. A pouch beyond the duodeno-jejunal flexure, and a large one further on; there is also a typical extrapancreatic duodenal pouch, seen in its narrow profile, showing a concave outline where it lies against the pancreas.



FIG. 4.—No. 2446; female, aged 69. Five hours; supine. A large pouch arising from the free outer border about 5 inches from the pylorus. It appears to be segmented in the middle. There is also a deformity of the fourth part of the duodenum.

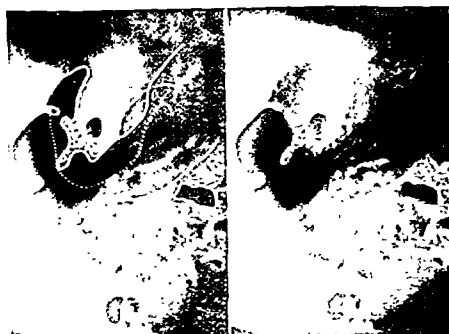


FIG. 3.—No. 2249; female, aged 48. Half an hour; supine, left oblique. A minute pocket can be seen close to a developed pouch. The small one was observed to have doubled its size a year later. Two jejunal diverticula are present.

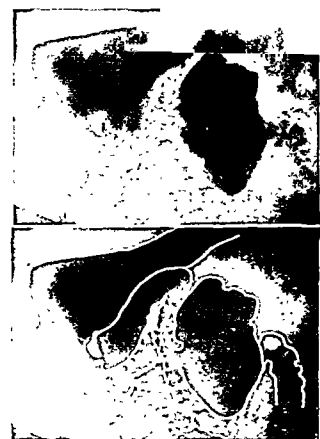


FIG. 5.—No. 2433; female, aged 75. One and a half hours; supine, left oblique. A large pouch arising from the second part of the duodenum and pushing the duodenum forward.



FIG. 8.—No. 2635; female, aged 61. Eight and a half hours; supine. Small diverticula are seen along the inner border of the terminal ileum; these are comparable in appearance to the multiple colic diverticula.



FIG. 6.—No. 3022; female, aged 50. One and a half hours; prone. A good-sized pouch, with plicated neck, arising from the third part of the duodenum.



FIG. 9.—No. 1992; male, aged 48. Thirteen hours; supine, right oblique. A typical retro-external caecal appendix; a small diverticulum projects downwards from the highest point.



FIG. 10.—No. 2959; female, aged 44. A colon filled with a barium enema. Diverticula are seen protruding from the normal haustra.

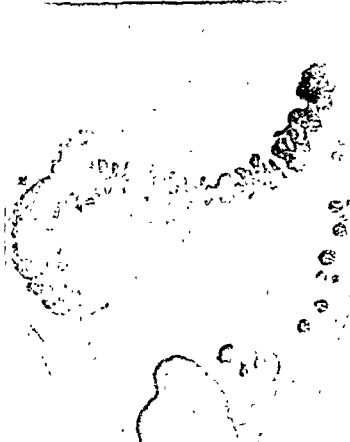


FIG. 11.—No. 2589; male, aged 69. Seventy-two hours after the barium meal; prone. Large diverticula of the descending colon. Others are seen throughout the bowel. A kidney stone and the appendix can also be seen.

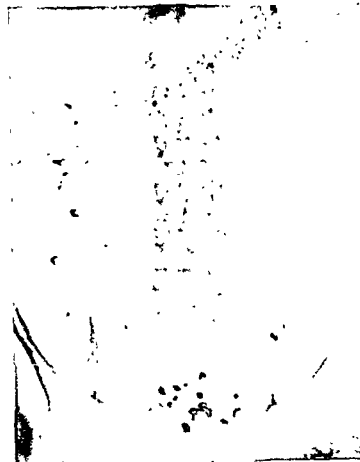


FIG. 12.—No. 1847; male, aged 69. Two hundred hours; prone. Residues in numerous diverticula; some typical crescentic shadows. Note the speckled trail, in the distal transverse colon, of fragments discharged from diverticula.

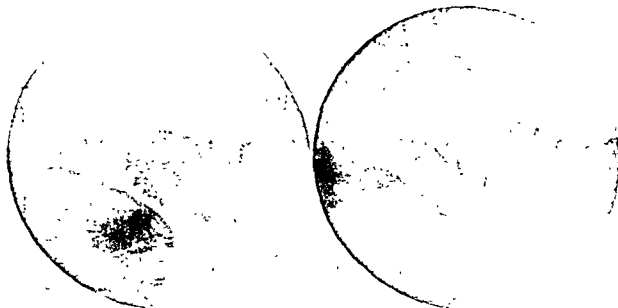


FIG. 14.—No. 2269; male, aged 61. Barium enema. The normal segmentation of the large bowel is replaced in the left-hand photograph by a rigid appearance of the wall with small irregularities. This is characteristic of the prediverticular state; in this case it involves the whole circumference of the gut for a couple of centimetres, causing an apparent constriction. The right-hand photograph shows the same piece of bowel after three months' treatment.



FIG. 15.—No. 2620; male, aged 55. Barium enema. The outline of a prediverticular area is compared with that of normal small intestine.

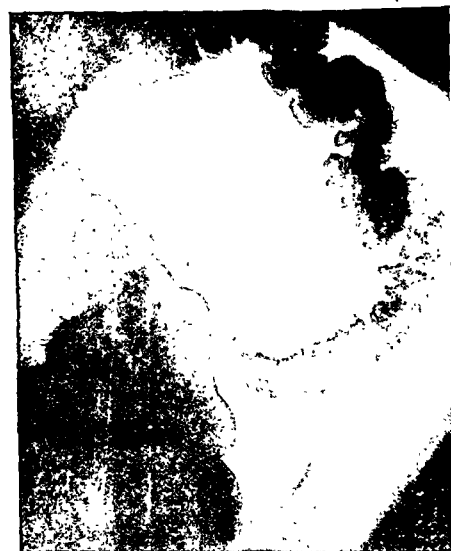


FIG. 15.—No. 1638; male, aged 35. Barium enema. Shows the prediverticular state involving the whole circumference of a long stretch of bowel; formed diverticula are seen in the upper part.

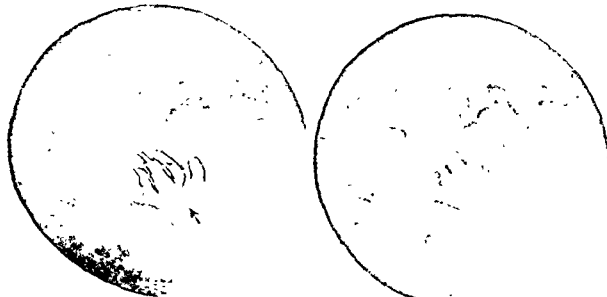


FIG. 17.—No. 1163; male, aged 63. Barium enema. Shows the rigid, thickened appearance of diverticulitis, with inflammatory thickening of the bowel wall. The hausta near by showed overactivity.



FIG. 19.—Diverticulitis. Twenty-four hours after barium meal. A constriction of the sigmoid is seen, and the bowel at this region was adherent to the bladder. Further up are diverticula of the iliac colon.

Fig. 12, especially in the ascending colon. When the necks are not so narrow the intestinal contents pass freely in and out, and pouches photographed when full show their natural globular shape.

The third stage, of *diverticulitis*, has been recognized for several years and has been well described. It is due to inflammation of a pouch or pouches which involves the wall of the bowel in the first instance. Surrounding tissues are implicated later, causing a soft tender tumour, usually in the left iliac fossa, which may lead to obstruction, and frequently is thought at first to be malignant. The x-ray appearance is characteristic. Instead of rounded pouches are seen palisade or spike-like processes (Fig. 17) set at various angles to the lumen. They are the remains of the pouches squeezed to this shape by the oedematous and inflamed bowel wall around them. They are rigid, whereas the neighbouring haustra not involved in the inflammatory process are overactive, frequently changing their shape.

Inflammation may, of course, occur in or around a single diverticulum, and diverticulitis, in the strict sense, may arise at any time after the little pockets have become established; but the developed surgical diverticulitis I have just described is a late phenomenon, and most cases of diverticulosis never reach that stage. For example, in this series there were 5 cases only—that is, 5 per cent. Obstruction, for which colostomy was done, supervened in two of these.

Etiology.

The discovery of the prediverticular state alters the previous conception of the nature of diverticulosis. The pockets were thought formerly to be mere passive extrusions of mucous membrane through weak places in the bowel, particularly where the blood vessels pierce the wall, pushed through by internal pressure. But these observations suggest that some antecedent process takes place in the parts which are to be affected, weakening or thinning definite areas and making them liable to herniation. There is apparently a local irritation or inflammation in the first instance, the nature of which is not at present known. A bacterial cause is naturally suspected, as the mucous lining of the bowel is bathed continually with material which swarms with a variety of micro-organisms. Our colleagues, Dr. Patterson and Mr. Jeffery, have found that haemolytic streptococci are much more frequent in the faeces of patients showing the prediverticular state than in those of others; but these organisms may be found in as many as 30 per cent. of non-diverticular patients, so that the investigation must be extended to a much larger series of cases before conclusions can be drawn. It may be noted that the commonest site of diverticulosis—namely, the sigmoid flexure—is one that is especially exposed to toxic or bacterial damage from faeces; for after defaecation there is often some semi-fluid material from the transverse colon left lying here which inspissates gradually until the next movement—one, two, or more days later.

There is further evidence of a different nature to suggest that diverticulosis may be due to, or associated with, a chronic infective process. Mr. Marxer noted that spondylitis, with liability to lumbago and fibrositis, was often found in the patients with multiple diverticula. Arthritic changes are, of course, often observed, if looked for, in the spines of elderly people; and we therefore made a comparison of the films of the vertebral column obtained in the routine screening of 100 non-diverticular patients of the same average age (58 years) as the diverticular patients in this series. In the former arthritic changes could be observed in 20 per cent.; in the latter in 72 per cent. In 1,000 consecutive cases arthritic changes were seen in 19 per cent. Further, apical granulomata of the teeth, which were present in 38 per cent. of the non-diverticular control patients, were found in 65 per cent. of the diverticular. These relationships are shown in Fig. 18. In many other cases some established infective or septic condition was present, such as appendicitis, gall stones, or arthritis. Fig. 15, for example, which shows a large area of the prediverticular state, was taken from a young man with a progressive subacute arthritis.

It is obvious that the association of diverticulosis in its late stages with infective states may be, and no doubt

frequently is, in the reverse sense to that suggested; that is to say, that septio absorption from purulent material in infected diverticula may give rise to, or favours, sepsis in various parts of the body.

Constipation has been regarded as an important cause of diverticulosis. It was present, and proved radiologically, in half of these patients, but was not more frequent than in the non-diverticular. Most were taking purgatives, and would periodically be irritating the bowel wall therewith and producing stools which were more fluid than normal. We do not know whether the constipation or the aperients are the more harmful, on the average, to the vitality of the bowel wall. No association could be traced with colitis.

Symptoms.

No symptoms could be certainly recognized as pertaining to the prediverticular state, but in some instances the area involved was tender to palpation on the x-ray table.

In the second stage, of established diverticula, in about one-third of the cases there were no symptoms and no x-ray evidence of irritation of the bowel. The earlier irritation of the bowel seems to have subsided and the condition may be quiescent for long periods. In many others there were symptoms which were unexplained by any other pathological state which might be present and must therefore be ascribed to the diverticulosis. Out of the

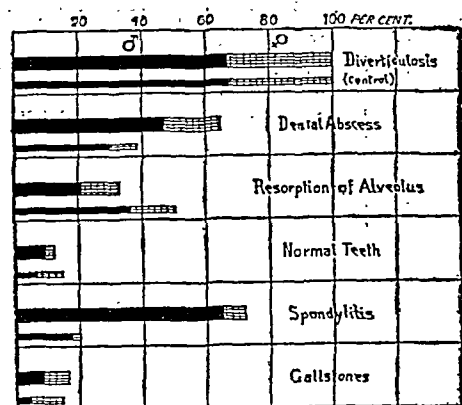


FIG. 18.—Comparison with 100 patients of same average sex and age (58) but without diverticulosis.

whole 100 cases, flatulence and abdominal pain or discomfort were frequent in nearly a half. Other symptoms, in more advanced cases, were pain or discomfort before or after defaecation, diarrhoea, alternating constipation and diarrhoea, and irregular micturition.

The following two cases may be quoted—one in the first stage and one with established diverticula:

A man, aged 51, who had frequently had influenza, complained of repeated lumbago, headaches, passage of much flatus by the bowel, and constipation. The teeth were defective; x rays showed abscesses at the apices of some of them, also exostoses in the region of the fifth lumbar vertebra, and a prediverticular state of the descending and pelvic colon. The affected teeth were extracted and the bowel and general health treated, with complete relief.

A man, aged 57, had noticed for four years a sense of incomplete evacuation of the rectum. His abdomen had been opened twice in that time, and the appendix removed, but no adequate reason for his discomfort was found. The sigmoid had been stitched to the anterior abdominal wall. On admission he complained of constant discomfort in the left iliac fossa, a sense of incomplete evacuation, and frequent micturition after an action of the bowels. X-ray examination showed diverticulosis of the descending colon and the sigmoid with mild diverticulitis. With treatment the general health improved steadily and the symptoms diminished. On readmission eighteen months later for another condition, no complaint was made of the abdominal symptoms, which had gradually disappeared.

whole 100 cases, flatulence and abdominal pain or discomfort are pain, intermittent and subacute; usually in the left iliac fossa, and a tender tumour. There may be obstruction, but it is surprising how long an inflamed, thickened, oedematous bowel may continue to be patent, with reasonable care. Adhesion to the bladder is frequent

and a vesical fistula may form. Fig. 19 shows a constriction which was adherent to the bladder. Perforation into the peritoneal cavity is rare, but may occur.

Carcinoma may arise in a diverticulous bowel, but is not frequent. There were 5 cases in our series, a smaller number than was found in 100 control patients of the same age.

Treatment.

Nearly all writers hitherto have been pessimistic about the treatment of a diverticulous bowel, some going so far as to suggest that nothing but excision of the affected bowel, which is often dangerous and not always possible, is likely to help. I can assert confidently that a practical trial of systematic treatment leads to an opposite conclusion. Nearly all cases of diverticulosis of the large bowel can be kept in health by simple medical measures; and the very few who are not can be relieved by surgery.

Paraffin is given morning and evening to permeate the faeces, grease the pockets, and help them to empty easily, without the irritation of purgatives. Even if the bowels are open naturally the oil is not omitted though the dose may be reduced to a teaspoonful twice a day. The risk of putrefaction and inflammation would be eliminated if faecal matter could be prevented from lying and putrefying in the diverticula.

It is doubtful how far antiseptics given by the mouth can affect the contents of the large bowel. In some cases I have thought that benefit has followed the use of kerol, dimol, or similar drugs. We usually douche the bowel with saline on alternate days for a few weeks with the same object. Such douches must be given at a low pressure, not more than 18 inches, the patient lying first on the left and then on the right side, and taking half a dozen deep breaths in each position. With this procedure the whole of the large bowel can be filled, as is shown daily in the x-ray room with the barium enema. The use of the so-called high or long tube, which I still find practised, is futile. It nearly always curls up, and if it did not might be harmful. It is only necessary to let the fluid run into the rectum. More than two pints should never be used. Fig. 14 shows the improvement in the prediverticular state which followed a course of douching. The constriction seen on the left is no longer obvious in the right-hand figure.

The action of the bowels is aided by the use of an anti-constipation lacto-vegetarian diet, modified to suit the individual. The following is an example:

- 7 a.m.—1/2 oz. of paraffin in 2 oz. of warm milk.
- 8 a.m.—Coffee and milk; one tablespoonful of milk sugar; wholemeal bread, butter, honey, or marmalade.
- 10.30 a.m.—A glass of buttermilk; wholemeal bread and butter.
- 1 p.m.—Fish (cooked any way); butter sauce; salad and dressing; compote of fruit; cream; toast and butter.
- 4 p.m.—Coffee, with milk or cream; marmalade; wholemeal bread (toasted if desired) and butter.
- 7.30 p.m.—Vegetable soup; some egg dish (poached, scrambled, or omelette) with vegetables or fruit—for instance, jam or jelly omelette or omelette aux fines herbes; cream cheese; wholemeal bread; butter.

The patient is told not to strain at stool, but to take plenty of time, making a short effort every third breath.

The general treatment consists, in the first place, of removal, so far as possible, of all septic states, such as diseased teeth or tonsils, or an inflamed gall bladder or appendix, provided that the state of the patient justifies the appropriate operation. A regular life with prescribed rests and exercise is of great assistance in improving the tone of the body generally and with it that of the alimentary tube. Flatulent indigestion and lack of appetite are treated by carminatives or tonics and such other measures as are indicated.

A diverticulous area should never be massaged. In a recent case in which the disease had doubtless from the appearances been present for years, severe symptoms were aroused by a course of massage which had been given about three months before the patient sought admission.

The results of medical treatment in this series were that, out of 53 patients who complained of symptoms, complete relief was obtained after a few weeks' treatment in 36. In 5 others the only symptom left was occasional flatulence, and in others there was improvement. There was no mortality.

Surgical treatment is needed if perforation of a pocket into the general peritoneal cavity takes place. This is rare, and there was no case in the series. It may also be called for if a fistula forms between the bowel and the bladder or other viscus. The most frequent need of operation is for obstruction. I have mentioned that a colostomy proved necessary in two of these cases. I should, however, not be in a hurry to operate unless there were unmistakable clinical or radiological evidence of dilatation of the bowel above the affected area or unless the condition of the patient were becoming serious; for an area of diverticulitis is capable of a remarkable degree of recovery with douching from below and paraffin from above, with perhaps a simple purgative, such as salts, as a preliminary measure; and, once recovered, it will continue patent for an indefinite period, if kept clean. The advantage of avoiding a colostomy is obvious.

The excision of an obstructed area of bowel affected with diverticulitis is frequently not possible because of adhesion or because the affection is not localized enough. I have, however, recently seen Mr. Lockhart-Mummery remove with success such a diverticulitic tumour from the sigmoid, doing an end-to-end resection.

SUMMARY.

Diverticula of the duodenum are not uncommon. They are usually single, or few, can be seen to arise in adult life, and to increase in size over the course of years. They frequently cause symptoms, which can usually be relieved by medical treatment. Intractable cases can be treated surgically.

Multiple diverticulosis of the colon is frequent. The formation of the small herniae is preceded by irritation or inflammation of the area of the bowel involved—the prediverticular state. Diverticulosis is frequently associated with various infective states elsewhere, and particularly with arthritic changes in the spine and apical tooth abscesses. It is suggested that it may be infective in origin. In late stages it is a source of sepsis.

The diverticula when formed may give rise to no disturbance for long periods. In half of the cases, however, there were symptoms referable to the diverticula. These symptoms were amenable to medical treatment in nearly all cases. The terminal stage of surgical diverticulitis was present in 5 only out of 100 cases.

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THE HAEMOCHROMOGEN CRYSTAL TEST FOR BLOOD.

BY

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SINCE Teichmann in 1853 succeeded in producing haemin crystals, this chemical blood test has been generally regarded as a valuable and conclusive proof of the presence of blood in a stain. The procedure is simple, but unfortunately the test is not always successful, either owing to overheating, to the acid not being pure, to the inhibitory influence of rust, fat, etc., or to some change in the blood.

Numerous modifications of Teichmann's process have been advocated, but while some are an improvement the fact remains that even in experienced hands the test frequently gives negative results in the undoubted presence of blood. The uncertainty of the successful production of haemin crystals led to attempts to utilize other crystal tests for medico-legal purposes.

In 1889 Hoppe-Seyler was able to crystallize haemochromogen, and later Donagány, and also Bürker in 1909,¹

drew attention to the ease with which haemochromogen crystals could be produced by means of pyridine, and Dominici advocated the production of haemochromogen crystals as a test for blood in medico-legal cases.

Within recent years great attention has been directed to this test, especially in Germany, but, so far as we are aware, it has not found a place in English textbooks, nor is it described in English literature. We found it to offer many advantages over the haemin crystal test in the medico-legal examination of blood stains, inasmuch as the procedure is very simple and positive results are obtained in cases in which the haemin crystal test fails. It is not liable to be interfered with by overheating or by the other factors which tend to inhibit the formation of haemin crystals. It has the further advantage that the specimen after treatment affords spectroscopic corroboration of the presence of haemochromogen and therefore of the presence of blood.

The earlier observers experienced difficulties in obtaining haemochromogen crystals similar to those found in the haemin test, and Otto Leers² stated that he was unable to obtain haemochromogen crystals from stains on linen and leather. Since then, however, Takayama³ in 1912, working in Japan, has described two solutions which give eminently satisfactory results, Solution 2 being an improved form of Solution 1.

The Takayama Solution 2 consists of: Sodium hydroxide (10 per cent.) 3 c.cm., pyridine 3 c.cm., saturated solution of grape sugar 3 c.cm., aq. dest. 7 c.cm. The sodium hydroxide acts as an alkali and solvent of blood and the grape sugar as a reducing agent. All solutions now recommended for the production of these crystals contain pyridine, and according to Halliburton⁴ they appear to be a pyridine compound of haemochromogen and give the same spectroscopic tests. This would seem to explain the difficulties encountered by previous observers who did not use pyridine, and who sought to obtain crystals of haemochromogen itself. The solution keeps for one to two months, after which time it deteriorates. On the addition of two or three drops of Takayama's solution to a small piece of the suspected material on a slide, in the cold, and covering with a cover-glass, salmon-pink crystals appear within one to six minutes, giving a very characteristic appearance (see upper part of figure) under the low power of the microscope. At the same time the colour changes through green-brown, dark red, to pink, indicating the formation of haemochromogen, and thus affording confirmation of the test. If only a minute portion of blood is available this is apt to vanish during any process of heating, and thus a method which can be carried out in the cold possesses a distinct advantage.

While crystals usually appear within one to six minutes, occasionally they take longer to form when the test is performed in the cold and with freshly prepared reagent, and therefore, in these circumstances, a negative result should not be recorded until after half an hour has elapsed. We found that when using freshly prepared Takayama solution in the cold crystals did not appear for thirty minutes, and on testing with this solution at hourly intervals the time taken for the formation of crystals was found to become progressively shorter—namely, after six hours, ten minutes; after twenty-four hours, six minutes; after forty-eight hours, four minutes. On the other hand, even with freshly prepared Takayama solution, if the slide be heated until bubbles just appear, crystals

are formed almost at once, and, unlike the haemin test, there is no danger of overheating. The crystals themselves are single shallow rhomboids of a salmon-pink colour, which, when lying on their sides give the appearance of single dark lines, while the various appearances seen under the microscope are due to two or more crystals adhering to one another, giving the appearance of sheaves, fir trees, and other forms, the individual crystals of which may be made out under the high power. They are often so large that the spectrum of haemochromogen can be obtained from a single crystal, and if mounted in Canada balsam or suitably ringed round with some preparation such as gold size so as to exclude access of air, the crystals may be preserved for weeks or months; but even under the best conditions they tend to disappear. We have, however, specimens which we have kept for six months.

Mahler in 1923⁵ conducted a series of experiments contrasting the haemin and haemochromogen tests, and the results of our own investigations in the main agree with his conclusions. Before comparing the two tests we first determined which, in our opinion, was the best procedure to adopt in each case, and among others the following methods and modifications of Teichmann's test were tried for the production of haemin crystals—namely, Teichmann,

Willcox, Sutherland, Nippe, Wachholz, Wachholz - Nippe. Among these methods we had no hesitation in coming to the conclusion that Sutherland's gave by far the most consistent and satisfactory results. Sutherland⁶ describes his method as follows. On a clean slide is placed a drop of salt solution (ordinary 0.75 per cent. solution), and this is evaporated by heating over the Bunsen flame. On the white spot left by the drop are placed scraped fragments of the stained material, and to the preparation is then conveyed a drop of glacial acetic acid by means of a glass rod. The preparation is then covered with a cover-glass, after which it is gently heated till bubbles appear, when it is put aside for a time, being slightly tilted so that the liquid may collect at one part. It is then examined under a magnifying power of 200 to



Haemochromogen crystals. ($\times 75$ and $\times 250$.) The two lower sections show crystals in simpler and in more complicated formations respectively.

300. As regards the production of haemochromogen crystals, we agree with Mahler that by far the best procedure is to use Takayama Solution 2 as described above.

The following articles were selected for a comparison of the two tests: fresh blood clot; fresh stain on linen; fresh stain washed in hot water; fresh stain washed in cold water; two years old stain on linen; stains on linen and blood on a slide heated to 100° C. for half an hour and one hour; stains on linen and on a slide heated to 150° C. for half an hour and one hour; stain (one week old) on rusty tin and on wood; stain (two years old) on brown paper; stains twenty-five and forty years old on razors; stain forty-five years old on rusty razor; decomposing blood four months old; carbon-monoxide blood; and menstrual blood.

In all the above cases haemin crystals were obtained except in those of the blood stains heated to 150° C. and those which had been washed in hot water. In some cases there was no difficulty, in others it required much care, time, and manipulation.

The haemochromogen crystals were obtained in all cases without any trouble in the cold, and at once if heated; moreover, they were easily obtained in the cases of those stains heated to 150° C., those which had been washed in hot water, and those contaminated with rust; in the latter case they were easily picked out owing to their characteristic colour. In no instance where blood has been proved

to be present by other means have we failed to obtain haemochromogen crystals.

Conclusions.

A. In the majority of cases, especially with fresh stains and if care be exercised, there is no difficulty in obtaining haemin crystals.

B. The haemochromogen crystal test, however, possesses the following advantages:

1. Simplicity of technique; being obtained in the cold by simply adding the solution (Takayama 2).
2. If it is desired to heat the slide, there is no danger of overheating as there is in the case of haemin crystals.
3. The crystals are large, easily seen, and are of a very characteristic appearance and colour.
4. The nature of the crystals may be confirmed by means of the spectroscopie.

We wish to thank Professor Littlejohn for the help and advice he has given us.

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A SIMPLE TEST OF DIAGNOSTIC VALUE IN GENERAL PARESIS.

BY

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The diagnosis of general paresis depends upon the recognition of certain mental symptoms, the eliciting of a number of physical signs, and the finding of certain definite changes in the cerebro-spinal fluid. As regards the last named, most reliance is placed on the following four points: (1) a positive Wassermann reaction, (2) a Lange colloidal gold curve of the parietic type (5555543210), (3) an increase in the amount of globulin, and (4) a pleocytosis. Two of these changes—the increase in the number of cells and in the amount of globulin—can be demonstrated with very little trouble, and hence are of the greatest value to the clinician, who is often called upon to make a quick diagnosis. Unfortunately, however, these two alone do not furnish conclusive proof of the presence of general paresis, and delay occurs until the laboratory report on the Wassermann reaction and the colloidal gold curve is at hand. The discovery, therefore, of a test which could be easily and quickly performed and which would be as reliable as the Wassermann reaction would be of considerable importance to the clinician, whether he be a consulting physician or a general practitioner.

In 1923 Boltz¹ first described a test performed on the cerebro-spinal fluid which he claimed would satisfy these conditions, and he stated, as the result of his investigations, that this test (the acetic anhydride-sulphuric acid test) was positive in every case of general paresis and was negative in all other conditions with the exception of certain cases of neuro-syphilis and an occasional case of arterio-sclerotic psychosis. In 1925 Grossman,² using the same acetic anhydride-sulphuric acid test, also found that every case of general paresis gave a positive reaction.

In the present series of cases the cerebro-spinal fluid of 180 patients, suffering from various types of mental disorder, was examined, and the result of the acetic anhydride-sulphuric acid test was compared with the Wassermann reaction, the Lange colloidal gold curve, the amount of globulin, and the number of cells.

Method of Performing the Test.

To 1 c.cm. of cerebro-spinal fluid in a small glass test tube add 0.5 c.cm. of acetic anhydride. Shake the mixture well and then carefully add, drop by drop, 0.8 c.cm. of concentrated sulphuric acid. The test tube is then held up against a white background

and the presence of a lilac tint indicates a positive reaction; a brown-yellow or red-yellow colour is noted if the reaction is a negative one. The lilac colour, characteristic of the positive reaction, may appear immediately after the addition of the sulphuric acid and disappear in a minute or so. Hence it is important to watch the cerebro-spinal fluid closely as soon as the sulphuric acid is added, or a slightly positive case may be missed. In the majority of cases the lilac tint remains for at least five minutes.

The chemistry of this test is not fully understood, but it seems probable that it depends upon the presence of cholesterol in the cerebro-spinal fluid.

Results in 180 Cases Investigated.

Of 92 cases of general paresis the cerebro-spinal fluid showed:

Wassermann reaction positive ...	...	92=100%
Acetic anhydride-sulphuric acid test positive ...	...	89= 97%
Lange curve of parietic type ...	...	81= 91%
Increased amount of globulin ...	...	90= 98%
Increased number of cells ...	...	91= 99%

Of 5 cases of neuro-syphilis (not general paralysis of the insane) the cerebro-spinal fluid showed:

Wassermann reaction positive ...	...	5=100%
Lange curve ...	...	4= 80%
Acetic anhydride-sulphuric acid test positive ...	...	2= 40%
Increased amount of globulin ...	...	4= 80%
Increased number of cells ...	...	5=100%

Of 83 cases of other types of mental disorder the cerebro-spinal fluid showed:

Wassermann reaction positive ...	...	0=0%
Acetic anhydride-sulphuric acid test positive ...	...	1=1%
Lange curve of positive type ...	...	1=1%
Increased amount of globulin ...	...	5=6%
Increased number of cells ...	...	1=1%

Consideration of the above results shows that the acetic anhydride-sulphuric acid test gives a positive reaction in practically every case of general paresis (97 per cent.). Of the three exceptions one was an undoubted case of general paresis with the typical mental symptoms, well marked physical signs, and positive cerebro-spinal fluid findings. The other two cases, however, were by no means typical, and were probably very early cases in which there were few mental changes, some physical signs, and a slightly positive Wassermann reaction in the cerebro-spinal fluid. In another case, a well marked general paresis, the Wassermann reaction of the cerebro-spinal fluid and the Lange curve were found to be negative on the first examination, but the acetic anhydride-sulphuric acid test was strongly positive and the amount of globulin and the number of cells were slightly increased. A second specimen of the fluid was examined a fortnight later, and this time a very faintly positive Wassermann reaction (+3) was obtained; the cells and globulin were slightly increased, the Lange test was negative, and the acetic anhydride-sulphuric acid test was again strongly positive. In this case, therefore, the acetic anhydride-sulphuric acid test was more sensitive than the Wassermann reaction. The degree of positivity of the acetic anhydride-sulphuric acid test in cases of general paresis does not vary directly with that of the Wassermann reaction. Thus certain cases with a faintly positive Wassermann reaction in the cerebro-spinal fluid gave a strongly positive result with the acetic anhydride-sulphuric acid test and vice versa. In a number of instances the cerebro-spinal fluid was obtained from general paralytics who had undergone a course of malarial treatment. In these it was found that although the Wassermann reaction had in most cases become less strongly positive the acetic anhydride-sulphuric acid test showed no change. Compared with the Lange reaction in general paralytics the acetic anhydride-sulphuric acid test would appear to be more sensitive and more reliable, since a positive result with it was obtained in 97 per cent. of these cases, as against 90 per cent. in the case of the Lange test. In cases of neuro-syphilis (not general paralysis of the insane) the Wassermann reaction was positive in all, the acetic anhydride-sulphuric acid test only in 40 per cent. In the 83 other cases which were investigated (cases of epilepsy, manic-depressive psychosis, senile dementia, dementia praecox, alcoholic and arterio-sclerotic psychoses, etc.) only one case, a patient suffering from senile dementia, gave a faintly positive reaction with the acetic anhydride-sulphuric acid test.

Summary.

As a result of these investigations it would seem justifiable to draw the following conclusions:

1. The acetic anhydride-sulphuric acid test on the cerebro-spinal fluid of cases of general paresis is positive in almost every case (97 per cent.), and hence is almost as reliable as the Wassermann reaction in this condition.
2. It is negative in almost every other type of mental disorder except certain cases of neuro-syphilis (other than general paralysis of the insane).
3. It is a test which can be performed with great ease and rapidity and hence is of definite value to the clinician.

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ON THE SOMATIC ORIGIN OF MALIGNANT DISEASE.

BY

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THE view of malignant disease here presented is simple, congruous, as it seems to me, with ordinary pathology and ordinary clinical medicine, reconciles easily and naturally the discordant and puzzling results of recent experiment, and, if true, removes most of the obscurity and mystery from the malignant process.

Malignancy and Hyperplastic Inflammation.

Clinicians have long held the opinion that continued irritation will induce cancer. This opinion has been confirmed by exact observation on the effect of various irritants, especially the extracts of tar; by these, as is well known, the disease has been brought on in mice by direct experiment. Now the chief reaction of the body to a chronic irritant is a proliferation of connective tissue and epithelium. This process is commonly called chronic inflammation; it is well seen in the chronic mastitis which so often precedes carcinoma of the breast. Sir Lenthal Cheatele objects to the term "inflammation" as a description of this process; it differs, indeed, in degree and partly in kind from acute inflammation, but resembles it in being a reaction to mild, as the other to intense, irritation; and, like the acute kind, seems to be essentially a vascular and lymphatic reaction, though in acute inflammation the vascular changes prevail, and in chronic inflammation the lymphatic.

Sir Lenthal Cheatele's accurate and careful observations¹ seem to show that this process of hyperplasia may pass almost imperceptibly into an innocent or malignant tumour. He has shown specimens where in a single breast chronic mastitis has developed into fibro-adenoma and different varieties of carcinoma. Dr. Archibald Leitch's experiments on guinea-pigs² lead to the same conclusion. He was able to produce malignant growth in the gall bladder of the guinea-pig, a refractory animal, by means of gall stones, or even sterile pebbles, aseptically introduced. He, too, is quite sure that there is no clear dividing line between carcinoma and simple hyperplasia. "We have," he says, "no means of determining when the heterotopy and irregular growth of the tubular epithelium ceases to be translatable as simple hyperplasia and assumes the definite characters of malignant neoplasia . . . the process is so gradual and the dividing line so imperceptible."

Malignancy not a Property of the Tumour but a Reaction of the Body.

It seems most improbable, as Dr. Leitch remarks, that any toxic agent should have arrived from elsewhere to change so utterly the nature of the growth yet change its habit and appearance hardly at all; nor could any such

agent have been introduced under the conditions of the experiments, nor probably have been present originally in the gall bladder. I would suggest that the malignant alteration is most simply explained if we suppose that the tumour, or hyperplasia of epithelium, does in fact remain unchanged; that the change from innocency to malignancy consists wholly in an altered reaction of the body. At some moment, we will say, the body becomes aware of this mass of cells, regards it as a living intruder, and attacks it with leucocytes and cytolytins. If the epithelial cells are finally surrounded by fibrous tissue the tumour is "innocent"; it is thenceforth disregarded as a foreign body. But if this encirclement fails, the growth is "malignant"; the malignancy, however, is not in the tumour. There is a fatal difference between this and an invading microbe: the tumour is not foreign to the body, but part of it; the cytolytins which are lethal to the tumour cells are lethal also to the cells of the body. Hence the zone of destruction at the periphery of a malignant growth, the corrosion of muscles and blood vessels and nerves; hence also the fretting of the tumour's surface, the metastases, and general cachexia; all this destruction is wrought, if my view is true, not by the juices of the tumour, but by the juices of the body. It is probable that a vicious circle begins, that the tumour cells which are not destroyed are irritated to more rapid growth, and the body thus stimulated to fiercer efforts; however this may be, the whole malignant process seems in this manner quite easily explained.

Practical Tests.

From acceptance of this view it would follow that if the body could be induced to ignore the tumour the whole malignant process would stop; but how to achieve this is not easy to see; the patient might be hypnotized, but hypnotic suggestion must be carried far to induce a leucocyte to slacken its activity; it seems unlikely that this method would succeed. Again, we might inject some chemical body like a vaccine, but of opposite effect, so that the activity of the body against a specific invader would be not stimulated but depressed. Such a chemical body may be invented in the future by bacteriologists. If the body in the part affected could be made anaesthetic by blocking its afferent nerves it seems possible, but not certain, according to this view, that the malignant process would be arrested or retarded. The reactions of inflammation are probably in large measure the result of chemiotaxis, and so would proceed though sensation were destroyed; still, the tumour would be unfelt and vaso-dilatation abolished. The feeble resistance offered by ataxic patients to perforating ulcer of the foot would seem to afford some hope that the malignant process might thus be checked.

I had arrived at this point when I learnt that this experiment had already been tried—deliberately on mice by Dr. Cramer, and by Nature on sundry patients whose cases are recorded by Sir Lenthal Cheatele. Dr. Cramer³ painted a number of mice with an extract of tar, both on the normal skin and on a part deprived of its nervous connexions. Twelve of these mice developed malignant tumours, and it is noteworthy that in every single case the normal skin was so affected. In five mice malignant growth arose also in the denervated area, but so late, in three of these, that it seems almost certain that the nerves of the part had regenerated themselves before growth began. Thus, in all but two of the mice malignant growth was inhibited by the loss of nerves; moreover, in one of these two exceptions the growth of the tumour was slow and malignancy but slight.

It must be admitted that these experiments do not go very far toward the proof of the case. It may be said that if, as seems likely, malignant disease is a reaction of the body cells to irritation, then that reaction might probably fail if the irritation could not be perceived. Nevertheless, with the old view of cancer, malignant proliferation might seem a reaction of cell protoplasm to a local stimulus rather than a reaction of the body as a whole to an irritant; once allow this, and we are fairly launched on the road to my conclusions. Now, Cramer's experiments, though not conclusive, do strongly suggest that malignant disease is a reaction of the body as a whole,

since the growth arises but rarely when the irritated part is first made anaesthetic.

The observations of Sir Lenthal Cheate¹ are more important, since they show the arrest of a malignant process already begun. In some eight of his cases the growth was checked in one direction when the nerve of that part was destroyed by deep malignant ulceration. Thus in one case a rodent ulcer, which had invaded the area of the supraorbital nerve, grew no more that way after destruction of the nerve trunk, though growing freely elsewhere. These cases seem decisive. The ulcers were in vigorous growth, their cells proliferating, and their supposed destructive juices in full activity. Yet these juices, which could destroy and digest normal cells, could not, apparently, destroy those adjacent cells which differed only in the loss of their nervous connexions. We must, therefore, suppose that malignancy is an attribute, not of the tumour, but of the body excited by the tumour.

Sarcoma.

It is probably safe to say that any surgeon at a large hospital sees fifty cases of carcinoma and epithelioma for one of sarcoma. Yet hyperplasia of connective tissue is exceedingly common, being present in every scar and regenerating wound and all chronic inflammation. It is always present, for example, in chronic mastitis. Yet this condition, so prolific of carcinoma, hardly ever gives rise to sarcoma. On these grounds alone it might have been predicted that for the production of sarcoma something more than simple irritation would be required; and recent research seems to show, or suggest, what this further condition may be.

Dr. A. Carrel² in his researches on the Rous sarcoma of fowls has shown that the virus of this tumour is carried in the large monocytes; further, that some of these cells, when treated with the virus, transform themselves into cells resembling agglutinated fibroblasts. When these diseased monocytes are introduced into a healthy fowl they form tumour cells and attract monocytes, which propagate the virus, and are likewise transformed into tumour cells.

Now in the first place these observations show that sarcoma grows in a very different manner from carcinoma, assuming that the Rous sarcoma is true to the type of its kind. For it seems to grow rather by the accretion of extrinsic cells than by the multiplication of the original cells of the tumour. For the rest, no interpretation but mine seems possible. That the virus is propagated by the body's defenders, the leucocytes, Dr. Carrel notes with wonder, but attempts no explanation. But in my view no explanation is needed, for all malignant disease is so produced. So again the specific poison, prepared by the white corpuscles to destroy their fellows, is equally injurious to themselves; they become part of the tumour, and in their turn are attacked by other leucocytes. All goes on exactly according to hypothesis: in a tumour so composed the phenomena might have been predicted. Only one difficulty remains: what condition initiates the tumour, since it seems that simple hyperplasia is insufficient? To find an answer to this, we are perhaps helped by the well known and still more recent work of Dr. Gye and Mr. Barnard.³ Their work is noteworthy chiefly because they claim to have discovered a living ultramicroscopic virus, which is present in the majority at least of the malignant tumours they have examined. Since, however, the characters of the tumour depend not on this but on another, probably chemical, "specific factor," it seems doubtful whether their "virus" can do more than predispose to cancer. Their experiments, as so far published, are obviously too incomplete to allow us to draw definite deductions from them; but if a surmise may be allowed, we may perhaps suppose that the "virus" is simply a cause of hyperplasia, and the "specific factor" the toxin of the leucocytes, which acts, as Carrel has demonstrated, to generate the vicious circle. How a sarcoma commonly begins is doubtful; it may be that a blow, by injuring the fibroblasts in a simple hyperplasia, will lead to an attack on this group of cells, as a foreign body, by the leucocytes.

Summary.

My conclusions may be summarized as follows:

1. Malignancy is not a property of cancerous tumours, but a suicidal reaction of the body to an innocent hyperplasia.
2. The reaction is suicidal because the hyperplastic cells are really part of the body, and the specific poisons generated to destroy the tumour are almost equally poisonous to the body at large.
3. Sarcoma probably differs in its nature from carcinoma; here the diseased process seems more complex, but the essential nature of malignancy is probably the same.
4. It follows that if the body can be led to disregard the tumour the malignant process will stop, and the patient will be cured, save that the original hyperplasia will remain.
5. It seems possible that this result may be achieved by blocking the afferent nerves of the part.

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RECTUS TRANSPLANTATION IN THE TREATMENT OF VENTRAL HERNIAE.

BY

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THE difficulties of obtaining a "radical cure" in large ventral herniae are well known, and from time to time various new principles have been suggested. Silver filigree, overlapping of tissues, lacing with fascial grafts, etc., have all given good results in suitable cases. There are objections, however, to all, and not one of them is suitable to all cases. Any alternative may be of value when other methods are not entirely satisfactory, and I venture to submit the method of shortening, overlapping, or transplanting the recti as a useful adjunct in the treatment of these cases.

The operation may be briefly described as follows: A transversely curved incision, convex downwards, about six inches long, is made just above the pubis, and the skin and fascia dissected upwards and downwards to expose the aponeurosis. The dissection is carried downwards to expose the anterior surface of the pubic bones and the symphysis. The recti muscles are detached from the pubes and can be shortened if required by making a tuck; they are then sutured to the symphysis, or can be overlapped and sutured with kangaroo tendon to the pubes after drilling holes in the bone. During this procedure the patient's shoulders should be raised so as to relax the muscles. In dealing with an umbilical hernia the sac would be exposed in the usual manner and the peritoneum sutured. The recti could then be overlapped and sutured through a pubic incision before closing the umbilical incision.

This method appears to be specially useful in mid-line herniae through scars below the umbilicus, though it would also be applicable to cases of divarication of the recti and some cases of umbilical herniae. The following case illustrates the method.

A widow, aged 57 was sent to me on April 9th, 1925, by Dr. C. H. Ross Carmichael. In 1903 she had been operated on for some gynaecological trouble by a mid-line infraumbilical incision. The wound healed normally, but about seventeen years later she noticed a swelling appearing in the scar.

In 1921 an operation was performed to cure the hernia; before she was discharged from hospital, however, a recurrence was noticed, and a second operation was performed. She "felt the lump coming back again not long afterwards," and a third attempt was made in 1922, but recurrence took place a few months later.

When I saw her the hernia was about the size of the foetal head and was hanging down over the symphysis pubis. The

skin covering it was thin and atrophic and showed the vertical scar of the previous operations. Partial reduction of the hernia was possible, and the opening in the aponeurosis could then be felt; it admitted three fingers, the lower margin of the opening being formed by the symphysis pubis.

Operation.

On April 11th, 1925, I operated, making transverse elliptical incisions round the hernia, the convexity of the lower incision being just above the pubis. The neck of the sac having been opened, the contents, consisting of omentum and transverse colon, were freed and returned to the abdomen. The superfluous sac was cut away and the peritoneum sutured. The edges of the recti were now exposed and the anterior layer of the sheath dissected up on either side. The dissection was carried downwards so as to expose the symphysis and the pubic bones. The recti were shortened by making a 1½-inch tuck in each, and they were then separately sutured to the pubis with kangaroo tendon so that they overlapped each other; the overlapping of the sheath was carried to the upper limits of the wound when retracted; for this seven or eight interrupted mattress sutures of catgut were used. A small drainage tube was left in the superficial tissues for twenty-four hours. The wound healed by primary union. On April 23rd she commenced abdominal exercises in bed. These consisted in lying on the back and raising the extended lower limbs on the trunk and then raising the trunk without using the hands. These exercises were carried out several times a day until tired. The patient began to get up on April 30th, and was discharged on May 8th.

I saw her on November 25th, and found no signs of recurrence. The abdominal wall was strong and there was no bulge when she raised the extended legs on the trunk.

The interesting feature in this case was the proximity of the neck of the sac to the symphysis, which actually formed one of its boundaries.

Seven months is too short a time to decide the value of the operation from the point of view of recurrence, but on general grounds it is certainly encouraging and appears worthy of trial in suitable cases.

TREATMENT OF CHRONIC VARICOSE ULCER.*

BY

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REMEDIES for chronic varicose ulcer are many and various. For some of these specific virtues have been claimed, but their indiscriminate employment soon leads to disappointment. Full consideration should be given to conditions in each case, and the treatment modified as circumstances vary.

The following cases, which recently came under my care, illustrate this; in two the results were especially satisfactory. The point to be emphasized is the rapid relief of pain which occurred in all.

CASE I.

A spare woman, aged 82, had an ulcer on the lower third of the leg, which had been present for two years. There were varicose veins in both legs. She had been in a large hospital in London for eleven weeks, during which time the ulcer had been fomented continuously. She left hospital on being told amputation was the only treatment possible. She had become very weak as the result of intense pain, especially at night. The ulcerated area measured 12 square inches, and consisted of a main and two outlying portions; it was raised at least half an inch above the surroundings, and was adherent to the bone. For its description Erichsen's definition of a "weak" ulcer cannot be bettered: "The granulations are high and flabby, with a semi-transparent appearance about them, and rising in large exuberant, gelatinous, reddish-looking masses above the surface of the sore. The granulations have a feeble vitality, and readily slough. Such not uncommonly occur from emollient applications having been continued too long." A silver nitrate stick was applied to the edge of the ulcer to destroy these granulations, and gauze, soaked in a saturated solution of picric acid, was placed on the surface. The whole was carefully strapped to prevent drying, as far as possible.

After the first few hours she had no pain, and slept well that night for the first time for months. The ulcer was dressed twice similarly on alternate days, after which the picric acid was replaced by iodoform powder, the silver nitrate being continued. In ten days the surface of the ulcer was level with that of the surrounding parts, and was covered with thin skin. This skin broke down, ex- , however, were now not heaped up. , and boric ointment, spread on lint. hole was covered with thin skin, which ickness. At one time some eczema appeared, but it soon responded to bismuth

powder. She now wears a crêpe bandage. Medical treatment consisted in the exhibition three times a day of a mixture containing 10 grains each of sodium bicarbonate and potassium iodide, with infusion of gentian. Her general condition began to improve immediately with the relief of pain. The cure was all the more remarkable as, although she spent most of her time on a couch, she persisted, when so disposed, in walking about, whereas in hospital she had been confined to bed.

CASE II.

A hard-working woman, aged 49, treated as an out-patient of the London Dispensary, Fournier Street, E., had an ulcer over the tibia two inches from the malleolus, two inches in diameter, which had been treated for many years. The ulcer was depressed, its edges hard and punched out, and its surface glazed and exuding watery fluid. It was fixed to the deep structures. The edge of the skin margin was touched with silver nitrate stick and the surface of the ulcer dusted with iodoform. Gauze and wool were applied and the whole carefully strapped; in a week the edge of the ulcer had become shelving, had lost its induration, and was no longer fixed to the bone. After some three hours' smarting after the dressing, pain had almost entirely disappeared. Her health steadily improved with the alleviation of pain, the same treatment being continued for six weeks. She had the same mixture as Case I. Recently she was able to spend ten days in bed, which completed her cure. She now wears a crêpe bandage.

CASE III.

A business man, aged 65, had had extensive phlebitis in both legs many years ago, and ulcers for about ten years. On the left side were three—two inches, three-quarters of an inch, and half an inch in diameter—on the outer side of the lower third of the leg, resembling that of Case II. On the right internal malleolus was a painful ulcer, neither raised nor depressed. Both legs were greatly swollen, hard, and somewhat oedematous. The same treatment was instituted as for Case I, but unfortunately bismuth had to be substituted for iodoform, as the latter nauseated his wife. Pain was relieved to a large extent, and the patient's legs became more supple. It was aggravated by long standing or cold weather. He is unable to "lie up," but the ulcers have become steadily smaller.

CASE IV.

A Russian Jewess, aged about 60, had an ulcer six inches in diameter over the lower part of the tibia. It was difficult to ascertain how long it had been there—many years, however. The whole leg was enormously thickened. The treatment as for Case II was carried out for six weeks, when she died of cerebral haemorrhage. The ulcer was then only one and a half inches in diameter.

Treatment in these cases resolved itself into that of:
(a) the veins, (b) the ulcer.

The Veins.—The patient should stay in bed, or, if this is impracticable, the leg should be kept up as much as possible and a crêpe bandage worn. The latter is preferable to an elastic stocking, which is expensive and difficult to put on over a dressing; moreover, it must interfere with the blood circulation on the surface of the ulcer.

The Ulcer.—Applications were chosen for the following reasons: (1) Reduction of sepsis is the main objective of all. For proliferating types picric acid has been found to be of the greatest service on several occasions. It possesses considerable powers of penetration, is not irritating, and does not cause much exudation. Iodoform is invaluable in depressed ulcers, having great penetrating powers and being a deodorant, though, as in Case III, it may nauseate certain individuals; peroxide fomentations may be employed if sloughs are present. (2) Stimulation of the skin edge may be done with silver nitrate; when the sepsis is reduced emollient preparations, such as ung. ac. borici, are indispensable. It is astonishing to observe how rapidly an area becomes covered with skin when all papillae must have disappeared years ago (see Case I); such a dressing gives admirable protection against damage to this thin skin. (3) Destruction of granulations goes hand in hand with elimination of sepsis; it is assisted by silver nitrate cauterization. (4) If a cure is to be effected the thin skin must be kept moist and supple; evaporation is best prevented by careful strapping. (5) In protection from trauma strapping forms the best preventive. (6) Of drugs given for alleviation of pain, iodides internally and the iodoform externally may have some action on the bone. Whether this is so or not, the most striking feature of all the cases was the relief of pain.

REFERENCE.

* J. E. Erichsen: *Science and Art of Surgery*, vol. i, p. 168 (1837).

* Delivered at a clinical meeting of the City Division of the British Medical Association, January 8th, 1925.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

SUPERNUMERARY BREAST.

The following case is of an unusual type, and seems to be of sufficient interest to be placed on record.

An Arab woman of the Northern Sudan, aged 25 years, came to hospital complaining that the appendage seen in the accompanying photograph inconveniently pained her when washing.



It was attached to the skin over the second right intercostal space, the base of attachment stretching from the right mammary line to almost the mid-line. It was 2.6 cm. long, and had a proper nipple. The lower third had the feel of breast tissue; and this was confirmed on removal, when a small amount of glandular tissue (with alveolar glands) and a number of ducts leading to the nipple were found inside. Below the normal right breast and in the nipple line were two tiny rudimentary nipples. On the left side nothing abnormal was noted.

As the woman had had no children, there is no proof that the third breast was capable of functioning.

I am indebted to the Director, Sudan Medical Service, for permission to publish this case.
A. CRUICKSHANK, M.B., Ch.B.,
Sudan Medical Service.

Khartoum.

MALIGNANT THYROID TUMOUR OF THE MANUBRIUM STERNI.

The following case is worthy of record as the malignant thyroid mass in the manubrium sterni existed without any clinical evidence of disease of the thyroid gland. The true nature of the tumour could not be ascertained before a small portion was excised for microscopical investigation.

A single woman, aged 73, noticed a small "lump" in the centre of the manubrium sterni about a year ago. It caused her no pain or inconvenience, but gradually enlarged in all directions, and especially towards the suprasternal notch and the left sternoclavicular joint. She stated that two months before she applied for treatment the swelling had become definitely smaller and harder, so that she hoped that it would eventually disappear; it had grown rapidly during the last fortnight. She had no cough, dyspnoea, or dysphagia; neither had she lost weight during the last two or three years.

There was no history suggestive of syphilis, and the Wassermann reaction proved to be negative on two occasions. Two enlarged glands were to be felt in the anterior triangle of the neck on a level with the thyroid cartilage, and another just below the angle of the lower jaw on the left side. They were small, elastic, and freely mobile, and were considered to be inflammatory in nature. The thyroid gland presented no clinical abnormalities; there were no nodular or indurated areas to be made out; it moved freely on deglutition, and on the trachea. The thyroid gland was distinctly separate from the tumour in the sternum. The pupils were equal and dilated; there was no wasting of the upper extremities; the pulses were synchronous; and there was no clinical evidence of disease in the thorax, abdomen, or pelvis.

The tumour itself occupied the upper two-thirds of the manubrium sterni and bulged forwards laterally towards the sterno-clavicular joints, and into the suprasternal notch; it measured 3 inches from side to side, and 2½ inches in the vertical plane. Large veins could be seen coursing over the swelling, and outwards over the right clavicle. The skin in this area showed no signs of inflammation, and was freely movable over the tumour. The growth was inseparable from the bone, and although hard and nodular in places it was distinctly cystic in others. Visible pulsation could be made out, but this was transmitted from the aorta, and not of the manubrium sterni was "eaten away" (eroded) by the tumour. As the clinical findings could throw no light on the nature of the swelling, a small portion of it was removed under local anaesthesia, and submitted to Dr. Robert Donaldson for microscopical investigation. He reported that the tissue was "malignant thyroid."

Two points appear to me to be worthy of note:

- (1) That a large thyroid metastasis can exist without any clinical evidence of cancer of the thyroid gland.
- (2) That the temporary retrogression which occurred in this growth might possibly have been due to a partial thrombosis of some of its feeding vessels.

RODNEY MAINGOT, F.R.C.S.

LEEDS, W.L.

COMPLETE INVERSION OF THE UTERUS.

Complete inversion of the uterus is, perhaps, a sufficiently rare complication of labour to warrant the recording of the following case.

On September 10th, 1925, I was called to see a native woman who, I was informed, had given birth to a child the day before, but "the after-birth had not come away." Expecting to find the ordinary retained placenta, I hurried to the village, some eighteen miles away, by a good cycle track.

On entering the little grass hut in which the labour had taken place, I found myself confronted with what I can best describe as a "living chain" made up as follows: (1) an old woman, holding in her arms (2) her great-grandchild, a healthy female infant, born about thirty hours previously; it was still united by (3) a shrivelled cord to (4) a complete placenta lying on the mud floor of the hut, and connected in its turn by a few shreds of membrane to (5) a completely inverted uterus, surrounded by swarms of flies, and protruding from the vagina of (6) a native girl about 20 years of age, who was leaning back in the arms of (7) her own mother.

Questioning them as to the history of the case, I accused the patient herself of volunteering "I was just straining to get the after-birth away, when it all came out with a rush." There had been one previous normal confinement, and the present labour had not been unduly prolonged.

My first business, after prayer with the patient and her relatives, was to break the link between the child and the placenta; I heard a suppressed gasp of horror go up from the three women as I snipped through the cord with a pair of scissors. The native custom hereabouts is to burn through the cord with a glowing faggot—an excellent prophylactic against both sepsis and haemorrhage. The membranes were then easily separated from the inverted uterus. An interesting detail was that a small portion of the decidua to which the membranes were still adherent was invaginated on the inverted surface of the uterus, a fact which proved that there had been no traction on the cord or placenta.

The decidua was then disinfected, first with tincture of iodine and then with a dilute lysol, after which reposition was quite a simple business, the uterus returning to position above the closed fist and becoming palpable from the abdomen in the usual situation. It was only after reposition that I discovered what was probably the indirect cause of its posterior aspect. The puerperium was complicated by a very mild degree of infection, from which the patient made a complete recovery.

JULIAN HOYTE, M.B., B.S.Lond.

Katwerwe Mission Hospital, Katanga,
South Africa.

APPENDICITIS COMPLICATING GASTRIC ULCER.

LAST March, when I was house-surgeon to the Chester Royal Infirmary, a boy of 15 was admitted at 11 p.m. with the diagnosis of acute appendicitis. He had worked all that day, but at 7 p.m. had a sudden attack of pain in the abdomen round the umbilicus with vomiting. His last meal was at 6 p.m. The bowels had not been open that day. There was no previous history of any digestive disturbance. He looked very distressed; the temperature was 96° and the pulse 92. The abdomen was rigid all over, but most marked over the epigastrium; maximum tenderness over the right iliac fossa; it was resonant all over; there was no loss of liver dullness. Examination by the rectum gave no information.

Operation.—Under general anaesthesia a pararectal incision was made below the umbilicus. The appendix was found to be large, inflamed, with recent adhesions, and flakes of lymph covering it. There was no pus in the pelvis, but round the appendix region was free fluid, which appeared to be coming down from above. Appendicectomy was performed, and the incision enlarged above the umbilicus. A perforated gastric ulcer was present at the pylorus near the lesser curvature, about one-sixth of an inch in diameter, with an indurated area of a quarter of an inch all round it. The stomach was much enlarged. The ulcer was sutured with a purse-string suture and omentum sutured over it. The boy's condition did not permit of a gastro-enterostomy. A drainage tube was fixed in the lower end of the incision. He made an untroubled recovery.

A few days previously we had admitted a similar case in a man aged 26. A typically inflamed appendix with adhesions was found in connexion with an acute perforated gastric ulcer. In neither case was there a previous history of digestive disturbance. The age of the boy certainly made his case unusual.

D. DIAMOND, M.R.C.S.

Margate.

Reports of Societies.

CANCER OF THE LARGE INTESTINE.

A SPECIAL meeting of the Proctological Subsection was held on January 13th at the Royal Society of Medicine, when a discussion on the relation of simple tumours of the intestine to cancer was introduced by Dr. CUTHBERT DUKES, pathologist to St. Mark's Hospital.

Dr. Dukes said that the main conclusion to which his studies had led him was that the cancer-producing agent, when it first affected the bowel, acted upon a much more extensive surface than was ultimately occupied by the cancerous tumour itself. In this extensive area certain characteristic changes occurred in the mucous membrane of the bowel before a visible tumour appeared in any one spot. The first sign of cancer visible to the naked eye was, he thought, a crop of simple tumours or papillomas. In one or more of these papillomas true cancer developed and the remaining tumours then retrogressed and might perhaps disappear. Some, however, nearly always remained and might be found after careful search studded over the mucous membrane of the bowel around the cancerous growth. He gave a detailed account of the development and general structure of papillomas and adenomas of the large intestine, and referred to the frequency with which multiple adenomatosis appeared in certain families; the experience of surgeons was that cancer almost always developed in the intestines of sufferers from this disease. Dr. Dukes reported a statistical investigation into the frequency of simple tumours in patients dying from diseases other than cancer of the bowel. In 117 unselected cases in which he had searched the whole large intestine from caecum to sigmoid he had only found an occasional polyp or two in twelve, or less than 10 per cent. On the other hand, in the last thirty-three cases of cancer of the rectum and sigmoid at St. Mark's Hospital, Dr. Dukes had found one or more simple tumours surrounding the cancer in twenty-five, or more than 75 per cent. These small tumours, which were situated on the mucous membrane surrounding a cancer, were best seen if the specimen was examined immediately after removal from the body, pinned out, and washed with warm normal saline solution. They were much harder to find in specimens hardened in formalin, and they were much commoner in small early cancers than in the large ulcerating forms. In all these cases Dr. Dukes had cut sections of the central cancer, of the surrounding papillomas, and of the apparently normal mucous membrane in the vicinity. He showed several photographs of these simple tumours and emphasized the fact that these simple tumours were liable to chronic inflammation round their stalks, a condition which he referred to as "collar catarrh." He showed photographs also which proved that the mucous membrane round the cancer, even where it carried no macroscopic tumours, had a peculiar irregularity which he referred to as a "switch-back appearance." The question as to whether the surrounding papillomas preceded or succeeded the cancer was one which could not be decided with certainty in every case. To help to solve this question Dr. Dukes had made a special note of the presence or absence of mitotic figures in the cells, whether the epithelial cells of the tumour were secreting mucus and whether a well formed stroma was present. The evidence derived from this investigation led him to the opinion that probably some of these papillomas arose as the result of the irritation of the cancerous discharge, but others were almost certainly as old or older than the cancer. The experience gained from a study of tar cancer in animals was suggestive from this point of view, for several pathologists had shown that, after painting the skin of laboratory animals with tar, tumour growth began in isolated, usually minute areas, and not diffusely through the whole zone of application of the tar. About three months after application of tar to the shaved skin it was common to see a crop of simple papillomas spring up on the painted area. Cancerous degeneration involved one of these papillomas in six to

ten weeks, after which the other tumours progressed no further. The evidence which Dr. Dukes brought forward suggested that a similar cycle of events occurred in man, though naturally the initial stage of a crop of papillomas was not often noticed. Dr. Dukes described some very early cancers of the large intestine which he had recently examined. The evidence derived from these, from cases also where cancer was found developing in polypi, and from multiple cancer of the bowel, pointed to the conclusion that in every case a little collection of papillomas preceded a cancer, and that cancer developed as a secondary change in one of these simple tumours.

Sir JOHN BLAND-SUTTON agreed that the evidence adduced by Dr. Dukes proved that the early stages of cancer must be sought in papillomas. Such concentrated study as this justified the existence of the Proctological Subsection, and the present meeting was an important date in the history of the pathology of tumours of the intestine.

Sir LENTHALL CHEATLE said that this new work brought the pathology of intestinal tumours into line with what he himself had already proved for breast tumours. He showed some photographs illustrating the relation of simple and malignant tumours of the breast.

Dr. ARCHIBALD LEITCH expressed complete agreement with the views of Dr. Dukes. He had often observed these papillomas around cancers of the bowel, but had not realized they were so common. His experience with experimental tar cancer made him very willing to agree that such simple papillomas might precede cancer in man. He thought that probably some of the papillomas found round a cancer preceded the malignant tumour and others probably followed it. Multiple carcinomas of the bowel were nearly always associated with multiple papillomas. He pointed out that the frequency of tumours of the bowel increased in passing from the caecum to the rectum, probably due to the irritation of the more fully formed faeces.

Dr. MARSHALL FINDLAY said that cancer of the large intestine, like nearly all other cancers, appeared to follow a period of chronic irritation. These simple papillomas of the large intestine were of great interest because of their resemblance to warts of the skin. He had recently inoculated himself with a Berkefeld filtrate from a cutaneous wart and succeeded in producing warts on his hands, thereby confirming the view that the infective agent was a filterable virus. He thought it likely that the minute papillomas to which Dr. Dukes had referred were also infectious and might be caused by a filterable virus.

Mr. LOCKHART-MUMMERY said he had believed for a long time that cancer developed as an accident to simple tumours, and Dr. Dukes's work had proved conclusively that this opinion was justified. The multiple adenoma condition which had been the starting-point of this research was curious, both because it ran in families and because it was almost invariably followed by cancer. Mr. Lockhart-Mummery reported three family histories of patients suffering from this disease who were attending St. Mark's Hospital at present and who provided striking evidence in support of his views.

Sir CHARLES GORDON-WATSON stated that his clinical experience confirmed the suggestion of Dr. Dukes as to the relation of simple to malignant tumours of the intestine.

Mr. GREY TURNER thought that the occasion marked an important forward step in surgical pathology.

THE MEDICO-LEGAL PROBLEM OF INSANITY.

Two meetings of the Royal Medico-Chirurgical Society of Glasgow were held on December 4th and 11th, 1925, when a discussion was held on insanity from the point of view of the general practitioner; the chair was taken by the President, Professor ARCHIBALD YOUNG, on the first evening, and by Dr. W. A. PRIDE on the second.

Dr. R. O. ADAMSON, putting the point of view of the general practitioner, opened the discussion by enumerating some of the difficulties in the diagnosis and treatment of the various forms of insanity and allied conditions. Insanity should be studied as a symptom, in no way different from other symptoms dealt with by the general practitioner. It should be approached along the familiar

road of careful clinical, physical, and, above all, psychical investigation. The distinction between sanity and insanity was arbitrary; the symptom insanity was the result of disorder in the function and structure of those parts of the brain which determined for each person his psychological status, mental powers, and moral conduct. Insanity was detected by impairment and change in the higher cerebral functions, and the evidence was greatly fortified by the presence of delusions and hallucinations. It was important to establish what insanity was not; it was not a minor psychosis, a neurosis, or a hysteria. The speaker indicated the differential points in these conditions, and then drew attention to the manner in which the insanities presented themselves in general practice, as, for example, those due directly to the presence of visceral disease or gross brain lesions. Having touched briefly upon the insanities of the extremes of life, he referred to the position of the general practitioner in family practice regarding insanity, and emphasized the importance of studying early cases and of treating patients, as far as possible, before certification. Various types of insanity were then considered and illustrative cases described. Reference was made, in conclusion, to the practitioner's responsibility in the matter of testamentary capacity and certification.

Dr. J. H. Macdonald, speaking from the point of view of the asylum physician, made a plea for the earlier diagnosis of insanity and the speedier removal of the patient to the asylum. He did so, not only on the general principle that any disease was more amenable to treatment in its early stages, but also on account of the difficulty of making contact with such patients after the establishment of habits of morbid thought and action. He was of the opinion that in many cases incipient insanity could be definitely checked and the onset of secondary symptoms prevented by appropriate treatment in the early stages. Not only from the individual but also from the sociological point of view, the subject was of the utmost importance. Of 18,398 insane persons in Scotland, only 3,014 were maintained by their relations; the annual cost to the State of the remainder was about £700,000. The speaker referred to the social stigma as being a very real and important factor in influencing a decision against certification, and discussed some of the provisions already in force for the observation and treatment of mental disease in its early stage. The observation wards in the parish hospitals had proved of great service, and the stigma of being "on the parish" might, under new health administration, disappear. Observation wards in a general hospital were not suitable, though more use might be made of out-patient clinics similar to those already attached to some of the general hospitals. He thought that properly organized asylums were, on the whole, the most suitable means of dealing with the problem, but urged the desirability of educating public opinion to regard them as "hospitals for mental disease," into which any individual, whether able to pay for his maintenance and treatment or not, could be admitted as a voluntary patient. Reference was then made to the necessity for providing similarly for after-treatment to prevent relapses. The speaker concluded by considering briefly some of the difficulties arising in connexion with certification.

Mr. JOHN DREUMOND STRATHERN, Procurator Fiscal for Glasgow and the Lower Ward of Lanarkshire, after a brief reference to the difficulties of certification, went on to discuss the problem of insanity as it affected criminal responsibility. There were two distinct classes of case in which acute difficulties arose: (1) Cases of murder or grave crime in which a plea of insanity at bar of trial was raised. (2) Cases of minor crime where accused persons were usually certified under Section 15 of the Lunacy Act, 1862. With regard to the first class of case, it was frequently found that the individual concerned had previously led a normal life and had shown no indication of taint of insanity. Such a prisoner might be examined by different medical men not unfamiliar with questions of lunacy—for example, by the divisional police surgeon within a short time of the commission of the crime; by the prison surgeon; and by mental specialists for the Crown—and no trace of insanity in the prisoner be found. Notwithstanding this, at a later stage, mental specialists, instructed for the defence, would

probably reach a contrary conclusion. This was an unsatisfactory state of affairs, and it was not easy to explain the reason for the conflict of opinion, but so far as the law upon the matter was concerned it was quite plain. An individual was responsible for his acts unless he could show (the onus was upon the accused) that he was unable by reason of mental disease to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong. An insane person was held not to be responsible for a criminal act upon the ground that by reason of his state of mind he was incapable of formulating an intention to commit the crime. A criminal intention was essential in all acts of crime. Not only was there complete conflict in medical opinion as to what constituted medical unsoundness in such cases, but very frequently there was actual disagreement among the medical specialists as to the facts elicited on examination. He considered that such a state of affairs was not creditable to the medical profession, and that greater unanimity should be secured if possible. In his opinion the confusion arose from the failure on the part of medical examiners to understand exactly what the law required in order to establish a plea of insanity. The one body of medical men appeared to be applying the legal definition of insanity, whereas those opposed to them were applying varying standards of their own, and regarded a criminal lunatic rather as they would a private patient. With regard to the second class of case, he considered that many accused persons suffered from a temporary insanity or insanity of a mild type from which they would probably recover. Many, on the other hand, were "hall-marked" criminals and dangerous to the lieges—in short, criminal lunatics and potential murderers who should be kept under strict supervision permanently or at least for a prolonged period. Such cases were often certified and confined to an asylum, but were out again in the course of a very few months by the simple expedient of escaping from the asylum or under a certification of soundness by the asylum physician. It was not long before their offence was repeated, and they were again certified and confined to an asylum, only again to achieve their liberty by the same process. There was very marked contrast between the methods followed by the medical profession in dealing with those two classes of case. In his opinion, society was entitled to protection against lunatics of the latter class. Once crime was superadded to lunacy, the point of view of public interest should be paramount and the sentimental interests of the patient and his family should become subservient.

Professor GLAISTER referred to points of difficulty which might arise in connexion with certification, testamentary capacity, *curator bonis*, and criminal responsibility. With regard to the dangers of certification, he was of the opinion that there was comparatively little risk where that duty had been exercised *bona fide* and with reasonable care. But a patient who exhibited some departure from a condition of average normal mental health might be dealt with in another way, apart from certification, provided that the amount of departure did not bring the patient within the limits of certifiability. In Scotland such persons might be placed in a private, unregistered place, as a "home," under a certificate given by a medical practitioner, in accordance with Section 13 of the Lunacy (Scotland) Act, 1886, for a period not exceeding six months. Following a brief reference to the question of testamentary capacity and *curator bonis*, Professor Glaister attached great importance to the subject of criminal responsibility, especially in view of the increasing prevalence of a plea of insanity in cases of heinous crime. The presumption of the law was that every person who had arrived at the age of discretion was sane and was accountable for his actions, unless the contrary was proved. The burden of proof was upon the person setting up a defence of insanity, who was required to prove, not merely some taint of insanity, but the particular and appropriate kind recognized by the law. The speaker then considered in detail insanity and mental disease from the legal point of view, and quoted a number of authorities.

Dr. IVY MCKENZIE, after a brief reference to the facilities existing in Scotland for the treatment of incipient

insanity, proceeded to discuss some aspects of the problem of criminal responsibility. He deprecated the present tendency to establish irresponsibility on the basis of what is known as modern psychological theory. It was no doubt important from the legal point of view to establish a defence, but in so doing the interests of society must not be sacrificed. While admitting the desirability of recognizing the various clinical types and grades of insanity, he thought that the application of the various technical terms and designations, as well as the employment of vague and indefinite phraseology, might, and did, prove confusing in the problem of criminal responsibility. In his own practice, where there was a question of plea at bar of trial, he was not guided exclusively by the legal precepts as laid down by the various authorities. His method of approach in any particular case was to consider first, after a careful examination of the patient as a whole, whether the symptoms presented in the case conformed to any well recognized syndrome; and, secondly, supposing that there had been no question of any crime committed, was the patient a suitable case to be admitted to an asylum? In the case of criminals in prison committed under Section 15 the responsibility of the doctor was even greater. He agreed with the Procurator Fiscal's point of view, and considered that quite a different standard was required from that employed in the first type of case. Here there was an individual who repeatedly committed crimes, such as assault and indecency, on whom punishment had no deterrent effect. These cases should be classified as insane and certified as such. The feeble-minded person could never be a criminal by reason of defect, but by something that he did, some positive harmful act, and the question here should be: was the actual conduct prejudicial to society? The average defective was a very harmless person, but when he acquired vicious habits he might become dangerous and should then be classified as insane and dealt with accordingly.

Dr. D. K. HENDERSON considered that the whole problem of mental disorder and defect, of crime, delinquency, and unemployment in one form or another, had as its unit individuals who, for one reason or another, had been unable to meet the stress and strain of ordinary social life. In order to deal with this huge question at its root an attempt should be made to get into touch with the potentially disordered individual at an earlier stage, beginning in the nursery and paying special attention to the school period. Children's teeth and eyes were carefully examined and looked after, and special classes were provided for cases of mental defect; but was sufficient attention paid to the "problem" child, sensitive and nervous, a dreamer and asocial? The general practitioner should always keep in mind the psychological aspects, even of physical illness, and all such symptoms as "tantrums," sleeplessness, irregularity in regard to food, and nocturnal enuresis, should be treated with great seriousness. The practitioner could also help by urging the value of treatment in a mental hospital, minimizing as much as possible the stigma of certification. He thought that in the past the asylum superintendent had not taken a sufficiently definite attitude towards the problem of the mental health of the community. In regard to the medico-legal side, he believed that the law and medicine were two different subjects, and he did not see how they could ever come to see eye to eye. The law dealt with the crime, while medicine dealt with the criminal; the law therefore was to a certain extent partisan, whereas medicine and medical opinion should be unbiased. Furthermore, it was constantly said that the plea of insanity in criminal cases was now completely overdone, whereas he believed quite the opposite was the case, because he did not consider that the question of mental disorder in relation to crime was sufficiently considered. Far more insane people were convicted and sent to prison than there were sane people who escaped the rigour of the law on the plea of insanity. Dr. Henderson quoted a number of statistics on the basis of which he felt certain that our prisons to-day were loaded with individuals who were in many respects not responsible. He believed, however, that the insanity plea was far too frequently made use of in cases of major crime.

Dr. MARION GILCHRIST, speaking of cases of senile dementia, thought that some provision should be made for such, without having to send them to an asylum. In the homicidal cases she agreed with Mr. Strathern and Dr. Ivy McKenzie that it was much more important to look after the interests of the sane than of the insane, and to protect the sane from homicidal maniacs. She specially thanked Mr. Strathern for what he had said about the punishment of offenders against women and children, and said it was an absolute disgrace to our civilization that these men should be allowed to be in and out of prison, or in and out of asylums, as at present. She considered that it should be quite possible to detain these offenders for life. Dr. Gilchrist concluded by giving some facts about the Purvis case, in which she and Dr. Carswell were sued for £20,000, and she detailed some of the lessons learned by her in the conduct of the case.

Mr. STRATHERN, Dr. MACDONALD, and Dr. ADAMSON then replied briefly to some of the points raised in the discussion.

EMERGENCIES IN EAR, NOSE, AND THROAT TREATMENT.

At a meeting of the Nottingham Medico-Chirurgical Society on December 2nd, 1925, Mr. H. BELL TAWSE delivered his presidential address on some emergencies of ear, nose, and throat work as the practitioner sees them; he prefaced his remarks by assuring Mr. R. G. Hogarth, President-Elect of the British Medical Association, and the local executive committee that the society would do everything in its power to help to make the Annual Meeting of the Association in July next a great success.

Mr. Bell Tawse first of all dealt with the difficulties that sometimes arise in the diagnosis between a furuncle in the external auditory meatus and an acute mastoid, and pointed out that the former might give all the symptoms of the latter and that the two might be combined. He advised the opening of the mastoid cells in all doubtful cases, judging by their appearance whether to go further or not. He urged that practitioners should take every opportunity of teaching the public that earache was serious, and that an immediate examination should be made. He urged strongly that acute otitis media should be treated as a surgical emergency, and be dealt with at once by paracentesis or incision of the drum; if adenoids were present they should be removed at the same time. He described cases to illustrate the fact that serious mastoid disease—even with intracranial complications—did occur with a normal intact drum where the only history of trouble was earache. He discussed the treatment of foreign bodies in the upper air and food passages, and condemned the use of the coin-catcher, probang, and bougie. He added that the use of these instruments had frequently been followed by fatal results, when the patient might have lived even if no attempt had been made to remove the foreign body. The treatment of epistaxis was described and its pitfalls enumerated; the address terminated with an account of the methods of dealing with haemorrhage after tonsillectomy.

PROGRESS IN GYNAECOLOGY.

A MEETING of the North of England Obstetrical and Gynaecological Society was held at Liverpool on December 18th, 1925, when the President, Dr. J. E. GEMMELL, delivered an address on the progress in gynaecology during the last forty years.

Dr. Gemmell, after referring to the ancient history of gynaecology and the contributions of Hippocrates, Aetius, and others, sketched the state of gynaecological teaching and practice in Edinburgh at the time of his graduation in 1885. The only pelvic operations seen by him as a student were perineorrhaphy, trachelorrhaphy, the cauterization of haemorrhoids, and one ovariectomy which was performed by Thomas Keith with much ceremony in an isolated room in the Royal Infirmary. Gynaecology was then a small subject, limited chiefly to out-patient and consulting-room work; it was not free from the taint of quackery, and sometimes provided a target for the shafts of the satirist. In the eighties the peritoneum

was feared, and pelvic infections were but little understood, and were invariably treated on conservative lines. Great credit was due to the early work of Tait and Gillingworth on salpingectomy, for this had led to the replacement of the old methods of colpotomy and prolonged drainage by the modern practice of excision with abdominal closure. In the same way, the use of the pessary had largely given way to surgical procedures in the treatment of prolapse and other displacements of the uterus, and although the value of some of the operations employed for the correction of retroversion was still a matter of controversy, yet with regard to prolapse it was generally agreed that the so-called "Manchester method" of performing colporrhaphy had firmly established itself as the method of choice. Pelvic haematocoele had become a rarity since the adoption of the surgical principle of "going for the bleeding point," but forty years ago such cases were the common result of the expectant treatment of ectopic gestation, whereby the effused blood was either absorbed during a long period of semi-invalidism or evacuated after suppuration by spontaneous rupture into the rectum or vagina. The history of the surgical treatment of fibromyomata was next described, and the President gave his own personal experiences and results of hysterectomy for these tumours. Similarly he traced the steps that had led up to the modern extended abdominal hysterectomy for carcinoma of the cervix, and showed that the Wertheim type of operation had been gradually developed by the efforts of many different surgeons. References were made to the advances in gynaecological pathology, to certain improvements in surgical technique, and to the present methods of preparing patients for operation. The President concluded by saying that the science and art of gynaecology now stood upon a firm basis, and that it should not be forgotten that the pioneer work of ovariotomists had paved the way for successful surgery in the upper abdomen.

A Method of Demonstrating the Ganglia of the Cervix Uteri.

Dr. A. A. GEMMELL (Liverpool), in a note on the uterine ganglia, said that the study of the nerve supply of the uterus was receiving renewed attention, but the function of this nerve supply had been more fully recorded than its anatomy, and nothing had been written about the pathological changes in gynaecological diseases. He referred to the early English work on the subject, and added that most observers agreed now that the uterus was supplied mainly by the sympathetic proper (the white rami from the lower dorsal and first and second lumbar nerves) via the inferior mesenteric ganglion and hypogastric plexus to the ganglia of the cervix uteri and thence to the uterus itself. All authors agreed that there were cervical ganglia, some postulated others in addition. They gave only scanty information as to the site of the cervical ganglia, but placed them at about the level of the internal os. Dr. Gemmell had examined the specimens removed by Wertheim's hysterectomy in cases of carcinoma of the cervix. No definite attempt had been made to determine the presence or absence of intramural ganglia, but in none of the sections examined were any seen. Dissection of the ganglia, even with the aid of dissecting binoculars, was found to be impossible. A block of tissue was cut, centred on the uterine artery, out of the parametrium and including a piece of uterine wall, and the whole of this was examined by serial sections. More recently such blocks had been divided into four and the postero-inferior portions cut serially. The ganglia were always found by this method if they were present, and it appeared that they lay internal to the ureter, posterior to the uterine artery, and at a little distance from the uterine wall. Similar sections were obtained from six patients who died from various other diseases not involving the genital organs; in all cases ganglia were found. The ages of these patients ranged from 7 months to 65 years. It would appear, therefore, that these ganglia were present at all ages as normal structures, and were not appearances produced in the nerves by carcinoma or other pelvic disease.

Dr. FLETCHER SHAW (Manchester) asked whether Dr. Gemmell had examined the parametrium behind the uterus. He had been very much struck by the excessive amount of shock shown by patients when he had enucleated tumours or growths from this region, and had often thought this part must be especially well supplied from the sympathetic system.

Dr. LEITH MURRAY (Liverpool) remarked that an extension of malignancy from the cervix had been observed in these ganglia and along the related nerves; Dr. Gemmell's research might have an importance from that point of view.

Dr. GEMMELL, replying, thought there were some variations in the positions of these ganglia, as in some specimens he had been unable to find them anywhere in the parametrium. There was the possibility that interference with the ganglia might account for the shock following Wertheim's operation. The utero-sacral ligaments and posterior portion of the parametrium had not been examined, since it was thought that there was more chance of finding sympathetic elements along the vessels in this neighbourhood as in other parts of the body.

"Locked Twins."

Mr. MILES H. PHILLIPS (Sheffield) reported a case of impaction of twins, one of the rarest forms of obstructed labour.

The patient was a primigravida, and twins had been recognized by her doctor at an ante-natal examination on September 4th, the foetal heart sounds being easily heard at both sides of the abdomen a week before labour commenced. Labour began on September 11th at 7.30 a.m., the pains being weak and irregular, but by 10.30 a.m. on the 12th the cervix was fully dilated. The contractions were then strong; no progress was made, and Mr. Phillips saw the patient at 12.30 p.m. The uterus was not in tonic contraction, but was contracting so frequently that it was impossible to palpate the foetal parts. No foetal heart sounds could be heard. The patient was anaesthetized and placed in the lithotomy position. A head was visible, low in the pelvis, unduly soft, with a large caput, and the skin peeling. A hand, passed alongside the head, felt a rounded mass—apparently a second head—at the pelvic brim, impinging on the neck of the presenting child. It was impossible to push the second head out of the pelvis, and a tentative pull with forceps on the lower head failed to move it. The first head was obviously beginning to macerate, and so, after perforation, to afford the necessary room, the neck was cut through with curved scissors, the head withdrawn, and the trunk pushed aside. The second head, soft and pulpy, then entered the pelvic cavity, and was easily extracted with forceps. This child was also dead. The children were males, weighing 5½ and 5 lb. respectively. No liquor amnii was seen, and it was not known when the bag of membranes ruptured. The placenta weighed only 1 lb., but otherwise it appeared healthy. It might well be that a relative placental insufficiency had caused the death of the foetuses, either just before or during the not very protracted labour, as it was thought that at least one foetal heart had been heard on the day before delivery. The single chorion showed a central opening about 4 inches in diameter. The amniotic membrane was in two portions, each attached to the root of the umbilical cord, and over a limited area to one another. At some time during the pregnancy this had been perforated.

In the numerous other cases of twin labour with which Mr. Phillips had been concerned two distinct sacs had existed, the second presenting and being ruptured after the delivery of the first child. Such an arrangement would appear to render collision of the two foetuses extremely unlikely. On the other hand, the loss of all the liquor amnii from two communicating sacs would conduce to this very rare complication.

Miss IVENS (Liverpool) had had a case of "locked twins" some years ago in a primigravida. After considerable delay in the second stage the first twin was felt presenting by the vertex, and the second was found lying transversely with its neck very much elongated and stretched across the neck of the first. The transverse twin was dislodged and pushed upwards by the hand in the uterus. The first was then delivered by forceps; the second presented as a vertex and was also delivered by forceps.

Dr. D. DOUGAL (Manchester) referred to a case admitted to St. Mary's Hospitals, Manchester, as a "failed forceps" case. Under anaesthesia it was found that the advance of the first child was obstructed by the head of the second one; delivery was easily effected by pushing the second out of the way. The first child was dead, probably owing to injury during previous attempts to deliver with forceps.

Both children were small and this might account for the second head being able to pass into the pelvic brim and so cause obstruction.

Dr. G. W. FITZGERALD (Manchester) had seen a case where the first foetus presented by the breech and the second was a vertex presentation. The first was born as far as the umbilicus when the patient was admitted to hospital. Investigation showed that the chin of the first was locked on the chin of the second. Liberation of the head of the latter was impossible, and since the first was dead it was decapitated and the delivery of number two easily completed. There was, however, some difficulty in extracting the head of the first foetus.

Professor BRIGGS (Liverpool) stated that in the laboratory of practical obstetrics he had utterly failed in experimentally locking twins, and he was unprepared to accept reports of foetal incidents or complications within the pelvic cavity, or at the brim of the pelvis in the second stage of labour, unless the whole of the hand of the obstetrician had been previously placed within the pelvic cavity.

Vaginal Myoma.

Dr. D. DOUGAL (Manchester) reported two cases of vaginal myoma.

A woman, aged 42, complained of a bearing-down sensation, and when straining during defaecating a mass protruded from the vaginal orifice and had to be pushed back. Examination showed a soft tumour about the size of a tennis ball arising from the lower part of the anterior vaginal wall. Its consistency was soft, like a degenerating fibroid or a cyst with viscid contents. It was easily enucleated vaginally and proved to be a myoma showing early hyaline changes. Recovery was uneventful.

The second woman, aged 29, complained of soreness and swelling in the vagina, and pain on micturition; a yellowish discharge had been present for a fortnight. The vaginal orifice was found to be virginal, being partially closed by a crescentic hymen; protruding through the orifice was a dark red tumour one inch in diameter, tender to the touch, the surface being raw in appearance and covered with muco-pus. Under the anaesthetic the vaginal orifice was enlarged and the tumour removed. It was a lobulated growth arising from the anterior vaginal wall and covered by mucous membrane, except at the lower pole where it had ulcerated through its capsule and given rise to the purulent discharge. The tumour proved to be a myoma, the lower part being enormously vascular and showing inflammatory changes.

Professor BRIGGS (Liverpool) said the physical characters of each specimen suggested a fibroma.

Vesicular Mole with Coincident Chorion-epithelioma of the Vulva.

Mr. W. W. KING (Sheffield) described a case of chorion-epithelioma in which a metastatic growth was present at the vulva during the course of an intrauterine pregnancy.

The patient, aged 33, had had one child ten years previously, since when menstruation had been regular. She was first seen on account of uterine haemorrhage of seven weeks' duration without previous amenorrhoea. Two days previously a haematoma had suddenly appeared at the vulva and the enlarged uterus suggested the presence of a carneous mole. After excising the labial growth the operator was surprised to find that the uterus contained a hydatidiform mole. Histological examination of the vulval tumour showed it to be a chorion-epithelioma of the type described by Ewing as "chorion-adenoma." In view of the reputed low malignancy of this type of chorion-epithelioma, and encouraged by the record of a somewhat similar case quoted by Teacher, in which the patient had made a complete recovery after simple excision of the metastatic growth and evacuation of the uterus, the present patient was advised that radical operation was not necessary. Her subsequent history was as follows. Menstruation was normal during the ensuing three months, when small irregular haemorrhages commenced. Examination showed no sign of recurrence of the vulval growth, and the pelvis was apparently free from growth. It was decided to explore the uterus, and in so doing one tiny vesicle was discovered almost by accident. The presence of this vesicle three months after the evacuation of a vesicular mole was itself suggestive of malignancy, even apart from the growth which had been previously removed from the vulva. Hysterectomy was decided upon, and, on opening the abdomen, two considerable secondary deposits were found in the pelvis. Their removal was impossible, but the uterus and appendages were removed in the hope that the secondary deposits would atrophy. Histological examination showed that the uterine wall was invaded by chorion-epithelioma. In spite of the secondary deposits the patient had remained well during the four years which had elapsed since the operation.

Commenting upon the case, Mr. King emphasized the fact that unless he had found the vesicle in the curettings

he would not have felt justified in removing the uterus, and that there was little doubt that had he not done so the patient would have died of chorion-epithelioma. The case raised the question of the fallacies of a negative report upon curettings in such cases. He related a further case to show how unreliable a diagnostic curetting might be.

This second patient had a vesicular mole evacuated in June, 1925, and three months later she had some irregular uterine bleeding. There were no physical signs of new growth in the pelvis, but it was decided to remove the uterus without a preliminary diagnostic curetting because, in view of the previous case, a negative report would not have been convincing. The uterus was therefore removed by abdominal hysterectomy. No secondary deposits were found in the pelvis or elsewhere, but on cutting into the uterus it was found to be riddled with growth. At only one spot did the growth approach the endometrium, and this was only a tiny microscopic patch which might well have eluded the most careful examination of the curettings. Some of the deposits in the musculature of the uterine wall apparently dated from the time of the vesicular mole, for they were encapsulated. It was interesting to speculate about the factors which stimulated some cells into activity and allowed others to atrophy.

Adenomyoma of Recto-genital Space and Sarcoma of Ovary.

Dr. G. W. FITZGERALD (Manchester) showed a specimen consisting of the uterus with its appendages and a portion of the posterior vaginal wall. The left ovary was represented by the wall of an ordinary ovarian cyst, and the tube was dilated at its abdominal ostium. The right ovary was partly solid and partly cystic, and distension of the abdominal ostium of the tube was seen. From the cystic portion of this ovary tarry fluid exuded when it was opened. There was close adhesion between the posterior vaginal wall and the anterior rectal wall, with a cluster of minute peritoneal cysts around this. The area on the vaginal side was removed, together with the adjacent posterior vaginal wall. Examination of the sigmoid showed one portion with the same induration as was observed in the rectal wall, and a crop of tiny peritoneal cysts which were easily wiped away. A microscopical section from the growth removed with the portion of the posterior vaginal wall showed the essential features of adenomyoma, while another section of the solid portion of the right ovary (in which there was the tarry cyst) showed the essential features of a sarcoma. The patient was aged 33, and was a 4-para; she complained of dysmenorrhoea of four months' duration, a tender lump in the right side, frequency of micturition, and some pain on defaecation. There was no loss of weight.

THE MECHANISM OF DIAPHRAGMATIC RESPIRATION.

At a meeting of the Brighton and Sussex Medico-Chirurgical Society on January 7th, Mr. H. J. WALKER, the President, in the chair, Sir CHARLTON BRISCOE, Bt., physician to King's College Hospital, gave an address entitled "Some points concerning the mechanism of respiration."

Sir Charlton Briscoe suggested that in certain pathological conditions the defect was probably due to an insufficient expansion of the lower lobes of the lungs. Such conditions arose as the result of pleurisy, pneumonia, "functional" disorders—especially anxiety neurosis—abdominal operations, and rapid reduction of weight. He stated that it was a mistake to regard the diaphragm as a muscle which acted uniformly, or which remained at a constant level in the thorax. It had been shown by animal experiments that the earliest contraction occurred in the crus, and, further, that by flexing or extending the spine the relative contractions of the crus and the costal portions of the diaphragm could be varied. These experiments had confirmed the deductions drawn from clinical observations. In normal individuals the height of the diaphragm, relative to the chest wall, varied according to the posture of the individual, although there might be an almost equal amount of abdominal protrusion, this being taken as a rough indication of the descent of the diaphragm. These variations in height were shown by x-ray tracings taken during the ordinary antero-posterior

examination, and also by estimating the points at which the diaphragm ceased to be in contact with the costal pleura. The heights and movements of the diaphragm were correlated with kymographic tracings of the movements of the thorax, epigastrium, and hypogastrium. The best estimation of the relative height of the diaphragm was obtained by taking a tracing of the upper surface in quiet inspiration and expiration, and a further tracing to record the descent of the diaphragm as the result of a forced inspiration. These records showed that in ordinary circumstances the diaphragm was higher in the thorax in the supine posture than when reclining at an angle of 45 degrees, or when standing. In this posture the inspiratory depression of the diaphragm and the protrusion of the epigastrium might be as great or greater than that recorded when erect or reclining. The highest level of the diaphragm was recorded in a case of paraplegia involving the eighth thoracic segment. It was next shown that in cases of paraplegia from a lesion high up in the dorsal spinal cord or the lower thoracic cord the lower lobes of the lungs were completely deflated. A similar but less complete degree of deflation occurred in individuals who were kept in the supine posture, as, for instance, after abdominal operations. It was also found in cases of unilateral phrenic paralysis, pericarditis, the so-called diphtherial diaphragmatic paralysis, and certain other conditions. A table was then shown of cases in which deflation of the lower lobe occurred, the common factor of which was that the diaphragm was found to be high in the thorax, although there might be a considerable degree of inspiratory descent. The conclusion was drawn that the expansion of the lower lobes depended, not on the movement of the chest, nor on the degree of movement of the diaphragm, but on the low position of the diaphragm in the thorax. The clinical conditions were then considered, in which incomplete expansion of the lung occurred. The symptoms arising were generally "asthenic" symptoms, such as shortness of breath, panting, rapid respiration, failure of respiratory response to effort, tendency to fainting, the persistence of cough with some expectoration, general lack of well-being, and an aching in the neck, arms, and chest, especially on exertion. The final section of the lecture was devoted to the means of correcting this condition by training in the voluntary control of abdominal protrusion; x-ray tracings showing the results of this measure were exhibited. The effect of making the patient lie on the side opposite to that on which the diaphragm was affected was pointed out, and slides were shown to demonstrate the effect on the diaphragm of this posture. The effect of restriction of movement of the lower ribs was illustrated by kymographic tracings, and the beneficial effects of restoring the normal diaphragmatic movements were indicated. This method was particularly valuable in removing the last remains of infected material in the lower lobes after bronchitis and pneumonia.

ANTE-NATAL WORK IN GENERAL PRACTICE.

At a meeting of the Newcastle-upon-Tyne and Northern Counties Medical Society on January 7th, Dr. NEN MACLACH presiding, Dr. L. M. WEEKS delivered an address on the importance of pre-maternity work as applied to general practice.

Dr. Weeks said that for the past two and a half years he had applied in general practice the same routine method of investigation and examination of pregnant women as was used in the pre-natal clinics of the Princess Mary Maternity Hospital and other places. His paper dealt with the results and experience he had obtained thereby during this time. He first drew attention to the problem of educating patients to seek advice early, and, if possible, before the third month of pregnancy. Any prejudices against examination were easily overcome, and women always returned voluntarily in a second pregnancy if adequate care and interest had been shown in the pre-maternity consultations for the first. In the early months a pelvic examination was not necessary unless there was a history of frequent miscarriages in a woman with a

negative Wassermann reaction, or in cases of slight haemorrhage suggesting ectopic gestation. The first consultation should be devoted to a routine inquiry about previous illnesses, the previous menstrual history, the history of previous pregnancies, and any present symptoms, followed by examination of the heart, lungs, and urine. This was the time to give the woman advice and general rules for the rest of pregnancy, with a warning to report such symptoms as would suggest preeclampsia, placenta praevia, or eclampsia. Any such symptoms should receive special attention. Monthly examinations of the urine should be made up to the eighth month, when the position of the foetus should be determined by abdominal palpation. A breech, transverse, or occipito-posterior presentation should then be corrected to a vertex by external rotation, and maintained by pads and binder. In these cases another examination should be made two weeks later, and special attention should be paid to the type of case with the head high above the pelvic brim at this stage, freely movable, and not descending. Some interference with the lower uterine segment should be suspected in these—such as contracted pelvis, false promontory, fibroids, or placenta praevia—when a pelvic examination should be made and the true conjugate measured. The important deformity "funnel-shaped pelvis" should also be looked for. The great value of these pre-maternity examinations was that the type of case likely to require Caesarean section or other special treatment could be recognized before the patients came into labour. Cases were quoted from maternity hospital work illustrating how routine pre-natal examinations might have saved many of the "failed forceps" cases admitted in emergency for Caesarean section.

Mr. H. HARVEY EVERS, in a short address on albuminuria during pregnancy, drew attention to the importance of the subject in relation to ante-natal work, and gave briefly the results of biochemical investigations in relation to diagnosis, prognosis, and treatment. The salicyl-sulphonic acid test for albumin was first demonstrated, and its value and advantages for routine use were pointed out. Albuminuria during pregnancy was classified as symptomless simple albuminuria, the nephritic toxæmic type, and the true "pregnancy kidney" type, or pre-eclamptic toxæmia. The differentiation of these three types was then described on clinical and chemical grounds, tables of the usual chemical findings for normal pregnancy, symptomless albuminuria, true nephritic types, and pre-eclamptic types being shown. Results of blood urea estimations and the urea concentration and diastase tests were demonstrated and their values discussed. The great assistance to be obtained from readings of the systolic blood pressure was emphasized. The immediate and remote prognosis were then discussed, and the material differences between the purely "pregnancy kidney" type and the "chronic nephritic" were pointed out, together with their bearings upon the treatment. The value of the chemical findings, supplementing careful clinical observations, in guiding the lines of treatment was indicated. In "pregnancy kidney" cases there was little call for active interference with the pregnancy, as the great majority of these cases did quite well on purely medical treatment. Only in the rare cases which became progressively worse, clinically and chemically, under treatment, should active measures be adopted. In chronic nephritic cases, on the other hand, chemical and clinical evidences of progressive renal failure indicated the advisability of emptying the uterus. The value of blood urea estimations and the urea concentration test in this connexion was pointed out. Albuminuric retinitis was an absolute indication for emptying the uterus.

Dr. HERBERTSON spoke with enthusiasm of the help he had received by the routine ante-natal examination of 150 cases in a general industrial practice. Any scepticism or suspicion on the part of the patient was quickly swept away, and he had no hesitation in saying that the adoption of a definite pre-maternity scheme in general practice was one of the greatest advances in preventive medicine.

The rest of the meeting was devoted to a demonstration of clinical cases, medical and surgical.

Reviews.

HISTOLOGY OF THE ENDOCRINE ORGANS.

The Histology of the More Important Human Endocrine Organs at Various Ages,¹ by Dr. EUGENIA R. A. COOPER, contains an accurate and careful description of the histology of the pituitary, suprarenal, thyroid, parathyroid, and thymus glands, at all periods, from early foetal life till old age. The textual descriptions are supplemented by numerous illustrations. From her comparative study the author has drawn a number of conclusions which are of equal interest to the physiologist and pathologist. An accurate description of this nature makes it possible for the pathologist to say with some certainty which variations indicate pathological conditions, and which are merely physiological variations. The most striking facts elicited are that the endocrine glands as a whole assume their adult histological characters remarkably late, and in some cases not until after birth. Moreover, the glands show considerable histological changes at various periods after birth.

The detailed description here given of the development of these glands reveals a number of points of physiological interest. For example, the author states that in none of the pituitary glands examined, whether foetal or post-foetal, did she find any evidence of a cavity in the hypophyseal stalk. This observation at once raises the doubt whether in man the posterior lobe of the pituitary gland can secrete into the third ventricle. This is a matter about which there has been considerable discussion. Dr. Cooper concludes from a study of the suprarenals that the cells of the abdominal sympathetic ganglia and of the suprarenal medulla both originate from a common stock of sympatho-chromaffin cells, and that these latter emigrate through the cortex of the suprarenals to take up their final central position, and that this process is not completed until after birth. She has studied the amount of colloid in the vesicles of the thyroid at various ages and has thus estimated the secretory activity of the thyroid, on the assumption that the less the colloid the more rapid the secretion from the gland. She concludes that during foetal life the thyroid produces more secretion than it excretes, and thus accumulates a reserve store. This store is rapidly expended after birth, but in later infancy and childhood production keeps ahead of expenditure and a fresh store of colloid is accumulated. This store is completely exhausted at adolescence, and, according to her observations, the structure of the gland at this age period shows a striking resemblance to that seen in exophthalmic goitre. After adolescence the task of the thyroid is easier and production keeps ahead of expenditure for the rest of life, and the store of colloid is maintained; it is this which gives the adult thyroid its well known vesicular appearance.

These are only a few examples of the numerous interesting observations in the book, but they are sufficient to show that it will be of great value to anyone who wishes to understand the functions of the endocrine organs. We hope that the author will pursue her studies and give a similar account of the other endocrine organs.

A MANUAL OF HYGIENE.

The appearance of *A Manual of Hygiene*,² by Sir WILLIAM HAMER and Dr. C. W. HUTT, the medical officer of health for Holborn, signalizes the retirement of the former from the post of medical officer of health to the London County Council. A note on the back of the title-page tells us that the book is based on Hamer's *Manual of Hygiene*, which was published in 1902. It seems to be much the same as that work, with such omissions, additions, and rearrangement as might be expected in a revised edition after a lapse of twenty-three years; it should be judged from that point

of view. Thus we find that the greater part of the chapters on air, water, soil, food, the collection, removal, and disposal of refuse, dwellings, schools, and hospitals, infection and immunity, infectious diseases, disinfection, and vital statistics, constituting the bulk of the volume, is practically the same in wording and arrangement as the corresponding chapters in the 1902 volume, with such revision as may have been rendered necessary by progress in scientific knowledge or legislative enactments. In the chapter on water, for example, somewhat more space is given to bacterial examination and standards, and in that on food accessory food factors are discussed. In the chapter on infection and immunity, the opening section dealing with parasites has been omitted, and a short paragraph on anaphylaxis introduced, with some curtailment of the lengthy discussion in the previous volume on the hypotheses of Ehrlich and others in regard to immunity. In the chapter on infectious diseases, while much of the original writing has been retained, there has been some rearrangement and a few omissions and additions. Beri-beri is no longer included among the infectious diseases, but has two pages allotted to it in the chapter on food. Cancer has been relegated to the chapter on vital statistics; and tuberculosis is given a chapter to itself. New diseases added to the chapter on the infectious diseases include encephalitis lethargica, poliomyelitis, jaundice, Vincent's angina, and trench fever. A useful addition at the end of the chapter is a description of verminous conditions. Greater detail in regard to chemical disinfectants is introduced into the chapter on disinfection.

There is scarcely any change or new matter in the chapter on vital statistics, but some of the elaborate actuarial calculations included under tests of longevity have been omitted, although those in connexion with life tables have been retained. The subject of cancer, as already noted, has been tacked on to this chapter. In the 1902 edition no charts were included in it. In the new manual there are three—one showing the marriages, births, deaths, and infant mortality rates in London from 1841 to 1923; another the deaths from diarrhoea and enteritis under 2 years of age from 1862 to 1920, and the infant mortality from 1858 to 1920; the third chart is in connexion with life tables, and indicates some changes in the conditions of life as shown in the London life tables of 1841-1922.

Four new chapters have been introduced, portions of which are taken from the old volume. The late Dr. James Niven contributed the chapter on tuberculosis. Mr. Kenneth Walker and Dr. Kenneth Fraser have written chapters respectively on venereal diseases and school hygiene; and there is a chapter on maternity and child welfare. The interesting opening chapter of the 1902 volume, however, on the rise and progress of preventive medicine, has been omitted. The final chapter, on sanitary administration and sanitary law, revised by Dr. Niven, is among the most satisfactory and valuable in the book, especially as the volume has been designed to meet the needs of those seeking a diploma in public health. As such it is a useful guide to students; but one gets the impression that it has not been so carefully prepared as the older volume as regards the arrangement of headings and subheadings. Beri-beri, for example, is lost to sight under the central heading of rickets; and it might have been expected that cancer would have formed a chapter of itself, in the same way as tuberculosis and venereal diseases, instead of being included under vital statistics. The amount of space given to the different subjects also seems disproportionate. Some are too full and detailed, others too limited; and matter might without loss of value be cut off one subject and so permit of space being available for useful additions to another. The general get-up, printing, and binding leave nothing to be desired, and the volume is of a size that is easily handled.

DISEASES OF CHILDREN.

The twelfth edition of *The Diseases of Children*,³ by the late Sir JAMES GOODHART, has now appeared, edited, like the last, by Dr. STILL. The book first appeared in 1885,

¹ *The Histology of the More Important Human Endocrine Organs at Various Ages*. By Eugenia R. A. Cooper, M.D. Oxford Medical Publications. London: Humphrey Milford, Oxford University Press, 1925. (Demy 8vo, pp. xiii + 119; 61 figures, 1 coloured plate. 12s. 6d. net.)

² *A Manual of Hygiene*. By Sir William H. Hamer, M.D., F.R.C.P., D.P.H., and C. W. Hutt, M.D., D.P.H. London: Methuen and Co., Ltd. 1925. (Demy 8vo, pp. xi + 821; 94 figures. 30s. net.)

³ *The Diseases of Children*. By the late Sir James Frederic Goodhart, Bart., M.D., F.R.C.P. Twelfth edition, edited by George Frederic Still, M.A., M.D., F.R.C.P. London: J. and A. Churchill, 1925. (Demy 8vo, pp. xv + 995; 68 figures. 28s. net.)

and so, in its twelfth edition, is forty years old. Its unexhausted vitality is due especially to two things—to Goodhart's clinical genius, his power of himself seeing and imparting to others the essential clinical features of disease, and, secondly, to the wisdom and delicacy of Dr. Still's editorial pen, in piously preserving all that was good in the older editions and in skilfully grafting on to this stock the additions of modern knowledge. The book is too well known to require an extended notice (vide JOURNAL, 1921, vol. i, p. 934), and the present edition will carry on for a further period the life and service of a British medical classic.

The fourth edition of Dr. JULIUS HESS's book has as its title *Feeding and the Nutritional Disorders in Infancy and Childhood*.⁴ The third edition was entitled "Principles and Practice of Infant Feeding," but the scope and arrangement of the subject-matter remains practically unchanged, and the change of title only emphasizes the modern point of view in regarding the dyspepsias of infant life as disorders which affect, not only the digestive apparatus, but the whole system of nutrition. The inclusion of rickets, scurvy, and the anaemias of infancy under nutritional disorders is according to the classification adopted in the modern Continental textbooks on diseases of children.

The first three chapters are devoted to anatomy and physiology, and to breast and artificial feeding in the healthy infant. The next, on nutritional disorders in artificially fed infants, is the largest and most important in the book. The author mentions in the preface that "the classification, nomenclature, pathogenesis, and treatment of the nutritional disorders conform to the latest researches. American clinics are to be credited with the greater part of this progress." So far as classification and pathogenesis are concerned, the inspiration and foundation of this chapter are that of the German schools of Czerny and Keller and Finkelstein. The nomenclature is based on Finkelstein's grouping, and is given as follows: (1) nutritional disturbances unassociated with diarrhoea; (2) nutritional disturbances characterized by diarrhoea; (3) atrepsia; (4) anhydraemia. These are different words, but the ideas they denote are the same; they merely add to the already overloaded vocabulary of the subject. This chapter concludes with an account of coeliac disease. The remainder of the book deals with rickets, infantile tetany, scurvy, acidosis, and the anaemias of infancy.

The slim volume of x-ray pictures of the thorax in infancy,⁵ by Dr. ERICH SAUPE, forms the sixteenth section of Lehmann's atlas of medicine. It is based on abundant material of a special kind—more than a hundred cases where skiagrams of the thorax after death were followed by a *post-mortem* examination—as well as on numerous pictures obtained from the living subject. Twenty-seven photographs are reproduced, and, owing to their technical excellence and the glossy surface of paper used, make a useful if small collection of the common pathological conditions of the thorax in early life. But before the pictures are reached there is an introductory text of some sixty pages, in which, besides matters of technique, there is a systematic discussion of the various anatomical structures of the thorax and of the x-ray appearances of them in conditions of disease. It is in this introductory section that full details of the pictures reproduced are inserted, an account of the skiagram being followed by and compared with the morbid anatomy as revealed by dissection. This conjunction affords a novel and valuable control to x-ray appearances; but the method has not been fully worked by the author, who no doubt has been hampered by exigencies of space, although his material seems to be abundant. We have successively an account of some bone diseases and anomalies in ribs and vertebral column, of diaphragmatic hernia, of pathological conditions of the heart and great vessels, of the thymus and mediastinum, and of the lungs,

including bronchi, lung parenchyma, and pleurae. Many interesting points are raised and discussed, the failures and successes of x-rays in cases of enlarged thymus, the normal variations in the picture of healthy lungs, the visibility of the bronchi, and the very controversial questions as to hilus tuberculosis and the discovery of primary tuberculous foci. The author expresses very sensible and cautious views on the diagnosis of hilus tuberculosis from the presence of hilus shadows, and mentions a number of non-tuberculous conditions which give a similar picture. The section devoted to the x-ray photographs has certain defects which are rather negative than positive. The photographs are not numerous enough. For instance, there is not one of the normal thorax of the infant, and only one of rickets. Again, the descriptive paragraphs are too short, and the correlation of the morbid anatomy is not made clear. These, however, are faults for which the author is not entirely responsible, and which are remediable. He has more knowledge than he has presented, and many more photographs than he has been able to show. He has given an account of his subject which, if not complete, is interesting and well informed.

Professor HANS RIETSCHEL's book on children's diseases,⁶ which is the eighth of Lehmann's series of medical textbooks, is based on the atlas and outline of pediatrics by Professors R. Hecker and J. Trumpp. The book does not profess to be more than an introduction to the subject, and pays special attention to symptomatology and treatment. It is divided into two parts. The first or general part, consisting of forty-eight pages, is composed of four chapters devoted respectively to the anatomy and physiology of the child, physical examination, general treatment of sick children, and infant feeding. In the second part, which forms the bulk of the work, the several diseases receive consideration. With a few exceptions, such as the absence of any allusion to the Dick test in scarlet fever or "the pink disease," the book is well up to date. The text is accompanied by numerous illustrations, seventy-five of which are in colour.

SYNOPSIS OF SURGERY.

Mr. HEX GROVES has subjected his well known *Synopsis of Surgery* to comprehensive revision for its seventh edition.⁷ Numerous skilfully planned pen-and-ink diagrams have been inserted, which add to the convenience and advantage with which the book may be used, and a chapter on surface markings has been added. Once the larger textbooks have been mastered this synopsis offers very valuable assistance to those whose time is limited, or whose memory requires refreshing. A rigid methodical arrangement is followed throughout; each subject is put in its proper place, the gist of each shortly and clearly stated, and anatomical and pathological facts are only introduced when they have a direct bearing on diagnosis and treatment. Very useful, too, are the short chapters on diagnosis. The section on fractures stands out among others as of particular excellence; it is well up to date. Operative procedure is only dealt with on broad principles, but recent operative methods, such as Rammstedt's, Albee's, Hibbs's, are described; Steindler's operation might have been included. Keen's point on page 332 seems to demand the attention of the printer. We can safely predict continued popularity for the book, which will be found useful alike by the practitioner and by the student reviewing his knowledge before examination.

THE PATHOLOGY OF TUMOURS.

The second edition of *The Pathology of Tumours*⁸ by Professor KITTLE, now of Cardiff, has appeared at an

⁴ *Kinderheilkunde*. Von Professor Dr. Hans Rietschel. Zweite völlig neu bearbeitete Auflage des Atlases u. Grundrisses der Kinderheilkunde. Munich: J. F. Lehmann. 1925. (Sup. roy. 8vo, pp. xi + 446; 37 plates, 75 coloured figures, 101 figures in the text. Paper cover, M.22; bound, M.24.)

⁵ *A Synopsis of Surgery*. By Ernest W. Hey Groves, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng. Seventh edition. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1925. (Cr. 8vo, pp. vii + 671; 149 figures, 13 plates, 17s. 6d. net.)

⁶ *The Pathology of Tumours*. By E. H. Kittle, M.D., B.Sc. Lond. Second edition. London: H. K. Lewis and Co., Ltd. 1925. (Demy 8vo, pp. viii + 284; 159 figures, 4 plates. 12s. 6d. net.)

⁵ *Feeding and the Nutritional Disorders in Infancy and Childhood*. By Julius H. Hess, M.D. Fourth revised and enlarged edition. Philadelphia: F. A. Davis Company. 1925. (Demy 8vo, pp. xvi + 556; 45 figures, 450 dollars net.)

⁶ *Das Thoraxröntgenbild im frühesten Kindesalter*. Von Privatdozent Dr. Erich Saupe. Band 16, *Lehmann's Medizinische Atlanten*. München: J. F. Lehmann. 1925. (Post. 4to, pp. 62; 27 figures on 14 plates, 2 figures in the text. M.10.)

opportune moment. For nine years the first edition has provided an excellent account of this special branch of pathology to those who sought more information than is provided by standard textbooks of pathology, yet did not aspire to the laborious task of searching through scientific journals for greater detail. To preserve its utility this book needed a few additions, and an occasional alteration, so that it should reflect the more recent points of view on some subjects. Dr. Kettle has made these alterations and incorporated the new doctrines which have been expounded within the last few months.

Readers to whom the earlier work was familiar will be glad to know that the revision has been accomplished without upsetting the original very sensible arrangement of the book. As before, it is divided into three parts, which deal successively with the general biology of tumours and the general and special pathology of tumours. The illustrations were always valuable, and the 159 pictures now provided seem even better than before. Many of them have been very skilfully drawn, the majority presumably by Dr. Kettle himself. The book is excellently put together, and, by a judicious selection of type and correct spacing, the impression is preserved throughout that every effort has been made to consider the comfort of the reader.

NOTES ON BOOKS.

DR. OTTO NEUSTÄTTER'S monograph on *Max Pettenkofer*⁹ forms the seventh volume of the series of medical biographies edited by Professor MAX NEUBURGER. The volume deals with the multifarious activities of a man who was not only a remarkable chemist and physiologist but first and foremost the pioneer of practical hygiene in Germany. At an early stage of his career he came under the influence of Liebig at Giessen, who made him acquainted with the achievements of British workers in sanitary science. Pettenkofer was subsequently appointed first extraordinary and then ordinary professor of chemistry in the medical faculty of Munich, and in 1865 became the first occupant of a chair of hygiene, which he held until the time of his self-inflicted death in 1901. As we pointed out in our obituary notice of him (JOURNAL, February 23rd, 1901, p. 489), Pettenkofer was responsible for numerous sanitary reforms: the creation of a sanitary service, the institution of chairs of hygiene in Germany, and the erection of the Institute of Hygiene at Munich, of which he was appointed director in 1872. Dr. Neustätter gives a graphic account of the opposition Pettenkofer encountered as pioneer of a new department of medicine. He was even unable at first to get his papers published in the ordinary medical journals. Consequently in 1865, in conjunction with Buhl, Radlkofer, and Voit, he founded the *Zeitschrift für Biologie*, and eighteen years later the *Archiv für Hygiene* in collaboration with Hofmann and Förster. His success as a teacher, to which his attractive personality in no small degree contributed, was shown by the large number of distinguished hygienists, not only in Germany, but also in foreign countries, who, at one time or another, were his pupils. A bibliography of his works is appended.

In a Lyons thesis on inoculation against enteric fever and cholera¹⁰ Dr. LOUIS PONCET records the results of an inquiry as to the procedure adopted for the enforcement of this prophylactic measure in twenty-eight European countries. It appears that antityphoid inoculation is compulsory for certain classes and particularly for soldiers in ordinary circumstances, in war time or during an epidemic, in the following countries: Austria, Belgium, Bulgaria, Czecho-Slovakia, Finland, France, Germany, Greece, Italy, Jugo-Slavia, Latvia, Lithuania, Poland, Rumania, Spain, and the Union of the Soviet Republics. In Great Britain and Ireland, as is well known, antityphoid inoculation, without being compulsory, has been carried out on a large scale, especially in the Dominion forces and in the services generally during the great war. Except on rare occasions, it has never been compulsory in Albania, Danzig, Denmark, Esthonia, Holland, Norway, Portugal, Sweden, or Switzerland. Vaccination against cholera is rarely indicated in Europe, but it has been enforced temporarily in Austria, Greece, Italy, Jugo-Slavia, Poland, and Rumania, and in the French armies of the East and Levant from 1915 to 1924. Dr. Poncet's inquiry was

conducted by means of Esperanto, of which he is one of the leading exponents.

*Electro-therapy and Ionic Medication*¹¹ by Mr. H. H. U. CROSS, Ph.D., has been written to meet the needs of the general practitioner who is interested in this branch of treatment. The subject is considered from the technical aspect, and the author gives a detailed description of all the chief types of apparatus used to produce electric currents for medical purposes. The descriptions are practical and contain many useful hints about the precautions necessary to avoid injuring delicate apparatus, so that an accidental short-circuit apparatus will not result in electrocuting the patient. About a quarter of the volume is devoted to ionic medication, which is treated in considerable detail. The use of the high frequency current is described shortly. An account is given of some of the chief types of x-ray apparatus, and the volume concludes with a description of the methods devised at Erlangen for the destruction of malignant growths by exposure to x rays. The author has had extensive practical experience, and the book gives a very useful account of the technical problems of electrotherapy.

The object of Dr. ICHOK'S work on the social protection of health¹² is to give the intelligent French layman a comprehensive view of subjects of medico-social importance, such as family life, industry, housing, the food problem, epidemics and epidemics, mental diseases, voluntary intoxications, criminality, pauperism, life in town and country, climate, physical education, and the international co-operation and social activity of the medical practitioner. An extensive bibliography is appended.

¹¹ *Electro-therapy and Ionic Medication. A Technical and Clinical Compendium.* By Harold H. U. Cross, Ph.D. Griffin's Scientific Textbooks. London: C. Griffin and Co. 1925. (Post 8vo, pp. xii + 253; 155 figures. 10s. 6d.)

¹² *La protection sociale de la Santé: L'action médico-sociale.* Par Dr. G. Ichok. Préface du Professeur A. Calmette. Paris: Marcel Rivière. 1925. (Demy 8vo, pp. 420. 20 fr.)

PREPARATIONS AND APPLIANCES.

Prescription (Humanized) Glaxo.

MESSRS. GLAXO state that Prescription (Humanized) Glaxo has been prepared in response to a general demand for a modified dried milk, which on simple dilution will give a solution containing fats, carbohydrates, and proteins in the proportions present in human milk. The preparation has been made in accordance with high medical advice, and on dilution 1 in 8 provides a fluid containing lactose 6.9 per cent., milk fat 5.1 per cent., and protein 1.7 per cent.

Opinions regarding the optimum fluid for the bottle-feeding of infants are notoriously divergent; this divergence is due, of course, to the enormous variation in the digestive powers of infants. The Glaxo process of drying milk, however, effects a change in the colloidal state of caseinogen, so that the addition of digestive ferments results in the formation of a light flocculent precipitate instead of the hard compact curd formed from raw cow's milk. This change must improve greatly the digestibility of the casein.

Reports from London hospitals submitted by the makers show that the practical tests of Prescription (Humanized) Glaxo are satisfactory; that it does not cause vomiting, diarrhoea, or constipation; and that infants fed upon it gained in weight.

A satisfactory infants' food, apart from its general nutritive value, must also contain an adequate amount of certain essential mineral constituents (for example, iron, calcium, phosphorus) and an adequate vitamin supply. As the calf grows much more rapidly than the human baby, cow's milk contains a higher proportion of these essential mineral salts than human milk, and hence there is no great danger of their being deficient in bottle-feeding. Extensive researches on the vitamin content of Glaxo have been carried out in the Glaxo laboratories by Messrs. Jephcott and Bacharat. These investigations show that Glaxo contains as high a content of vitamins A and B as fresh milk of good quality, and almost as high a content of vitamin C. Glaxo is prepared by the roller process as opposed to the spray process of drying, and experiments in England, France, and America agree in showing that roller drying produces no measurable destruction of vitamins, whereas spray drying causes almost total destruction of vitamin C.*

Messrs. Glaxo advise, however, that Glaxo feeding should be supplemented with orange or lemon juice. This is, of course, a wise attitude, since this precaution is advisable even in infants fed on fresh cow's milk. Prescription (Humanized) Glaxo appears, therefore, to be prepared in accordance with the best knowledge available concerning the elementary principles of infant nutrition.

* *Biochemical Journal*, vol. xv, No. 1 (1921).

⁹ Meister der Heilkunde. Herausgegeben von Professor Max Neuburger. Band VII: *Max Pettenkofer*. Von Otto Neustätter. Vienna: Julius Springer. 1925. (5½ x 8½, pp. 93; 1 plate. G.M. 3.60.)

¹⁰ *L' vaccination Obligatoire ou Facultative contre les Maladies Typhoïdes et contre le Choléra dans vingt-huit pays d'Europe.* (Essai d'enquête internationale par l'Esperanto.) Par Dr. Louis Poncet. Lyon: L. Bascou. 1925. (Roy. 8vo, pp. 136; 5 charts. 10 fr.)

MEDICAL RESEARCH COUNCIL.

ANNUAL REPORT.

THE annual report of the Medical Research Council for the year 1924-25¹ follows the same plan as those of previous years. After a brief introduction, wherein the chief work of the last twelve months is reviewed, the report proper first gives an account of the work done at the National Institute for Medical Research in each separate department. The next section deals with the question of the determination of biological standards and the methods of biological assay and measurement, a subject in which the Council has always taken particular interest. The fourth section deals with experimental medicine and the research work of clinical units, and gives a brief account of different investigations which are being supported in various medical centres throughout the country. The fifth section, headed "Research schemes in specific subjects," is the portion of the report which will interest most readers. In the pages of this section, which occupies nearly half the volume, the different specific subjects which are being investigated under the auspices of the Council are mentioned in turn and an account given of their progress during the last year. By a series of cross-references the editor of the report has made it easy for the reader to turn from this section to earlier or later sections of the report for administrative details concerning the different localities where any particular piece of research is being conducted. We shall, in this summary, follow the same plan, and give the main substance of the information contained under the headings of the different subjects which have been studied during the past year. We must mention also that a sixth section deals with industrial medicine and industrial fatigue, a seventh mentions the travelling scholarships awarded during the year, and a final section, headed "Conclusion," records the retirement of certain members of the Council during the year and also contains some obituary references. There are three indexes—one of personal names, one of institutions, and one of scientific subjects.

Not a few of the researches for which the Council has made grants have already been noted at greater or less length in our columns during the year, either in connexion with special reports or otherwise, but the following summary will be convenient for reference.

PROBLEMS OF CHILD LIFE.

The factors contributing to dead births, premature births, and neo-natal births have been studied by a group of workers at the Royal Maternity Hospital, Glasgow, who found that in a series of over 500 infants examined neo-natal death was due to disease or malformation of the child in about 16 per cent., to the complications of labour in about 33 per cent., and to maternal disease in about 50 per cent. The same group of investigators at Glasgow have continued their studies of the toxæmias of pregnancy, on which subject a full report is nearing completion. The results indicate that in all forms of toxæmia in the second half of pregnancy there is a disturbance of both kidney and liver functions, but the variations within each clinical group are so great that biochemical analyses of the kind made have given little help for the prognosis for individuals. A similar investigation is being carried out in Edinburgh in which the values of different tests of liver and kidney function in diagnosis, prognosis, and treatment are being assessed. Numerous investigations are in progress with regard to metabolism of infants, rheumatism in children, and rickets and tetany, but these have not yet been brought to the stage of yielding conclusions.

HUMAN NUTRITION.

Vitamins.

Dr. S. S. Zilva's work on the chemical properties of the antiscorbutic vitamin has been carried a stage further by

Report of the Medical Research Council, 1924-1925. H.M. Stationery
154 pages. 3s. 6d. net.

the demonstration that the active principle obtained from a variety of sources can be fractionated by the same reagents as those found effective with lemon juice. Dr. Zilva's work recently had an important practical application, because he was asked to superintend the preparation of large quantities of lemon juice for the stores of the *Discovery* whaling expedition, using the previous knowledge he had gained of the stabilization of the antiscorbutic factor. This juice is being tested periodically, and the results will be compared with those of clinical observation made by Dr. Marshall, the medical officer of the expedition.

Work carried out by Dr. J. C. Drummond and others, at University College, shows that the active material in cod-liver oil is represented by not more than 10 per cent., and probably a good deal less, of the unsaponified fraction from the active oil. In other words, the quantity of active substance required to enable the young rat of approximately 100 grams in weight to grow is of the order of two millionths of a gram a day. Experiments with highly purified preparations of cholesterol showed that this substance acquires powerful antirachitic properties, and in some cases growth-promoting action, after comparatively short exposure to ultra-violet radiations. Dr. Rosenheim has devised a series of colour tests which it is hoped will form the basis of colorimetric methods for assaying vitamin A values: already it is possible to compare the value of a number of samples of cod-liver oil by this means in a few minutes, and to obtain a result at least as accurate as that given by animal-feeding tests requiring a month or six weeks. Miss E. M. Hume, working at the Lister Institute, carried out an interesting investigation to determine the vitamin A content of spinach which has been grown behind a screen of glass comparatively impervious to the ultra-violet rays of light, as compared with that of spinach grown in the open. There appears to be no difference in the vitamin A contents of the two kinds of spinach.

Proteins and the Kidney Functions.

Two years ago work was begun at St. Thomas's Hospital to ascertain what detrimental effect, if any, excessive protein diet exercised on renal function. Although medical writers are almost unanimous in declaring that high protein diet is harmful in kidney disease, yet there is little sound evidence that this is so. Preliminary experiments gave irregular results, and those hitherto published by others were not confirmed. Ultimately it was found that the albuminuria and other evidence of renal damage alleged by various investigators to result from high protein feeding apparently depended on lack of vitamins or some other essential constituent of fresh food. If a very small amount of cabbage be given to rabbits, no renal changes are produced, even when the animals are kept on an otherwise exclusively protein diet for long periods. There seems to be no evidence that excessive protein diet, as such, is harmful to the kidneys. The extreme sensitiveness of the renal system to lack of vitamins is very striking, and it is highly probable that attention to this point may be of importance in the general treatment of nephritis.

At St. Thomas's Hospital also some striking observations have been made of the effects on the chemical exchanges of the body, especially those affecting carbohydrates, produced by various disturbances of the ductless glands. It seems that many patients suffering from disturbances associated with obesity show various points in common with the diabetic patient who is receiving large amounts of insulin: indeed, it seems probable that some endocrine disorders are associated with the presence of an excess of insulin in the system.

DISORDERS OF THE CARDIO-VASCULAR SYSTEM.

In the cardiographic department of University College Hospital Medical School, Sir Thomas Lewis and his assistants have continued their researches into circulatory problems, and the report refers to several scientific papers which have been published during the year. Dr. Drury found that cold, pressure, and increased acidity all depress the rate of conduction in auricular muscle and, if sufficient

in degree, prevent the impulse from passing. In all these conditions the wave becomes slower as it progresses, and is eventually brought to a halt in the muscle. These conduction defects are not due, as previously supposed, to change in the length of the refractory period, but to a phenomenon akin to that which has been described as "decrement" in nerve. The researches open up a new field of observation so far as cardiac muscle is concerned, and an important new line of thought.

DISORDERS OF EXCRETORY SYSTEM.

Financial assistance has been provided for work on experimental nephritis at the University of Manchester by Professor J. S. Dunn and Dr. N. A. Lovett. During the year a study has been made of the influence of water diuresis on the urea retention of acute oxalate nephritis, and results have been obtained which point to copious elimination of urea by the renal glomeruli. Dr. S. L. Baker, receiving a part-time grant at the Middlesex Hospital, has studied two cases of obstruction of the renal tubules caused by the excretion of haemoglobin following the intravascular haemolysis of transfused blood. Experiments have been made to determine the conditions under which haemoglobin is excreted and is thrown out of solution *in vitro*. The results indicate that with the excretion of haemoglobin in the glomerular transudate, which, like the blood plasma, is slightly alkaline, renal obstruction is due to the increase of the acidity and salt concentration in the tubules, which causes precipitation of the pigment, probably in the form of haematin. This would explain the production of intrarenal obstruction in cases of the type described and also in blackwater fever. A suggestion for the treatment of these conditions is, accordingly, the production of an alkaline diuresis.

THE GLANDS OF INTERNAL SECRETION.

Professor V. Korenchewsky and Miss M. Carr have been working at the Lister Institute on the influence of the sexual and prostate glands upon the chemical processes of the body. They conclude that the sexual glands contain hormones which increase nitrogen metabolism, and that the varying effects upon the nitrogen metabolism actually obtained after injection of emulsions of testis or of ovaries may be explained: (1) by the presence in them of specific substances (for example, of the corpora lutea in ovaries) or of non-specific substances (for example, of insulin type) in varying amounts; (2) by various degrees of functional efficiency in the synergetic and antagonistic endocrine glands. The experiments suggest also that the prostate gland produces an internal secretion which has an effect on thyroid activity.

INSULIN AND DIABETES.

At the National Institute Dr. Burn and Mr. Marks have continued their work on the influence of the thyroid gland upon the response made to insulin. It appears that the thyroid hormone alters the balance normally held between output of sugar from the liver and its removal from circulation by accentuating the response of the liver, thereby increasing the hyperglycaemia produced by adrenaline and reducing the effect of insulin. Moreover, when the liver, owing to a persistent excess of response under prolonged administration of thyroid substance, has lost its reserve of glycogen, the animal acquires a secondary and extreme sensitiveness to insulin. This is shown, not only in the effects produced by injecting insulin itself, but also in those following the injection of glucose, the uncompensated response of the pancreas to this stimulus liberating sufficient insulin to remove all the available sugar from circulation, so that death from hypoglycaemia results. Many other investigations into insulin therapy are being assisted by grants from the Medical Research Council. The work of Dr. G. A. Clarke at Sheffield has already brought new knowledge on this question. He has shown that stimulation of the vagus produces a secretion of insulin. Repeated stimulation—for example, by pilo-

carpine—causes a temporary condition of diminished glucose tolerance, an effect which cannot be produced after section of the vagus.

TUBERCULOSIS.

Dr. Dudley and Dr. Laidlaw of the National Institute are investigating the chemical nature of a material prepared by Dr. Laidlaw from tubercle bacilli. This substance yields precipitates in extremely high dilutions with the serum of an animal immunized against the whole protein constituents of tubercle bacilli, but will not itself evoke the production of such a precipitating serum. Like a similar specific substance obtained from pneumococci, it has proved to be a complex carbohydrate, free from nitrogen, having the properties of a gum. On hydrolysis it yielded pentoses and a more complex nucleus which resisted disintegration. The identification of these bacillary constituents, formed apparently by the linkage of simple sugars, yet reacting with such exquisite specificity with the antibodies formed in an animal injected with the corresponding bacillary substances, opens a new and fascinating field in immunology. In a report published by the Tuberculin Committee in 1925 on tuberculin tests in cattle, with special reference to the intradermal test, it was shown that a modified intradermal test was the one most easily used and gave the most consistent results. The committee has continued to advise various authorities, associations, and private individuals on the tuberculin testing of cattle.

The treatment of tuberculosis by sanocrysin has been tested in several hospitals during the last year. Professor Moellgaard, courteously gave the Council a full supply both of the gold salt and of the protective serum for clinical trials in this country, and arranged that his preparation should not be made available for general use until the results of these trials were known. A preliminary report on these first clinical trials has been published. The evidence so far obtained justifies further study of this drug; all observers seem to agree that the gold salt has some action on tuberculous tissues, but Sir Almoth Wright concludes from his experiments that sanocrysin exerts no direct bactericidal effect upon the bacilli in human tuberculous lesions.

THE PNEUMOCOCCUS GROUP.

Dr. R. R. Armstrong's work on immunity against the pneumococcus has been assisted by a grant from the Council. He worked with a standard strain of pneumococcus Type II of constant virulence, and, using the protective power of the serum upon mice as the index of immunity, he has been able to plot curves of the onset and progress of the immunity produced in rabbits by a single or multiple doses of vaccine. The immunity shows itself, after a single adequate dose, in from three to five days, reaching its maximum in eight days. The process has been similarly studied in naturally occurring lobar pneumonia in man, and is found to follow an almost identical course. A comparison of the relative effects of raw and sensitized vaccine was made by similar methods, and it was found that while sensitized vaccine rapidly conveys a certain degree of passive immunity it is inferior to raw vaccine in its ultimate immunizing power. These results have an obvious and important bearing upon the application of vaccines in the prophylaxis and treatment of pneumococcal infections.

Dr. Gaskell, working at Cambridge, has continued his experimental work on the production of pneumonia. Further evidence has been obtained that the kind of damage produced in the lung depends upon the virulence of the infecting organism, and not upon the dosage of infection given, if the dose does not fall below an effective minimum. The chances of the introduction of an effective dose, which is probably brought about in human infection by the passage of small quantities of saliva down the trachea, are greatly increased with the increase of virulence of the infecting organism. On the other hand, the frequency of terminal bronchopneumonia produced by an organism of comparatively low virulence in conditions of prolonged unconsciousness, such as cerebral haemorrhage, can be explained by the comparatively gross inhalation of saliva that such conditions allow.

FILTER-PASSING VIRUSES.

Malignant Disease.

The Medical Research Council has always given every encouragement to research work on the filter-passing viruses. The researches of Dr. Gye and Mr. Barnard, which attracted so much attention last year, were carried out at the Council's Farm Laboratories, Mill Hill, and at the National Institute at Hampstead. The essential features of Dr. Gye's work were that he showed that the filterable virus of the Rous sarcoma could be shifted in fluids containing it by very rapid rotatory movement, and is therefore corpuscular. In the second place, he devised means of cultivating the organism artificially. He found evidence that the cultivated and isolated germ could not, when acting alone, produce a new tumour, but only in the presence of an equally essential second factor, a non-corpuscular and therefore a non-living and soluble chemical substance which could be obtained from the substance of the previous tumour. The ultra-microbe, together with the chemical factor, regularly gave a new malignant tumour. Mr. Barnard devised special means for demonstrating the presence of this microbe and for gaining some first approximation to its description by using ultra-violet light having wave-lengths shorter than those of visible light. With a view to gaining information more rapidly with regard to the possibilities lying within this work on cancer, and in view also of the assistance it may bring to the work upon canine distemper and other studies of filterable viruses, the Council is constructing additional laboratory accommodation at Mill Hill, to which Mr. Barnard's Department of Applied Optics, including the work upon ultra-filtration, will be moved from the National Institute at Hampstead.

Vaccinia and Variola.

Other filter-passing viruses also have been studied intensively during the period covered by this report. Dr. Mervyn Gordon's work on vaccinia and variola has been published during the year, and we called attention to it when it appeared; he also communicated an account of it to the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association at Bath.¹ He gave reasons for the conclusion that the immunity reactions which the virus evokes are closely analogous in all respects to those elicited in similar conditions by the better known pathogenic bacteria. The virus of vaccinia was shown to be particulate though invisible by ordinary means: its virus can be thrown down from its clear suspension in fluid when it is exposed to specific agglutinating antiserum. Dr. Gordon showed also that in the absence of a wound the easiest mode of access to the animal body by the virus is through the lining membrane of the nose. This observation of the special susceptibility of the nasal mucous membrane may provide a useful link between the agent of vaccinia and the unknown causative agents of influenza and of common colds. Dr. Gordon found that the viruses of small-pox from five separate epidemics, when compared by strict serological methods, all gave positive reactions with antivaccinia serum. No difference in this respect could be found between the virus from the mild type of small-pox sometimes called *ala-trim* and that from the severe examples of the disease. Recent observations by Dr. Gordon indicate that the distribution of the cow-pox virus amongst animals is even wider than has been believed hitherto.

Encephalitis Lethargica and Herpes.

Further work has been done by Dr. J. R. Perdrau on encephalitis lethargica and herpetic infections. The main conclusions he has formed are that the virus of herpes is identical with the causal agent of encephalitis lethargica, and that the almost complete failure of workers to infect susceptible animals with the latter is probably due to the presence of an antibody in the infected brain tissue. These conclusions were tested during the year and were confirmed by the demonstration of the herpetic virus in the brain of the only fatal cases of encephalitis lethargica

available, three in number. An antibody formed in response to inoculations of the herpetic virus has been found to neutralize *in vitro* comparatively large doses of the virus.

EXPERIMENTAL EPIDEMIOLOGY.

The studies in experimental epidemiology, mentioned in previous reports, have been continued during the year, and are now under the joint direction of Professor W. W. C. Topley and Dr. M. Greenwood. In a first report on this work the data of experimental epidemics of pasteurellosis in mice, lasting for more than three years, are analysed and discussed. Definite and significant conclusions can be drawn from the observed results of the immigration of susceptible animals into an infected population. It is shown that pasteurellosis will continue as a fatal infectious disease within a herd of mice for an indefinite period, exceeding at least three and a quarter years, or more than a complete generation, speaking in terms of the normal lifetime of the mouse, on the sole condition that the population at risk is replenished by susceptible but non-infected animals. The mortality of such a population is not steady, but shows wave-like reinforcements. The death rate increases with increasing immigration, but not to such a degree that the deaths outnumber the additions. The intervals between the waves of mortality are longer when the rate of immigration is low; when the immigration rate is high those intervals become very short, and tend to become merged into a steady high level of mortality. It is obviously not true, so far at least as the animal and infective organisms studied are in question, that an infectious disease can be brought to a standstill in an infected community, even by rigorous exclusion of infected immigrants.

SPIROCHAETAL JAUNDICE.

Dr. George Buchanan has continued his work on spirochaetal jaundice, and examined 51 suspected cases occurring throughout Scotland. In 22 a positive clinical diagnosis was made and subsequently confirmed by laboratory findings. Of the 22 cases, 8 occurred among coal-miners, in addition to 9 earlier cases which had been diagnosed on clinical symptoms alone. Anti-spirochaetal serum was used in several cases, and had apparently effective results when given during the first week of illness. Dr. Buchanan is studying several questions which may throw light on the epidemiology of this disease. Several wild rats from Edinburgh and other parts of Scotland and samples of water from mines and elsewhere have been examined for the presence of *Leptospira icterohaemorrhagiae*. Pathogenic leptospiras were isolated from a high percentage of rats; organisms of the same genus were also found in many samples of water, but the proof of their pathogenic identity is not complete. The organisms passing from infected rats were found to lose their pathogenicity outside the body, and there is reason to believe that human infection from soil or water, fouled by infected rats, probably occurs only after quite recent contamination.

INDUSTRIAL INVESTIGATIONS IN WORKSHOPS AND FACTORIES.

The investigation of the effects of short rest pauses introduced into long spells of repetitive work has been continued by the staff of the Industrial Fatigue Research Board. Since the comparison made by Dr. H. M. Vernon and Mr. T. Bedford of the outputs in certain factories over periods respectively before and after the introduction of rest pauses, full facilities have been obtained in four factories for practical trials, with continuous observation of the workers. This part of the investigation has confirmed the previous work in showing that the judicious introduction of rest pauses almost always has a beneficial effect, and that the workers unconsciously respond in such a way that their output is increased notwithstanding the shorter time actually worked.

This concludes our review of the researches described in the report of the Medical Research Council. We shall deal with the question of biological standards in a separate article.

¹ BRITISH MEDICAL JOURNAL, 1925, VOL. II, PP. 132 AND 715.

British Medical Journal.

SATURDAY, JANUARY 23RD, 1926.

THE SEQUELAE OF EPIDEMIC ENCEPHALITIS.

THE lecture on post-encephalitic Parkinsonism by Dr. Arthur J. Hall, which we publish this week (p. 127), not only suggests some useful lines of treatment, but serves to draw attention to the disastrous after-effects of epidemic encephalitis. The latter, indeed, constitute one of the most sinister features of the disease, and, as Dr. Hall points out, owing to the fact that disease of the nervous system and disorders of behaviour may follow a mild or unrecognized attack and may not develop for six, twelve, or eighteen months after the acute illness, or even, in rarer cases, not for years, it is difficult at present to estimate the actual incidence of this disease in the community or the extent to which it is followed by permanent organic damage. The disorders of behaviour, taking the form in some cases of definite delinquency, must be regarded as one of its most serious results; and more particularly is this true since, when associated with very slight or unrecognized neurological signs, the origin of the changes in personality may not be detected, and the patient may thus be inadequately or even unjustly dealt with.

The relation between lethargic encephalitis and delinquency has recently been brought to the notice of the public by Mr. Charles G. Ammon, M.P., who has written letters to the *Times* (January 6th and 16th) on the subject. The immediate occasion of his letters was the case of a youth of 20 who, at the age of 14, suffered from encephalitis which left him morally and mentally impaired. He was treated as an out-patient at the Maudsley Hospital, and later, owing to the development of suicidal tendencies, certified. Subsequently he was taken out of the mental hospital by his mother, under Section 79 of the Lunacy Act. Later the lad was sentenced to three months' imprisonment for stealing a bicycle, the magistrate being unaware of his previous history. On December 22nd, 1925, he was brought before the magistrate at the Lambeth police court charged with stealing a shilling; and, knowing that the mother had not apprised the magistrate on the earlier occasion of the medical history, Mr. Ammon acquainted him with the facts, with the result that the lad was eventually bound over and placed on probation for twelve months. That such a case opens up the whole problem of disease and delinquency Mr. Ammon recognizes, and he asks whether we are to add to the numbers of our criminal population in the days to come owing to inefficient methods of education and control, or whether we are to take the long view and be prepared to spend more money on special schools and medical and other methods, in order that the potential criminals, pathological rather than vicious, should be turned out as good citizens. In a contribution to the discussion on this subject in the *Times* (January 13th) Lord Henry Bentinck, chairman of the Howard League for Penal Reform, supports Mr. Ammon's views, but refers to the number of epileptics, cripples, and persons accused or convicted of attempted suicide who are found in the prisons, and expresses the hope that a special institution should be

opened for encephalitic cases, and that this should form part of a larger scheme for the provision of treatment for all pathological offenders.

We do not doubt that Mr. Ammon has done a considerable public service in writing about this particular case, and it is gratifying to observe how closely the views expressed by the various correspondents are in accord with those held by the medical profession in general and psychiatrists in particular. As we have indicated above, it is difficult to estimate the number of mental cases associated with lethargic encephalitis. Many in which the home care must be quite inadequate are uncertifiable under the Lunacy or Mental Deficiency Acts, and the medical practitioner and social worker are powerless to deal with them; like so many potential and pathological delinquents, nothing can be done till they commit some offence, and even then, as Lord Henry Bentinck points out in his letter, a medical report is often only the beginning of the magistrate's perplexities. In the last report of the Board of Control it was stated that its register showed that there were 140 patients suffering from the after-effects of the disease in mental hospitals, and about 60 in mental deficiency institutions. Forty-three of the patients in mental hospitals are under the age of 20, and for them it is particularly desired to find some other form of accommodation. It is considered that the study and treatment of this new condition can be more effectively secured by collecting the patients into institutions under the observation of a medical staff in close touch with a centre of medical education and research. With this end in view the Board approached the authorities of London and Lancashire with the suggestion that the patients scattered in the institutions of these respective counties should be transferred to one mental hospital and one mental deficiency institution in each county where special facilities for research existed or could be developed. Each of these authorities responded as regards both its own mental hospital and mentally defective patients, but they were unable to adopt the suggestion to make provision for out-county patients of this type. The Metropolitan Asylums Board has made special provision, however, for patients with encephalitis lethargica as well as for those exhibiting its after-effects. Negotiations are also in progress, the report states, between the Board of Control and the committee of the County and City of Oxford Mental Hospital, with the object of securing an additional centre for concentration of cases at that institution.

In a recent paper¹ dealing with the psychological aspects of lethargic encephalitis Dr. G. A. Auden, school medical officer for Birmingham, gives a vivid description of the abnormalities of behaviour which develop in many children who have suffered from this disorder. The chief mental disturbances are a reduction of intelligence, marked irritability, character changes and moral defects, perverted habits, and disturbances of sleep rhythm. It is not, as he observes, the sleepiness by day which is the most distressing feature of the last symptom, but the noisy irresponsibility at night, which destroys the whole household's rest, and this in the often overcrowded homes from which many of the children come is a curse to the overburdened parents. Dr. Auden suggests that in the theory of the evolution of the nervous system put forward by Head and Rivers we may find the key to a proper understanding of the volitional defects and character changes of encephalitis. On the one hand, there is a reduction of epicritic control; on

¹ Encephalitis Lethargica—Psychological Implications, *Journ. Ment. Sci.*, vol. LXI, p. 647.

the other, a tendency to the obliteration of the distinction between *meum* and *tuum*, the all-or-none type of irritability, complete disregard of the interests of others (manifested in the nocturnal orgies of singing and shouting), together with the failure of self-criticism, which seem characteristic of a protopathic condition. In such cases, as Dr. Auden observes, punishment can have little or no deterrent effect, but, on the contrary, may have disastrous results by fixing an antisocial attitude. Furthermore, the conditions under which many of these children live render treatment at home both ineffective and for other reasons undesirable. Most medical men who have had experience of these cases would agree with Dr. Auden that institutions for their reception are one of the most urgent needs of the present time. It is thus satisfactory to know that the Ministry of Health, the Board of Control, and many local authorities are making every endeavour to provide care for these cases in institutions where they can be properly classified, re-educated, and provided with adequate outlets in the form of occupation and recreation. Apart from the pressing need of care, control, and treatment of these post-encephalitic cases, investigations in relation to the sequelae of lethargic encephalitis may be expected to shed considerable light on the problems of psychiatry, for here the changes in temperament, character, and instinct are clearly associated with demonstrable biological changes and disease of the nervous system.

Thus from the social aspect we observe in the encephalitic symptom-complex a significant relationship between delinquency and disease, and from the pathological aspect a problem which requires the full resources of psychiatry, neurology, and general medicine for its solution.

THE PRODUCTS OF CINCHONA IN THE TREATMENT OF MALARIA.

The Institute for Medical Research, Federated Malay States, has issued as one of its *Bulletins* (No. 3 of 1925) some further notes of great importance relative to the use of "cinchona febrifuge" and the alkaloids of cinchona in the treatment of malaria. The research, which was carried out by Dr. William Fletcher, was directed to finding answers to two problems which confronted the Malay Government: first, the advisability of employing cinchona febrifuge to supplement quinine; secondly, the policy of planting cinchona in Malaya. The causes that have led to the need for considering these problems and a scientific solution of them are detailed in this report, which is both informative and well written.

The term "cinchona febrifuge" has a different significance, at the present day from what it had originally, fifty years ago. In 1874 it meant a mixture of the active principles extracted from cinchona bark; now it is the residue after removal of quinine—in other words, any mixture of the by-products of quinine manufacture which the makers choose to put upon the market. Since the action of bark in malaria is due to the crystallizable alkaloids contained—quinine, quinidine, cinchonine, and cinchonidine—the value of the "febrifuge" depends on the amount of these remaining. Its composition is, therefore, not constant, and it contains amorphous alkaloids, classed together as "quinoidine," which cause toxic symptoms, vomiting, and diarrhoea. The four crystalline alkaloids have been proved to be equally serviceable in a dose of 10 grains twice daily;

in smaller quantities quinine and quinidine are superior. The booming of quinine to the exclusion of the other alkaloids has led to the restriction of cultivation of cinchona to the yellow varieties, which give a larger yield of quinine, and these can be grown only in certain places, such as Bolivia and Java. The red bark contains about half the proportion of quinine, but does not need special soil and climate. There is no real shortage of quinine, as has been stated, but the drug is expensive owing to the cost of production and restriction of output.

At Kuala Lumpur two groups of men suffering from various forms of malaria were treated, the one with quinine, the other with cinchona febrifuge. The former drug proved quite satisfactory in doses of 0.1 grain per kilo twice daily; by doubling the dose equally good results were obtained with the febrifuge. Larger doses of the latter were not necessary, and, moreover, caused toxic symptoms owing to the contained amorphous alkaloids, which are valueless as regards malaria. Cinchona febrifuge is, therefore, to be looked upon as an inexpensive method of treating the disease, but owing to the varying composition and the length of time required for making a difficult analysis for legal control, it is proposed that the Government of the Malay States should purchase the production in bulk, have it assayed, put up in tablets, and issued authoritatively. It could thus be used of standard composition for the majority of the people, while quinine could still be employed by those able to afford it.

The next investigation recorded by Dr. Fletcher is a comparison of quinine with quinidine sulphate. Seventy-two patients were divided into two groups, and were given twice daily 0.1 grain per kilo body weight of the respective drugs. The results are reported in detail, but may be summed up by saying that the immediate effect of the quinidine salt on the temperature and disappearance of the parasites was slightly better than that of quinine. Previous reports on the value of cinchonine had been contradictory; the discordant results are believed to be due to impurities in some of the samples used. As in the previous investigations, the patients were divided into two groups: one received 0.1 grain per kilo body weight twice a day, the other double this dose. In comparison with quinine the smaller quantity proved less effective in reducing the fever and clearing the peripheral blood of parasites; the larger doses, however, were as effective as quinine, and the alkaloid was not more toxic.

The upshot of this work is, therefore, to show that quinine need not be kept at the high price which it fetches at present; that there is no real world shortage of quinine; that in the other, neglected, alkaloids we have quite efficient substitutes; lastly, that from the red barks, which can be grown much more easily than the yellow, products are obtainable perfectly efficacious for the treatment of malaria inexpensively.

THE COLONIAL MEDICAL SERVICES.

THE controversy between the British Medical Association and the Colonial Office in connexion with the application of the new Regulations for the East African Medical Service (referred to in a leading article in the *BRITISH MEDICAL JOURNAL* of January 9th, 1926, p. 59) has given rise to a considerable amount of comment in the lay press. Unfortunately, in several instances the exact point at issue has not been made clear, and in general the notes which have appeared would seem to have been inspired by the

views of the Colonial Office rather than by any close examination of the Association's statement printed in the SUPPLEMENT of January 9th. In particular, there appeared in the *Times* of January 14th, under the heading "Medical Service in East Africa: Action by the B.M.A.," a statement which seemed to the Executive Subcommittee of the Dominions Committee, which met that afternoon, to be so misleading as to require a detailed rejoinder. A special statement was accordingly drawn up and forwarded to the *Times*. This appeared in the *Times* of January 18th, with an editorial introduction explaining that the former article represented the views of the Colonial Office—an explanation quite sufficient to account for the terms of that article. An exception to the general statement that the lay press has given priority to the views of the Colonial Office is afforded by *East Africa*, a weekly journal devoted to the interests of East and Central Africa, which reprints in full in its issue of January 14th the statement published in the SUPPLEMENT of January 9th. A note from Nairobi in the same journal deals with the opposition of the elected members of the Kenya Legislative Council to the formation of a unified East African Medical Service, and confirms reports already received from the Kenya Branch of the British Medical Association. Apparently there is considerable feeling in the colony that this is a step towards the federation of the East African Dependencies, and as such constitutes a breach of an understanding that no such step should be taken without consultation with the European section of the community. With this aspect of the controversy the Association has, of course, no concern, except in so far as it involves the general principle that no policy should be enforced at the cost of a breach of faith. It will be unfortunate if any valid obstacle to the unification of the service should emerge at this stage in the development of East Africa, for the measure is clearly conducive to a more efficient provision for the public health. In the SUPPLEMENT this week (p. 27) is reproduced the correspondence between the British Medical Association and the Colonial Office.

DIPHTHERIA CONTROL IN AUSTRALIA.

An intensive campaign against diphtheria was conducted at Bendigo, Victoria, during the years 1923 and 1924, and the story of this effort is reported in a publication of the Health Department of the Commonwealth of Australia (Service Publication No. 28). During the year 1923 more than 7,000 children were examined by swabbing the nose and throat, and 9.69 per cent. were found to be "carriers." The average age of these carriers was 8.7 years. The percentage of carriers was found to be much higher in the congested urban districts than in the rural, and in the great majority of carriers some pathological condition was present in the child's nose or throat. Virulence tests showed that 42.5 per cent. of the carriers harboured virulent diphtheria bacilli. The next phase of the campaign was the application of the Schick test to the school children in this district. In order to secure parental consent articles were written for the local press and meetings of schoolmasters were addressed by medical officers. Among 5,761 children the consent of the parents for the application of the Schick test was obtained in 1,616. About 46 per cent. of these children gave a positive reaction; among 147 carriers the percentage was approximately the same—namely, 43. The third stage of the campaign was the immunization of susceptible children by inoculation with toxin-antitoxin mixture. The serum was prepared by the Commonwealth Serum Laboratories, and three doses were given of 1/8, 1/2, and 1 c.cm. Consent was obtained for the immunization of 673 of the 725 children who gave a Schick positive reaction, but for various reasons it was not possible to complete the course of injections for all. Schick tests were

carried out again two months after treatment, and in most cases it was found that the treatment had abolished the previous positive reaction or considerably reduced its strength. It is too soon to expect the efforts made to combat diphtheria to show any very dramatic change in the case incidence in the district, but it appears that fewer notifications are now being received, and for the last three weeks of the month of August, 1924, the diphtheria ward of the Bendigo Hospital was empty, for the first time in the history of the hospital. Dr. Keith Moore, the author of the report, observes in his review of what has been achieved that the residual diphtheria in this district may be due to the fact that the campaign did not effectively reach the age group of 2 to 5 years—that is, the pre-school population—among whom diphtheria reaches a high incidence. Also, the Schick testing and active immunization reached only 40 per cent. of the total school population, or 25 per cent. of the total child population of the district. It is unlikely that in such an area as this Schick testing and active immunization alone will provide an abrupt conclusive solution of the diphtheria problem. Dr. Moore wisely concludes that the established methods, based on notification of cases and activities indicated by the circumstances of the actual known case, should not yet be discarded or modified in any detail. Such measures secure a following up of every case and the careful swabbing of every contact or possible contact, combined with a perfecting of early diagnosis and segregation, and the education of doctors as well as parents in dealing with all cases of slight throat ailments.

RESEARCH IN MENTAL DISEASE.

In his annual report for the year ending November 30th, 1924, Dr. C. Macfie Campbell, the director of the Boston Psychopathic Hospital, has taken occasion to plead for a broader conception of the nature of research in mental disease. Research is not to be looked upon as an activity of absolutely different nature from that involved in the regular tasks of the wards and of the laboratories. Research, he says, depends more upon an inquiring spirit than upon unusual facilities. The research worker was not made from different clay from his fellows, and the busy house officer or laboratory worker, if of a sensitive and inquiring turn of mind, would derive from his daily experience material worth digesting. There were few patients admitted in whom an intelligent house officer did not see the possibility of obtaining data which would have some bearing upon at least one of the many unsolved problems of psychiatry. The data might refer to the problem of the constitution of the individual; to the influence of early experiences on later personality; to the causation of symptoms by environmental stress and strain; to the relationship between mental disorders and the simple bodily systems; to the part played in adult behaviour by subconscious factors; to the kinship of the mechanisms of mental disorders and those at the basis of important social phenomena such as delinquency or class embitment; to the influence of various modes of treatment, whether physical therapy, drug therapy, or psychotherapy. The study and treatment of a case could never be well carried on if it was looked on as possessing no research interest, and such medical work could only be properly done by a physician well informed of the present limitations of knowledge in regard to these topics, and eager to make some contribution to the solution of unsolved problems. Good medical care of patients and interest in research should go together. A considerable section of the report is concerned with the consideration of cases which have been referred to the hospital from the courts and other social agencies, and with the problems arising therefrom. There was much current misconception as to the attitude of the

psychiatrist towards court cases. At the Boston Psychopathic Hospital a steady stream of patients were referred by the courts, presenting problems of the greatest variety, in regard to which a psychiatric opinion was required. The extent to which such an opinion determined the disposal of the case varied considerably. In some cases the problem was seen to be almost entirely medical; in others there might be no convincing evidence of any pathological mechanism in the case, which therefore might have to be disposed of by the court in the accustomed legal way. The fact that the physician was specially interested in the individual, and studied him from the point of view of treatment, did not mean that the physician had a deterministic standpoint in regard to social behaviour, nor that his bias was in the direction of reducing the responsibility of the patient. Numerous illustrative cases are quoted in the report.

MEDICAL REGISTRATION IN THE IRISH FREE STATE.

ACCORDING to the Dublin correspondent of the *Times*, the Free State Government has announced this week that it proposes to introduce legislation in the Dail next month to extend for a further period of six months the present arrangement with the General Medical Council as to medical registration. It will be recalled that on February 23rd, 1925, a measure sanctioning the continuance of the Council's powers for a year from that date was enacted by the Free State Legislature. The Act provided that in Southern Ireland the Council's constitution and powers, and the powers and responsibilities of its universities and corporations, should continue to be regulated by the Medical Acts in the same manner as before the Irish Free State was established. On August 15th, however, the Executive Council of the Free State Government announced that it had decided to set up a separate *Medical Register* for the Irish Free State. That unexpected and most unwelcome decision immediately aroused the opposition of the medical profession, whose objections received widespread support in the daily press of Southern Ireland. The general opinion was that a serious error of policy had been committed by the Executive Council. Medical meetings of protest were held before the end of the summer in Dublin and elsewhere, and the situation was described in the *BRITISH MEDICAL JOURNAL* of August 22nd (p. 358), August 29th (p. 386), and September 5th, 1925 (p. 455). We can well believe that the Free State Government's latest decision to renew the 1925 Act for a further period after its expiry next month has been received with pleasure by all classes. With good will on both sides this should provide time in which to devise some satisfactory permanent arrangement. Meanwhile, and for six months from February 23rd, the General Medical Council continues to exercise authority in respect of registered medical practitioners in the Irish Free State, who for their part retain the professional rights and privileges they enjoyed before the State came into existence.

THE CHARACTER OF CLAUDIUS.

WE have recently received an interesting dissertation by Dr. Thomas DeCoursey Ruth, entitled *The Problem of Claudius: Some Aspects of a Character Study*, which was submitted some years ago to the Board of University Studies of the Johns Hopkins University in accordance with the requirements of the degree of Doctor of Philosophy, and has now been published. The author points out that, with the rise of scientific method in scholarship, a very fair

The Problem of Claudius: Some Aspects of a Character Study.
By Thomas DeCoursey Ruth. Baltimore: The Lord Baltimore Press
(2nd ed., 1925.)

Julius Caesar and Augustus, and even of Caligula and Nero, has been gained during the last century, but that the characters of Tiberius and Claudius, particularly the latter, remain perplexing problems. This research, it appears, was not undertaken merely to elucidate the character of Claudius, but also with the intention of laying due stress upon his mental and physical peculiarities, with the object of arriving at a proper estimate of their nature and extent and of their influence upon his personality and reputation. The study of his behaviour and physical defects as presented by ancient authorities leads Dr. Ruth to the view that Claudius was neither imbecile nor insane, but that he was the subject of infantile diplegia, or Little's disease. As a result of this physical disability Claudius was subjected to severe stresses, indignities, and hardships in childhood, and it would appear highly probable, as the author believes, that the abnormalities of behaviour which the emperor exhibited in his later years might have been largely due to the effect of these traumata acting on a sensitive disposition. The writer is not a physician, but he submitted the clinical data obtained from his research to competent medical men, and his diagnosis has been well thought out. It is evident that modern psychiatry and neurology are capable of shedding much light on the characters of historical personages, and this dissertation will no doubt have an interest and value for both the general and the medical historian.

ANTIMALARIAL TACTICS.

THE report of the Malaria Advisory Board of the Federated Malay States for 1924, short though it is, affords abundant evidence that the authorities are fully alive to the dangers of any relaxation of effort in the campaign against mosquitos and against those responsible for allowing them to breed unchecked. Particulars are given of legislative measures suggested, debated, and carried during the year. They aim at fixing upon the individuals or bodies at fault the responsibility for permitting remediable insanitary conditions to remain. This is effected by regarding such conditions—among them, for example, such as tend to favour the propagation of mosquitos—as actual or potential dangers to the public health, and therefore penal as statutory nuisances. When there is any doubt as to the party responsible the board meets to discuss the question—a most satisfactory mode of deciding differences of opinion which inevitably crop up in nearly all colonies between the health department and the public works officials. Paris green as a larvicide has been well tested, and it is interesting to note that it proved excellent as a destroyer of the larvae of both anophelines and culicines, but was without effect on eggs or pupae. A special investigation is in progress relative to the important problem of malaria and rice cultivation. Finally, propaganda work is being energetically pursued by means of demonstrations, lectures, and pamphlets in English, Malay, and Chinese, whereby all races and classes may be reached.

HELMINTHS AND HEALTH STANDARDS.

FOR a long time the literature of tropical medicine has been inundated with reports upon hookworm infections and the dire evils which these parasites cause, either directly or indirectly. Hardly a single symptom can be named which has not been attributed at some time or other to ankylostomiasis. It is therefore a matter for congratulation that the problem is now being tackled from a common-sense point of view. Dr. R. M. Gordon has investigated without bias the effects on the general health, physical standard, the mentality, and the energy of West African natives of the three commonest and most widely distributed

helminthic parasites.¹ It is true that the inquiry dealt with a comparatively small number of individuals, but the results proved most interesting and instructive. He divided the patients into groups and devised three standards of efficiency, which he has designated A, B, and C. An illustration appended to the paper shows, so far at least as a photograph can, that the physical standard of the comparatively heavily infected may be equal to that of the lightly infected. The effects on the haemoglobin percentage were too variable to allow reliable deductions to be drawn, but it was found that a certain group of heavily infected individuals actually gave a higher reading than others less severely attacked. Mental alertness is a difficult matter to assess, but heavy infections on the whole had a deleterious influence in that none of those affected attained the standard of Group A. A similar lowering of the standard of energy, gauged by the "keenness with which an individual attempts any mental or physical task allotted to him," was demonstrated in those harbouring large numbers of worms. For preventive purposes, to obviate spread of infection to others, treatment of cases is the correct procedure, but, in the author's opinion, a medical practitioner in the tropics is not justified in undertaking mass treatment without first examining as to the degree of infection and the pathogenic effects of hookworm on the race among whom his lot is cast. Dr. Gordon's contribution may be the start of the backward swing of the pendulum, but we must be careful not to argue too readily, on the basis of a few cases, from the particular to the general when so much evidence has been adduced to the contrary.

A CONDEMNATION OF APÉRITIFS.

In France grave concern is expressed, both by public bodies and in the medical profession, at the recrudescence of alcoholism. At the end of September last year the General Council of the Department of the Rhône passed a resolution, which was supported by M. Herriot, the President of the Chamber of Deputies, demanding prohibition of the aniseed liquors which are sold under a variety of fancy names. The Council regarded these liquors as substitutes for absinthe, the consumption of which was prohibited by statute in 1922; and the reason given for the resolution was the increase of insanity, which was stated to be in direct relation with the increase in the consumption of alcohol. The subject of the recrudescence of alcoholism was raised at the Académie de Médecine on three occasions last year. In July Professor Achard called attention to the renewed abuse of wine and spirits, and the evils of alcoholism it was bringing with it. In November M. Jean Lépine, professor of nervous and mental diseases at Lyons, stated that nervous and cerebral affections had, for some time past, taken on a special character, which he attributed definitely to the abuse of alcohol. In December M. Cazeneuve read a communication² attributing the recrudescence particularly to the abuse of aniseed "apéritifs." M. Cazeneuve disclaimed any intention of advocating a "dry" régime. In fact, he agreed with Bouchardat that "wine is the most important of fermented drinks, the most useful when employed with discretion, the least harmful, in certain respects, even when abused." It was the essence of anise, which had toxic properties like all the essential oils, that led to the dangers of the abuse of apéritifs, especially of the absinthe substitutes; and the decree of 1922 in banning absinthe had the grave objection of giving, as it were, official recognition to the consumption of the principal flavouring element of absinthe, the essences of

anise and star anise. M. Cazeneuve admitted that essence of anise, and its active principle anethol, did not rank high in the scale of toxicity among aromatic substances. But all essences were objectionable in daily use; and in apéritifs they led insidiously to alcoholism. Notwithstanding the protests of manufacturers of apéritifs, the reports of alienists and of Professor Richet had shown the harmfulness and dangers of these beverages. M. Cazeneuve concluded his address by inviting the Académie de Médecine to pass a resolution to the effect that more rigorous control should be exercised with regard to absinthe substitutes; that the terms of the decree of 1922 concerning absinthe substitutes should be reconsidered with a view to reducing their toxicity; and that an educative campaign should be opened for combating abuse in the consumption of alcoholic beverages. The resolution was not adopted, but in accordance with the Académie's custom M. Cazeneuve's communication was remitted to the committee on alcoholism. It is not quite clear whether M. Cazeneuve attaches more importance to the toxicity of essence of anise or to the excess in alcohol to which the flavour lends inducement. But it would appear that in France the taste of aniseed, which in this country is usually associated with paregoric and cough mixtures, has a peculiar attraction; and that the Frenchman, deprived of his pet flavour in absinthe, has taken to the consumption of substitutes in which the alcoholic element is potent. So far as England is concerned it does not seem necessary to condemn entirely the occasional use of cocktails and apéritifs—such, for example, as vermouth, which in our issue of August 29th last we described as standing, when compared with absinthe, much as a light wine to a spirit. Nevertheless, the habitual use of toxic essential oils which excite the cerebral cortex is to be deprecated; and where, as appears to be the case in France, they lead to alcoholic excess, restrictive measures may be necessary.

THE HEALTH ORGANIZATION OF THE LEAGUE OF NATIONS.

In connexion with the sixth anniversary of the foundation of the League of Nations, which fell on January 10th, it may be worth while to mention some of the work done by its Health Organization, which now includes the United States, Germany, and Russia. The Organization has extended its activities to Africa, Asia, and America through the development of its Epidemiological Intelligence Service, its interchanges of medical officers of health, special inquiries into different diseases, and applied research work on serums, serological tests, and biological products. An International Conference on Sleeping Sickness, held in London, decided to send an international mission to Uganda to study the best methods of stamping out sleeping sickness in equatorial Africa; this mission is now on its way to the scene of its labours. The Singapore Bureau of Epidemiological Intelligence has been at work for some months, and its usefulness has been recognized by a request recently received from the French Government for the establishment of a similar bureau on the West Coast of Africa. At the Sixth Assembly (September, 1925) no fewer than seven Governments presented requests of one kind or another to the Health Organization. The League's work on the opium problem culminated at the beginning of the year in two international conferences—one dealing with the smoking of opium in the Far East, and the other more especially with the international supervision and control of the traffic in morphine, cocaine, and other dangerous drugs of addiction. A commission of inquiry will shortly proceed to Persia to study the possibility of assisting the Persian Government to reduce opium production by substituting alternative crops in the place of the opium poppy.

¹ The Effect of Anisakis, Ascaris, and Trichuris Infections on the Health of Man. By R. M. Gordon, M.D. *Ann. Trop. Med. and Parasit.*, No. 1, December 16th, 1925.

² Sur les vraies causes de la recrudescence de l'alcoolisme, par M. Cazeneuve. *Bulletin de l'Académie de Médecine*, t. xciv, No. 42.

NINETY-FOURTH ANNUAL MEETING of the British Medical Association, NOTTINGHAM, 1926.

THE ninety-fourth Annual Meeting of the British Medical Association will be held at Nottingham this summer under the presidency of Mr. R. G. Hogarth, C.B.E., F.R.C.S., senior surgeon to the Nottingham General Hospital, who will deliver his address to the Association on the evening of Tuesday, July 20th. The Annual Representative Meeting, for the transaction of medico-political business and discussion of the internal affairs of the Association, will open on the previous Friday, July 16th. The sectional meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 21st, 22nd, and 23rd. The names of the officers of the thirteen Sections are published in this week's SUPPLEMENT, and details of the arrangements for the Annual Meeting will appear from time to time in later issues. On the last day of the meeting (Saturday, July 24th) there will be excursions to places of interest in the neighbourhood. We publish below the second of a series of articles on the past history and present activities of Nottingham; the first appeared in the JOURNAL of December 5th, 1925 (p. 1081).

NOTTINGHAM: A BRIEF OUTLINE OF ITS HISTORY.

BY
E. L. GUILFORD, M.A.

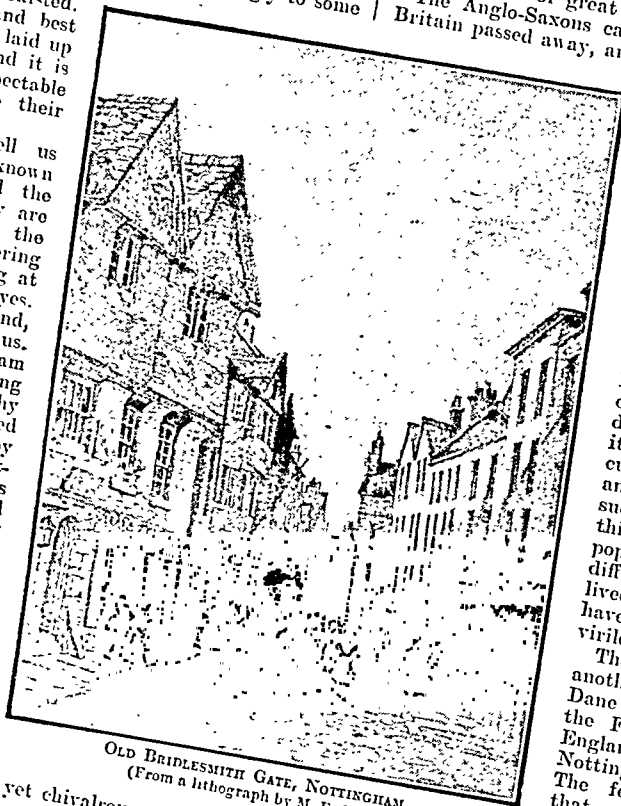
WHEN history became a science it lost much of its charm. Many of the most delightful stories have had to be cast aside and the history book of to-day knows them no more. Yet there are few of us who do not cling longingly to some dearly loved personage who, we are told, never existed. Many of our oldest and best friends have thus to be laid up in the lumber room, and it is no longer quite respectable for us to acknowledge their acquaintance.

Modern historians tell us that nothing definite is known about Nottingham until the year 868. Perhaps they are right, but we can see the ghosts of earlier days lingering in the background, looking at us with sad, appealing eyes. What tales John Rous, Leland, and the rest had to tell us. Why should not Nottingham have been founded by King Ethelric in 980 B.C.? Why should not Lucius have founded it about the time when Troy was suffering from the persistence of the Greeks? Lucius's father was named Coilus, and he was our old friend King Cole of the nursery rhyme. Then we have the Wise Men of Gotham, whose senseless actions have been the delight of endless ages. Are they to pass away too? Robin Hood clings tightly to his footing in popular favour, and it will take more than a few dry-as-dust facts to make us deny his existence. Sherwood Forest still breathes his spirit of reckless yet chivalrous rascality, and long may it continue to do so. The Romans had several stations in this district, though between Lincoln and Leicester there was no place of first-rate importance. Exploration of some of these sites has taken

place, but so far little has resulted except from Margidunum, where results of great importance are being achieved. The Anglo-Saxons came, and soon all traces of Roman Britain passed away, and the villages we know to-day came

into existence, many of them taking their names from the leaders of the parties who settled down there. Nottingham and Newark certainly existed then, even if they had not done so earlier. Both these places occupy important positions guarding the crossings of the Trent by old main roads, and would have been occupied in strength from very early times. The Saxons bowed the knee to the virile Dane, and Nottingham entered upon a period when dates first begin to embellish its family tree. It is a curious period, full of war and destruction, murder and sudden death, and at the end this town emerges with a population composed of the different elements that had lived there. Angle and Dane have mingled and a very virile type evolved.

Then came the Norman—another hybrid, in whom the Dane predominated though the Frank persisted—and all England owned a new master. Nottingham grew rapidly. The feudal stronghold gave that reality of safety which the merchant had never experienced before, and the town, nestling beneath its wooden claimed, and won; hard cash was paid for charters, fairs were established, monasteries founded. The Norman brought a sense of security and orderliness which England had never known before. The reign of the weakling



OLD BRIDESMITH GATE, NOTTINGHAM.
(From a lithograph by M. Enfield.)

Stephen was a rude awakening to the possibilities of unlicensed feudalism, and Nottingham was laid low and its inhabitants experienced all the horrors of civil war. Henry II brought peace, and since then Nottingham has never looked back.

Notwithstanding the statements of many writers, it seems fairly certain that William Peverel built the first castle on the rock to the order of William the Conqueror. It was

only a wooden tower defended by a moat and a wooden palisading. As the art of offensive warfare advanced so the art of defence improved, and no doubt improvements were made at Nottingham which were viewed each in its turn as the last word. It was Henry II who first began to build a stone castle, spending enormous sums of money on this stronghold of the Midlands. Nottingham can hardly be called a barrier against the Scots, but it was a barrier against the North, and the North was always restless and full of potential danger. John, in his turn, made many improvements in what seems to have been his favourite home. It was so near to Sherwood Forest, and there he could find plenty to distract his attention from the cares of State, and in the chase no doubt he forgot the things it was unpleasant to remember. No one has succeeded in whitewashing John. He was too unpleasant a person for that ever to be successful, and certainly his death at Newark was a fitting one. At the head of an army of foreign mercenaries he had ravaged the wealthy districts of East Anglia, and then watched all his plunder sink beneath the quicksands of the Wash—and with them any hopes he had of recovering his position in England. Resting for the night at Swineshead Abbey, he overate himself and was forced to break his journey at Newark Castle, where, worn out by his follies, he died.

With the reign of Henry III Nottingham seemed to begin her career as a commercial town, as distinguished from a town that depended on the neighbouring castle for its life's breath. By steps she secured privileges which led eventually in the reign of Edward I to the concession of a mayor to look after the town. Nottingham's geographical position was making itself felt. Here at Trent Bridge was the highest point to which sea-going vessels could sail up the river, and so the wharves became very busy. The lead of Derbyshire, the timber of Sherwood Forest, the stone of the district, were all shipped here. When the fame of Chellaston alabaster spread even to the Continent, the great blocks were brought down the river and carved in the workshops

of the Nottingham "kervers." Coal, too, was early mined on the borders of Nottinghamshire and Derbyshire, and brought down for shipping to those parts which wanted this modern but smelly substitute for the more usual charcoal. There must have been a very considerable trade done in the charcoal burned in Sherwood Forest by methods which have been employed by man from the dawn of civilization.

The Great Market Place at Nottingham still stands as

it has stood for a thousand years, but now much more orderly than it used to be. The old wall that divided it from east to west, so that each of the two boroughs—the English and the French—might have its share, has disappeared; the horsepond with its ducking-stool, the sawpit, the pillory, and the stocks, are no more. The Malt Cross, the Butter Cross, are but names. In fact, much of Nottingham's past is written in its street names. We can

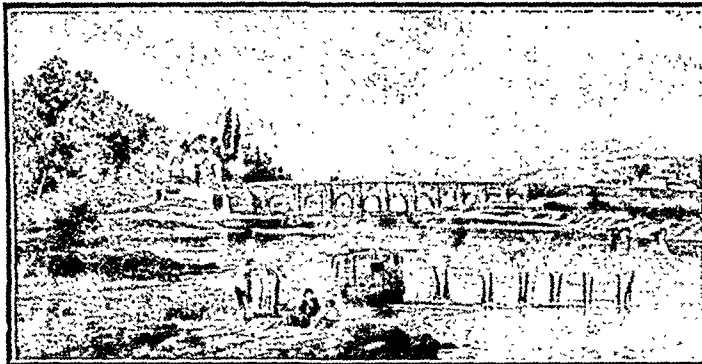
tell where the bridlesmiths worked, where the smithies were, where was done the work for which the smiths of the town were famous. Fletcher Gate shows us where the butchers, or flesh-hewers, lived; Pilcher Gate where the workshops of the furriers were to be found. Wheeler Gate used to be called Wheelwright Gate, and, earlier still, Baxter Gate—the resort of the bakers. Beastmarket Hill, Poultry, and Cheapside remind us of the different classes of goods that filled this great open space.

Unlike many mediæval towns, Nottingham had little to do with the Church. Beyond an occasional quarrel with its neighbour, the Prior of Lenton, it had none of the difficulties which towns owned by great ecclesiastics had to face. It was a royal town, and proud of it, but Newark was a perquisite of the Bishops of Lincoln and developed under their patronage.

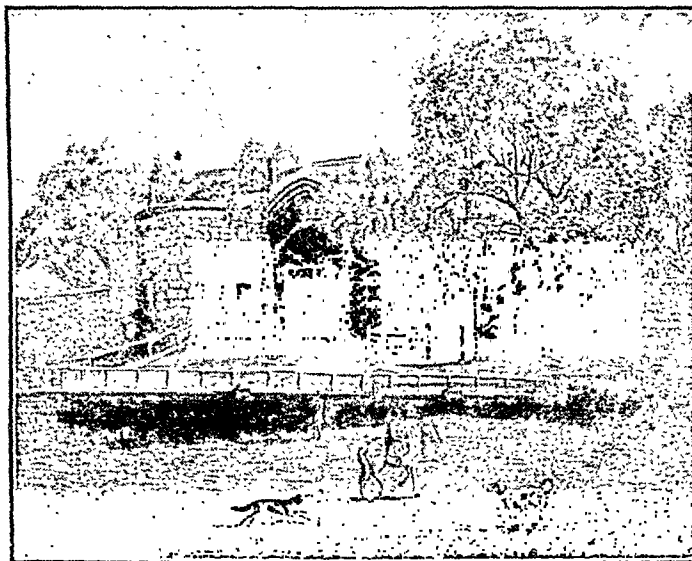
History is dumb about many of the things we should most like to know. During the long wars with Scotland there must have been many a day of excitement for the peaceful burghers when some great lord or other, perhaps even the King himself, passed through, or spent a night at the castle. Then would the best the town could provide be called for, and (we hope) sent willingly. On the

other side we can picture the processions of wounded and prisoners—the latter treated according to their financial possibilities.

There is a great charm about the mediæval, and yet few of us would like to go back to those times: narrow, airless streets into which the filth and garbage of the houses were cast to rot, or, if luck served, to be blown away by a friendly wind. Can we wonder at the pestilences that decimated the country when we remember that, for many,



OLD TRENT BRIDGE, NOTTINGHAM.
(From a water-colour by C. MacArthur.)



CASTLE GATEWAY, NOTTINGHAM, CIRCA 1800.

the rivers were the drinking water, and into the river the sewage found its way?

When we come to the time of the Tudors we seem to breathe a purer air. Nottingham had been Yorkist in sympathy during the Wars of the Roses, but, like a wise commercial town, it had shed a silent tear for the death of Richard III, and hastened to congratulate Henry VII. Singularly little is known about the town under the Tudors. That it prospered and grew is evident, but it played little part in the nation's story. At the time of the Pilgrimage of Grace Nottingham for a time came faintly into the limelight. The Government was badly scared by the rising—in fact, it was frightened to a degree out of all proportion to the extent of the revolt. Nottingham, Newark, and the Trent were looked upon as a rear line of defence, and the Earl of Shrewsbury was very busy making preparations to meet an enemy who never came. Queen Elizabeth had practically nothing to do with Nottingham; in fact, Wollaton Hall was one of her visits, and a certain fame it is one of the great houses in which Elizabeth did not spend a night.

James I must have seemed very much of an anticlimax after Elizabeth. He passed through Newark on his way south in 1603, and hanged a thief without trial, much to the horror of law-abiding Englishmen. His son Charles was destined to be closely connected with the county. The troubles with Parliament were eagerly discussed, and the bulk of the people were not strong supporters of either side, so that when Charles I eventually raised his standard outside Nottingham Castle in 1642 he met with a rather chilly reception, and left for Shrewsbury in disgust. With his departure began the struggle between Parliamentarian Nottingham and Royalist Newark with its numerous outposts in the great houses of the county. It is a thrilling period to read in detail. Gradually Parliament and then the Army gained the upper hand, until only Newark remained to Charles. He himself escaped out of beleaguered Oxford and made his way via Stamford to Southwell in disguise and then surrendered to the Scots' commander outside Newark. It was a picturesque ending to a dramatic career. After Charles had paid for his inconsistency and instability with his life, and Cromwell was finding the problem of what beyond his considerable powers, what remained of it—was destroyed, and no doubt served as a stone quarry to the town for many years.

James II brought trouble here as he did in so many places. His ideas were not in keeping with those of the majority of the citizens, and it was only by cancelling its charters that Nottingham was compelled to receive his nominees. Princess Anne and her friend, the famous Sarah Churchill, took refuge at Nottingham Castle—now rebuilt—when her father fled to France. When the Jacobite troubles came to worry George I and George II Nottingham was found to contain some supporters of the Stuarts. The excitement was considerable in 1745 when Prince Charlie reached Derby with his Highland army, and the fate of England was believed to hang on his decision to march south or north. Like all other troubles, it passed away, and gradually we can see the approach of the Industrial Revolution, which changed the face of England as with a magician's wand. Most of the great inventions in the textile industry, which have made England so great a figure in the commercial world, were connected in one way or another with Nottingham. The town reaped the benefit of its excellent geographical position with the coming of canals and railways. Trade flowed into and through the town, and soon Nottingham was famous for its lace and hosiery factories and its coal mines.

It had long been realized that the old bounds of the town were far too narrow; yet the common lands lay just outside the town, and the burgesses were reluctant to abandon their old rights. However, Enclosure Acts were brought to bear on the problem, and Nottingham overhauled rapidly, and soon, where once had been open fields, appeared streets of houses leading to the villages which had grown up on the far side of the common fields. Thus gradually modern Nottingham has come into being. All the work is not yet done, and there are still many improve-

ments to be made. The streets are being widened, the River Trent is being made deeper, so that Nottingham may once more become a great inland port. Nottingham has this advantage over many towns, that it has in the Great Market Place a central point from which to radiate in all directions.

Such, then, in brief is the story of Nottingham. It has a glorious past, and we, its citizens, believe that it will have a future no less glorious.

The illustrations accompanying this article are reproduced from photographs taken by A. Lincker, Nottingham.

THE CANCER INQUIRY OF THE LEAGUE OF NATIONS.

THE Health Organization of the League of Nations has recently published two volumes¹ describing certain studies of a particular problem of cancer. The origin of the inquiry was the remarkable difference between the rates of mortality from cancer of the female breast and from cancer of the uterus in certain European countries. England and Wales, Holland, and Italy were selected for special study, on the following grounds. In all three the official mortality data reach a high standard of accuracy, and very few deaths are recorded without medical verification. Two of the countries (England and Wales and Holland) suffer from a high death rate from all forms of cancer together; the third (Italy) has a relatively low death rate from cancer. But England and Wales contrasts with both the others in having much higher rates of mortality from cancer of the breast and uterus. Holland suffers from a compensating evil in her high rate of mortality from cancer of the stomach, etc. In Italy there is no such compensating disadvantage. Italy, however, has at most ages a higher rate of mortality than Holland (but a much lower rate than England and Wales) from cancer of the uterus. The contrast, therefore, with England held both in a country with and a country without compensation from another form of cancer, while, for one of the special sites, the country of lowest general cancer mortality did not have the least special site rate. The problem proposed was to explain these differences.

The Health Organization appointed to control the inquiry a very strong committee, presided over by Sir George Buchanan, Senior Medical Officer of the English Ministry of Health, and having as other members Professor Léon Bernard, of the Faculty of Medicine, Paris; Dr. H. Carrière, Director of the Swiss Federal Health Department; Dr. Josephus Jitta, president of the Health Council of the Netherlands; and Dr. Alberto Luttrario, formerly Director-General of the Health Department of the Italian Ministry of the Interior. Dr. Ewald Tomanek, of the League's Health Section, was secretary of the committee. So far the work done has been largely statistical, and its actual conduct has been entrusted to a special subcommittee, termed the Subcommittee of Statisticians, of which Dr. Major Greenwood (London) was appointed chairman and Professor Methorst (the Hague), Professor Niceforo (Naples), and Dr. Tomanek (Geneva) were the original members, but to which Professor Doelman (Groningen), Dr. Janet Lane-Clayton (London), and Professor Pittard (Geneva) have since been added.

The volumes now published are essentially the conclusions of this subcommittee, together with extremely detailed protocols of the evidence upon which the conclusions are based. It certainly cannot be said that the various members of the subcommittee have succumbed to the temptation, supposed to be especially severe in international inquiries, to furnish more eloquence than information. Thus Dr. Greenwood's *étude* on cancer of the breast and uterus in England and Wales occupies seventy-three foolscap pages, three of which are letterpress, the remainder tabular data and statistical constants; and his colleagues Professor Methorst and Professor Niceforo have been almost as sparing of words and generous in providing statistics.

¹ League of Nations Health Organization, Committee on Cancer, Vol. I, Report on the Cancer Mortality in Certain Selected Countries, Vol. II, Report on the Cancer Mortality in Certain Selected Countries, relating to Differences of Cancer Mortality in Certain Selected Countries.

The conclusions drawn by the subcommittee from this immense mass of data are set out under nine heads. Before referring to some of these, mindful of Queen Elizabeth and the citizens of Tilbury, we must say that the subcommittee has admittedly *not* found a satisfactory explanation of the striking differences which formed the starting-point of the inquiry. It has conclusively proved that the demographical peculiarities—variations of marriage rate, age at marriage, number of children to a marriage, etc.—which any medical statistician would say *a priori* might help to explain the differences, cannot do so. The subcommittee thinks it unlikely that any differences in certification or tabulation can go far towards explaining the facts. It has also—but to this we shall refer again—provisionally concluded that earlier or more frequent resort to surgical treatment cannot explain the superior position of Holland and Italy. All these are negative conclusions. The positive conclusions, if not a step towards the solution of the problem originally proposed, are still of importance. In the first place, the subcommittee is satisfied that child-bearing does not, with an exception to be noted, predispose the woman to cancer of breast or uterus. The subcommittee says:

"The impression has long prevailed that cancer of the breast and fertility were negatively associated. This has been based upon the general observation of the higher rates of mortality amongst unmarried women. It is fully confirmed by the concordant results of the analyses made by the method of correlation, using various indices of fertility. Evidence submitted to the subcommittee from the clinical side, namely, data of the fertility of married women suffering from cancer of the breast and statistics of the fertility of women taken as *controls*, who had not suffered from cancer of the breast, confirms the opinion that, when a comparison is instituted between women equally exposed to risk of pregnancy, those who develop cancer are less fertile. This material is necessarily very slender in comparison with official statistical data, but is at least a useful confirmation, since official statistics do not provide data so tabulated. Passing to the question of cancer of the uterus, the analyses are again concordant in showing that there is no positive, but, on the other hand, a negative relation between cancer of the uterus and indices of fertility. . . . The official statistics, therefore, are in accord with the opinions based upon clinical statistics of Professor Deelman and Professor Peller, namely, that the higher incidence of cancer of the uterus upon married women is a consequence of the immediate effects of a single parturition, and that women who have borne many children are less, rather than more, liable to cancer of the uterus in comparison with married women who have borne few children."

The subcommittee went into the question of the differences of rates of mortality within each country, and concluded that these differences far exceeded anything reasonably assignable to "chance." It concluded that "statistical indices, whether of race, extent of industrial employment or habits of life, sufficiently precise to be utilized for analytical purposes" could not be derived from any published or unpublished material at the disposal of official statisticians, and that if this subject were to be pursued special local sampling inquiries must be made. This suggestion has already been taken up.

The subcommittee calls attention to the rough uniformity of increase of the rate of mortality from cancer of the breast (married and widowed women) in England and Wales up to the age of 65, and notes that in the Netherlands there is hardly any increase with age after the group 60-70, and very little in Italy. "The subcommittee has devoted considerable attention to this phenomenon, and suggests that the possible influence of varying resort to surgical treatment in the three countries should be carefully considered from the clinical statistical point of view."

The subcommittee calls special attention to evidence collected by the late Dr. Eichel and extended by Dr. Boudreau and Dr. Tomanek, tending to show that in the United States of America there is a difference between the rates of mortality from cancer of the children of the nationals of the three countries similar to that found in the statistics of the countries of origin. The subcommittee presses for a continuance of this inquiry.

The second volume issued contains a report by the subcommittee on certain clinical statistics, followed by three preliminary notes by Sir George Buchanan on clinical inquiries in England and Wales, by Dr. Jitta and Professor Deelman on inquiries in Holland, and by Dr. Lutrario on the position in Italy.

As all the conclusions drawn in this volume are provisional, and the definitive reports of the clinical investi-

gations are likely to be published in the near future, we do not propose to say more than that the subcommittee records that "in each of the three countries one-third at least of the women suffering from cancer of the breast die without radical treatment." The subcommittee desires further "to point out that the results of the inquiry justify the statement that in each of the three countries a large number of persons die every year who, even in the present position of medical knowledge, might have lived considerably longer." The work of the League's Cancer Committee is, of course, still far from completion, and it would be premature to express anything but an interim judgement upon it.

We think the committee—or perhaps we should say the subcommittee—has carried out a valuable piece of work and set an example of patient and minute inquiry which ought to raise the general standard of medico-statistical work on cancer throughout the world. But we do not think that these publications will have much *direct* influence. As we hinted above, the contributors have been conscious that they were members of a subcommittee of experts and have refrained from any popularization of their reports; the reports are written by statistical experts for statistical experts.

It may be that at the present stage of the inquiry it is not expedient to make an appeal to the large number of medical readers who are deeply interested in the problems of cancer, but not even faintly interested in the question whether the local distribution of mortality from cancer of the breast does or does not follow "the rule of normal, Bernoullian, dispersion or any other theoretical schema."

Yet there are indications, especially in the report of Professor Niceforo (a comparison of Professor Niceforo's report with those of the other experts will enable the reader to appreciate the force of the remark that we have to-day two languages—*le français, et le français de la Société des nations*), that the experts could, between them, prepare a report which the mere doctor would be pleased to read. We hope they will take this hint, for there are many results in this report which, however familiar to experts, are probably quite unfamiliar to most medical men.

This at least any reader can deduce from the reports: that the members of the cancer committee and subcommittee live laborious days and do not regard Geneva as a centre for "joy rides."

England and Wales.

NEWCASTLE: DINNER TO SIR ROBERT BOLAM.

THE Newcastle-on-Tyne Division of the British Medical Association held a reception at the College of Medicine on the afternoon of January 13th. There was a large attendance of members and their wives, and of the final-year students, who received a special invitation. Dr. J. Maxwell Gover, Chairman of the Division, and Mrs. Gover, and Sir Robert Bolam, Chairman of Council, and Lady Bolam, received the guests, and Dr. G. C. Anderson, Deputy Medical Secretary, was present. The function, which was of the nature of a *thé dansant*, was a great success. Sir Robert Bolam received a special ovation from the students in view of the honour conferred on him at the New Year. On the same evening, at the Central Station Hotel, the Division entertained Sir Robert Bolam to dinner. It was singularly happy that the desire of the Division to honour him had taken form before it was known that his services to the profession were to be publicly recognized. The company numbered 150, and this included chairmen and secretaries of Divisions in the North of England Branch. In proposing the toast of "Our Guest," the Chairman (Dr. Gover) referred to the valuable work Sir Robert has done as Chairman of the Council of the British Medical Association, and especially to his successful efforts in connexion with the new headquarters of the Association in London. They were delighted, he said, that His Majesty the King had seen fit to recognize his services. A Newcastle man born and bred, and a graduate of Durham University, they were proud to honour Sir Robert. The toast was received with acclamation, and

Dr. Gover then handed to the guest of the evening a souvenir of the occasion in the form of a mezzotint of Sir Charles Hastings, the Founder of the British Medical Association. Sir Robert Bolam feelingly replied, and touched on various matters of medico-political and ethical interest. The toast of "The Headquarters Staff" was proposed by Mr. F. C. Pybus, senior representative of the Division, and replied to by Dr. G. C. Anderson, Deputy Medical Secretary, who paid a warm tribute from the headquarters staff to Sir Robert Bolam. During the evening Dr. F. J. Nattrass rendered several songs and there was orchestral music.

THE LATE DR. RICHARD CATON.

A memorial service was held on January 14th in Liverpool Cathedral as a tribute to the life and work of a citizen greatly beloved and a highly esteemed member of the medical profession. The Lord Mayor and representatives of the city council attended, and a large congregation included representatives of the university, the medical profession, and various institutions and organizations with which Dr. Richard Caton was closely identified. Archdeacon Howson gave a short address on the words "A man greatly beloved," and in sympathetic phrases showed how well the late Dr. Caton throughout his life had merited its application. His old-world courtesy, his zeal in the ministry of healing, and his humility justified the application to Dr. Caton of what had been said of another greatly beloved professor in a different line of science: "He made belief in goodness possible for other men." Mr. H. Goss-Custard, the cathedral organist, played Chopin's funeral march, and the whole service was rendered with dignity and grace. Of Dr. Caton it may truly be said: "*Multis ille bonis flebilis occidit.*"

THE NATIONALIZATION OF HOSPITALS.

At a meeting of the Incorporated Association of Hospital Officers on January 15th Mr. Somerville Hastings, M.S., F.R.C.S., gave an address on the nationalization of hospitals. Mr. Hastings said that he was second to none in recognizing the good work that the voluntary hospitals had done. Not only had they vastly helped the sick poor, but it was in their wards and laboratories that practically all the researches in preventive and curative medicine during the last hundred years had been carried on. The voluntary hospitals also furnished the best example of team work in science, though he regretted that it did not extend beyond the four walls of the individual hospital, and that each hospital was an isolated unit. He considered, however, that the voluntary hospitals could no longer meet the needs of the public. He accepted the estimate that two and a half hospital beds were needed for every thousand of the population of England and Wales. That meant 95,000 beds, of which the voluntary system provided only just over 50,000. The Voluntary Hospitals Commission had stated that at least 10,000 more beds were required, but Mr. Hastings thought this figure much too low. He admitted that the higher figure was not borne out by the waiting lists, but this was, he thought, because mostly the names of people needing admission were not put down on the waiting list unless their cases were urgent or there was some prospect of their admission within a reasonable time. The present deficiency of beds would, he believed, increase for several reasons, which he enumerated as follows: the growing urbanization of the people, which increased the liability to sickness and accident; poverty consequent upon unemployment and the steady drop in wages; the housing shortage, which meant that fewer people could be successfully nursed at home; the growing complexity of medical treatment, which made it impossible for increasing numbers of people to provide such treatment for themselves; and also the intensified interest in health, which made people more inclined to seek advice and treatment instead of struggling on in illness. Hospitals were already receiving subsidies from authorities and payments from patients. This last arrangement opened the doors of the hospitals to the middle class. He was glad to see all classes using the hospital, but under present conditions there was some danger of the exclusion of the poorer, for

whom the hospitals were founded; and he feared lest such a diversion should occur in the case of hospitals as in grammar schools and other educational foundations originally intended for the poor. Since the war heroic efforts had been made to save the sinking ship of voluntarism. Gambling lotteries had become a recognized means of hospital assistance; Treasury grants had been made, and now the Voluntary Hospitals Commission recommended that two millions of the taxpayers' money should be handed over for more beds. Workmen's contributions, he thought, were unjust in their incidence, and a universal tax would be fairer. What he wanted to see was a completely organized medical service throughout the country, with the hospital as its centre in each locality, from quite small hospitals in the villages up to county hospitals, to which serious cases could be transferred, and, in the universities and large cities, national hospitals where medical students could be trained and special research performed. The Poor Law infirmaries, with all taint of the Poor Law removed, should be turned into first-class State general hospitals. Some of the large country houses which were continually coming into the market might be purchased and turned into State convalescent homes. To the voluntary hospitals three possibilities might be presented: they might (1) remain as they were; (2) be taken over by the local authority; (3) receive State or municipal grants in return for proportionate representation on their governing bodies. He added that he had been accustomed to speak at meetings of working people in all parts of the country, and nothing in the Labour party programme had been received with more enthusiasm than the nationalization of hospitals. Mr. Hastings's views were supported by Mr. G. P. Blizard and Dr. Ethel Bentham, of the Labour party, and the case for voluntarism was stated by several hospital officers, including Mr. E. W. Morris, house governor of the London Hospital, who urged that the administration of the Poor Law and of National Insurance had not been so successful as to warrant great hopes for hospitals under State management. The State was too heavy-handed and inelastic to deal with such a personal matter as sickness, but the Government might help immensely by taking over the expensive work of research.

THE LIVERPOOL HEART HOSPITAL.

The Liverpool Heart Hospital, the latest addition to the special hospitals of the city, was opened by the Lord Mayor, Mr. F. C. Bowring, accompanied by the Lady Mayoress, Mrs. E. W. Hope, on January 11th. It is situated in Oxford Street, where a late Victorian mansion has been converted to meet its new purpose and the object in view. It will have accommodation for fifty indoor patients. The equipment is complete, and an electrocardiograph has been installed. An out-patient department is provided, and patients can be seen daily at 1 p.m. The honorary staff consists of Dr. I. Harris, honorary physician, and Dr. Andrew Crawford, honorary assistant physician. Professor J. Martin Beattie is honorary consultant in bacteriology, and Dr. Percival W. Leathart, honorary bacteriologist and laryngologist. The chairman announced that a consulting had been made financially, as the hospital was good start from debt. He said that such a hospital was opened from diseases of the heart demanded most intimate essential, a careful thought, and prolonged care. The knowledge, hospitals were full, and there was neither the time, general he the beds forthcoming, to treat such cases. nor we're referred to the death of Dr. Caton, who was Dr. Harris energetic supporter of the hospital from its very inception, and mentioned the pioneer work he had done in connexion with heart disease. Admitting that specialization might have its drawbacks, Dr. Harris expressed the view that it was inevitable; so greatly had the knowledge of disease advanced that it was impossible for a physician to become proficient in the whole field of internal medicine.

BRITISH EMPIRE CANCER CAMPAIGN.

At the quarterly meeting of the Grand Council of the British Empire Cancer Campaign on January 12th, under the presidency of Sir John Bland-Sutton, it was announced that the total grants and commitments made by the council

now exceeded £75,000. One grant of £100 had been made to Mr. E. Nevill Willmer of Manchester University, for work on tissue culture, and a grant of £500 had been given to the Westminster Hospital for a special scheme of cancer research. The lines of study carried on by Dr. J. C. Mottram under a grant from the campaign had been amended with the approval of the Scientific Advisory Committee, in order to associate his investigations with those of Dr. Gye and Mr. Barnard. Inaugural meetings had been held in Essex, Kent, and Hertfordshire, with a view to forming county committees in support of the campaign, and meetings were to be held at an early date in Hampshire, Sussex, and Middlesex. The Yorkshire council began its campaign on January 18th, when it was announced that £150,000 had been already collected; it is proposed to devote £75,000 to establish an advisory research centre in Leeds University. Eighteen district committees have been formed in the county, and Sheffield has already raised £5,000. Birmingham is similarly organizing an appeal to endow a cancer research centre in its University.

RICHMOND ROYAL HOSPITAL, SURREY.

A voluntary scheme has been organized in connexion with the Richmond Royal Hospital with a view to providing a substantial income and the possibility of further extension. The deputy-mayor of Richmond, Mr. Arthur Howitt, presided over the inaugural meeting on January 12th, and gave an account of the proposals. The hospital serves a population approaching 280,000, but receives subscriptions from only about 600 people. In its present state £11,000 a year is required for maintenance, and there is need of improving the existing buildings and extending them. It is hoped that a sufficient yearly income may be obtained to obviate the necessity for flag days and other forms of collecting money. Members of the Richmond Hospital Association undertake to contribute £1 a year, and associates 10s.; junior members, under 18 years of age, pay 5s. H.R.H. the Duke of York is the president of the appeal, and the Lord Chancellor (Viscount Cave) the honorary treasurer.

Ireland.

SCHOOL OF PHYSIC, TRINITY COLLEGE, DUBLIN.

THE hundredth anniversary of the opening of the School of Physic of Trinity College, Dublin, was observed on January 13th, when an address on the early history of the school was given by Dr. T. P. C. Kirkpatrick, Registrar of the Royal College of Physicians of Ireland.

Dr. Kirkpatrick said that the teaching of medicine in connexion with Trinity College was started in 1654, when Stearne founded the College of Physicians. The causes which led to the two institutions drifting apart were described at some length. The rupture threatened to destroy the school, but its life was saved by the appointment of George Cleghorn, and, later, of William Hartigan, who was in turn succeeded by James Macartney, the founder of the present School of Physic. Macartney was born in Armagh in 1770, and studied anatomy under Hartigan in the school of the College of Surgeons. Subsequently he went to London, and in 1800 obtained the diploma of the College of Surgeons of England. He was appointed lecturer in comparative anatomy in the school of St. Bartholomew's Hospital, where he won a reputation as a brilliant research worker and an attractive teacher. He returned to Ireland as surgeon to the Radnor Militia in 1811, and two years later was elected professor of anatomy and surgery in the School of Physic. His election produced a remarkable change in the school. He was an untiring worker, and his energy irradiated the entire school. In the first year his class numbered fifty-three students. In 1820 the number of students in the anatomy class reached three hundred and three, and it was quite impossible to find room for them in the old Anatomy House. Macartney frequently urged the board to provide further accommodation for the school; on November 27th, 1820, permission was granted to use No. 22 Trinity College for

the lectures, and the board directed that plans were to be prepared for building a new Anatomy House. The choice of a site was not an easy matter, but eventually it was decided that the building should be erected on the ground heretofore the bowling green, at the north-east corner of the College Park. The committee was probably influenced in its choice of a site by a desire to keep the school buildings as far as possible from the rest of the College, but in the light of subsequent events the choice was wise. Macartney objected to the site on account of dampness, and because of the damage students were likely to receive by passing through Park Street to enter the school. Park Street was the former name of Lincoln Place, and had a bad reputation as the home of undesirable persons. The foundation stone of the new buildings was laid on July 4th, 1823, and the work proceeded quickly, though not quite peaceably. In February, 1824, there was something in the nature of a riot when the journeymen carpenters in combination attacked the other workmen. Later, when Macartney was inspecting the building, he met the architect, and in plain terms told him what he thought of himself and of the buildings. Words led to blows, and the interview ended by Macartney breaking his umbrella on the architect. An action at law was threatened, but the Provost succeeded in making peace between the would-be litigants. In spite of all trouble the building was finished, and there, on November 1st, 1825, Macartney delivered his inaugural lecture, in the course of which he said: "The Board of Trinity College has bestowed a more valuable gift upon the community by building this house than if they had founded ten hospitals." Macartney maintained his supremacy as a teacher till the end. The average number of medical students who matriculated every year during the twenty-four years he was professor was just over eighty-four. The corresponding average for the first decade of the century was just over eighteen. Macartney seemed to have come to consider that he was the school, and that everything and everyone should give way to his wishes and convenience. This the board could not allow, and on July 15th, 1837, his resignation was accepted. Six years later he died at his house in Upper Merriem Street, Dublin.

The twenty years that followed his resignation were momentous in the history of British medicine. In 1858 was passed the Medical Act, which for the first time brought the education and practice of medical men in these countries under the central control of the General Medical Council. The College was fortunate in having at the time at the head of the Medical Faculty the great William Stokes, who held the post of Regius Professor of Physic from 1840 till his death in 1878. Robert James Graves, whose name was so closely linked with that of Stokes, was King's Professor of the Institutes of Medicine from 1827 to 1841, and was, perhaps, the greatest figure in Irish medicine. His clinical lectures won for the Dublin School of Medicine a world-wide reputation. Other notable teachers mentioned by Dr. Kirkpatrick were William Featherston-Haugh Montgomery, Robert William Smith, Robert Adams, Thomas Brady, and Robert Travers. Robert Law, who succeeded Graves as King's Professor of the Institutes, continued to discharge the duties of that office till 1873. In February, 1874, John Malet Purser was elected King's Professor; he at once decided to lecture, not on medicine, but on physiology, and, in addition, to give lectures on practical histology. These lectures became popular, and in 1879 the board authorized an expenditure of £2,700 for the building of a laboratory for histology and physiology. Here was started that splendid instruction in practical pathology which was given by Dr. Purser every year till 1895, when Alexander O'Sullivan was appointed lecturer in pathology, and the laboratory of pathology was built at the cost of £9,000. Dr. Purser continued as King's Professor of the Institutes till September, 1901, and in 1917 he was elected Regius Professor of Physic. To Professor Purser's energy and ability as a teacher was due in no small measure the success of the school in later years. "We rejoice," said the lecturer, amidst loud applause, "to think that he is still with us." Trinity College had in her Medical School a great heritage, and for that school there was a future more

brilliant than its past. In its long history of two hundred and fourteen years it had met and overcome difficulties which threatened its extinction. Should such difficulties arise in the future they would, Dr. Kirkpatrick was confident, be again overcome. Never before had it a more competent staff, and never was it under the guidance of a more wise and sympathetic Board of Trinity College.

Scotland.

THE COMPOSITION OF MILK.

AN important study on variations in the composition of milk has been made by Mr. J. S. Tocher, D.Sc., F.I.C., Lecturer in Statistics in the University of Aberdeen. It is founded on analyses he made of 676 samples of milk (each sample being the milk of one cow) from cows of various breeds throughout Scotland during the years 1921-22. The regulations governing the standard of milk fixed by the Board of Agriculture, prescribe that milk shall not be regarded as genuine if it contains less than 3 per cent. of milk fat or less than 8.5 per cent. of solids other than milk fat. It is pointed out that the Society of Public Analysts considered these limits reasonable, although it was in favour of a higher standard being set than 3 per cent. of butter fat. It was recognized, however, that genuine milk might contain less than 3 per cent. of butter fat and less than 8.5 per cent. of other solids. Under the existing procedure, where a retailer is taken into court because he has sold milk which does not come up to this specified standard, he has to satisfy the magistrate in every way that the milk he sold was milk just as it came from the cow, with no addition of water or skim milk, and no extraction of butter fat or other solids. It is generally conceded that the quality of milk supplied to the public varies greatly from day to day, according to seasons, and according to the selection of the cows, and the present investigation was undertaken with the purpose of showing the exact nature of these variations in the constituents of milk, and how these variations are related to one another. The study of the summarized results enables a dairyman to improve the quality of his milk supply, and at the same time provides him with the means of eliminating several of the factors which would cause milk of poor quality to be yielded by a herd of cows. The average proportion of butter fat found for the whole of the 676 cows was slightly over 4 per cent., while the average proportion of solids not fat was found to be about 8.75 per cent. The consumer, however, is not supplied from so large a group of cows as 676, and a common number constituting a herd from which the mixed milk is supplied is about 20. With respect to the milk from individual cows, the proportion of butter fat was found to vary from 1.7 to 7.5 per cent. As many as 12 cows out of any 100 give milk containing less than 3 per cent. of butter fat at all times. The range of variation in solids other than fat for individual cows was found to be from 6.9 to 10.6 per cent. As many as 24 cows out of any 100 were found to give milk containing less than 8.5 per cent. of solids other than fat. Out of the 676 samples, 111 were found to contain a proportion of solids other than fat between 8.25 and 8.5 per cent. Other constituents of milk which the writer of the monograph has studied are lactose, casein, albumin, and mineral matter, and, in addition to the foregoing characters such as amount of yield, specific gravity, freezing-point, refractive index, and acidity were also studied and their relationship to each other and to the chemical constituents determined. The rather surprising fact was discovered that the greater the yield of milk the greater was the percentage of lactose present; in other words, a good milking cow is also a good sugar producer, and vice versa. It is also shown that a high percentage of butter fat is accompanied as a rule by a high percentage of other solids, due largely to the proportion of casein present. A milk containing 5.8 per cent. of butter fat was usually associated with about 4 per cent. of casein, while 3.2 per

cent. of butter fat was associated with 1.6 per cent. of casein. The average yield of milk at one milking was found to be about 14 lb., and the average age of milking cows was approximately six years. The yield of milk was found between morning and evening milk, except that there appeared to be a slightly greater percentage of solids of butter fat and of solids other than fat was found to be somewhat greater in stall-fed cows than in cows at grass. Tocher records the help given him by various workers, especially in the laboratory of the Rowett Nutrition Research Institution at Aberdeen.

A NATIONAL PARK.

A gift which will add considerably to the amenity and health of Edinburgh has been made to the nation by the late Mr. W. R. Reid and Mrs. Reid by their bequest of Davidson's Castle. The castle and grounds are situated at miles from the centre of the city. The grounds, which extend to about 180 acres, stretch along the south shore of the Firth of Forth, are well wooded, and afford beautiful views. The castle, situated within the grounds, is in part an old building, dating from the early seventeenth century, with modern additions; it contains a remarkable collection of furniture, prints, and objects of art, for which it is intended to form a museum. Along with the gift of castle and park, a sum of £36,000 has been bequeathed for their maintenance. The library of the late owners has been separately bequeathed to the Scottish National Library. In addition to its natural beauties and amenities, the property has interesting historical associations. At one time it belonged to the family of Law of Lauriston, and here was born John Law of Lauriston, who, after an adventurous early life in London, went to France, where in 1720 he became comptroller-general of the national finances, erected a national bank, and afterwards planned the ill-fated Mississippi scheme. The gift will form an admirable addition to the numerous public parks in the possession of which Edinburgh is so fortunate.

GLASGOW ROYAL INFIRMARY.

The annual report of Glasgow Royal Infirmary shows that the ordinary expenditure for 1925 was £110,194, while the ordinary revenue was £85,189; there was thus a deficit for the year of £25,005, as against £24,710 in the previous year. The total number of patients treated in the institution during the year was 13,959, an increase of 1,210 on the previous year. In the out-patient department 51,954 patients attended, an increase of 3,261. It was reported that the managers had been considering the formation within the infirmary of a new biochemical department for the investigation of problems arising in connexion with special diseases, and towards this object they had already received sums amounting to £5,500. An area of ground extending to twenty-two acres has been presented to the infirmary by Mr. James Macfarlane, LL.D., chairman of the managers of the infirmary, and his brother, Mr. George W. Macfarlane, for the purpose of erecting a nursing home in connexion with the institution. The site is at Canniesburn, on the western side of the city, and commands a fine view of the Clyde valley and the Kilpatrick hills. The gift has been accepted by the managers of the infirmary.

FIFE MINERS' CONVALESCENT HOME.

At a meeting of the executive board of the Fife, Kinross, and Clackmannan Mineworkers' Association at Dunfermline, Mr. William Adamson, M.P., the general secretary, read a letter from Mr. Augustus Carlow, managing director of the Fife Coal Company, Ltd., stating that the company intends to establish a convalescent home for miners, to be known as the "Charles Carlow Home." For this purpose it is proposed to take Blair Castle, Culross, a handsome mansion standing in pleasant gardens and wooded policies on an eminence near the north shore of the Firth of Forth; it should prove a site admirably adapted for the purpose, and the board agreed unanimously to accept the offer.

Correspondence.

VACCINE TREATMENT OF THE COMMON COLD.

SIR,—We general practitioners are just now being requested by the parents of schoolboys to inoculate them against influenza and colds, and they are being instigated to this by letters from headmasters, who, in their turn, have the idea suggested to them by the school doctors. It is gratifying to know that the latter are at last alive to the use of protective inoculation against colds. Dr. Simey's recent communication (BRITISH MEDICAL JOURNAL, November 14th, 1925, p. 901) seems to have started the ball rolling. The object of this letter is to inquire whether it is not possible for the medical officers of our big schools, who have hundreds of boys under their care, to do a little team work in this matter. We do not know which vaccine formula is the best; we do not know how many inoculations are necessary, nor how long the protection lasts; nor have we any decided opinion at what period of the year they should be given. I have given these for very many years now; at the start I selected a "blunderbuss" formula, the one containing the greatest different varieties of germs I could find. I believe I am indebted to Sir Thomas Horder for instruction as to the dosage and intervals. My practice has been to give four doses in increasing amount—at intervals of fourteen days between the first two, and one month between the subsequent ones. The results have been varied—one patient tells me the protection lasts him eleven months; as against this, I have been told by a pathologist that it lasts only six weeks; of course, there are all gradations, from those whom the smallest dose starts off at once with a cold, to those who have apparently complete protection.

If the medical officers of schools would only arrange each one to pursue a particular plan and use each a different formula, then, by pooling their results, we might arrive at better methods than those we have at present. For myself I am getting suspicious that I give too small doses; but I know that in vaccine therapy the swing of the pendulum is in favour of smaller doses than formerly.

There is one other point: how often do we see our patients go down with colds in the early autumn, after their return from the summer holiday. Does not that suggest that the time to begin injections is in July and that they should be carried on into October? If it is true that eleven months' immunity can be obtained, the winter would thereby be covered; though I confess I should rather like one or two, to make certain, in the mid-winter season.

I suggest that Dr. Simey and his colleagues in the schools should think this matter out, and, having a large number of patients to deal with, obtain from them the accurate knowledge we so much desire in this matter.—I am, etc.,

London, N.W.3, Jan. 13th.

LEWIS G. GLOVER, M.D.

NASAL DOUCHING.

SIR,—It was with satisfaction that I read Dr. Coyne's letter in your issue of January 2nd (p. 37), in which he comments on the "wholesome and wholesale attack on the prevalent habit of nasal douching" and sniffing by the lay press.

The highly complicated structure of the interior of the nose is sufficient to explain the danger. The folds of the turbinates provide plenty of shelf room for the storing of germs which cannot possibly be removed by any douching. As to sniffing—that act drives the air up towards the roof, where the olfactory nerves are housed. Where there are dust and germ-laden discharges lying in the pathway of the currents they must be driven up there too, to bombard the openings of the various sinuses. When these openings become obstructed the air in the respective cavities is gradually absorbed, sucking in whatever may be lodged against the openings. The warmth, moisture, and seclusion in the cavities are just the properties of an incubator. The risk of setting up chronic suppuration is obvious.

When the nasal cavities need cleaning, which must necessarily be very frequent since every breath draws in a certain amount of foreign matter which it is their function

to catch before it gets down into the lungs, it can only be done scientifically by clearing the offending matter out into the open—the method which is used in dealing with the waste of every other organ. The waste of the nose is the most important of all to be handled promptly, since it consists of dead and dying organic animal cells exposed to the outside air, while at the same time also the process of incubation is going on of the entangled germs. Nature has supplied us with the means for getting rid of this waste by giving us the faculties for sneezing and blowing—faculties which we share with all other members of the animal classes which have nasal chambers on the same plan as ourselves. It is only the human species which does not make full use of these powers.

No organ can safely be douched which has its walls perforated with small holes leading into blind cavities; especially when there is no gravity drain to some of them. Years ago Politzer emphasized the risk of damaging the ears with the nasal douche. His counsel is not being followed to-day as it deserves to be. Many cases of deafness are not relieved till the nose is treated rationally and scientifically.—I am, etc.,

OCTAVIA LEWIN, M.B., B.S.Lond.

London, W., Jan. 8th.

"CLINICAL MATERIAL."

SIR,—The following record of cases now or just lately under my care in the medical wards of Westminster Hospital may be of general interest. My own beds in the male and female wards respectively number as a rule seven, occasionally nine. There has been no exclusion from the list given of cases of less interest, and the list is in no way made up of selected cases. At one and the same moment or following each other in direct rapid succession the cases have been as follows:

Males.

Palsy of lower face, palate, vocal cord, and pharynx on one side in a man aged 40, who had also acute nephritis; sudden total inability to swallow anything. Fed by tube; rapid recovery of paralyses.

Carcinoma of middle of oesophagus. Gastrectomy.

Diabetes mellitus with coma in a boy aged 6. Relief by insulin; treatment by graft of whole pancreas seven months ago and without further insulin.

Simple ulcer of greater curvature of stomach. Partial gastrectomy; cure.

Angina pectoris. Resection of left cervical sympathetic nerve; relief.

Trigeminal neuralgia. Gasserectomy; relief.

Sudden total unilateral blindness with papilloedema, due to chronic infection of maxillary antrum. Operation; relief.

Vascular symptoms and motor weakness in an upper extremity; postural obliteration of arterial pulsation; x rays show no abnormal bony rib. Operation pending for cartilaginous rib.

Tabs dorsalis with brisk knee- and ankle-jerks; diagnosis made on palsy of a third cranial nerve, ulnar nerve analgesia, abolition of bulbo-cavernosus reflexes, hypotonus; tests positive.

Gunshot wound of skull, 1917; gap in bone; epilepsy with onset, 1925; meningeal cyst depressing brain.

Uraemic coma. Relieved chiefly by cistern puncture.

Mitral stenosis; no blood infection; cerebral and renal emboli. Recovery.

Syphilis of ocular nuclei; persistent negative serum Wassermann reaction; positive tests in cerebro-spinal fluid.

Case superficially resembling general paralysis; symptoms due to angioma of cerebral cortex.

Actinomycosis in a boy of 16.

Traumatic pneumothorax without fractures in a boy of 6 run over by a car. Aspiration; recovery.

Inspiratory fixation of thorax and diaphragm, non-organic; inability to speak. Rapid cure.

Cerebral arachnoid cyst in a boy aged 15 from trauma at 4 months; epilepsy from date of trauma to 6 years; diagnosis polio-encephalitis; freedom from 6 to 15 years; recurrence. Operation; cure.

Partial blindness and stunted physical growth in a boy aged 16; x rays show three calcified (?) tuberculomata in brain.

Very extensive haemorrhage into thigh and leg from slight indirect violence; high blood pressure.

Facial hemi-spasm from old trauma. Alcohol injection into foramen; relief of spasm without palsy; temporary complete palsy of muscles of spinal accessory.

Gumma of skull base and middle fossa; cranial nerve palsies.

Females.

Meningo-vascular cerebral syphilis with unconsciousness; persistent negative serum Wassermann reaction; positive tests in cerebro-spinal fluid. Recovery.

Two cases of Raynaud's gangrene of digits. Affected fingers saved by Leriche's operation on brachial arteries.

Sudden portal ascites at 27; rapid compression obstruction of inferior vena cava; liver tolerance tests normal. Laparotomy showed cirrhosis of liver.

Tabes dorsalis with local syphilitic lesion causing aphasia for written speech.

Lymphatic leukaemia; very large spleen; a single palpable lymphatic gland.

Syringobulbia; palsy of tongue, palate, and vocal cord. Head-aches successfully treated by ventricular puncture.

Hysterical perpetuation, after every meal for two years, of post-anæsthetic vomiting (operation for anal fissure); laparotomy elsewhere for relief on four occasions. Symptoms cured at a sitting.

True vicarious menstruation from stomach for a year in a girl aged 16 who, save once, has not menstruated normally; uterine infantile; the bleeding is periodic and the blood does not clot.

Abscess of an upper lobe of lung following tonsillectomy and pneumonia a year ago. Cured by incision and drainage after prolonged treatment by artificial pneumothorax had failed to relieve.

Cerebellar affection of acute encephalitis; long-standing "cerebral vomiting" treated successfully by psychotherapy.

Disseminated sclerosis; diagnosis made on story of past visual failure (retrobulbar neuritis) and ready fatigue of one abdominal reflex.

Hæmatemesis, without other gastric features, as a symptom of tabes dorsalis in a woman with healthy knee-jerks and negative tests for syphilis.

Urgent dysphagia due to adhesive palsy of anterior wall of oesophagus in a woman with evidence of syphilis.

Diphtheritic neuritis affecting *inter alia* the small muscles of the hands.

Long-standing dyspepsia; gall stones.

The surgery of the great majority of the cases enumerated has been performed by my colleague Mr. Rock Carling. Treatment, surgical as well as medical, has been conducted throughout in the medical wards, and the patients have been, from start to finish, under the observation of the same "firm."—I am, etc.,

HILDRED CARLILL, M.D. Cantab.,
Physician and Lecturer, Westminster Hospital.

London, W.1

TREATMENT OF CARBON MONOXIDE POISONING.

SIR,—In the *BRITISH MEDICAL JOURNAL* of April 25th, 1925 (p. 812), Dr. Holmes suggested the use of venesection and blood transfusion in carbon monoxide poisoning, and Sir C. Gordon-Watson (December 5th, 1925, p. 1049), has described certain cases of alleged carbon monoxide poisoning in which this treatment was used with advantage. I would like to point out that Holmes's suggestion is by no means new, for in my *Textbook of Forensic Medicine* (p. 212) I had already drawn attention to the possible value of this procedure.

This line of treatment, however, can be considered only of subordinate importance, and artificial respiration with inhalation of oxygen, mixed with carbon dioxide, to stimulate the respiratory centre, must necessarily remain the primary course to adopt. The cases discussed by Sir C. Gordon-Watson do not appear to me to be cases of carbon monoxide poisoning at all.

In the first place, the men all made their own way out of the dug-out, and the severe symptoms came on later, whereas in carbon monoxide poisoning loss of muscular power would have supervened at once. Secondly, the dark, almost black, colour of the mucous membranes is never observed in carbon monoxide poisoning. Thirdly, the spectroscopic examination failed to reveal any carbon monoxide hæmoglobin. Finally, the colour of the blood, which is always a bright cherry red or pink in carbon monoxide poisoning, was stated to be dark, with a chocolate-coloured fluid, which separated out from it.

From the history of the cases it appears that there was some agent present in the blood other than carbon monoxide, and that the symptoms were certainly not due to carbon monoxide. What this toxic agent was cannot be ascertained with any degree of certainty, but there is a strong suggestion that it was one of the nitrobenzene derivatives produced by the explosion of the shell which destroyed the dug-out or the Mills bombs. These substances cause symptoms which coincide with those described by the medical officer, and by their combination with hæmoglobin form some as yet unknown pigment which produces the dark blue or black colour of the mucous membranes and slaty grey colour of the skin, which was noted in all these cases.—I am, etc.,

SYDNEY SMITH, M.D., D.P.H.,
Principal Medical-Legal Expert,
Egyptian Government.

December 16th, 1925.

ACUTE INTESTINAL OBSTRUCTION.

SIR,—We have had the surgeon's point of view and the general practitioner's, with a certain amount of feeling on both sides. Both have something to be said for them, but the truth, as usual, is somewhere between the two. During nearly three years as a resident at the London Hospital I only saw one abdomen opened for intestinal obstruction where operation was not proved necessary. In that case the surgeon—a very able man (no longer living)—was at fault, and the child died. Perhaps I was somewhat to blame, as I told him there was no obstruction! On the other side of the picture, my own eldest child, then aged 2½ years, had an intussusception which I diagnosed. I called in the general practitioner (also no longer living) who kindly attended my family, and for whose opinion I had a great respect, and he called it gastric influenza, and said he would come in the next day. Not being satisfied, I got a surgeon to see the child, and he agreed with me; he operated at once and found the intussusception and saved the child's life. I did not blame the general practitioner, but I am very grateful to the surgeon. When my third child got intestinal obstruction I called in a surgeon at once, and all went well.

The moral I draw is that the surgeon may occasionally be too keen to operate and the physician may be too slow, and the best procedure for the patient is to have a consultation at the earliest possible moment. If there is any doubt, have the patient watched by the surgeon unless the general practitioner can really give all his time to it, and the general practitioner can then be summoned if and when the surgeon feels sure an operation should be performed. The patient meanwhile is far better in a nursing home or hospital, so that there is no delay when the decision is made, and has not got to make a journey in a critical state. Finally, I disagree with the statement that a diagnosis of intestinal obstruction is difficult to anyone who sees much of it. The surgeon has this advantage over the general practitioner, who may meet it very rarely.—I am, etc.,

Reading, Jan. 11th.

LESLIE POWELL, M.B.

ALIEN IMMIGRATION INTO GREAT BRITAIN.

SIR,—In the *JOURNAL* of January 9th (p. 59) you publish a notice of the *Annals of Eugenics*, and finish your summary of Professor Pearson and Miss Moul's memoir on "The problem of alien immigration into Great Britain" by the statement that "It does not appear from the results communicated that the Jewish immigrants do contrast favourably with native Gentile children," and hence it is concluded that there is a strong case against unrestricted immigration.

As Professor Pearson and Miss Moul have done me the honour of referring at some length to a paper of mine on "Tuberculosis and the Jew," contributed to the *Tuberculosis Year Book* some years ago, I trust you will be good enough to grant me space to make a few remarks upon their most learned paper. The authors quote the figures I published of the incidence of and mortality from tuberculosis in Whitechapel, as taken from the records of the Whitechapel Tuberculosis Dispensary. From these figures it appears that, whilst there were nineteen Jewish patients to one Gentile patient attending the dispensary, the deaths were about equal. This, say the authors, may indicate that "the Jews are more anxious and visit the dispensary with slighter symptoms. . . . The lower mortality may not be due to a lower incidence rate, but to what has been stated as a fact, that the disease runs a more chronic and less fatal course in Jews than Gentiles." This is a possible explanation, but it is not the correct one. I maintain that the mortality from tuberculosis is everywhere lower among Jews, and this is so even when Jews of slums are compared with Gentiles in richer neighbourhoods. There is abundant evidence to prove this. I further contend that the lower mortality is due, not only to the greater chronicity of the disease among Jews, but to the fact that the disease tends to cure itself amongst them. That this is so is shown by the results of sanatorium treatment. Figures which I published in the paper referred to, and which Professor Pearson and Miss Moul inadvertently

omit to quote in their memoir, compare the relative percentage of cures in the Daneswood Sanatorium and in the King Edward VII Sanatorium, which admits patients of a comparatively higher social level. These show that the percentage of cures is much higher amongst the Jews than amongst the Gentiles. In other words, Jewish soil is not favourable for the growth of the tubercle bacillus. This is confirmed by the fact that the bacillus cannot be found in the sputum until the case is advanced in Jews.

The authors also deal with the comparative physique of alien Jewish and native children, and conclude from anthropometric measurements, such as stature, body weight, etc., that the Jewish child is not inferior to the average Gentile child. This is interesting information. But the authors maintain that unless the immigrant Jews show a 25 per cent. higher physical fitness than the average native they should not be allowed to enter. May I ask the authors, "Why? What is the objection?" From the eugenic point of view they have very little to fear, because they themselves state that the Jews do not as a rule intermarry with Gentiles, so that, granting that physical fitness is an hereditary character unaffected by environment, there is no risk of the native standard of fitness being lowered by the influx of alien Jews. But, further than that, I wish to repeat here the protest I have often made against accepting certain anthropological measurements as evidence of physical fitness. The only measurement of the fitness of an individual is his susceptibility to death. People who die at a higher rate and at a younger age are, on the average, physically inferior to those that die at a lower rate or at an older age. Statistics collected in different parts of the world definitely show that the *expectation of life* at all ages is higher among Jews than among Gentiles, and hence we must assume that the Jew is physically fitter than the non-Jew. Moreover, the Jewish infantile mortality is everywhere (including the worst slums) lower than the non-Jewish. Indeed, it is well known that when comparing the infantile mortalities of two neighbourhoods it is wise to ascertain the relative proportions of Jewish children in those neighbourhoods before drawing any conclusions regarding the differences in environmental conditions. Professor Pearson has always maintained that infantile mortality is unaffected by environment, that the fit survive and the less fit die, that the fit are the offspring of the fit, and vice versa. Surely the conclusion is obvious. Jewish infants, according to his own argument, die less because they are the more fit, and because they are the offspring of fitter parents.

One other point. Professor Pearson and Miss Moul discuss the relative intelligence of alien Jewish and native Gentile children, and come to the somewhat striking conclusion that, on the average, the alien Jewish child is mentally somewhat inferior to the native Gentile child. This is a very startling statement, since it is contrary to everybody's experience. "The foreign children of East London schools are universally allowed to be sharper and more intelligent than the English" is a statement everywhere accepted as true. But no doubt the authors are at one with Spinoza in defining "Truth" as "the name we give to errors grown hoary with the centuries," and with Charles Darwin they "have no faith in anything short of actual measurement." Let me, therefore, give the following figures expressing the experience of Whitechapel Foundation School: whilst of the Jewish boys 56 per cent. carried off scholarships during a certain number of years, only 25 per cent. of the Gentile children did so during the same number of years. The same is the experience of other schools.

Professor Pearson is avowedly an iconoclast; and so long as his brilliant scientific crusade discriminates between the true and false gods his campaign deserves the profound gratitude of all seekers after truth. It is much to be regretted, however, that in his great zeal he often destroys the temples of the True God and erects new shrines to the false.—I am, etc.,

W. M. FELDMAN, M.D. Lond.,
F.R.S.E.

London, W.1, Jan. 5th.

** We cannot accept the first paragraph of Dr. Feldman's letter as being an accurate summary of that part of our article which dealt with the memoir by

Professor Pearson and Miss Moul. The statement quoted by Dr. Feldman that there is a strong case against unrestricted immigration was—as we think was made quite clear in our article—a statement by the authors of the memoir, and not an inference drawn by us. We have carefully refrained, and shall continue to refrain, from premature attempts to adjudicate a very complicated question.

RETROBULBAR NEURITIS.

SIR,—Mr. Frank Heckford (*BRITISH MEDICAL JOURNAL*, January 16th, p. 93) does well to draw attention to this complaint, the origin of which is usually regarded as a mystery. The discussion reported on page 102 of the same issue offers no solution of the mystery except the negative one that it has nothing to do with sphenoidal sinusitis. My own experience confirms this, for no associated lesion is found by x rays in any of the paranasal sinuses.

My observations convince me that all cases in my practice have been due to toxæmia—nearly all of intestinal origin. The signs and symptoms have been typical of severe stasis, and where a bismuth investigation has been carried out the presence of stasis has been fully confirmed. Neuritis of the sciatic and other nerves is a well known sequel of toxæmia, and it is no wonder if, now and then, neuritis picks out the optic nerves.

It is a mistake to suppose that all cases clear up as completely as those described by Mr. Heckford; the prospects of recovery of vision depend upon prompt and thorough treatment of the stasis. Mr. Heckford does not describe the treatment used in his cases, but no doubt rest in bed, warmth, and a purge formed an essential part of it, and went far to save his patients' vision.—I am, etc.,

London, W.1, Jan. 16th.

ALFRED C. JORDAN.

HELIO THERAPY AND ACTINOTHERAPY.

SIR,—A few days ago an article written by Dr. Saleeby on the subject of ultra-violet radiation appeared in a magazine which is published once yearly. In it the following statement occurs: "Nowhere in the published literature of artificial phototherapy in any country can be found records that seriously stand a moment's comparison with those of Rollier and his followers." I suggest that this statement is misleading, and that the results obtained in the treatment of surgical tuberculosis by carbon arc light baths at the Finsen Institute, Copenhagen, published in *Acta Radiologica* (No. 4, vol. i, fasc. 4), are almost identical with the statistics of similar cases at Dr. Rollier's clinics, Leysin, mentioned in *Heliotherapy*, 1923. In a few cases the Finsen results are even better than those obtained at Leysin.

Disease.	Finsen Institute.	Dr. Rollier's Clinics.
Tuberculosis of hip-joint ...	60 per cent. recovered	70 per cent. healed.
Tuberculosis of knee ...	64 per cent. recovered	71 per cent. healed.
Tuberculosis of ankle ...	69 per cent. recovered	82 per cent. healed.
Tuberculosis of hand and wrist	87 per cent. recovered	55 per cent. healed.
Tuberculosis of elbow ...	94 per cent. recovered	93 per cent. healed.

Of the patients attending the Finsen Institute, 70 per cent. are over 15 years of age, and many of them are out-patients, often living in none too healthy homes. Dr. Rollier's patients are living in hospital under his direct personal supervision.

It is, of course, acknowledged that natural sun treatment has certain advantages in the prevention and cure of disease; but it cannot seriously be suggested that it is possible or desirable to send all tuberculous patients to Switzerland.

In my opinion it is impossible to practise heliotherapy satisfactorily in the North of England in the winter; even, as I have recently tried, by the use of "vitaglass," my great standby has been ultra-violet lamps.

Apart altogether from surgical tuberculosis, there are many conditions which require only a few exposures to ultra-violet radiation to effect a cure.—I am, etc.,

Newcastle-on-Tyne, Jan. 14th.

W. KERN RUSSELL.

THE RELATIONSHIP OF THE MEDICAL PROFESSION TO UNQUALIFIED PRACTICE.

SIR,—Dr. C. O. Hawthorne's letter in the *BRITISH MEDICAL JOURNAL* of January 16th (p. 122) does not mention the rule of English law as to the burden of proof. "He who asserts must prove." From this follows another rule—that a prisoner, even after the grand jury has found a true bill against him, is presumed to be innocent until the foreman of the petty jury returns into court and announces the verdict. No prisoner need open his mouth in court except to plead guilty or not guilty, and if he remains silent, or puts in a plea of a confusing character, the judge will order a plea of "Not guilty" to be entered, and try the case on its merits. If a prisoner is undefended the court will assist him.

A "domestic tribunal" such as the General Medical Council is bound by its own rules, but cannot set aside the law of the land, nor can it afford to dispense with the rules of evidence as set out in the late Sir James Fitzjames Stephen's little book, which I am glad to see receives high praise from Lord Birkenhead in *Twelve Judges*. For the London Hospital Forensic Medicine Lectures I have used it alone when speaking of evidence.—I am, etc.,

GEORGE JONES, M.B.,
Barrister-at-Law.

London, S.E., Jan. 15th.

LOCAL ANAESTHETICS.

SIR,—At the Eye Institution here, where we have over 1,000 cases of eye injury to treat a year, including a large number of foreign bodies, I have been testing the effect of borocaine since the communication concerning this drug appeared in the *BRITISH MEDICAL JOURNAL*.

A fortnight ago I gave it up as useless for the purpose, and I wish to corroborate the conclusion in the *JOURNAL* of January 16th (p. 83) contained in the paper by Mr. Harrison Butler and Mr. R. U. Gillan.

On the other hand, I find that butyn has a satisfactory effect, and it has this advantage, that in a large clinic printed slips may be used as prescriptions to hand to patients suffering from painful corneal abrasions and such-like conditions. Previously the Dangerous Drugs Act with regard to cocaine had rendered this relief to patients impossible.—I am, etc.,

Aberdeen, Jan. 16th.

A. R. GALLOWAY, O.B.E.,
M.B., C.M., M.A.

DENTAL DISEASE IN CHILDREN.

SIR,—In your review in the *JOURNAL* of December 12th, 1925 (p. 1139), of the Medical Research Council's report on its recent investigation into dental disease, the question is asked whether the gingivitis referred to in my statements was limited to the anterior gingivae.

May I explain that this was not so? I found comparatively few children in whom the condition of "anterior marginal gingivitis" existed alone, and was forced to include a very large number in which the inflammation was almost general.

I have referred to this on page 9, paragraph 5, of the report, explaining that in "probably half of these the slight inflammation affected all buccal gingivae in both jaws."—I am, etc.,

London, W.1, Jan. 14th.

NORMAN J. AINSWORTH.

PERIODS OF OSSIFICATION.

SIR,—Reliance is nowadays, in courts of justice, placed by lawyers on the results of x-ray examinations of the human skeleton (in the loose use of the word) for determination of the ages of minors in cases of rape, kidnapping, questions of civil and criminal responsibility, etc. The periods of union of epiphyses with the shafts of bones, of bones with each other, and the periods at which points of ossification appear after birth, are fondly imagined to be fixed and immutable.

Many authors commit themselves to the statement that the most reliable data for determination of the ages of babies, especially in earlier years and in intrauterine life, are obtainable by radiography, and the non-medical lawyer goes to court armed with formidable-looking volumes

from which he hurls statistics at the medical witnesses. *Soluntur risu tabular*. While making all allowances for Indian precocity in general and sexual development, in periods of eruption of teeth and of ossification, and for the too frequent eccentricities of development that one finds east of Suez, I find myself, after many years of impatient investigation, while not at all decrying the great usefulness of x-ray examinations in this connexion, at a loss to discover tables of statistics, Oriental or Occidental, on which to pin my wavering faith. Dogmatism is carried to excess, and I have, in my filing cabinets, plates which I take out and look long at whenever I feel tempted to forget that I am dealing, not with mathematics, but with medical jurisprudence.—I am, etc.,

WILLIAM NUNAN, M.D.,
Police Surgeon of Bombay, and Professor
of Medical Jurisprudence, Grant
Medical College, Bombay.

December 18th, 1925.

TREPANNING AND TREPHINING.

SIR,—As Dr. T. Wilson Parry, who has written so much and so interestingly on the subject, says, no name has been given to the Neolithic procedure of opening the skull, and I agree with him that my criticism of the employment of the word "trephining" which should mean an operation performed with a trephine, applies, although in a less degree, to the employment of the word "trepanning" to describe the primitive operation which was done generally by scraping, and not by boring. In recent times the Neolithic operation has perhaps been most frequently performed in some of the islands of the South Pacific, and more especially in Uvea, one of the Loyalty group, where a scraper and not a borer was always used (Mrs. E. Hadfield and other writers). The difficulty in the choice of words occurred to me some time ago when I wrote a few notes on historic trepanning, and on looking up the subject I came to the conclusion that it was incorrect to apply the word "trephining" to an operation performed before the invention of the trephine, and I am still of that opinion. Perhaps the word "trephination," as Dr. Parry says, meets the case, for this implies rather a similarity in result than in the instrument used.

However, much could be said for the employment of the word "trepanation," which would bring English writers into line with the French, who have written so much on the subject.—I am, etc.,

London, N.W.3, Jan. 9th.

H. A. CLOWES.

VITAL STATISTICS FOR ENGLAND AND WALES, 1925.

WE are indebted to the Registrar-General for the following statement regarding the birth rates and death rates and the rates of infantile mortality in England and Wales and certain parts of the country during 1925. The statement is issued for the information of medical officers of health. The birth rate and infantile mortality rate for London have been provisionally corrected for transfers.

ENGLAND AND WALES.

Birth Rate, Death Rate, and Infantile Mortality during the Year 1925 (Provisional Figures).

	Birth Rate per 1,000 Total Population.	Death Rate per 1,000 Population (Crude Rate).	Deaths under One Year per 1,000 Births.
England and Wales	18.3	12.2	75
105 county boroughs and great towns, including London	18.8	12.2	79
158 smaller towns (populations from 20,000 to 50,000 in 1921)	18.3	11.2	74
London	18.0	11.7	67

The death rate for England and Wales relates to the whole population, but that for London and the groups of towns to the civil population only.

The birth rate of England and Wales as a whole is the lowest recorded, except during the war years 1917 and 1918, while the death and infantile mortality rates are equal to those recorded in the previous year.

Obituary.

JOHN BASIL HALL, M.A., M.Chir. Cantab.,
F.R.C.S. Eng. and Edin.,
President of the British Medical Association, 1924-25;
Consulting Surgeon, Bradford Royal Infirmary.

It was with deep regret that we had to announce in our last issue the tragically sudden death of the immediate Past President of the British Medical Association, Mr. J. Basil Hall of Bradford, on Tuesday, January 12th. For a few days previously he had not been feeling well, but he continued at his work, and was to have operated on the very day he died. On that morning he was seized with a spasm of angina pectoris, and passed away in the presence of his friend and colleague, Dr. Ralph A. Lankester.

John Basil Hall came of medical stock on both sides. His paternal grandfather was Dr. Matthew Hall, who practised in Wortley, then a pleasant village near Leeds. His father, Dr. William Hall, who died in 1923 in his ninetieth year, was an honoured practitioner in Leeds and well known for his pioneer work in connexion with the feeding of poor school children. His maternal grandfather was Dr. John Bowe of Richmond, Yorkshire. Basil Hall, the second son of William Hall, was born at Leeds in 1868. From King's School, Canterbury, he went to Pembroke College, Cambridge, graduating B.A. in 1887, and studied medicine at St. Thomas's Hospital and Vienna. Having taken the M.R.C.S. and L.R.C.P. diplomas in 1890, he graduated M.A., M.B., and B.Ch. Cantab. in 1893, and in 1899 obtained the M.Ch. degree and the diploma of F.R.C.S. Ed. After qualifying he held various resident appointments at Leeds General Infirmary, including that of resident surgical officer. In 1897, as there

was not likely to be a vacancy on the staff of that hospital for some years, he decided to go to Bradford and practise as a consulting surgeon; in this he was breaking entirely new ground, as all Bradford surgery had previously been done by general practitioners. Hall worked hard, and in 1901 he was appointed honorary surgeon to the Bradford Royal Infirmary, which post he held until 1921, when at the expiration of his term of office he was placed on the consulting staff of the hospital. On that occasion he was entertained to dinner by his colleagues on the honorary staff, and was presented with a piece of plate suitably inscribed.

Matters were in a transitional state at the Bradford Royal Infirmary when Hall was appointed to the staff. He threw himself heart and soul into the task of modernizing the surgical work of the institution, and soon became

imbued with the idea that the one thing necessary was the building of a new infirmary worthy of the city. With this object in view a committee was formed, of which he was the enthusiastic chairman, and in 1908-9 a considerable sum of money was raised, and a new infirmary site on the outskirts of the city was purchased. Unfortunately, owing to a rise in the cost of building and the outbreak of the great war, matters came to a standstill. That this plan did not further materialize was one of the big disappointments of Hall's life. During the war he acted as administrator of Field House Auxiliary Hospital, Bradford, for a period, after which he was a surgical specialist with the Mediterranean Forces at the Dardanelles.

He had filled the presidential chairs of both the Bradford and Leeds Medical-Chirurgical Societies, and he was also a former Chairman of the Bradford Division of the British Medical Association. In 1924, when the Annual Meeting of the Association was held at Bradford, Basil Hall was unanimously nominated by the Division for the presidency. He threw himself whole-heartedly into the necessary heavy work of preparation, and the undoubted success of the Bradford meeting was largely due to his inspiring enthusiasm. During his presidential term of office the Ontario Medical Association invited him to address its annual meeting in Toronto, and from Canada he proceeded to the United States, where he represented the British Medical Association at the annual meeting of the American Medical Association and gave an address. While in the United States he was elected a Fellow of the American College of Surgeons. Just prior to his departure for Canada he was elected, on April 2nd, to the Fellowship of the Royal College of Surgeons of England, an honour which gave him extreme gratification.

As a surgeon Basil Hall was a strong advocate of the clinical aspect of diagnosis, and regarded modern adjuncts thereto, such as x rays and biochemical tests, as good servants but bad masters. As a diagnostician he was regarded by his professional colleagues as very sound. In his surgical operations he was neat, dexterous, and resourceful, and he was not satisfied with dismissing his cases at the end of treatment, but was very keen on following the after-care and end-results. He was extremely businesslike and methodical in all he did, and his case-books were models of neatness and funds of information.

As a man, under a veil of gentle cynicism Hall concealed the kindest of hearts: he had ever a feeling of compassion for the "bottom dog," and weaker brethren in him had always a friend. He hid his light under a bushel, and many were the unknown services which he rendered gratuitously. To those who were admitted to the privilege of his friendship his genial kindness and hospitality were



Photo]

[Walter Scott, Bradford.

J. BASIL HALL, M.Chir., F.R.C.S.,
Past President, British Medical Association.

His many friends will hear with regret of the death, on December 24th, 1925, at Mentone, France, of Dr. SUTHERLAND REES-PHILIPPS, the late medical superintendent of the Holloway Sanatorium, Virginia Water. Dr. Rees-Philipps was 78 years of age. Since his retirement he had been actively engaged in outdoor pursuits, and was particularly fond of gardening, but was constrained latterly to go abroad for health's sake. Despite this, his strength had been for the last six months steadily declining, and recently he underwent a serious operation, from which he did not completely recover. Dr. Rees-Philipps was educated at Cheltenham College and the Royal University of Ireland, where he graduated M.D., M.Ch. in 1871. After qualifying he held several hospital appointments; but very soon his interests led him to adopt the practice of psychiatry. He was appointed to the staff of Devon County Asylum, thence to the Three Counties Asylum, Arlesley, as senior assistant medical officer. Later he was appointed medical superintendent of Wonford House Hospital, Exeter, which post he relinquished to become the first medical superintendent of the Holloway Sanatorium. Of this hospital he undertook the organization and equipment with his customary enthusiasm. Dr. Rees-Philipps was an active member of the Royal Medico-Psychological Association until his recent illness, and a Fellow of the Medical Society of London. He leaves a widow, with whom deep sympathy is felt in her loss.

Dr. GEORGE CHAPMAN, who had reached the age of 102, and was probably the oldest medical practitioner in England, died at Hall Green, Birmingham, on January 13th, after an illness lasting only four hours, prior to which he had been in his usual health and was out walking on the previous day. Dr. Chapman received his medical education at Queen's College, Birmingham. He obtained the diploma M.R.C.S. in 1866, and in 1868 the L.S.A. He spent his whole life in the Midlands, commencing practice at Brierley Hill, Staffordshire. He remained there for many years, and was public vaccinator and medical officer to the guardians. Leaving Brierley Hill in 1883, he subsequently practised in Armitage, near Rugeley, and became surgeon to the Rugeley Cottage Hospital. Sixteen years ago he retired from practice, and had since lived with his daughter at Hall Green, Birmingham. Dr. Chapman maintained to the last a keen interest in public affairs and politics, and was able to record his vote at the last parliamentary election. His wife and his son, Dr. H. Dugard Chapman, both predeceased him.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

Dr. Axham.

At a meeting of the Royal College of Physicians of Edinburgh, held on January 19th, the suspension of the licence of Frederick W. Axham, which was imposed on May 7th, 1912, was removed. The motion put before the College and carried by a majority was as follows:

"The College having on the 7th day of May 1912 determined on good cause shown that Frederick William Axham, a Licentiate of the College, of Morden, Dollis Park, Church End, Finchley, N., should be suspended *sine die* and deprived until the said suspension is removed or remitted of all the rights and privileges which as a Licentiate he enjoyed,—it is now resolved by the College (on proof submitted that the said Frederick William Axham has abstained for the last five years from the practices which led to his suspension and will not resume them) that the said suspension be removed as from this date."

UNIVERSITY OF OXFORD.

Degree Days.

The degree days during the year are as follows:—Hilary March 27th. Trinity Term: May 22nd; Thursday, June congregation will in each case be held at 2.30 p.m. academic 13th and Saturday, rd. The

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A quarterly Council meeting was held on January 14th, when the President, Sir John Bland-Sutton, Bt., was in the chair.

Lecturers.

Sir Berkeley Mornihan was appointed Hunterian Orator for 1927. Sir John Lunn-Thomas was appointed Bradshaw Lecturer for 1926,

and Professor G. Elliot Smith F.R.S., was nominated as Thomas Vicary Lecturer for the ensuing year.

Court of Examiners.

Mr. Raymond Johnson wrote a letter resigning from the Court of Examiners. The resignation was accepted, to take effect from March 10th next, and the vacancy thus occasioned will be filled up at the ordinary Council on March 11th.

The Case of Mr. F. W. Axham.

A further application from Mr. F. W. Axham for restoration to membership was considered, but the Council did not see fit to rescind the resolution of July 13th, 1911, removing Mr. Axham from the membership of the College.

The Museum.

It was announced that for the remainder of January and during February the museum will be kept open until 5, instead of being closed at 4 p.m.

L.D.S. Gown.

A gown for Licentiates in Dental Surgery was instituted, the gown to be of black stuff similar in shape to the Fellows' and Members' gowns, with facings of crimson cord and with a sleeve looped with crimson cord.

Diplomas.

Diplomas were granted jointly with the Royal College of Physicians of London in the following subjects:—Public health to sixteen candidates, tropical diseases to four candidates, psychological medicine to four candidates, and otology to four candidates.

Primary Fellowship Examination.

At the examination in anatomy and physiology for the Fellowship concluded on December 17th, 1925, 129 candidates were examined, of whom 40 were successful and 89 were rejected.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At a special meeting of the President and Fellows held on January 15th the following candidates were admitted Licentiates in Medicine and Midwifery of the College:

Miss Ellen Kiernan, Mrs. Ellen Ryan.

The Services.

NAVAL MEDICAL COMPASSIONATE FUND.

At the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on January 19th, when Surgeon Vice-Admiral Sir Joseph Chambers, K.C.B., C.M.G., Medical Director-General of the Navy, was in the chair, the sum of £105 was distributed among the several applicants.

DEATHS IN THE SERVICES.

Fleet Surgeon Alexander George William Bowen, R.N. (ret.), died at Plymouth on January 4th, aged 62. He was educated at Guy's and at Cambridge, where he graduated as B.A. in 1884; and as M.B. and B.Ch. in 1889. Entering the navy as surgeon on November 11th, 1891, he served on H.M.S. *Partridge* in the West Indies, and with the Plymouth Division of Royal Marines. Becoming staff surgeon in November, 1899, he served in H.M.S. *Beagle* on the Cape and West African stations, and later in the cruiser *Amethyst*. He became fleet surgeon in November, 1907, and served as such in the battleships *Canopus* and *Agamemnon*. He retired in 1912. During the recent war he served as a temporary major in the R.A.M.C.

Medical News.

SIR JAMES BERRY will deliver the Hunterian Lecture at the Medical Society of London to be held in the Medical Association House, Tavistock next, January 25th, at 9 p.m. The lecture will be some clinical aspects of simple goitre, with remarks on its causation; it will be illustrated by the epidiascope. A discussion will follow in which Dr. Strickland Goodall, Mr. Dunhill, and Dr. Scott Williamson will take part.

ON January 28th Dr. H. C. Cameron will lecture for the Fellowship of Medicine on catarrhs and the catarrhal child, at 5 p.m., in the lecture hall of the Medical Society of London, 11, Chandos Street. The London Lock Hospital will hold a comprehensive course in venereal diseases from February 1st to 27th. A two weeks' afternoon course, beginning on February 1st, will be given at the Blackfriars Hospital for Diseases of the Skin. A combined course in diseases of children, in which the Paddington Green Children's Hospital, Victoria Hospital, and the Children's Clinic will be participating, will be given from February 8th to 27th. A late afternoon course (4.30 to 6) for general practitioners has been arranged at the London Temperance Hospital from February 8th to 19th. A general intensive course in medicine, surgery, and the special departments will be held at the Queen Mary's Hospital, Stratford, from February

15th to 27th. A copy of each syllabus of these courses, and of the programme of the general course arranged by the Fellowship, may be had from the Secretary at 1, Wimpole Street, W.1.

PROFESSOR A. V. HILL, F.R.S., will begin a course of six lectures on the physiology of muscle at University College, Gower Street, W.C.1, on Monday, February 1st, at 4 p.m. They will be continued on succeeding Mondays at the same time. Admission to the lectures is free without ticket.

DEMONSTRATIONS are being given at the Maudsley Hospital, Denmark Hill, S.E., on Monday and Wednesday afternoons, at 2.30; clinical discussions are held in the wards on Tuesday mornings at 11.30, and there is a monthly meeting on the last Friday of each month, at 4.30 p.m., at which a group of patients from one of the London County Council mental hospitals is shown. All these meetings are free to medical practitioners and students.

SIR ROBERT CHARLES BROWN, F.R.C.P., F.R.C.S., consulting medical officer to the Preston Royal Infirmary, of whom an obituary notice appeared in our issue of December 5th, 1925 (p. 1093), left estate of the gross value of £80,716. He bequeathed £1,000 free of legacy duty to the Directors of the Cambridge Research Hospital, and made bequests of £100 each to many charitable institutions. Two-thirds of the residue of his estate is left to the Preston Infirmary Convalescent Hospital, Lostock Hall.

THE thirty-eighth Congress of the German Society of Internal Medicine will be held at Wiesbaden, under the presidency of Professor Pässler of Dresden, from April 12th to 15th, when the following subjects, among others, will be discussed: (1) modern treatment of syphilis of the nervous system, introduced by Spielmeyer of Munich and Wagner-Jauregg of Vienna; (2) the blood as a clinical mirror of somatic processes, introduced by von Schilling of Berlin; (3) asthma, introduced by Dr. Klewitz of Königsberg.

INTERNATIONAL post-graduate courses will be held in March in Berlin, and will include clinical lectures on internal medicine, a fortnight's course on diseases of children, a week's course in nerve diseases, and a special course in throat, nose, and ear affections. Further details may be obtained from the International Post-Graduate Course Office, Kaiserin Friedrich-Haus, Luisenplatz 2-4, Berlin N.W.6.

A MEDICAL congress under the name of "Journées médicales tunisiennes" will be held at Tunis this year, from April 2nd to 5th, when the following subjects will be discussed: (1) gastro-duodenal surgery; (2) Mediterranean fever; (3) prophylaxis and treatment of measles; (4) trachoma. The subscription is 100 francs. In connexion with this congress various excursions will be arranged to surrounding centres of interest, including Carthage, La Marsa, El-Djem, and Sfax. Further information can be obtained from Dr. Gerard, Bureau d'hygiène, Tunis.

THE first congress of the medical press of Latin countries will be held in Paris towards the end of 1926, when the following questions, among others, will be discussed: (1) Unification of the terminology and bibliography in medical literature, introduced by MM. Miraudo (*Journal de médecine et de chirurgie pratiques*) and Tecon (*Revue suisse de médecine*). (2) Copyright in the medical press, introduced by M. Ardette (*La Presse médicale et de la Presse française*) of the Paris Court of Appeal.

THE preparation, organization, and transactions of medical congresses, introduced by M. le Sourd (*Gazette des Hôpitaux*), and J. de Azevedo (*A Medicina Contemporânea*). Further information can be obtained from Dr. L. M. Pierra, 12, Rue de Babylone, Paris VIIe.

THE fifty-ninth congress of the learned societies of Paris and the French departments will be held at Poitiers on April 6th.

A CLUB of medical chess players is to be formed in Paris. Those wishing to join should communicate with Dr. Somen, 113, Avenue Saint-Martin, Paris IVe. There is no subscription.

THE centenary of the birth of the celebrated physiologist, Felix Hoppe-Seyler, was recently celebrated in the physiological Institute of Tübingen University.

PROFESSOR HANS EPPINGER, formerly the first assistant of Professor Weigekbach in the medical clinic at Vienna, has succeeded Professor de la Camp as director of the medical clinic at Freiburg.

DR. CLAUDIUS REGAUD, director of the Paris Radium Institute, has been nominated doctor *honoris causa* of the free University of Brussels.

AS the result of a matinée organized at Daly's Theatre on January 14th, over £900 was raised on behalf of the Elizabeth Garrett Anderson Hospital for Women. An effort is being made to obtain £75,000 for the building of new pathological and x-ray departments and other much needed accommodation.

DR. T. A. MCCULLAGH, Bishop Auckland, has been appointed Deputy Lieutenant for the County of Durham.

APPLICATIONS from over 300 surgeons have been received for the next International Congress of Surgery, which is to be held at Rome from April 7th to 10th, the distribution, according to their nationality, being as follows: Belgium 33, Canada 2, Czecho-Slovakia 6, Cuba 2, Denmark 10, Egypt 8, France 70, French colonies 7, Great Britain 59, Greece 1, Holland 24, Ireland 6, Italy 20, Poland 9, Portugal 6, Rumania 4, Russia 4, Spain 14, Sweden 8, Switzerland 28, United States 12. Two sea voyages for medical practitioners round the Mediterranean have been organized by the *Bruzelles-Médical* in connexion with this congress. The first voyage, lasting thirty-one days, will start from Marseilles on March 5th, and the second, lasting thirty-three days, will leave the same port on April 15th. The places visited will include Naples, Alexandria, Jaffa, Beyrouth, Smyrna, Constantinople, Constanza, the Piræus, and Malta. The charge for each voyage is 4,200 francs. Further information can be obtained from Dr. Bernard, 62, Rue Froissart, Brussels.

DR. CHARLES DEJEAN of the Montpellier Faculty of Medicine has been awarded the Cirincione prize in the international ophthalmological competition at Rome.

ACCORDING to the *Japan Medical World* the number of cases of beri-beri in the Japanese army has risen from 3.43 per 1,000 in 1914 to 10.47 in 1923, and in the navy from 1.36 per 1,000 in 1914 to 2.40 in 1923.

THE fall in the birth rate in Sweden, which has been a source of considerable anxiety in that country, is shown by the following figures. During the period 1891 to 1900 there were 26.3 births per 1,000 persons. From 1911 to 1920 this figure fell to 17.8, and in 1924 to 12.6 per 1,000. The death rate, on the other hand, has fallen from 19.1 to 11 per 1,000.

FROM July 26th to September 12th, 1925, 1,959 fatal cases of plague occurred in Java; and 6,268 cases of plague, with 4,421 deaths, and 7,919 cases of cholera, with 4,789 deaths, occurred in British East India from August 16th to September 19th.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, **British Medical Association House, Tavistock Square, W.C.1**, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the **British Medical Association** and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

THE TELEGRAPHIC ADDRESSES are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the **British Medical Association** is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

ORAL STENOSIS.

MR. FRANK COLEMAN (London) writes: I would like to suggest a simple method of treatment that would, I believe, be effectual in restoring the patency of the mouth in the case described by Dr. Hoyte (*JOURNAL*, January 9th, p. 15).

At the position of the angle of the mouth on each side make a circular opening into the oral cavity with an antrum perforator or some similar instrument and enlarge each opening to the size of a lead pencil or slightly larger (approximately 3/8 in.). Insert a piece of drainage tubing (approximately No. 14) through each opening, so that the free end passes well into the oral cavity, then cut off each tube beyond the skin surface and retain in position. Flanged empyema tubes would serve the purpose well and be easy to retain in position. Leave the tubes *in situ* for about three or four weeks, or until the canals are completely cicatrized, changing the tubes when necessary for cleaning. A director is then passed from one lateral opening to the other

and the intermediate tissues are divided horizontally or excised on the groove of the director, thereby throwing the three apertures into one. The scar tissue at each angle of the mouth would prevent adhesions from re-forming, and the occasional passage of a lubricated soft rubber tube or the patient's own tongue would assist in keeping apart the more recent raw surfaces until healing or scarring had taken place. The artistic result would depend upon correctly estimating the sites for the future angles of the mouth when making the lateral perforations. I have employed the principles of this method (which I suggested in 1910) for many years in dealing with the lateral perforations of the gums and the cheek, which sometimes prevent the wearing of a denture, but admit that the present method of using an epithelial inlay, as practised at Sidcup, is more advantageous for extensive adhesions.

BENEDICT'S TEST: AN EXPLOSION.

"A. G. N." asks for an explanation of the following: Using this test solution (recently supplied) for the presence of sugar in the urine, I have on several occasions got a white flocculent precipitate with slight albumin in the urine and also without any albumin being present, though sugar is present. On two occasions an explosion has occurred—one with no albumin but with sugar, and the other with slight albumin but no sugar. In the latter case the test tube was blown out of my hand.

"A. G. N." writes later to say that the firm who supplied him state that they sent a quantitative solution of Benedict's test, and that this does throw down a white precipitate with sugar.

No explanation of the explosion is to be found in any suggestion of chemical reaction, even if it be supposed that the solution contained a foreign constituent. There is, however, nothing extravagant in the supposition that the explosion resulted from overheating. Explosions resulting from the overheating of liquids which do not boil freely may assume a violence resembling that caused by chemical decomposition. Alkaline liquids are particularly liable to boil percussively. The cause lies in the interfacial tension between the liquid and the surface of the glass test tube, where the heat on meeting the liquid ought to generate bubbles of steam freely and evenly. But particles of solid matter, for such particles are necessary as nuclei for the formation of vapour. Accordingly the cleaner the liquid the more unevenly it boils, and if incipient boiling is delayed the liquid becomes overheated to a greater or less degree, favoured by shallowness of the vessel. Quiet ebullition is until a sudden burst of boiling is induced. Quiet ebullition is proportioned to its volume the more it becomes liable to bumping. The addition of dust favours steady boiling. It is useful to add a few granules of powdered pumice as a corrective. Alkaline liquids usually boil with intermittent bursts because of their cleansing action on the glass and the consequent removal of solid impurities. There is also a peculiar solvent action of alkali on glass, which adds to the effect. It is usually worse when the liquid contains much saline matter, and some kinds of glass are worse than others, particularly certain thick-walled test tubes. In extreme cases explosions of remarkable violence may take place from the superheating of liquids.

GOUT, FIBROSITIS, AND NEURITIS.

"A. W. G." asks for information as to the following points relating to gout and its complications, especially fibrositis and neuritis: (1) Does a warm, dry climate have any beneficial effect? (2) If so, which are the localities advised—(a) in the British Isles; (3) in Europe; (4) in Africa, north or south; (5) other places? (6) Does living in proximity to the sea, rivers, lakes, or wooded country have any effect? (7) The effect of nature, of soil and drainage. (8) Exercise—outdoor occupation entailing wet feet and damp clothes. He asks for personal observation, literature, statistics, and a recommendation as to what to read on the subject.

RECURRENT URTICARIA.

Dr. I. DAVID (Colombo) writes: Recently I had a case similar to that recorded by "N. L." (BRITISH MEDICAL JOURNAL, November 21st, 1925). It yielded to an intramuscular injection of sulpharsenol, followed by an intravenous injection of calvarian (0.9 gram). By mouth he was given melubrin and calcium lactate.

LETTERS, NOTES, ETC.

LIFE POLICY HOLDERS MEDICAL OVERHAUL.

SINCE July, 1923, the Legal and General Assurance Society has had a scheme for the medical overhaul of life policy holders, a procedure which has been adopted with satisfaction by some American insurance offices. The process of popularizing the scheme is entitled *The Sere, the Yellow Leaf*. The author of these essays written by Dr. Leonard Williams. The latest protests against the tendency of many men and some women to allow themselves to get old, or to die at an age when they ought to be beginning to live, to the detriment, incidentally, of their insurance society. He disapproves of a life of *otium cum dignitate*, especially when combined with penury. His remedy is exercise; and if golf and tennis are too expensive, or cycling too dangerous,

he recommends the adoption of a system of physical exercises, or the practice of walking, if possible with some end in view. The Legal and General Assurance Society sends these booklets free to policy holders, as it is to the interest of the society that the policy holder should maintain good health. For the same reason the society invites its life policy holders to present themselves once a year for a medical overhaul which will not infringe the rights of the ordinary medical attendant.

CANCER PREVENTION: FREE CLINICS.

Dr. JOHN BROWN (Blackpool) writes: Dr. Young's letter in the JOURNAL of December 12th, 1925 (p. 1147), has met with ready response and approval by those who have devoted many years to the cancer problem. The results of free clinics clearly demonstrate that in the city of Detroit the majority of the growths were innocent, but there were some in the precancerous stage, and 42 out of 1,100 persons were cancerous. The methods adopted in Detroit can readily be carried out in this country. Already the public is being prepared for it. The medical and health authorities of the city have been doing the public on the diagnosis of tumours in the precancerous stage. My personal experience and correspondence with doctors in all parts of this and other countries show that there is a far more hopeful outlook. I am convinced that the time is ripe for the Ministry of Health to begin these free clinics, so that all persons with suspicious growths can have expert advice.

THE NATURAL FOOD OF A BABY.

Dr. W. Y. DAVIDSON (Birmingham) writes: I wholly disagree with the remarks of Dr. MacLachlan (BRITISH MEDICAL JOURNAL, January 16th, p. 126). I have no hesitation in saying that the best and cheapest substitute for the mother's milk is undiluted cow's milk. In 1914 I was greatly struck by an article in the *Practitioner's Encyclopaedia of Medicine and Surgery* (Murphy: Oxford Medical Publications) on the artificial feeding of infants, by Dr. Frederick Langmead of Great Ormond Street Hospital. He recommended undiluted citrated cow's milk (2 grains of sodium citrate to the ounce). With a slight modification I have used this method since 1914, with the very best results. The modification consists in the addition of a teaspoonful of extract of malt to each feed. The most delicate and puny babies will take this and thrive on it. The addition of the malt is of great advantage, as it gives the milk a pleasant flavour and also aids digestion. I have never known a case where this diet disagreed with an infant.

ONE HUNDRED YEARS OF MEDICAL JOURNALISM IN BORDEAUX.

The issue of the *Journal de Médecine de Bordeaux et du Sud-Ouest* for November 1st, 1925, forms the centenary number of this periodical, which was founded in 1824 under the name of *Journal Médical de la Gironde*. Since then its title and format have changed several times, and during certain critical stages of French history—namely, towards the end of the Restoration, in 1870, and again in 1914—its publication was temporarily suspended. After a long period of existence as a monthly it became a weekly publication, and subsequently a fortnightly, as it is at present, when it forms one of the leading French medical journals, with a circulation of 20,000 copies. The centenary number contains interesting articles on medical journalism at Bordeaux before 1850 by Dr. Pierre Mauriac, on medicine and surgery at Bordeaux from 1870 to 1924 by the editor, Dr. Xavier Arnozan, on medical instruction at Bordeaux during the last hundred years by Dr. H. Verger, and articles on the last hundred years in neurology, dermatology, ophthalmology, otolaryngology, obstetrics, gynaecology, children's diseases, and medical electricity by the present occupants of the chairs devoted to these subjects. The text is interspersed with numerous portraits of the medical celebrities of Bordeaux during the last hundred years, including Jean Hameau, to whose great contributions to medical science we referred on May 17th, 1924 (p. 871); Guérin, a pioneer in ophthalmology, Elie Gintrac, an eminent general physician and dermatologist, as well as contemporary specialists such as Professors Régis, Pitres, Moure, Dubreuilh, and Bergonié.

RENEWAL OF MOTOR LICENCES.

For the benefit of motorists who are not well acquainted with the more important points in the present system of licensing and registration of cars and motor cycles, the Automobile Association is issuing a booklet entitled *Your Motor Tax at a Glance*, which shows the amounts due for quarterly licences, licences for less than a quarter, and whole-year licences. Information is given also concerning the allowances on old cars, refunds for surrendered licences, and the procedure for renewing licences. Copies may be had, gratis, on application to the Secretary, the Automobile Association, Fannum House, New Coventry Street, W.1.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 38 and 39. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at pages 31 and 32.

A British Medical Association Lecture ON THE NEW OUTLOOK ON CANCER.

DELIVERED BEFORE THE SHEFFIELD DIVISION ON
DECEMBER 11TH, 1925,
BY

W. CRAMER, D.Sc., Ph.D., M.R.C.S., L.R.C.P.

THE PROBLEM.

If we wish to explain a problem we must begin by formulating it. That seems a trite and commonplace observation to make. But it is a step which has been omitted frequently by those who have put forward "cancer theories." To many people cancer seems to be an abstract conception rather than a concrete, well defined, pathological phenomenon. How often have we not read in the past, even in the quite recent past, some article or book on cancer beginning with the lament that we know nothing about cancer. Having thus ingeniously disposed of everything concerning cancer that requires explanation, the author lifts his bonnet and his pet bee begins its flight. Of such writers it can truly be said that "they darken counsel by words without knowledge." I have always admired the courage with which a writer of that type advertised his ignorance. For as a matter of fact we know a good deal about cancer. As a result of the experimental investigation of cancer which began only twenty-five years ago a large number of facts were discovered. The difficulty was to find an explanation which would account for all the essential features of cancer, especially as some of the phenomena appeared to be contradictory. I propose, therefore, to begin by defining cancer as a pathological problem, and to state as briefly as I can the fundamentals, so far as they are known, of the pathology of cancer which must be accounted for by any satisfactory explanation of cancer.

We may begin with the fact on which the whole treatment of cancer by surgery is based: the local origin of cancer. At its inception cancer is localized. It is for this reason that we are entitled to say that cancer is a curable disease if it is diagnosed and removed in its early stage.

If we examine an early carcinoma of the skin or the tongue, where an early diagnosis is relatively easy, we find in a sharply circumscribed area a proliferation of the epithelial cells which grow down into the underlying tissue—muscle in the tongue, connective tissue in the skin. The cells which take part in this cancerous proliferation retain their special biological character. Thus, if the cancer cells are derived from the skin they continue to keratinize. Even in the metastases the cells continue to grow as the same type as that in which they originated. In the mouse most tumours are derived from the mamma, and one might expect, therefore, that on repeated transplantation they would converge to a common type of mammary tumour. But this is not so. Some mammary tumours showed from the beginning a very rapid growth and have maintained this rapid growth through twenty years of transplantation. Others, again, began as slowly growing tumours and still show the same slow rate of growth. There are also strains which at one time grow rapidly, then pass into a phase of depression with slow growth, from which quite spontaneously they recover to repeat the cycle in fairly regular intervals. In each propagated strain of mammary tumours the cells retain also their characteristic arrangement through twenty or more years of propagation, so that it is possible to identify a particular strain by merely looking at the histological preparation. One carcinoma of the mamma was characterized by cells containing glycogen. To-day, after fifteen years of transplantation, the cells of this tumour still continue to form glycogen, showing that we are still dealing with the descendants of the original tumour cells. There is an apparent exception to this statement. In a few

strains of transplantable mouse carcinomata it has been observed¹ that a sarcoma developed from the carcinoma. But this exception is, as stated, only an apparent one; for a careful study of this process, first by Haaland² and later by Russell,³ has shown that the sarcoma cells are not derived from the carcinoma cells, but from the connective tissue cells of the stroma which is supplied by the new host every time a tumour is transplanted. As the result of the more rapid proliferation of the sarcoma cells the carcinoma is gradually replaced by a sarcoma. In these cases, therefore, there is a transformation of normal tissue into malignant tissue by a neoplasm. But the cells which acquire malignancy as the result of this transformation again retain their specific biological character.

All these facts point to the same conclusion—namely, that a neoplasm is made up of the descendants of a few cells which have acquired the power to grow in an aimless, lawless manner. The problem which we have to explain is not merely that the cancer cell has acquired the power of growth. It is a growth which does not subserve the physiological needs of the body and is not controlled; it is a lawless, aimless growth. The cancer cells seem to be possessed of an irresistible impulse to grow, and by doing so they destroy the tissues and organs and eventually the organism in which they grow. There is no evidence of additional factors, such as specific cancer toxins or ferments, having a deleterious influence on the organism. Another striking fact is that the growth of a neoplasm is independent of the nutrition of the organism in which it grows.^{4,5} Thus conditions of nutrition which will bring about a progressive marasmus and eventually the death of the animal in a state of inanition—such as partial or complete starvation, a deficiency in specific amino-acids, such as tryptophane, or of vitamins—do not arrest the growth of cancer cells in the starved animal. This indicates that the impulse to grow resides within the cancer cells.

This aimless, lawless, irresistible growth, then, is one of the central problems of cancer. It would have been feasible to explain cell growth by postulating a specific organism if the disease were limited to only a few zoological species and could be transferred, like other microbial diseases, from one species in which it occurs to another. But cancer is characterized by this apparent paradox: while the disease is very widely distributed throughout the whole vertebrate kingdom, it cannot be transferred even from one closely related species to another by the inoculation of cancerous material. It is not so very long ago—only twenty-five years—that the belief was firmly held that cancer was a disease peculiar to man. As one of the few survivors of the early days of experimental cancer research I remember how the attempt to study cancer in animals was received with derision by many who claimed to be authorities on the subject. We owe it to the work of Bashford and Murray,^{6,7} and to the support which they received from the Executive Committee of the Imperial Cancer Research Fund, under the chairmanship of Sir William Church, that the investigation of cancer was placed on an experimental basis by demonstrating the essential similarity of the disease in man and in animals. Now we know that the disease may develop spontaneously in fishes, amphibians, reptiles, birds, and mammals. In all these classes of animals the disease exhibits the same fundamental features: a lawless, infiltrating destructive growth, having a local origin. But while the cells of probably all vertebrates are capable of undergoing the cancerous change, we cannot transmit the disease from one species to another by taking, for example, the cancer cells of a mouse and inoculating them into a rabbit, or the more closely allied rat. Attempts have frequently been made to transmit the disease from man to animals by inoculating human cancer material into mice, rats, rabbits, guinea-pigs, dogs, and monkeys. All such experiments have been uniformly negative.

This paradox—the wide zoological distribution on the one hand, the narrow limitation to one species of the transmission of the disease on the other hand—distinguishes cancer from other microbial diseases, and, as we shall see presently, has until recently been the insurmountable obstacle to the parasitic theory of cancer.

EXPERIMENTAL PRODUCTION OF CANCER.

There is another feature in the experimental pathology of cancer which distinguishes it sharply from the ordinary microbial diseases. If in a disease of undoubted microbial origin we take a piece of infected tissue and inoculate it into another animal, we reproduce the disease *ab initio* in the second animal. Thus, if we inject tuberculous human material into a guinea-pig we reproduce the disease *ab initio* in the guinea-pig. If we take an infective granuloma—a mass of connective tissue which has been formed in response to an infective agent—and inoculate it into another animal, the inoculated connective tissue cells die and the infective agent stimulates the connective tissue of the new host to form a new granuloma. Again, we have reproduced the disease *ab initio*. But if we transplant a carcinoma or a sarcoma, the transplanted cells themselves continue to grow. The tumour which grows is composed, not of the cells of the host, but of the cells of the animal in which the tumour originated. The cells of many of the mouse tumours which are now being propagated in the various laboratories belong to animals which may have died fifteen or twenty years ago. One might say that the cancer cell has gained immortality. This experimental method enables us to study the growth of a cancer once it has developed, and to submit the growth of cancer cells to various conditions. But, as has already been pointed out, it does not reproduce the disease *ab initio*.

In order to elicit cancer *de novo* a different experimental method must be applied. It is based on the experimental demonstration, first by Fibiger⁸ and later by Yamagiwa and Ishikawa,⁹ that cancer is produced by chronic irritation of a special kind. If a small area of the skin of the mouse is subjected to chronic irritation by painting it with tar twice or three times weekly over many months, a typical epithelioma develops in 60 to 80 per cent. of the treated animals. During the first three or four months no macroscopic changes are visible in the painted area, although microscopically hyperplasia of the epithelial cells of the epidermis and of the hair follicles has been demonstrated. Later, in the fifth month, a small wart may appear in some animals. There may be several warts. If painting is then discontinued—it may even be discontinued, as Dr. Leitch¹⁰ has shown, before any warts have appeared—the warts grow; if there were several they coalesce, and may develop eventually into a typical carcinoma with a hard infiltrating margin. If the animal lives sufficiently long, metastases may be found in the lymph glands and lungs. In some cases the tumour is of the benign papillomatous type. The length of time necessary to produce this effect differs greatly in different individual mice: it varies from five months to nine months. Some mice appear to be completely resistant to the effect of tarring and never produce either a wart, a papilloma, or a carcinoma.

It is known that tar workers frequently develop multiple warts of which one may become cancerous. Shale oil workers are subject to the same risk,¹¹ and, as Dr. Leitch¹² has shown, shale oil on prolonged application to mice will also produce cancer. It is surely a significant fact, demonstrating the identity of the disease in man and animals, that the same agents which produce cancer in man will also produce cancer in certain species of animals. The similarity goes even further: in mice it requires on the average six months from the onset of chronic irritation until cancer begins to develop. As the span of life of a mouse is about three years, this latent period amounts to one-sixth of the span of life. In man, with a span of life of seventy years, the period of induction is correspondingly long—ten to twenty years. There are exceptions. A few human cases are on record in which only a few weeks or months have elapsed. In one particularly striking case¹³ a spurt of oil tar lodged in a man's nostril; a fortnight later he produced a carcinoma at that site. Chorion-epithelioma of the testis, a tumour that obviously requires a short period of induction, has been produced in the guinea-pig.

American scheme of the Le...
protests against the tendency of induction. On the whole the insurance society. He disapproves cancerous as the result and if golf and tennis are too expensive.

of induction throws an altogether new light on one very characteristic feature of cancer—namely, its peculiar age incidence. Cancer is a disease of middle and old age; it is rare in the young, but becomes more and more frequent as age advances. Formerly this was attributed to the onset of senility in the tissues and the cells. But it explains itself much more simply as the result of the long period of induction. The carcinoma in the stomach of a man of 50 probably had its origin in a chronic irritation which affected the stomach ten or even twenty years earlier. There are other forms of chronic irritation which may lead to cancer. I can only mention them in passing: in man x rays, heat (the kangri cancer), cancer of the bladder in aniline workers, cancer resulting from parasites such as bilharzia and *Trichina spiralis*. It is perhaps not sufficiently well known that a number of cases are on record¹⁴ in which an infection with *Trichina spiralis* was followed after many years by the development of a cancer. The sites affected were mamma, lip, and pleura. In every case the neoplasm was a carcinoma, and in several of the cases living trichinae were found in the tumour. The period of induction was again very long—a minimum of seven years and a maximum of twenty-five years. In animals, Fibiger was the first to induce experimentally cancer in the stomach of rats by means of a nematode—*Spiroptera neoplasticus*. Bullock and Curtis¹⁵ subsequently produced sarcoma of the liver in rats by feeding them with the eggs of *Taenia crassicolis*. The sarcomata arise in the wall of the cyst enclosing the cysticercus.

SYSTEMIC FACTORS.

One of the most important and significant observations made as a result of the work on experimental tar cancer we owe to Dr. J. A. Murray.¹⁶ One would think that an animal which has readily responded to tar painting by the development of a cancer would be at least equally susceptible to the effects of a second tarring, or perhaps even more susceptible. This was put to the experimental test by removing by operation the tar cancer which had developed in a number of mice and then subjecting these animals to a second course of tarring. To his surprise Dr. Murray found that these animals did not develop cancer at all, the skin at the painted area becoming merely atrophic. He then took a number of mice in which a mammary carcinoma had developed spontaneously, removed the growth by operation, and subjected the mice to tarring. The same result was obtained: the mice were so resistant to tarring that no tumour developed during the period of survival. This shows clearly that once the body has developed a malignant new growth in one organ, it has become resistant against the subsequent development of a second neoplasm in any other part of the body, though it has not become resistant to the growth of the first tumour in other parts of the body. This accounts for the rarity of multiple tumours in different organs. Thus cancer of the breast alone and cancer of the uterus alone are frequent in women. But cancer of the breast and uterus in the same woman is rare. It is curious that this fact seems to have escaped clinicians and statisticians. Multiple tumours, when they do occur, affect almost always the same organ and tissue, and are then due to the tissue being subjected to chronic irritation at different sites simultaneously. Experimentally there is no difficulty in producing multiple cancer of the skin by painting simultaneously different areas of the skin by resistance to cancer of which I have spoken manifests itself only if chronic irritation is applied successively. This observation indicates that it is possible to induce a resistance or immunity against the development of cancer. From this point of view it would be interesting to follow the history of patients who have been operated on successfully for, say, a carcinoma of the tongue or of the breast, so as to find out whether they have developed subsequently a cancer in some other organ.

These observations give evidence that the genesis of cancer may be determined by systemic factors, although in its inception the disease is, as we have seen, localized. I have recently obtained further evidence of the existence of such systemic factors in normal animals, in which it has been possible to induce experimentally the reverse condition of

diminished resistance to the genesis of cancer. The conclusion that the development of cancer in one organ induces a resistance to the subsequent development of cancer in another organ would also explain another very curious fact which seems to have been overlooked by statisticians. There is a curious discrepancy between Holland and England in regard to the mortality from cancer of the breast and uterus: it is nearly twice as high for English women as for Dutch women. An international committee of distinguished statisticians working under the auspices of the League of Nations¹⁷ has undertaken to collect detailed statistics with the object of finding the reason for this remarkable difference. The report has just been published,¹⁸ and is a mine of valuable statistical information concerning cancer of the breast and uterus in these countries. But the committee has been unable to solve the problem.

Now though there is this great difference in the mortality from cancer of the breast and uterus between the two countries, there is no such difference in the total mortality from cancer. The mortality from cancer of all organs is, in fact, nearly the same in both countries, and if we investigate this point further we find that there is among Dutch women a much higher mortality from cancer of the stomach and intestine than among English women. The more frequent development of cancer in the intestinal tract among Dutch women protects them against the development of cancer in the breast. It might be equally or even more pertinent to inquire why Dutch women have a higher mortality from cancer of the stomach and intestine than why they have a lower mortality from cancer of the breast and uterus.

THE PARASITIC CONCEPTION.

An account of the essential features of the disease makes a very complex picture. The problem is to formulate a conception which will correlate, explain, and fit in with all the known facts and the truth of which can be demonstrated experimentally. All the numerous attempts to give an explanation of cancer can be conveniently divided into two groups: the parasitic conception and the biological conception. The parasitic conception explains cancer as being due to an extrinsic factor, the biological conception seeks to explain it by intrinsic factors—variations in the normal mechanism of cell life.

The attraction of the parasitic etiology of cancer is its simplicity. All we have to do is to find a micro-organism which is always associated with malignant new growth, and which, when introduced into the body, will by itself produce cancer as its specific disease, just as the *Spirochaeta pallida* produces syphilis and the tubercle bacillus tuberculosis. The experimental investigation of cancer has shown very clearly that the very simplicity of this conception makes it inadequate as a solution of the problem. I have already pointed out that the wide zoological distribution of the disease and its essential similarity in the different classes of animals would argue for one specific micro-organism as the cause. But if that were so, cancer should be transmissible from one species to another, which it is not. The strict limitation of the transmissibility of cancer, therefore, would argue for one specific micro-organism for each species, each micro-organism producing the same disease in each species. That seems highly improbable. But when we have conceded that, we are up against the difficulty mentioned before: we find that in transplanting a neoplasm from one animal to another of the same species we are not initiating the disease as we do in other diseases of known microbic origin, but we are merely keeping the cancer cells alive. That seems definitely to exclude the presence in a neoplasm of a micro-organism capable by itself of producing cancer. Nor can we explain in this way why a neoplasm grows out of its own resources and does not transform the surrounding tissues, why a carcinoma remains an epithelial growth and a sarcoma remains a connective tissue growth. From what I have said I think it is clear that the assumption of a specific micro-organism or even of an enormous group of specific micro-organisms which by themselves, when introduced into the body, produce cancer does not afford an explanation. It is for this reason that cancer researchers with rare

unanimity have in the past turned their back on the parasitic conception of cancer.

Now it may be argued that all these *a priori* considerations would fall to the ground as soon as one observer isolated a micro-organism specific for cancer in the sense that it is always present in malignant new growths and is capable by itself of producing malignant new growths experimentally in a sufficiently large number of experiments. The answer to that is that none of the claims put forward has withstood critical examination.

THE BIOLOGICAL CONCEPTION.

The second group of cancer theories are based on biological conceptions. We have here such theories as Cohnheim's view that cancer arises from embryonic rests, or Ribbert's hypothesis that dislocation of epithelium from its normal association with surrounding epithelium and connective tissue elicits latent powers of unlimited proliferation. These theories and a few others were elaborated before cancer could be investigated experimentally and before the technique of tissue culture *in vitro* had been developed. A detailed criticism of these various theories has been given in the second scientific report of the Imperial Cancer Research Fund. It is sufficient to say here that they do not explain all the features of cancer, and that when put to the experimental test they have failed.

Other biological conceptions have sought the solution of the cancer problem in a disturbance of the inner mechanism of the cell, especially that which presides over cell division. A vast amount of work on the cytology of the cancer cell has, however, failed to demonstrate any essential difference from the normal cell. The whole subject has been admirably summarized in a recent article by Dr. R. J. Ludford¹⁹ in the *Journal of the Royal Microscopical Society*. The biochemistry of the cancer cell has also been subjected to an exhaustive investigation and has been made the basis of many speculations.

So far I have tried to give you in rapid sketch an idea of the state of the cancer problem as it was six months ago. If it appears to you confused, that is exactly the impression which I wished to give you. The experimental investigation of cancer had brought to our knowledge a large number of facts concerning the disease. But many of these facts appeared to be so contradictory that it seemed impossible to correlate them by reference to a simple cause. As our knowledge increased the problem became more and more complex until we began to wonder whether what we call cancer was really a single disease and not perhaps a whole group of diseases each with a separate etiology.

THE WORK OF GYE AND BARNARD.

And now we come to "the last scene of this strange eventful history"—the work of Gye²⁰ and Barnard.²¹ Gye's conception of the etiology of cancer is that it is due to an ultramicroscopic virus common to different classes of animal. This virus when it enters into the cell stimulates it to the characteristic independent growth. But the mere presence of the virus in the body does not produce cancer, because by itself the virus is unable to attack a normal cell. In order to do this it requires the presence of an accessory factor or factors, which are furnished by the biological condition of the cell. This conception is a brilliant and ingenious compromise between the biological and the parasitic theories of cancer, and is in harmony with most of the essential features of the pathology of cancer.

But Dr. Gye did not develop his conception as the result of armchair speculation. It arose naturally from the results of a prolonged and technically very difficult experimental investigation on the peculiar fowl sarcomata discovered by Rous in 1911.²² These tumours, called "Rous tumours" for short, formed a particularly fascinating and puzzling chapter of cancer research. In a series of brilliant papers Rous disclosed the peculiar nature of these tumours. Little has been added to our knowledge concerning these tumours since. In fact, up to six months ago they had been neglected by cancer researchers as a disease which mimics cancer but is essentially different

* See BRITISH MEDICAL JOURNAL, January 23rd, p. 160.

from it. Now it appears that these tumours have in the hands of Dr. Gye furnished us with the key for the solution of the cancer problem.

These tumours have been observed only in fowls, and are rare even there. Histologically they are typical sarcomata, each possessing a very characteristic individual appearance. Rous described three such tumours: one was a spindle-celled sarcoma, the second was an osteochondrosarcoma, the third was a sarcoma having peculiar elongated rift-like blood spaces. Clinically they are highly malignant, growing with great rapidity and spreading very quickly throughout the body by metastases. On transplantation they retained their characteristic structure. Transplantation is limited not only to the same species but actually to one particular breed—the Plymouth Rock breed. In all these respects they behave, therefore, in the same way as typical malignant new growths. But they differ in one important feature: all other tumours, even other fowl tumours, could be transmitted only by using living tumour cells; when the cells were killed by any agency whatever the transplanted dead tissue failed to grow. This fact was always regarded as a strong argument against the parasitic theory of cancer. Now the Rous tumours can be transmitted by a saline extract which had been rendered completely free from cells by filtration through a Berkefeld filter. If the clear cell-free filtrate is injected, a new tumour forms rapidly. And the most astonishing thing is that the tumour formed by the cell-free filtrate retains its original structure. The filtrate from the osteochondrosarcoma forms an osteochondrosarcoma, the filtrate from the rifted sarcoma forms a rifted sarcoma.

Whatever the solution of this puzzling problem might be, one thing is clear—that these tumours can be transmitted by means of a "filterable agent," as Rous called it. *A priori* this might be either a chemical substance or a living filterable virus.

One of the first stages in Dr. Gye's work on these tumours was to determine which of these two alternatives was the correct one. He argued that if it was a virus it must be particulate, so that it can be brought down by spinning over a long time at a very high speed. He had found that when he incubated a piece of tumour anaerobically in broth of a certain composition the fluid in which the tumour had been circulated was capable of producing a tumour. By subjecting this fluid to spinning and injecting afterwards samples of the fluid separately from the top and from the bottom, where a slight deposit of the virus had been formed, he found that the top layer had become inactive, while the bottom layer rapidly produced a large tumour. The next stage was to decant after spinning the whole fluid from the deposit of virus, and after washing the deposit of the virus with saline to inject it into a chicken. He expected it to produce a tumour. What he found was—nothing! Nor did the top layer of the supernatant fluid produce a tumour. But when the washed virus was injected together with the supernatant fluid having the typical structure of the original sarcoma. Now an experiment of this kind shows very clearly that two factors are involved in the transmission of this particular tumour under experimental conditions: one is particulate—a virus; the other non-particulate—a chemical substance furnished by the tumour cells. The virus by itself is non-pathogenic. The second chemical factor enables it to enter the cells and then to stimulate them to the unrestricted, lawless growth characteristic of cancer cells. The chemical factor has a very specific action in so far as it renders only the same type of cell susceptible to the virus as that which composed the original tumour. Gye, therefore, calls this second agent "the specific factor," (speaking of the virus as the "extrinsic" factor, "intrinsic" to the cell), and of the chemical substance as the "intrinsic" factor, we see at once that this conception represents a compromise between the parasitic and the biological conceptions of cancer which have hitherto held the field as irreconcilable antagonists.

This conception is confirmed by a number of other experiments which I have no time to discuss. I may perhaps mention that the living nature of the virus has

been demonstrated both by the ultramicroscopic observations of Barnard and by experiments of repeated subculturing which demonstrated a multiplication of the virus.

So far as these experiments go they allow us to apply these conclusions only to these particular types of Rous tumours in the fowl. Can they be transferred to the tumours of mammals and of man? It is important to understand the fundamental difference between the transmission of these peculiar Rous sarcomata by a cell-free fluid and the transplantation of the majority of animal neoplasms by living cells. As I explained above, in transplanting a neoplasm by living cell we do not reproduce the disease in the new host *de novo*. The transplanted cells themselves continue to grow; the new host supplies the stroma and the food which enables the transplanted cells to live and grow. The tumour which forms is composed, not of the cells of the new host, but of the cells of the animal in which the neoplasm originated—possibly ten or twenty years ago. But when a Rous sarcoma is transmitted by a cell-free filtrate the connective tissue cells of the new host become malignant at the site of the inoculation, and we do reproduce the disease *de novo*.

What is the significance of this important difference? Does it mean that these Rous tumours are a disease *sui generis*, having an entirely different etiology from true sarcomata and only resembling them so closely as to mislead the unwary investigator? That was the view generally adopted, and the Rous tumours were considered to be not true sarcomata but infective granulomata. There had always been a difficulty in making a clear-cut distinction on histological grounds between these two groups of connective tissue tumours. The experimental trans- mission of these tumours seemed to furnish a definite criterion: tumours which could only be transmitted by living cells were true sarcomata, those which could be transmitted by a cell-free extract were infective granulomata.

But Gye refused to accept these definitions and decrees and for a decision appealed to further experimental evidence. And it is through taking this step that he has been able with his new technique to disclose the relationship between these Rous tumours of doubtful pedigree and the tumours of unquestioned cancerous origin, and thus to change completely our whole outlook on cancer. We have seen that the cells of the Rous tumours, but for the one exception, exhibit all the characters of a malignant cell: they invade the surrounding tissue, they form metastases, they retain their biological individuality both in the metastases and after transmission, they even show the narrow limitation of transmission within a species. Gye had found that in the Rous tumours these characters of malignancy are conferred upon normal cells of the new host when a virus is made to enter it by the presence of the specific factor. Now, he asked himself, if that is so, why should not the malignant character of the tumours of mammals and of men be due also to the presence of a virus in the tumour cells. How can this proposition be put to the experimental test? His answer was: By seeing whether the virus of the Rous tumour can be substituted by a virus from mammalian tumours, so that by adding the specific chemical factor from the Rous tumour to a virus from a mammalian tumour a sarcoma can again be produced in the chick. In practice the experiment is as follows: a piece of tumour from an animal or from man, as the case may be, is taken and incubated anaerobically under such conditions as would allow a virus to multiply free extract from a Rous tumour is treated in such a way as to remove or inactivate the virus, so that this fluid when injected into a chick also produces no result. Then both fluids are mixed and injected into a chick. If now a sarcoma arises the culture fluid from the mammalian tumour must have contained a virus.

In this way Dr. Gye has been able to demonstrate experimentally the presence of a virus in various sarcomata and carcinomata of the mouse and rat, and, so far as his published results go, in one human carcinoma. His conclusions based on such experiments have been confirmed by Mr. Barnard by the examination of Dr. Gye's cultures

by means of a new ultramicroscopic technique. By means of this technique Mr. Barnard has succeeded in studying the virus cultured by Dr. Gye, and he has been able to confirm its presence in those conditions in which experimentally a positive result was obtained.

VIRUS AND BIOLOGICAL FACTOR.

Dr. Gye's work, then, leads to the conclusion that the entrance into a normal cell of a specific virus confers upon the cells those characteristics which are the essential features of malignancy. The virus appears to be the same for a great many different classes of animal. The virus alone is, however, unable to effect an entrance into a normal cell. To do so it requires an accessory biological factor or factors. What these accessory biological factors are we do not as yet know: it may be a special functional condition of the cell, or the absence of oxygen, or an abnormal cell metabolite. Only in the case of the Rous tumours do we know for certain that the accessory biological factor is a chemical substance furnished by the tumour cells. But it does not seem to me to be an essential part of Gye's conception that the cells of every neoplasm must always produce such a substance. Once the virus has been enabled to enter into a few cells the trick is done and the cells are now impelled to grow. I wish to emphasize this point because some writers have quite arbitrarily made the demonstration of a specific factor in every neoplasm the touchstone of Gye's theory. The cells of the Rous sarcomata are exceptional in forming an abundance of such a substance, and it is this exceptional property which explains why the Rous sarcomata can be transmitted with a cell-free filtrate and why they have such a high degree of malignancy. If all sarcomata contained an abundance of this specific factor they could all be transmitted by a cell-free filtrate and they would all have the same highly malignant character. We know that this is not so. Further work will have to show whether different sarcomata vary in the amount or the stability of the specific factor formed by them. So far only one tumour—a mouse sarcoma—has been shown by Gye to be transmissible by a cell-free fluid, and in this case he found that the specific factor of this tumour was so sensitive to oxidation that its presence could be demonstrated only under very strict anaerobic conditions.

MICROBIC INFECTIONS AND ACCESSORY FACTORS— DEFENCE RUPTURE.

The conception that the virus of cancer by itself is non-pathogenic and can only elicit the disease if an accessory factor is present may at first appear too novel and unique to be readily acceptable. The orthodox teaching of bacteriology has, indeed, accustomed us to regard a disease of microbic origin as being the immediate result of the entrance of the microbe into the organism. That is so for many infections, but by no means for all. During the war it was generally recognized that though most wounds were infected with the bacteria of gas gangrene only a small percentage of the infected wounds developed gas gangrene. Dr. Gye and I were working on gas gangrene at the time, and being very much impressed by this fact we investigated the cause of this phenomenon. We found²² that if the bacteria of gas gangrene, or their spores, had by repeated washing been made completely free from all toxin they had become non-pathogenic and could be injected into animals in large doses without producing any effect whatever. But if a small amount of a soluble calcium salt was injected, not necessarily together with the bacteria but even when it was given several days afterwards and at a different site, gas gangrene developed at once and killed the animal. Dr. Gye informs me that on repeating the experiments a few years later with the washed spores of *Vibrio septique* he succeeded in producing gas gangrene by the injection of calcium salts six months after the injection of the spores. When the calcium salts were injected at a different site, the focus of infection was not where the bacteria had been injected but where the calcium salt had been injected. Further investigation showed that the calcium salt produced in the tissue a specific visible lesion of such a nature that

the normal defences of the subcutaneous tissues against the bacteria of gas gangrene were broken down and the bacteria could proliferate at the site of the lesion. We therefore called this phenomenon "kataphylaxis," or "defence rupture." We showed that the same holds true for tetanus and even for streptococcal infections. Other substances, strontium salts, some colloids, such as colloidal iron or colloidal silicic acid, have a similar effect. Gye and Kettle²³ showed that tuberculous infections could be induced in animals usually resistant to it by the injection of colloidal silicic acid. Orthodox bacteriology has taken no notice of this striking phenomenon; it is not even mentioned in the chapter on gas gangrene in the official medical history of the war.

These are infections occurring through the broken skin, and the onset of the disease is here determined by substances carried into the wound with the earth. Most ordinary infections take place mainly in the mucous membranes—namely, in the respiratory and the digestive tracts. These membranes are always in contact with bacteria, but are not ordinarily infected by them, because the secretion of mucus keeps the bacteria from coming into close contact with the tissues. Now one of the effects of a diet deficient in vitamin A is to produce an atrophy of the mucus-secreting cells.^{24 25} When this occurs the bacteria of the intestinal and respiratory tracts beginning in the mucous glands gain entrance into the blood stream. It is frequently stated that such a diet produces in the animal a general diminution in the resistance against infection. That, however, is not the case. These animals are no more susceptible to infection by bacteria injected subcutaneously than normal animals, nor do the usual serological tests show any deviation from the normal: it is a local diminution of resistance in specific tissues. Excessive radiation with radium produces a similar effect.²⁶ Here, then, we have two entirely different agencies—radiation and vitamin deficiency—eliciting accessory biological factors necessary for the bacterial infection of mucous membranes.

A very striking experiment bearing on this point has been recorded recently by Webster²⁷ of the Rockefeller Institute. He introduced mouse typhoid bacilli in equal doses into the stomach of mice. The mice were of the same strain, but were kept on two different diets. Both diets were adequate to keep the animals in good health and to enable them to breed, but one diet was so constructed as to be especially rich in vitamins. Of the animals kept on the vitamin-rich diet only 15 per cent. developed the disease and died. The mortality in the other group was 100 per cent.

All this goes to show that many microbic infections result not merely from the presence of the specific microbe but require accessory factors which vary with the different micro-organisms and the different tissues. To prevent a misunderstanding it may be stated that it is not suggested that the accessory factors just mentioned play any part in the production of cancer. There we have the various forms of chronic irritation which probably take their part in the etiology of cancer in this way. Directly or indirectly, they render cells susceptible to the entrance of the virus.

CONCLUSION.

It goes without saying that Gye's conception, in so far as it is based on experimental work, has to stand the test of experimental confirmation. What I have been trying to show is that his conception has given us a new outlook on cancer. Let us see now what his conception explains. The aimless, lawless, irresistible growth is the result of a virus entering into a few cells and impelling them to grow, freed from the control and inhibition which regulate the growth of the normal cell. The cell with the virus nevertheless retains its biological character as a cell of the species, of the tissue, and of the individual to which it belongs; hence the limitation in transmission and the fact that the cells of a neoplasm breed true. The virus is common to the tumours of different species and classes of animals; hence the wide zoological distribution of the disease. The virus by itself is non-pathogenic; that explains why the disease is not contagious. The virus can only enter a cell if some accessory biological factor is present: such a condition can be induced by very different forms of chronic irritation;

THE SURGICAL TREATMENT OF ANGINA PECTORIS.

BY

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In a previous article (BRITISH MEDICAL JOURNAL, 1924, ii, p. 553) I described my conception of the pathogenesis of angina pectoris, and of the mode of action of the sensory cardio-aortic nerve fibres in producing the attacks. I concluded that the best surgical operation applicable to this disease was the intercepting of the maximum number of the sensory cardio-aortic fibres without interference with the important groups of the cardiac accelerators. Jonnesco's operation, in which the stellate ganglion is removed, does

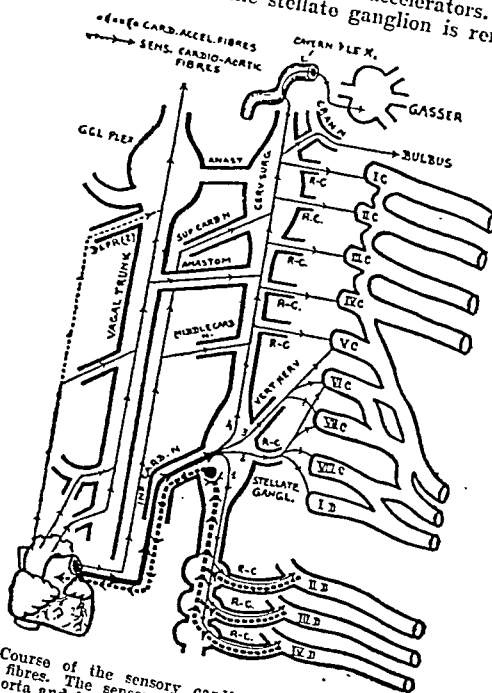


FIG. 1.—Course of the sensory cardio-aortic and of the cardiac accelerator fibres. The sensory cardio-aortic fibres originate in the heart and aorta and form two groups. The first group passes through the stellate ganglion and divides into: (1) a dorsal bundle, for the second, third, and fourth dorsal pairs; (2) a cervico-dorsal bundle, for the sixth, seventh, and eighth cervical, and first dorsal pairs; (3) a vertebral bundle, entering the fifth, sixth, and seventh cervical pairs through the cervical nerve; (4) the cervical sympathetic bundle, which unites the cervical and joins fibres reaching the trunk through the superior and middle cardiac nerves and the anastomoses which unite the cervical trunk, the vagus, and its branches. The cervical sympathetic bundle is divided between the first five cervical pairs, the medulla, and cranial nerves, and its branches. The group follows the cardiac branches of the Gasserian ganglion. It divides into: (1) a bundle without reaching the stellate ganglion, which originated from the first group; (2) a bundle following the superior cardiac fibres, and joining fibres in this bundle from the thoracic supply of the vagus. This bundle enters the vagus trunk and travels towards the medulla, a part of it traversing the anastomoses in the cervical bundle.

not fulfil these conditions, and should be abandoned for the following reasons.

1. The Jonnesco method intercepts important groups of the cardiac accelerator fibres, and the coronary and pulmonary vasomotor nerves. Physiologists have shown experimentally that animals deprived of their extracardiac nerves lose the power of resistance, and it has also been proved that removal of the stellate ganglion weakens the heart beat. By repeating such tests in dogs I have found that excision of the first thoracic ganglia seriously affects the fundamental physiology of the myocardium. The alterations are rendered still more grave if this operation is preceded by ligation of certain branches of the left coronary artery.

hence the local origin of the disease. We can also understand why agencies so different as tar, x rays, and animal parasites are capable of inducing cancer. Under exceptional conditions the parenchyma of a carcinoma may have such an effect on the cells of its stroma that the virus is able to infect the connective tissue cells and a sarcoma arises from a carcinoma. The cells of some very rapidly growing and highly malignant tumours produce in abundance a substance which will act as an accessory biological factor, but only for the same type of cell as the one of which the tumour is composed. Such a tumour can therefore be transmitted by a cell-free filtrate containing both virus and the specific factor. Other tumours contain less of this specific factor or it is more labile; they can therefore only be transmitted by living cells. There is therefore only a fundamental distinction between these two types of neoplasms, as was hitherto supposed; they differ only in degree. These differences in the amount of specific factor present in the clinical behaviour of different neoplasms as regards rate of growth and malignancy. A tumour forming an abundance of the specific factor will grow rapidly and metastasize rapidly, because in such an extreme case the tumour will grow, not only by cell division, but also by a transformation of the normal cell of the same type. This would explain the fulminating growth of some types of cancer in the human subject. Tumours containing less of this specific factor or forming a less stable specific factor will grow more slowly and metastasize less rapidly. The striking fact that the growth of a neoplasm is independent of the nutrition of the animal in which it grows calls, as we have seen, for an explanation which places the impetus to grow within the cancer cell. This is obviously in accord with the conception that the growth of a cancer cell is due to an intracellular virus assisted by a chemical factor elaborated by the tumour cells.

Gye's work raises many new problems into which I cannot now enter, but it has solved our old and fundamental difficulties. Its particular merit is that it is not in conflict with any of the previously established facts, but, on the contrary, it confirms them. Taking them as his starting point, he has just gone one step further, and in doing so he has hit upon a conception which links together all our knowledge concerning cancer, which removes all the apparent contradictions, and which, so far as I am able to judge, explains all the essential features of the disease. It is the first adequate explanation of the causation and growth of cancer, and it points the way to further progress.

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2. Removal of the stellate ganglion by the Jonnesco method has produced high mortality in Basedow's disease and in epilepsy (about 20 per cent. in each). In his text-book published in 1923 Jonnesco states that only one of 130 cases of epilepsy treated by his operation proved fatal. Brunning, however, has remarked that the statement is not consistent with one made in 1899, when Jonnesco stated, in Braun's thesis, that 8 out of 33 cases had been fatal. In epilepsy death occurred immediately after the operation or followed it within one, fifteen, or seventy days. Many of the rather numerous fatal cases occurring in Basedow's disease after removal of the stellate ganglion were preceded

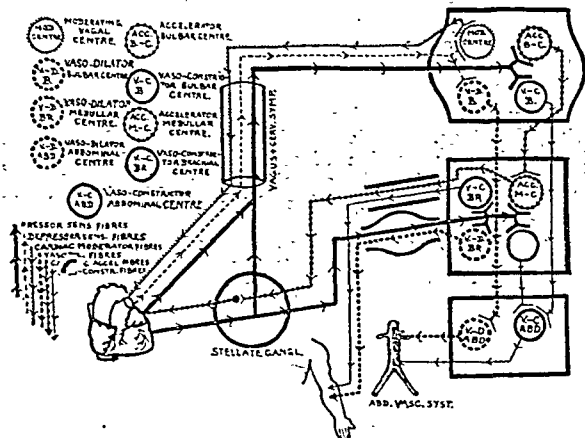


FIG. 2.—Cardio-vascular reflexes in angina pectoris. Sensory pressor and depressor fibres emerge from the heart and aorta. The depressor fibres pass to the medulla: (1) to the moderating vagal centre—slowing of the heart by the depressor reflex is thus explained; (2) to the vaso-dilator centre, which is in turn in relation with vaso-dilator centres in the lower part of the dorsal cord; these facts explain the abdominal vaso-dilatation and fall in blood pressure produced in the depressor reflex. The indirect connexions between the sensory depressor fibres and the vaso-dilator centres of the peripheral circulation are not shown; these are also concerned in reducing the blood pressure (François Franck). The pressor fibres are connected with centres in the medulla and cord: (1) with the medulla accelerator centre in relation, through descending fibres, with accelerator centres in the lateral horns of the cervico-dorsal cord. These connexions explain the cardiac acceleration accompanying the pressor reflex; (2) with the medullary vaso-constrictor centre, connected by descending fibres with the centres in the lower part of the dorsal cord. The pressor reflex thus causes abdominal vaso-constriction and increases blood pressure. But other pressor fibres exist, not traversing the medulla and directly influencing the medullary vasomotor centres through sensory fibres which reach the cervico-dorsal cord through the inferior cardiac nerves and stellate ganglion. These fibres affect: (1) vaso-constrictor and vaso-dilator centres of the upper limbs, which explains the modifications in the brachial pletysmogram described by me in angina; (2) vaso-constrictor centres in the lower part of the dorsal cord reached by descending fibres; thus is explained the rise in blood pressure produced in dogs by stimulating the central end of the Viessens loop; (3) accelerator centres in the medulla. Different sensory cardio-aortic fibres reaching the medulla and cord may possibly affect the motility of the coronary vessels, as well as that of the pulmonary vessels. These connexions show that all stimuli starting from the heart and aorta travel centrifugally by way of the sympathetic as well as the parasympathetic. Normally the parasympathetic group is the more affected, explaining the depressor reflex produced by stimulation of the heart and aorta. In angina pectoris the sympathetic fibres are more affected, the depressor reflex being thus absent, and the pressor present. Reflexes starting from the heart and affecting the vessels are more marked on the left side, for the following reasons: (1) The cardiac nerves are more developed on this side. (2) The myocardial pressure producing the anginal attacks, or which in other abdominal states give rise to different vascular reflexes, occurs most intensely in the left ventricle, which is more related with these states and possesses the largest amount of cardiac muscle. This mechanism explains why anginal sensations and disturbances which occur in various abnormalities of the heart are situated on and radiate especially toward the left side. (3) Coronary lesions are more marked on the left side. Myocardial sclerosis so produced renders the left sensory terminations hypersensitive, a factor predisposing to anginal attacks.

by signs of myocardial insufficiency. The mortality would prove to be much higher if the cases were followed up for longer periods, and if all the fatal cases were published.

3. The mortality of the Jonnesco operation in angina pectoris is also high. In one case death occurred four days after the operation, with signs of acute asystole of the left heart, and with pulmonary oedema; in a second case death followed similarly in four days. In another case the patient was found dead in his bed the day after the operation. In a case in which Hofer applied the Jonnesco operation the patient died within twenty-four hours, with pulmonary oedema and asystole of the left side of the heart. A case treated by Diez ended fatally in a month, one by Radici

in twenty-one days, and one by Reid and Friedländer in fifteen days. Arrilaga reported recently a case of death with syncope phenomena after this operation. Most of these patients presented signs of acute myocardial insufficiency, which shows the danger of dividing cardiac accelerators in a disease in which the myocardium is so often much degenerated. Again, Arrilaga has shown that the Q.R.S. phase, as indicated by the electro-cardiogram, becomes prolonged in anginal cases after excision of the stellate ganglion by the Jonnesco method; a fact which indicates aggravation of the myocardial condition. Diez confirms the findings of Arrilaga, who also, with Clerc and Basconnet, insists on the gravity of this change. In cases where it occurred, 60 per cent. of the patients died during the year. When an anginal subject, who has never presented

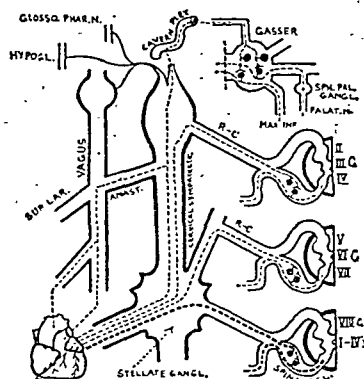


FIG. 3.—Path through which pain radiates in angina.

the signs of asystole of the left side of the heart, shows this syndrome and dies on the day of operation or soon after, and when we remember that the positive inotropic function of the accelerator fibres is intercepted by the Jonnesco treatment, these untoward results must inevitably be attributed to the removal of the stellate ganglion.

4. Cases of survival after the Jonnesco operation may be explained on the assumption that the myocardium has not degenerated to the same extent in all anginal cases. It is also true that most of the cases so far reported have not been followed up for a sufficient length of time. We do not know how long we must wait to be sure that interception of the accelerators has not injured the myocardium. Such reports are incomplete, the only really complete cases being the fatal ones. Surviving patients should not figure in the statistics unless operating surgeons report the clinical conditions existing some years after operation. I may also remark that excision of the stellate ganglion is a rather difficult technical procedure. In the hands of a surgeon so experienced as Jonnesco complete excision may be counted upon, but I seriously doubt whether it has been complete in all the cases operated upon for angina by those operating thus for the first time. Such incomplete excision may also explain the survival of some cases, as compared with the particularly high mortality reported by Jonnesco.

Most reports on the Jonnesco operation are made by surgeons; no cardiologists have yet accepted it, and the question is one for cardiologists. I was the first to point out the danger of removing the stellate ganglion; but Wenckebach is of the same opinion and suggests section of the depressors, while Hofer also has condemned the Jonnesco operation. Diez, who at first approved the operation, has now written to me supporting my view of it, since in one of his cases sudden death occurred one month after the operation. In his important work on the heart Vaguez is inclined to approve my treatment, which leaves the stellate ganglion untouched, and Richon concurs, maintaining that extensive mutilation of the ganglia endangers the centrifugal fibres. Leriche categorically opposes the Jonnesco operation, as it was followed in four cases by death from acute asystole of the left side of the heart.

PERSONAL METHODS.

In 1922 I remarked that removal of the stellate ganglion should be abandoned, but that I hoped that angina pectoris

might be improved by cutting other nerve fibres, and I suggested section of the cervical sympathetic. Clinical and experimental studies made then have enabled me to add during the last three years the division of other nerves without danger and probably with benefit. The procedure which has gradually evolved is as follows:

1. Section of the cervical sympathetic (Fig. 5). We thought at first that section of the cervical sympathetic was necessary; we also contemplated altering the connexion of the visceral sensory neuron with the cerebro-spinal sensory neuron situated in the cord or spinal ganglion by dividing, or blocking with alcohol, the second, third, and fourth spinal nerves. Since fresh experiments were necessary, and are now progressing, discussion of this point must be postponed. Section of the cervical sympathetic was successfully accomplished by C. F. and A. F. Jennings in 1924. In the previous year Coffey and Brown had combined section of the cervical bundle with division of the first cardiac nerve. The five cases thus treated were clearly improved.
2. Section of the cervical sympathetic and vertebral nerve, or section of the anastomoses connecting the superior cervical ganglion with the cranial nerves (Fig. 6). The vertebral nerve may contain sensory fibres; its section is therefore desirable. Gino Pieri de Belluno tried my method of dividing the cervical bundle and the vertebral nerve; improvement followed. In my previous article in this JOURNAL I advocated that in addition to cutting the cervical

My method is wholly different from that of Jonnesco, who claims that sympathectomy is ineffective unless the stellate ganglion is included, as practised by him in epilepsy and Basedow's disease. My method is based on the following data:

1. My clinical and experimental studies have shown that all the nerves selected for section contained sensory cardio-aortic fibres. Radiation of pain to the lower jaw and the palatine vault showed that the cervical sympathetic is partly sensory. Radiation of pain to the pathway of the cervical pairs of nerves indicates that section of the rami communicantes, which unite the cervical cord, intercepts many sensory fibres. Radiation of pain to the path of the eighth cervical and first dorsal nerves proves that sensory fibres exist in the communicating branches which I propose to divide. Results obtained in dogs show that the vertebral nerve sometimes contains sensory fibres, and may be cut with advantage. Hofer's operation, which proved that cases improved after division of some branches of the vagus, indicates that this nerve contains sensory fibres. I believe that all intrathoracic branches of the cervical vagus should

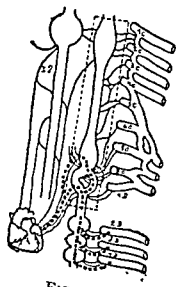


FIG. 4.

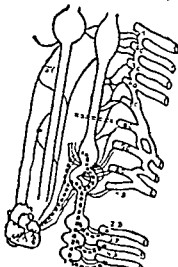


FIG. 5.

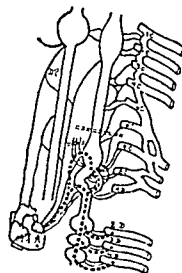


FIG. 6.

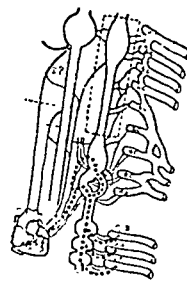


FIG. 7.

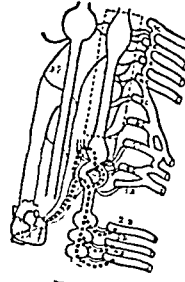


FIG. 8.

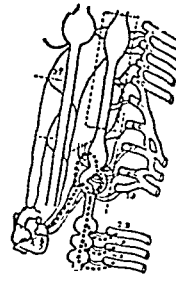


FIG. 9.

FIG. 4.—Cervico-thoracic sympathectomy: the Jonnesco method. Removal of the entire cervical chain and of the first thoracic ganglion. The operation leaves intact the sensory cardio-aortic fibres contained in the vagal branches, and interrupts highly important accelerator fibres and coronary and pulmonary vasomotor fibres, causing fatal results.

FIG. 5.—Section of the cervical sympathetic. (Danielopolu and Iristide Soc roumaine de biol., November 2nd, 1922.)

FIG. 6.—Section of the vertebral and cervical sympathetic, or section of the anastomoses connecting the superior cervical ganglion to the cranial nerves. (Danielopolu, January, 1924)

FIGS. 7 AND 8.—Resection of the inferior cervical and first thoracic ganglia, with or without section of the vagus (October, 1924). Fig. 7 represents the more complete, operation. Fig. 8 represents the less complete, operation.

FIG. 9.—Resection of the cervical sympathetic chain, leaving the inferior cervical and first thoracic ganglia intact, with section of the inferior nerve, of branches of the vagus, and of vagal branches entering into the thorax; and of communicating branches uniting the inferior cervical and first dorsal pairs; and section of the fibres occasionally passing from the superior laryngeal to the vagus. (Danielopolu, February 4th, 1925.)

sympathetic and the vertebral nerve, those fibres should also be divided which were widely distributed within the thorax from the cervical sympathetic and cervical portion of the vagus.

3. Resection of the cervical sympathetic chain (leaving the inferior cervical ganglion intact) with section of the vertebral nerve and of all vagal fibres descending into the thorax (Figs. 7 and 8). If some of these nerves are absent or are too difficult to divide, the operation described is feasible should be made, but in all cases the cervical sympathetic should be excised. After suggesting the existence of numerous anastomoses between the cervical sympathetic and the vagus and its branches, which probably contain sensory cardio-aortic fibres. Apart from the inferior ganglion, which is left intact in this operation, the cervical sympathetic contains no important groups of cardiac accelerator fibres, and may therefore be removed, in accordance with the principle of dividing as many as possible, of the important sensory fibres, with the least possible interference with the principle of my recommendation to remove the stellate ganglion intact, published results obtained in three cases of angina pectoris in which he had removed the cervical sympathetic without interfering with the inferior ganglion—the operation advocated by me in 1924. His results were excellent.
4. Resection of the cervical sympathetic (leaving the inferior cervical ganglion intact) with section of fibres of the cervical vagus and its intrathoracic branches; section of the vertebral nerve and section of communicating branches uniting the inferior cervical and first thoracic nerve with the sixth, seventh, and eighth cervical and first dorsal nerves (Fig. 9). If a nerve is present which connects the superior laryngeal and the vagus, it must also be cut; the operation must be as complete as possible, and any inaccessible nerves must be left. Jacobovici reports a case of angina in which my method proved highly successful; Leriche had similarly favourable results in one case. I have made this last method as perfect as possible because my experiments had shown the value of dividing various nerves the section of which was harmless. In all my experiments I have observed the principle of cutting as many of the sensory cardio-aortic fibres as possible, without touching the important cardiac accelerator fibres which pass through the stellate ganglion.

be divided. My dissections have brought to light numerous anastomoses between the vagus, the sympathetic, and their branches, the various fibres probably meeting at these anastomoses. Since we must not divide the vagal trunk, we have everything to gain by removing the cervical sympathetic (except the inferior cervical ganglion), and thus intercepting the sensory fibres in the anastomoses and communicating branches.

2. My experiments have also shown that the nerves selected for section contain no important cardiac accelerator fibres, which exist chiefly in the communicating branches from the second, third, and fourth dorsal nerves. I have not found any accelerator fibres in the communicating branches uniting the stellate ganglion with the last cervical pairs of nerves and the first dorsal nerve. In experiments on dogs it was found that the vertebral nerve contained no important accelerator fibres.

3. I have also determined the presence of sensory fibres in the second, third, and fourth communicating branches. These nerves, however, must be preserved, since they contain cardiac accelerator fibres. My investigation has also proved, as previously reported, that angina pectoris may be much relieved, even though all the sensory cardio-aortic fibres are not divided. While leaving intact the important nerves, such as the vagal branches, which contain many sensory cardio-aortic fibres. Relapses occurring after the Jonnesco operation are due to the fact that this method leaves the vagal branches intact.
4. Though not a surgeon, my study of the cadaver has shown that these various nerves may be usually divided or resected; moreover, Leriche has stimulated these nerves

during operations on man. My method is also easier than that of Jonnesco, in which the excision of the stellate ganglion requires expert skill.

Such are the arguments in favour of my method. The probability that it will be very effective is indicated by the improvement obtained by Hofer's operation, which divides the depressor nerve, and the results of my earlier methods, including cervical sympathectomy and section of the sympathetic and vertebral nerves. In the report of the Nancy Congress (*Presse Méd.*, August, 1925) occurs this note: "Leriche of Strasbourg reports a case of angina pectoris without cardiac lesions but accompanied by slight aortic dilatation, which has remained cured for five months thus far, by removal, after the principles stated by Daniélopou, of the left cervical sympathetic chain, from the upper cervical to the stellate ganglion, which was left intact. The last three cervical communicating branches and the two roots of the vertebral nerve were also divided. The result is excellent." Jacobovici also obtained a good result in one case by applying my method. The earlier operations in which my method was used were thus very encouraging. As to the question of danger, all the clinical and physiological facts permit me to state that the nerve interferences are harmless. The fatal results after the Jonnesco operation are due to acute myocardial insufficiency produced by removal of the stellate ganglion, which I leave untouched. The question may be raised whether the operation should be performed bilaterally. I have always believed that operations on the sympathetic should be as conservative as possible. The operation should be completed on the left side, and supplementary operation on the right side performed only if the first treatment proves insufficient.

SUMMARY.

In the Jonnesco method the division of certain nerves, such as the cardiac accelerator fibres, involves danger, while nerves which may be divided usefully and without injury are left untouched. By my method it is the former which are left intact, and many nerves—possibly more than in the Jonnesco operation—which contain sensory cardio-aortic fibres, are severed. In order to judge the value of the Jonnesco operation the cases, which are now sufficiently numerous, should be followed up for several years. It is not prudent to continue this operation, which has been followed by fatal results, before trying a method which appears to be wholly harmless and probably very effective. My operation has its contraindications: it should not be employed if signs of myocardial insufficiency are present. Thus, for example, I do not advise it when anginal attacks are complicated by pulmonary oedema, which indicates the presence of extensive myocardial degeneration. Even so Jonnesco's operation would appear to be much more dangerous than mine in these cases. The number of methods which I advise may seem surprising, but the methods are successive, each one perfecting a preceding one. Some proved excellent from the first, but in each new operation division of more sensory cardio-aortic fibres has been attempted in order to make the benefit more complete. The operation should, however, be as complete as possible in each case, resection of the cervical sympathetic being supplemented by section of the vertebral nerve and the communicating branches mentioned, and of certain branches of the vagus, in so far as anatomical peculiarities or technical difficulties allow. Cervical sympathectomy alone is sometimes very effective, but even this may sometimes be impossible because of the general condition of the patient. In such cases treatment should include simple section of the cervical sympathetic bundle, with or without section of the vertebral nerve, intrathoracic branches of the vagus, and the communicating rami. The number of sensory cardio-aortic fibres will be reduced and the pressor reflex, which is the primary cause of the anginal attacks, will be diminished. When clinical improvement has started the operation may be completed at a later date.

In addition to the classical angina pectoris, surgical treatment may be considered in abdominal angina. Some of these cases are only angina pectoris with an unusual pain distribution, and may be relieved by the surgical treatment applicable to ordinary angina pectoris; in other

cases, however, a real abdominal syndrome exists, due to arteritis or atheroma in the abdominal aorta, the coeliac trunk, or the gastro-intestinal arteries. Here the syndrome is referable chiefly to sensory fibres supplying the abdominal viscera. To prevent the attacks in such cases the solar plexus must be treated.

The practical conclusion appears that surgical treatment of angina pectoris is of general application. Cases must be well selected, and the completeness of the operation will depend upon the patient's condition. I cannot, therefore, agree with Mackenzie, who has stated that anginal patients should never be treated surgically. The Jonnesco method involving the removal of the stellate ganglion may perhaps be abandoned, but the method I suggest is far more hopeful, and offers much promise in practice.

NOTE.—While this article was in the press there appeared Fontaine's thesis, *Traitement chirurgical de l'angine de poitrine* (édition universitaire de Strasbourg). In this thesis, inspired by Professor Leriche, Fontaine has collected 100 instances of angina pectoris treated surgically, and reaches the following conclusions. He agrees with me in condemning Jonnesco's operation, which leads to acute cardiac failure with death, owing to the removal of the stellate ganglia. Fontaine cites numerous fatal cases, and a note by Leriche on a case in which excision of the stellate ganglia for paroxysmal tachycardia provoked acute asystole. An additional reason for abandoning Jonnesco's operation is, according to Fontaine, that the methods in which the stellate ganglia are not touched have proved so much more effective.

A CASE OF ABDOMINAL TORSION OF THE OMENTUM.

BY

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In the introduction to his paper on abdominal torsion of the omentum Mr. Ernest Cowell¹ writes:

"Abdominal torsion of the great omentum, unaccompanied by complications arising from, or factors associated with, any form of hernia, is a rare condition. A search of the literature from 1882 to the end of 1924 has revealed only eighteen recorded cases, including a new case met with in the surgical practice of the author. In view of the fact that few surgeons publish isolated cases, especially in this country, it is hard to believe the condition is really as rare as one might otherwise suppose. Of the 18 cases, 8 are reported from America, 3 from Germany, 2 from Austria, 2 from France, 1 from Australia, and 2 from England. Torsion of the great omentum associated with hernia is not uncommon. Considerably over a hundred papers have been published on this subject, and approximately 140 cases described."

Since meeting with the case here reported I have heard of no fewer than three apparently similar cases, none of which, so far as I am aware, has as yet been published. The condition, therefore, as Cowell suggests, is probably not as rare as would appear from the scanty literature.

A man, aged 63, was admitted to Dundee Royal Infirmary on November 23rd, 1925, complaining of pain in the right side of the abdomen of four days' duration. Since boyhood he had worked as a colour mixer in linoleum works—lead colours being used. The pain came on gradually, steadily became worse, and was aggravated by coughing or taking a deep breath. There was no vomiting, and the bowels, always regular, had moved daily since the onset. He was of average build, and rather thin. General condition good. He complained of pain in the right iliac fossa. Temperature 97.2°, pulse 72. Abdomen slightly distended; no respiratory movement in lower half. Liver dullness normal; flanks clear. Resistance all over the abdomen with "boarding" on the right side extending from the right iliac fossa almost to the costal margin. There was definite acute tenderness over the area of "boarding." No palpable swelling, and no hernia. Rectal examination negative. Leucocyte count, 15,200 per c.mm. Tongue dry, and slightly furred. Lower teeth carious with advanced pyorrhoea. A pre-operative diagnosis of appendicitis was made,



although it was recognized that the clinical features were not altogether indicative of that condition.

Operation.

The abdomen was opened by a right paramedian incision, the rectus muscle being displaced outwards. The appendix was normal. A dark red mass, measuring $3\frac{1}{2}$ by 1 $\frac{1}{2}$ inches, was found adhering by its lower extremity to the middle of the ascending colon. This was easily separated, and proved to be an isolated (or accessory) portion of omentum attached by a twisted pedicle directly to the transverse colon, and well to the right of the main organ. It was found impossible to untwist the pedicle owing to an elastic recoil which at once reproduced the original torsion, thus demonstrating that the anchoring of the mass by its lower end to the ascending colon was not essential to maintain the torsion. The twist, of two complete turns, commenced about half an inch distal to the colic attachment, so that it was a simple matter to ligature the pedicle close to the transverse colon and remove the mass. Appendicectomy was performed, and the abdomen closed. The patient made an uneventful recovery, and was discharged on December 8th.

In the eighteen cases collected by Cowell the ages ranged from 14 to 55; this case is therefore the oldest on record.

In considering such an apparently rare condition as abdominal torsion of the great omentum one wonders whether any (or many) such cases have been missed through the use of a gridiron incision to open the abdomen.

For the accompanying illustration my thanks are due to Dr. W. O. Reid, Dundee.

REFERENCE

¹ *British Journal of Surgery*, 1925, vol. 12, No. 48, p. 738.

A METHOD OF ESTIMATING THE SIZE OF AN ENLARGED PROSTATE.

BY

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It is always difficult to estimate the size of an enlarged prostate, and the usual method of recording this by comparison with the size of a tennis ball, apple, or other object is unsatisfactory. To note that the prostate is enlarged to the size of a large apple does not help one at a subsequent examination, and if the case is referred to another surgeon this note is of no value, depending as it does on the personal opinion of the first examiner, whose idea of a large apple may differ from that of the next person to examine the patient. In order to make some sort of accurate measurement I have been using the following device, which, if not scientifically exact, at least gives definite figures which can be checked at any future examination.

The three measurements I wish to obtain are: (1) the width—that is, the distance from side to side; (2) the vertical—the distance between the upper and lower edges; (3) the thickness—that is, the distance between the floor of the prostatic urethra and the rectal wall.

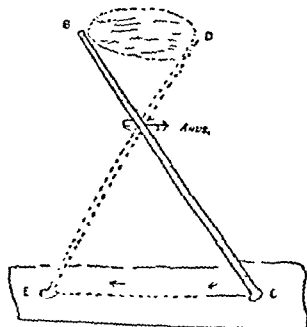


FIG. 1.

by the finger to the left lateral limit of the gland, as represented by the line n-c (Fig. 1). An assistant holds a sheet of cardboard resting against the back of the patient's thighs, and marks with a pencil the position of the end of the probe (c). The finger then moves the probe across the gland to the right lateral limit of the swelling, and the new position of the end of the probe is marked on the cardboard (d-e). With the nail of my right forefinger I mark the point where the probe enters

the anus, and withdraw the probe. Laying the probe on the cardboard, and measuring the distance between the points e and c, I can obtain the distance between the points a and b, which I record as the width of the prostate.

To measure the vertical length a piece of drainage tube 20 cm. long is slipped over the probe and pushed up to the point (Fig. 2). The left forefinger is passed into the rectum, and the probe with its rubber cover introduced along the palmar surface, and pushed up until the finger reaches the upper limit of the gland. Keeping the probe in this position, the rubber cover is gently pulled down by the right hand until the lower margin of the gland is reached. The rubber and probe are then pinched together and removed. The uncovered end of the probe is measured, and this gives the vertical length of the gland.



FIG. 2.

To measure the distance between the floor of the prostatic urethra and the rectal wall I use a rigid rubber-covered probe (Fig. 3, A) soldered at right angles to a 10 cm. rule (B). A brass block (C) 2 cm. square and 4 cm. long is slotted to slide along the rule, and is drilled at the upper end to form a sleeve fit for a catheter (X). A circular window (Y) is drilled in the centre of the block to serve as a window through which the scale can be read.

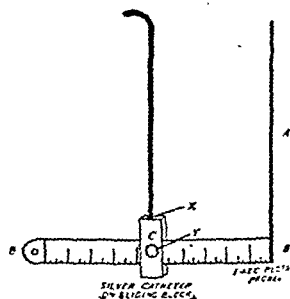


FIG. 3.

The catheter is passed gently into the bladder until urine flows. The rectal tube is passed into the rectum and pressed against the prostate. An assistant then very gently slips the end of the catheter into the hole in the brass block and slides the block backward towards the rectal probe until the tissues prevent further movement. As the catheter and probe are rigid and parallel the thickness of the gland is shown by the point on the scale that is seen through the window. An x-ray photograph taken with the patient lying on his side with the instrument in position showed the lines of the rectal probe and catheter to be quite parallel.

The three measurements are recorded in my notes. I take some dental wax and mould it into the shape given by the measurements, adding any irregularity or abnormality discovered by the examining finger. The model is labelled with the patient's name, and serves as a record of the examination.

While not suggesting that this method is ideal, I may claim that it is painless and gives some fixed figures to record.

OPERATIVE TREATMENT OF ACUTE PERFORATED ULCER OF THE STOMACH AND DUODENUM:

OBSERVATIONS ON SIXTY-SEVEN CASES.

BY

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It is generally admitted that duodenal ulcer, like appendicitis, is markedly on the increase, and that the complication of perforation is now common. In patients suffering from duodenal or gastric ulcer perforation is said to occur in 28 per cent. of male patients and in 9 per cent. of female.¹ Spontaneous recovery occurs only occasionally; I have seen only one such case, upon whom it was necessary, some months later, to operate for pelvic abscess and a recrudescence of the symptoms of ulcer. Perforation is often a "seasonal" complication: it occurs with greater frequency during the

winter months, and more especially during the lessened vitality which is generally associated with the later months of winter. During the month of December, 1924, I had under my care in my own wards at the same time no fewer than 10 cases of perforated duodenal ulcer.

During the past fifteen years I have operated on 64 cases of perforated duodenal and pyloric ulcer and 3 of gastric perforation. A number of duodenal cases have been of the juxtapyloric variety, the ulcer and surrounding induration invading both the pylorus and duodenum. All these cases have been in males, and all have been ulcers of the "chronic" variety, with sudden perforation into the free abdominal cavity. In 53 the perforation occurred on the anterior wall of the first part of the duodenum or pylorus; one on the posterior wall of the duodenum. In 10 the site was the upper surface of the pylorus or duodenal "cap," and in 3 the lesser curvature of the stomach.

It is a surgical platitude to insist that success in treatment depends on early diagnosis. The practitioner who recognizes this serious condition at once deserves more credit for his patient's recovery than the surgeon who operates. The object of this paper is to discuss the fundamental principles of surgical procedure, about which, at the present time, there is so much controversy.

My first 7 cases (1910-11) were dealt with by simple suture of the perforation, with the usual drainage of the site of perforation and pelvis. Of these 5 recovered and 2 died (a mortality of 28 per cent.); the interval between perforation and operation varied from four to thirty-eight hours. Of the 2 who succumbed, in one the perforation had occurred thirty-two hours and in the other thirty-six hours before operation. Of the 5 recoveries 2 returned with recurring symptoms of ulcer, and were later dealt with by gastro-enterostomy. My eighth case, dealt with by simple suture, was complicated a few days later by leakage at the site of perforation, with the appearance of bile and gastric juice through the wound. The perforation was then again closed, and posterior gastro-enterostomy performed. The rapidity of this patient's recovery was so striking that in my next case I was led to undertake the combined operation, with a most successful result.

The number of cases since operated upon has been 59; 2 were treated by simple suture and 57 by suture and gastro-enterostomy. The latter cases represented almost every grade of perforation, with intervals varying from two to thirty hours following perforation. The age of the patients ranged from 18 to 60. Among the last 12 cases there was only one death, which followed three weeks after operation owing to deficient drainage.

TABLE I.—Summary of Results.

	Cases.	Recovered.	Died.	Mortality per cent.
Simple suture... ..	9	6	3	33½
Suture and gastro-enterostomy...	58	45	12	20

Total mortality of 67 cases = 22 per cent.

Assuming that the condition of the patient will warrant such a procedure, the question of gastro-enterostomy in these circumstances usually depends on the period which has elapsed since perforation; the age, sex, and general health of the patient; and last, but not least, the immediate facilities for undertaking such an operation. Deaver and Pfeiffer² have recently published a similar number of cases, performing the combined operation in 45, with the loss of only 3, while Mr. G. P. Mills³ has also published a series of 22, with a mortality of 4.5 per cent. A study of the records of my own cases, and of others, has led me during the past few years to perform the combined operation as often as possible.

The early complications which may arise after simple suture are: leakage at the site of perforation some days after the operation; haemorrhage from the ulcer; perforation of a second ulcer; persistent vomiting, from the narrowing of the pylorus or duodenum. The remote complications are: frequent recurrence of symptoms of ulcer with possible reperforation, in addition to the diffi-

culties encountered in a possible second operation; from adhesions, etc.

Immediate gastro-enterostomy has certainly, in my experience, reduced the mortality. The combined operation does not entail any increased risk to the patient. It represents an additional fifteen or twenty minutes under the anaesthetic, but this is more than counterbalanced by its immediate advantages.

1. The operator can boldly and efficiently infold the perforated area, without risk of subsequent stenosis at the gastric outlet or leakage at the point of closure.

2. Fluids can be given by the mouth almost immediately after recovery from the anaesthetic.

3. The peristaltic movements of the intestine can be earlier stimulated by the administration of purgatives; thus counteracting the distension of the intestine due to partial paralysis.

4. A more rapid and efficient drainage of the peritoneal cavity by an early action of the bowels is produced; this, I consider, is one of the most important advantages. These points have been well brought out by H. J. Paterson.⁴

Complications.

The cause of failure in a considerable number of my cases has not been immediate shock, but either subsequent bronchopneumonia or a subphrenic or residual abscess. Protection of the patient, both during and after operation, has been followed by marked improvement in respect of the first complication, and there have been no deaths from it in the last 15 cases.

The question of drainage is still a debated point—the tendency is to drain less. Complete closure of the abdomen after perforation is a very uncertain "surgical gamble"; it is impossible to forecast whether complications will ensue or not. I have lost one case through deficient drainage, and strongly urge that the pelvis, at least, should be drained in all cases in which perforation has occurred more than two hours before operation.

The Operation.

I have found the perforation is most securely closed by a double row of interrupted fine silk sutures; an initial purse-string suture often causes trouble—it will cut through the friable indurated and oedematous tissue, and so enlarge the perforation. Catgut is liable to digestive action, when leakage ensues. Simple dry mopping of the soiled abdomen is resorted to, and the posterior gastro-enterostomy performed in the usual way; a suprapubic "stab" wound is then made, and a drainage tube passed down into the pelvis.

After-History.

It was difficult to follow these patients up, but I have seen all of them from time to time—some a few months and some many years after operation. I have not been called upon to deal with any complication beyond ventral hernia on one occasion. The majority appear to have been entirely cured. Some have complained of symptoms obviously due to adhesions, the inevitable result of severe peritonitis. It must be realized that if gastro-enterostomy is performed for uncomplicated ulcer or for its perforation the process of physiological digestion has been profoundly altered. The patient should be warned of this, and his diet and habits regulated to meet the new conditions; this is well emphasized by Sir Berkeley Moynihan.⁵

I have read with great interest the recent criticisms of the combined operation, and especially those of Mr. Zachary Cope,⁶ whose judgement and experience I have reason greatly to respect. The method adopted in dealing with the cases here recorded was not influenced by the results of others, but rather by my own personal experience as time went on; it appeared to me that the anastomosis helped, in very large measure, the recuperative powers of the patient—first by "indirect" drainage and elimination, and secondly by the early administration of fluids by the mouth, with no danger of subsequent leakage through the diseased and friable perforated area. It is easy to allow enthusiasm to warp judgement, and it is possible that my mortality percentage might have been lowered by restraint.

As time went on, however, results improved. Table II contains an analysis of the cases dealt with during the last six months of the year 1924, drawn up by my house-surgeons, Dr. J. I. Noble and Dr. W. F. Jones, at the Liverpool Stanley Hospital and Brownlow Hill Infirmary. The cases were treated by combined suture and gastro-enterostomy; 11 made uneventful recoveries, 1 died three weeks after operation from residual abdominal abscess; all were of the male sex.

TABLE II.—Analysis of 12 Cases Operated on during the last Six Months.

Age.	Hours between Perforation and Operation.	Site of Perforation.	Age.	Hours between Perforation and Operation.	Site of Perforation.
46	8½	Lesser curvature of stomach.	20	4½	Duodenum.
24	3½	Duodenum.	33	7½	Duodenum.
47	23½	Duodenum, death	38	3½	Duodenum.
40	25	Duodenum.	24	6	Duodenum.
22	3	Duodenum.	28	2	Posterior surface of stomach.
40	9	Pylorus.	59½	8	Duodenum.

Mortality = 8 per cent.

In conclusion, I do not in any way suggest that the combined operation should be the routine treatment; it depends entirely on opportunity and circumstances. If one is constantly undertaking gastric surgery, and the facilities are favourable, I think the combined operation is both an immediate and remote advantage to the patient, and should be done if the patient's condition will allow it. On the other hand, it should not be undertaken by the "occasional" operator, or in circumstances when warmth, light, skilled assistance, or suitable operative facilities are absent. Simple closure is then the safest method. The complication of bronchopneumonia undoubtedly increased mortality in my earlier cases, but it has latterly almost entirely become eliminated by suitable preparation of the theatre and patient and by careful after-treatment.

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TREATMENT OF THREATENED GANGRENE OF THE ARM DUE TO INJURY OF THE MAIN ARTERY.

BY

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In the following two cases, seen several days after the axillary or brachial artery had been torn across, the extent of the threatened gangrene was greatly minimized by a simple method of treatment.

A man, aged 39 years, was admitted to Bradford Royal Infirmary on July 11th, 1925. Five days previously he had been getting off the back of a moving motor lorry, and had been dragged by his left arm for some distance. On admission, the left hand and forearm and the lower third of the upper arm were cold, swollen, and very tense, and did not show any evidence of circulation. The left axilla was occupied by a large, tense, fluctuating swelling, obviously a haematoma, due to rupture of a large vessel, probably the axillary artery. There was no bone injury. It was clear that the collateral circulation had succeeded in reaching only the upper two-thirds of the upper arm, and it appeared possible that the tension under the deep fascia had determined its limit. I accordingly made free incisions through the deep fascia of the arm, down as far as the wrist, so as thoroughly to relieve all tension. During the following ten days warmth gradually returned to the part, extending about one and a half inches further down each day, until it eventually reached the level of the proximal phalanges. Gangrene, however, appeared in the fingers, and presently involved the whole of the hand. Amputation was performed on August 6th at the wrist-joint. He was discharged from hospital on August 20th, and his wounds were all soundly healed by December 6th, his forearm being quite useful and showing no trophic changes. The fluid swelling

in the axilla became gradually and completely organized, with free movement.

On July 19th, 1925, I was asked to see a similar case with a view to giving an opinion as to the site of amputation for impending gangrene.

A child, aged 5 years, had, three and a half days before, sustained a severe fracture-dislocation of the right elbow. This was reduced and put up on a rectangular splint. Two days later the fingers were observed to be blue and cold, and the splint was removed and the arm watched. The condition was not due to tight bandaging. When I saw the child the hand and forearm up to beyond the elbow were quite cold, with some blebs on the skin below the elbow. The forearm up to beyond the elbow was very tense. There was a good deal of ecchymosis over the lower part of the brachial artery, which we presumed was torn. On the analogy of the previous case, I made very free incisions in the deep fascia over the whole area of tension. The flexor sublimis digitorum was found to be already gangrenous. Within twelve hours normal warmth had been restored as far as the wrist, and partial warmth, which soon became complete, in the hand and fingers. Both the flexor sublimis and the flexor profundus sloughed down to the radius, after which the wound healed. Suppuration occurred in the wrist-joint, in which, on October 31st, the date when a note was last made, sinuses still persisted. No amputation was necessary.

It may be deduced that a slight collateral arterial circulation existed after the accident in both cases, but that the tension obstructed the venous return, and thus there was a further increase of tension which inhibited the feeble arterial flow. The tissues bulged freely after the incision of the fascia, and this, together with the rapid improvement in the case of the child, justifies the inference that relief of tension was the essential point in treatment. The absence of interference with the actual lesion of the artery, leaving the collateral circulation as intact as possible, no doubt contributed to the successful result. In the case of the man the recovery of vitality after the limb had been practically or entirely devoid of circulation for days is remarkable.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

NOVASUROL AND OTHER DIURETICS IN CARDIAC OEDEMA.

THE article in the issue of the *JOURNAL* of January 16th (p. 80) by Dr. C. G. Lambie on the diuretic action of novasurol interested me greatly. Following the lines suggested by Keith,¹ Rowntree,² and others I have, so far, treated two cases with striking results, the method employed only differing from that of Dr. Lambie in that ammonium chloride was used, both as a preliminary diuretic and also during the administration of the novasurol itself.

Case I was a woman, aged 67, with myocardial degeneration but no valvular disease. Extra-systoles were present. The lower limbs were enormously oedematous; the dropsical effusion extended to the subcutaneous tissues of the back and abdomen, and also slightly to the hands. A moderate degree of ascites was present, and there was also slight jaundice. Rest in bed over a period of some weeks, Karel diet, the administration of digitalis alternatively with other cardiac tonics, and the use of diuretics such as theobromine sodium salicylate and theocin all failed, the oedema growing steadily worse. Ammonium chloride was then administered in capsules, to a daily total of 5 grams, in divided doses. Low salt fluid diet alone was allowed, and the daily intake restricted to 800 c.cm. By this means a slight diuresis was induced. Novasurol was then given on four occasions at intervals of three days, by the intramuscular route, each dose consisting of 0.5 c.cm. Following each injection the urine increased markedly in amount, with a corresponding decrease in oedema, but unfortunately the attendants could not be prevailed upon to preserve the total for measurement. At the end of thirteen days all oedema had completely disappeared, to the relief of distressing symptoms formerly present. Gradual myocardial failure, however, supervened, and the patient died some days later, without, however, a return of the dropsy.

Case II was that of a man, aged 46, suffering from chronic nephritis with salt retention, albumin being present in the urine to the extent of 4 per cent. The legs were greatly swollen, with severe ascites and oedema of both lung bases. Treatment was adopted on similar lines with fluid intake restriction to 28 oz., and the urine, which before treatment amounted to 25 oz. a day,

¹ Keith, Barrier, and Whelan: The Diuretic Action of Ammonium Chloride and Novasurol in Cases of Nephritis with Oedema, *Journ. Amer. Med. Assoc.*, September 12th, 1925.

² Rowntree, Keith, and Barrier: Novasurol in the Treatment of Ascites with Hepatic Disease, *Ibid.*, October 17th, 1925.

rose immediately under the administration of ammonium chloride to a daily output of 30 oz. Novasurol was given intramuscularly, on the first occasion 0.5 c.cm. and on the second 0.75 c.cm. After the former the output of urine in twenty-four hours rose to 100 oz., and after the latter to 200 oz. The patient was greatly relieved, and only slight oedema of the legs remained.

I was much impressed by these results, and feel that novasurol is destined to prove a very valuable diuretic. It appears to act more rapidly in the relief of ascites than in that of general tissue oedema, and thus may prove more useful still in cases of portal cirrhosis. I have so far found only one toxic disadvantage—namely, the production of a profuse watery diarrhoea for some hours after its administration. This occurred in Case I, and I have since thought it wise to warn patients of this possibility beforehand.

RICHARD HOWARTH, M.B., Ch.B. Edin.

Stalybridge.

A FORTUNATE ESCAPE FROM SYMPATHETIC OPHTHALMIA.

IN July, 1925, a patient presented himself with a piece of chisel firmly embedded in the left cornea; at the end of the wound nearest the pupil there was some escape of aqueous humour and prolapse of the iris. After thorough cleansing with warm boric lotion, the iris was replaced and a fine catgut suture inserted in the cornea; the eye was next treated with 10 per cent. argyrol, covered with a shade, and a plane lens of green glass was fitted over the other eye. He was sent to an ophthalmic surgeon on the third day, who advised immediate excision; the patient refused operation, so was treated on general lines—namely, warm boric fomentations, with atropine "drops." The ophthalmoscopic picture consisted of a grossly injected retinal system, visual acuity was limited to counting fingers at a distance of 1 metre in the injured eye, and 6/9 in the uninjured eye. For twenty-one days he seemed to make little progress, and complained of frontal headache, nausea, and "floating bodies." His fundi were examined every other day, and treatment with boric fomentations, atropine, and 10 per cent. argyrol continued; in addition, his diet was restricted, saline purges given, and oxyquinolothin cachets, which latter relieved his frontal headache.

Not until September 1st did his signs and symptoms show real improvement; on September 10th spectacles were provided to correct his amblyopia, and his vision was 6/12 and 6/9 in the injured and uninjured eyes respectively. He is now working on a stationary engine and carrying out his duties effectively.

I believe that this patient narrowly escaped sympathetic inflammation; it is obvious that he had a marked degree of sympathetic irritation. Although non-excision of the affected eye was not followed by disaster, I am still convinced that in such cases as this the policy of "wait and see" is very apt to develop into "wait and see not."

Blyth.

LAWSON L. STEELE.

TORSION OF FALLOPIAN TUBE.

MR. JOHN C. JEFFERSON's account of a case of torsion of the Fallopian tube (January 9th, p. 55) leads me to report a similar case.

A single woman, aged 23, was admitted to Cheltenham General Hospital on November 5th, 1925, suffering from an acute condition, thought to be most probably appendicitis. The condition started four days before admission with pain in the left iliac fossa going over to the middle line below the umbilicus. There had been vomiting and pain on micturition for three days. Menstruation had been regular, the last a fortnight before admission.

The abdomen was distended below the umbilicus and tender across from the left side to the right. On rectal examination a tender swelling could be felt in the pouch of Douglas. Temperature 100°, pulse 100.

On opening the abdomen abundant free fluid was found in the pelvis. The left tube was swollen and nearly black from strangulation, due to twisting on itself twice round its long axis, the point of torsion being just opposite the ovary, which was normal. The right tube and ovary were normal; the uterus was slightly enlarged. The tube was removed, and the patient made an uninterrupted recovery. There was no evident cause for the torsion.

I am indebted to Mr. Braine-Hartnell for permission to report this case.

Cheltenham.

JAMES C. GILLIES, M.B., Ch.B.

Reports of Societies.

MANIPULATIVE TREATMENT IN MEDICINE AND SURGERY.

At a meeting of the Medical Society of London on January 25th, with the President, Sir HOLBURN WARING, in the chair, a discussion was held on manipulative treatment in medicine and surgery.

Mr. W. ROWLEY BRISTOW, in opening, said that this subject should lend itself well to discussion, if only for the reason that every year or two brought forward a heated controversy in the medical or lay press, or both, on the claims of bonesetters. In the lay press the names of distinguished, usually titled, persons were given who were invariably described as being grateful to an unqualified practitioner. The public had been led to believe by the lay press that bonesetting was not included in the armamentarium of the qualified medical man. It was a platitude that adequate treatment necessitated accurate diagnosis, which in its turn depended upon an understanding of the anatomy and pathology of the part affected. Was it true that these unqualified practitioners, whose fundamental grounding was necessarily inadequate, succeeded where the qualified man failed? On the contrary, everyone could recount instances of patients who had failed to benefit at the hands of the bonesetter and had responded readily and well to the recognized medical practitioner. Everyone could also tell of egregious mistakes on the part of the bonesetter. Mr. Bristow related several; one concerned a child, admitted under his care at St. Thomas's, who had been under a bonesetter for some months because she walked badly, and manipulative treatment of the spine had been ineffectual because the child was suffering from congenital dislocation of the hip. The inability to make a correct diagnosis in a simple case was the greatest danger of unqualified practice. He knew of another case of foot-strain in a lady who taught folk-dancing. The bonesetter told her that the ankles, knees, hips, and spine were all "out," and that two weeks' treatment in his home was necessary. Her suspicions were aroused when she discovered that the very same cure had been offered by the same man to her husband, who had suffered from osteoarthritis for many years and was a hopeless cripple. Thus there was reason to believe that the failures of the unqualified were many, but, on the other hand, he did not wish to imply that the qualified man always succeeded and the bonesetter always failed. One man might fail with a patient when another, no better armed and with no greater experience, succeeded. Many men with no very obvious qualifications succeeded well, while the more highly qualified were failures. Personality and experience counted for much, and often gave good results, even when the work was empirical; but if empiricism rather than knowledge was the foundation on which a man worked errors must creep in. The unqualified practitioner sometimes scored because he took risks which the qualified man would not take. The qualified man, if not sure of his diagnosis, had to play for safety. The speaker went on to say that from time to time when manipulative surgery was discussed by members of the profession it was hinted that there was some manipulative art which had been handed down outside the ranks of the regular practitioner, and which he would not, or could not, acquire. The matter was really very simple and had been admirably stated by Sir Robert Jones: "There are no hidden or mystic rites in the art of bonesetting." The methods of manipulative treatment were not absorbed into the general practice of medicine because the teachers in the medical schools had not recognized their value. That was true in the past and to some extent to-day. The field for manipulative surgery was largely in the treatment of minor injuries, and, to a less extent, chronic joint disease. This was the type of condition which lost its perspective in hospital practice, where the graver conditions arrested the attention of the surgeon. There would seem to be no room or time in hospital for adequate attention to those minor disorders, which, however, ceased to be minor as soon as the student

left the hospital and went out into practice. It would be wise for those who controlled medical education to examine whether, in the huge curriculum which now obtained, sufficient time and care was given to the instruction of the student in those minor ailments which bulked so large in practice. Manipulative treatment, its principles and practice, should be brought more prominently before the student. Mr. Bristow passed to consider some of the conditions, resulting from injury or from disease, which were benefited by manipulative treatment, and gave examples. It was difficult, if not impossible, to lay down rules or define the exact indications for the use of manipulative treatment in dealing with chronic joint disease—whether, on the one hand, a stiff shoulder should be treated with rest and warmth, or, on the other, forced manipulation should be advised. The diagnosis must be relied on. If there was active inflammation manipulation would lead to disaster, but manipulation might meet with success if the acute stage was passed and there was limitation of movement. In addition to appreciating the pathological state of the particular joint, an estimate must be formed of the personality of the patient, whether he would be willing to put up with the necessary pain and to follow the treatment through. He urged again that the student should be trained in the use of manipulative methods, and that the advantages and limitations of the treatment should be brought before him.

Mr. R. C. ELMSIE said that manipulative methods as carried out by unqualified practitioners might be roughly divided into two classes: (1) manipulations of the affected part—for example, for adhesions around the shoulder or wrist; and (2) manipulations of some other part not obviously affected—for example, of the spine, as carried out by the osteopath. To take the second group first, in most cases the whole procedure was so obviously irrational that it was difficult to understand how the public were continually taken in by those who practised it. To manipulate a stiff or disabled knee was reasonable, but to manipulate the cervical spine for goitre or diphtheria, the dorsal spine for gastric ulcer, or any part of the spine for epilepsy sounded so ridiculous that it was hardly necessary to subject the methods to criticism. It was perfectly true that passive and active movements of joints might have a considerable effect on certain visceral disorders. The medical side of the work of the masseur had been neglected in the past, and it would repay some young physician to take the matter up and to see whether careful investigation would not disclose a greater use for this type of treatment. With regard to manipulations of the affected part, it must not be forgotten that some bonesetters had a certain knowledge of anatomy and pathology; at any rate, the users of these methods gained experience, and seemed to profit by it in avoiding obvious errors. Sometimes they made very evident misstatements; thus they would say that a small bone was out of place when there was no bone to be out of place at all. It was difficult to say whether these misstatements were the result of ignorance or were deliberately made to impress their patients. Certain bonesetters, if a patient came with a disability of the ankle, informed him that his ankle, knee, and hip were all "out" and must be manipulated, and rule-of-thumb manipulations were made which were sometimes successful, but at other times, particularly in the case of neurotic patients, had quite different results. In one case under his notice a small foot disability was treated by manipulation of the lumbar spine and pelvis. The foot got right, but left a persistent obsession, the patient believing that the whole spine and pelvis had been put out by the manipulator. The obsession had become so severe that she must now be regarded as on the border-line of insanity. Why was it that reports of cases in which the unqualified had done good after the qualified had failed were so frequent? Obviously, cases in which the qualified scored their triumphs were not reported, because reputable members of the medical and surgical profession did not advertise in the lay press. Some years ago he himself treated the stroke of one of the university boats for knee trouble a week before the race. He was back in his boat within twenty-four hours. Had the treatment been carried out by a bonesetter the circumstance would have

had a central place in the newspapers of the day. It was also an undoubted fact that only the successes of the unqualified bonesetter were recorded; his failures remained hidden. The patient felt that he had been "done" and had wasted his money, but he said nothing of the incident to his friends, nor to the surgeon whom he visited later. In some cases there was more than failure—the patient was made worse. It was to be admitted, of course, that surgery of all kinds was not an exact science. Most orthopaedic surgeons had made the mistake of diagnosing a joint suffering from trauma as being tuberculous, or a tuberculous joint as traumatic in origin. Moreover, the responsibility of the surgeon was greater than that of the unqualified man; he was less inclined to take risks, and it was difficult to decide the exact stage at which manipulation was advisable. It was quite untrue to say that manipulative treatments were not used in the medical profession; he personally had used them since he first took up his specialty, and at St. Bartholomew's he followed Paget, Marsh, and Walsham, whose names should be honoured in this branch of medicine. The qualified surgeon was just as capable of carrying out manipulative methods as the unqualified practitioner; indeed, if a strict comparison were made, the surgeon, because of his experience of other methods, was likely to be more successful in this practice. He had come more and more to the conclusion that careful x-ray examination was essential before manipulation. He had had the misfortune to manipulate a tuberculous tarsus which had been declared negative after such an examination; on the other hand, he had cured by manipulation a number of cases of disability of the ankle which had been treated for long periods as being tuberculous. In manipulating a joint for adhesions it was necessary beforehand to determine exactly what movement was restricted and painful. Derangements of joints due to the displacement of an intra-articular meniscus constituted the greatest group of cases in which manipulation was practised. At the present time the surgical exploration of the knee-joint, carried out by a competent operator, was a safe proceeding, and, moreover, promised a certain cure if a definite lesion was found. Therefore, whilst he believed that there were many cases in which one ought to manipulate and might reasonably expect a cure by this method, he maintained that in many operations was essential, and in many others it was the safest method. Almost every case of derangement of the knee on which he had operated had been previously subjected to manipulation. The foot was responsible for many successes of the bonesetters. Owing to the nature and fitting of the shoes, the movements of the foot, and particularly of the toes, were habitually cramped and the muscles went out of action. The bonesetter announced that the toes were dislocated, and by manipulating them restored their mobility and gave comfort to the patient. With due training a good masseur could cure this condition easily in a few treatments. The work of the massage profession, which had previously been stereotyped on Swedish lines, had improved of recent years as the result of close co-operation with surgeons.

Dr. H. A. DRS VORTEX agreed with what had been said about the neglect of this subject in the medical schools. In his own time as a student—and he believed it was the case to-day—men constantly left the hospitals knowing nothing about these conditions and their treatment, only to find on going into general practice how frequent such conditions were. The difficulty of diagnosis in the surprising variety of derangements of the knee-joint made the general practitioner refrain from doing the proper manipulation. There was a medical side of manipulation which he thought very important—namely, that which had to do with referred pains. One often saw cases in which the patients themselves had diagnosed their condition as neuritis, but there was no true sign of neuritis at all, and in these cases in which the pain was often in the arm, less frequently in the leg, on examining the joints carefully stiffness and adhesions would be found somewhere about the shoulder or the hip joint. Careful manipulation of these joints would in a great number of cases cure this type of pain. Very often it would be found that, perhaps as much as a year or two previously, the patient had sustained an injury to the joint.

Mr. T. H. OPENSHAW told of a remarkable case of which he had experience twenty years ago. A girl was brought to the London Hospital for a hip condition, and after three months' treatment the hip, which had previously come out of joint irrespective of her volition, was restored to the extent that it came out of joint only when she wanted it to do so. Some five years later, in a town in the North, he discovered the travelling exhibition of a bonesetter where this girl was paid five shillings a night to exhibit. She walked on to the stage wearing her splints, the bonesetter called a doctor from the audience to certify that the hip was out, then he threw away the walking instruments and pretended to manipulate the hip, the girl herself gave the necessary wrench, and walked down from the stage fully restored.

Mr. ARTHUR EDMUNDS denied that general surgeons in London hospitals took no interest in bones and joints. They were handicapped, however, by the fact that they had only a few beds under their care, and the cases, which did require very careful observation, tended to accumulate in out-patient departments. His old teacher, Sir Watson Cheyne, had been especially keen to teach him that for restricted movements following upon injury the joints should be manipulated. He thought it a great pity that so many of these minor cases did not get admitted to hospital, where they could be thoroughly studied.

Dr. W. W. STROCKER said that during his thirty-four years in general practice he had never tried to prevent his patients from going to bonesetters if they were set upon doing so, and in not a single instance had he seen any success. It was of no use arguing with such patients, they were hypnotized by the newspapers, and in the press itself any statements contradicting the line of its "stunt" were not likely to be published. What was needed was public education and the expenditure of rather more time by qualified practitioners in the study of these conditions and their treatment.

Dr. C. L. TRAYLEN related some cases in which a patient, suffering from more or less severe pain, was able to recall, after being carefully questioned, that some time previously he had had a fall or other mishap, of which he had thought nothing at the time, but which was evidently the origin of the trouble.

Dr. P. B. SPURGIN thought that the reason why the medical profession appeared by comparison to fail in dealing with these conditions was its diffidence in view of the great increase of knowledge which had come about during the last twenty or thirty years. It was a case of fools stepping in where angels feared to tread. In former days there were many cases of quite severe lesions treated by manipulative means, sometimes with success and sometimes not. The practitioner would rather be withheld from treating such cases in that way to-day because he knew so much more about them. It was noteworthy that some of the greatest exponents of mechanical manipulation lived in the era before x rays were available. Dr. Spurgin also remarked that the very complexity of science and abundance of knowledge made one more likely to overlook simple explanations in searching for explanations more remote.

Mr. J. E. H. ROBERTS thought it a pity that this very large subject should be taken out of the hands of the general practitioner and the general surgeon and pass into the hands of bonesetters, osteopaths, chiropractors—and orthopaedic surgeons! (Laughter.) He held that there was far too much specialism in the profession. It was true that orthopaedic surgeons had advanced the knowledge of their branch of surgery in the last twenty years in a way which did not hold good of any other branch, and as long as a surgeon was advancing his specialty he had every justification for existence. But the speaker thought that the knowledge should be more diffused so that in suitable cases the general man could make use of these methods. One type of case to which study should be directed was that in which joints showed a condition resembling tuberculosis, and yet were not tuberculous. Another very common type of case was one in which there was pain in the back, due originally to trauma. He felt sure that the student did not as a rule receive instruction in such cases. These cases should be demonstrated to students in every out-patient department as a definite part of their teaching.

Mr. WHITCHURCH HOWELL said that he had two medical friends who had been treated by bonesetters, one with success and one without. They were both attached to famous medical schools, but neither of them wished to see an orthopaedic surgeon! One had an arthritis of the neck, and no x-ray photograph was taken before the bonesetter manipulated it. The other had sciatica, with a very bad limp, which had gone on for several months. This patient went into a home, and was manipulated several times by the bonesetter. There was now loss of sensation on the outer side of the foot, and it might be necessary to have the little toe amputated. During the last three weeks he had seen a case which was under a bonesetter; it was the case of a child three or four years of age, who was going twice a week to this bonesetter for manipulation for congenital absence of the right radius! (Laughter.)

Mr. DUDLEY BUXTON said that bonesetters, unless they were very inexperienced, seldom manipulated for tuberculous conditions. An early case of tuberculosis did not often go to the bonesetter, and a tuberculous joint in a more advanced state was very obvious, and the bonesetter realized that there was here something which he could not touch. One thing which had struck him in dealing with patients was that so many who went to the bonesetters did not realize that the bonesetters, who announced themselves on a brass plate, were not qualified medical men. While it was true that there was a good deal of conservatism among the senior men in the medical profession with regard to manipulation, he thought that the younger surgeons were out for this method in cases in which the indications were definite, but they hesitated at cases on the border-line.

Dr. A. C. JORDAN suggested—a suggestion which Mr. Elmslie said in his subsequent reply "appalled" him—that the proper thing to do would be to create a band of osteopaths who, unlike the present osteopaths, would act under doctors' orders, in the same way as masseurs.

The PRESIDENT (Sir Holburt Waring) took up the statement with regard to medical schools. He quite agreed that something more might be done in the way of teaching in manipulative surgery. Not very long ago, when the revision of the medical curriculum was considered by the General Medical Council, a committee of the Council discussed this question in considerable detail. A recommendation was issued to the licensing bodies, and through them to the schools, that "mechano-therapeutics" should be an essential point in the curriculum. By the term "mechano-therapeutics" it was intended to convey what had been referred to as manipulative surgery. The difficulty in the hospitals was that the number of beds which each surgeon had at his command was necessarily limited, and were utilized for the more serious cases. A large number of patients who came to the out-patient department with various conditions which might be best treated by some form of manipulative surgery were, in the main, treated by the house-surgeon, and never got as far as the assistant surgeon or the surgeon. He could not agree with Dr. Des Voeux that surgeons in general forgot these cases, but they had so much to do in other ways that it was not always possible for them to impress on the rising generation the importance of these relatively minor things. On a more general question his experience was that general practitioners were rather afraid of bold treatment in such conditions. In the later period of the war a good deal of his time was occupied in doing manipulative surgery, and he found it very general among officers of the R.A.M.C. to be rather afraid of this class of treatment, and he believed it was the same in general practice. Something had been said about the newspaper press. The press dearly loved to start a "stunt" against some statutory body, and it was a very easy matter for the irregular practitioner to get very favourable notices in a considerable portion of the press, whereas communications containing facts which cut across the "stunt" were ignored. This whole matter might be expected to come forward very prominently during the present year.

Mr. BRISTOW, in a brief reply, demurred to the name "mechano-therapeutics" as descriptive of manipulative surgery. To him the name signified those departments in military hospitals in which there were masses of apparatus

for body exercises. It was not a very impressive term to use in advising school councils.

Mr. ELMSLIE agreed with one speaker that many members of the public appeared to think that where manipulation was required the right person to go to was a bonesetter or osteopath, not a medical man; many did not realize that the medical man carried out, or professed to carry out, manipulative treatment. This, again, was due to the attitude of the press. He mentioned that, following upon Mr. Bernard Shaw's recent criticism of the training of masseurs and masseuses, the medical members of the council of the Chartered Society of Massage and Medical Gymnastics had addressed to the influential journal in which the criticism appeared a correction to the effect that the training of the masseur in England was not a few weeks, as Mr. Shaw had stated, but a minimum of twelve months, and for practical purposes eighteen months. The letter had not been inserted!

HYPERPIESIS.

DEBATE AT THE ROYAL SOCIETY OF MEDICINE.

At a general meeting on January 25th, the President of the Society, Sir STCLAIR THOMSON, in the chair, LORD DAWSON OF PENN opened a discussion on hyperpiesis.

Lord Dawson, after referring to Sir Clifford Allbutt, said that he preferred the term "hyperpiesis" to "hypertension" because the key to the disease and the hope of alleviating it lay in a study of its beginnings. Supertension had no rigid limits or defined boundaries, and passed gradually, perhaps silently, into states of disease, as manifested, for example, by damaged arteries or defeated hearts. But these latter he did not propose to discuss, nor would he deal directly with prognosis and treatment. An essential question was whether supertension was necessarily associated with change of structure. In its beginnings was it a disturbance of function which led to changes of structure, or was it preceded and produced by change of structure? One way of answering the question was to conduct an inquiry among younger and apparently healthy people, thus avoiding the perplexing association of arterio-sclerosis. One group of people had an over-responsive vasomotor system, just as others suffered from nervous dyspepsia or diarrhoea. These very responsive people were liable to develop transient supertension when exposed to physical or psychological stress. Commonly their blood pressure at rest was above normal, but not always. It might even be a family trait. Usually the activating cause was apprehension, and anxiety for success, the link between the higher centres and the vasomotor centre being too intimate. For illustration Lord Dawson described the cases of three boys of school age, apparently of a similar state of health and demeanour. Two of them had a normal blood pressure. In the case of boy "A," the rest pressure was 125/60, pulse 78; after he had run rapidly up seventy-two stairs the pressures were 162/65, and the pulse 114. After lying down for six minutes the pressures had dropped to 120/60, and the pulse was 100. In the case of "B," at rest the figures were 110/65, pulse 85. After running up seventy-two stairs these figures became 135/70, the pulse being 104. After three minutes of recumbency the numbers were 120/70, and the pulse 90. In contrast he gave the case of "C." This boy's pressures were 135/70. After running up the same stairs they were 170/85, and the pulse 144. After even twenty minutes of recumbency these did not fall below 130/70, and the pulse was 90. He had an over-sensitive vasomotor system, but the speaker believed that the sensitiveness was transient. Yet the potentialities of hyperpiesia were present. What was in store for the boy would depend upon circumstances; whether his temperament was placid, or eager and over-anxious; and on the nature of his employment. His tension might remain within the normal until the responsibilities of maturity and the metabolic imperfections of middle life reinforced his tendency. Lord Dawson then referred to the examination of 580 undergraduates of Toronto, whose average pressure was 126.5/71; 10 per cent. of them had a systolic pressure of over 140. In another group of 15,000

undergraduates Alvarez found that over 20 per cent. had more than 140 systolic pressure. Of 650 healthy school children between 10 and 17, investigated by Lord Dawson and his colleagues, 52 had supertension, and in a few of these cases there was a long-lasting and well defined thickening of the arteries and an enlarged heart. There was, he said, evidence that high blood pressure—transient, intermittent, or even permanent—existed among the young. With many it was a passing phase, but some of the cases of intermittent hyperpiesis seemed to produce cardiac enlargement, accentuation of the second aortic sound, and left-sided preponderance. Were they, he asked, a reaction to modern civilization in the form of a raised excitability of the vasomotor centre? Strickland Goodall, in America, had examined 2,000 cases under the age of 40, and found the most frequent antecedent was scarlet fever. This was in favour of the infective origin of hyperpiesis and supported the contention that hyperplastic sclerosis of the intima was the underlying change found in hyperpiesia. But scarlet fever was not a factor in all cases, and Lord Dawson asked whether there was not to-day too great a bias in favour of infections as the cause of illness. Was enough weight given to the character of the soil—the internal factor? It was difficult to believe these healthy young people were victims of an infection. With regard to overresponsiveness of the vasomotor centre in adults, he made use, as illustrations, of two of Frost's cases, who were subjects of mental stress and anxiety. The first patient, aged 36, had a rest pressure of 148, which under effort tests rose to 220. Later, when there was no mental stress, similar tests raised the pressure to 144 from 118. In this case there was too great a vaso-constrictor responsiveness. The second patient, a man aged 41, had a rest pressure of 150/100, which under effort tests went up to 246. At this man had moderate hypertrophy of the heart structural change had actually begun. With these Lord Dawson contrasted the case of a worrying anxious woman, aged 35, whose vasomotor centre did not show this selective responsiveness, but who, conversely, could be said to "feel abdominally." Her rest pressure was 110/80, and under fatigue it easily fell to 100. After quick exercise it became 155/80, returning, after two minutes' lying down, to 110/90. The next stage in the development, he suggested, was that the rest pressure reached a higher level; then the patient usually complained of headache, throbbing, and other symptoms. The diastolic pressure was of the greater importance, because that indicated the enduring strain on the arteries. If the diastolic pressure was not above 100 and there was no advanced arterio-sclerosis a systolic pressure prone to rise easily need not cause alarm. In youth he liked to see a diastolic pressure at about 70 to 80.

Lord Dawson referred in some detail to a case which illustrated a fixed supertension in youth, that of a girl aged 23, who looked and felt well and entered into work and play. But she became tired with a full day's work, and after heavy exercise was breathless; she was therefore placed on half-time work. Early in childhood she had had scarlet fever; she still had occasional headaches, but fewer than formerly. Her pressure was 250/150, and had so remained for a number of years. After running up and down seventy-five easy stairs the blood pressure was 280/150, returning to 240/140 after ten minutes' recumbency. After a month in bed, with careful dieting and drug treatment, her rest pressure fell to 165, but a few minutes' walk on the level raised it to 215. Both her parents had a blood pressure on the high side, and her younger sister had a rest pressure of 160/100. The patient's blood urea and kidney function tests were within normal. Her radial arteries were too palpable, but not hard; the heart was enlarged and there was an accentuated aortic second sound preceded sometimes by a systolic bruit. Three noteworthy changes were found in the kidneys: thickening of the media of the medium-sized arteries, slight thickening of the intima of the smaller vessels, and patches of atrophic tubules. The thickening of the muscular coat, he considered, followed the continued vaso-constriction. In sections which were shown, small vessels could be made

out with the intima swollen and structureless; thus changes due to hyperplastic sclerosis were present, though these were far less permanent than the medial changes. These signs seemed to indicate a selectivity for the vessels of the kidney, pancreas, and spleen. Fashberg, in seventy-two necropsies on patients who died of hypertension, found that in all the minute arterioles of the kidney were affected, in 66 per cent. the splenic arterioles were involved, and in 50 per cent. the pancreatic. In middle and later life, when arterial degeneration was apt to occur, hyperplastic sclerosis might closely follow hyperpiesis, or might even coincide with it. Lord Dawson said he had emphasized hyperpiesis in youth with the object of showing that, in its inception, it was a functional disease, and because at this age the problem could be kept clearer of the complication of athero-sclerosis. The association of hyperpiesis with the climacteric, with eclampsia, and with the "blubber" type of obesity, indicated that there was some warp of metabolism. Experimental evidence suggested that too much importance had been attached to the protein and salt intake, but some authorities considered that more than a minimal consumption of protein was harmful. The subsequent anatomical changes which led, by steady progression, to the developed disease, were probably one and the same, whatever the origin might be.

Professor F. R. FRASER first reviewed briefly the physiological and pathological knowledge which was available as a basis for the proper understanding of the condition. The mean arterial pressure depended on the output of the heart and on the peripheral resistance; Lord Dawson's observations on children pointed to the changes in the heart as being secondary, and he would therefore deal only with factors influencing the peripheral resistance. In health this was so regulated by reflex mechanisms that an adequate amount of blood was supplied to all tissues. Of principal importance was the vasomotor centre in the medulla. Brief variations in the mean pressure were continually occurring as the result of reaction to environment, and there were certain facts known with regard to these adjustments. An inadequate supply of blood to the vasomotor centre caused a rise of general arterial pressure; the vasomotor centre was also stimulated by peripheral stimuli, such as those of pain; general arteriole constriction could also be produced by the higher portions of the cerebrum, such as occurred in emotional states. How far this might be due to the internal secretion of the adrenal bodies was uncertain, but the conclusion must be that chemical substances, such as internal secretions in the circulation, could produce a rise in the general arterial pressure. Further, it was obvious that structural changes in the smaller vessels constricting their lumen would, if sufficiently widespread, raise the general pressure, and that the same result would be produced by changes in the blood increasing the resistance to flow, as in erythrocythaemia. Dealing with the various factors in turn, Professor Fraser said it was unlikely that inadequate blood supply to the vasomotor centre could be the cause in many cases without the reason for the inadequacy having been discovered in some; he knew of no evidence in favour of this mechanism. It was difficult to understand how reflex stimulation of the centre from the periphery, or by the emotional or anticipatory states, could result in a persistent rise of pressure; clinical observation, however, and the result of certain therapeutic measures did seem to favour such a causal relation. Possibly by some adaptation, such as was involved in the establishment of "conditional reflexes," the frequently repeated exposure to physical and mental stresses might result in a persistent vasomotor stimulation. Cases in which the condition arose at adolescence or about the menopause were suggestive of an origin dependent on disturbances of internal secretion. It was also probable that some cases were due to pre-existing, but unrecognizable, renal or vascular disease. Professor Fraser pleaded for a thorough investigation in every early case of all factors, constitutional, environmental, dietary, etc., for a more extended use of the sphygmomanometer, and particularly for a record of the diastolic pressure, which he considered a much better guide to peripheral resistance than the systolic.

Dr. PARKES WEBER said he thought Jews were more liable than other people to have permanently high blood pressure. He did not agree with Professor Fraser that high blood pressure was produced by an excess of erythrocytes in the blood. He did not think the increased wear and tear of life could be accepted as a cause of hyperpiesia in normal individuals. Starling had well shown that the normal needs of the brain would maintain blood pressure if there was a danger that the supply of blood might be deficient. The increased blood pressure at or about middle life showed that the cerebral circulation was becoming relatively defective, owing to changes in the capillaries there. A great mistake made by the people under discussion was to take more food at middle life, as this added to their troubles.

Dr. J. A. RYLE pointed out that careful reading of the old writings of Bright, Gull and Sutton, and Mahomed showed that the views held on hyperpiesis to-day had been clearly in their minds nearly fifty years ago. He had recently classified the cases of hyperpiesis according to physique, and he found that 62 per cent. fell into the hypersthenic group. In this group he thought it was vain to look for signs of infection or toxæmia; they were typically healthy people, and the condition was due to overstimulation of their physiological characteristics. About 16 per cent. fell into the group of "poor physique"; these began their diseases earlier, and in them infection and early illnesses might well play some part.

Dr. DOROTHY HARE mentioned the variations which occurred, and must be allowed for, in the blood pressure readings of the same individual under uniform conditions, at short intervals of time, her table showing as much as 10 to 20 mm. variation in this way. To reduce the variations she suggested that a rule should be made to examine the right arm in each case.

Sir JOHN BROADBENT thought it could be taken as certain that some families were born with a tendency to high blood pressure, others with a tendency for it to be low. There could not be high blood pressure without some cause of peripheral resistance also existing. Arterial hypertension was a characteristic of the kind of cases under discussion. In simple hyperpiesis he did not think the kidneys could be incriminated, but the profession was still without knowledge as to the toxin responsible for the condition.

Dr. HENRY ELLIS said one type of this condition had always an excess of phosphoric acid in the urine, and the other had a deficiency. Advance would only be made by investigating the free acid as against ammonio-combined acid.

Dr. J. C. BRAMWELL (Manchester) agreed as to the importance of the diastolic pressure in these cases, since the rise in that meant a rise in the mean pressure, and the arterial walls were rendered less extensible. If the diastolic pressure was 120 or 130, the systolic must be round about 240 to maintain anything like an equivalent cardiac output. A rise of diastolic pressure placed a great additional strain on the heart, and increased the liability to cerebral hæmorrhage, as well as limiting the body's oxygen intake.

Dr. HALLS DALLY dealt with the questions of classification and nomenclature, and made a plea for uniformity in the latter.

Dr. C. O. HAWTHORNE suggested that the term "blood pressure" should be abolished, "sphygmomanometer reading" being substituted. He agreed that there had not been much advance in the pathology of the condition under discussion.

Dr. BARTON thought the chief value of the opening contribution was the way in which it directed attention to conditions in which blood pressure was high in youth. He gave some results of his own experience. In a general way, he thought knowledge on the subject still stood where it did fifty years ago.

LORD DAWSON, replying, thought attempts at alterations in terminology should be gradual and in the nature of a compromise. In answer to points raised in the discussion, he elaborated in more detail some of the arguments submitted in his paper.

ADDRESS BY DR. J. A. RYLE.

At a meeting of the Buxton Medical Research Society on January 12th Dr. J. A. RYLE delivered an address on hyperpiesia and hyperpiesis.

Dr. Ryle first reviewed the work of the earlier pioneers, including Bright, Gull and Sutton, and Mahomed, and paid tribute to the great services rendered by the late Sir Clifford Allbutt in delimiting hyperpiesia from renal and other forms of hyperpiesis on the one hand, and from senile or decreascent atheroma on the other; he then proceeded to discuss the present state of knowledge regarding the etiology and pathology of the disease. He suggested that, although it was interesting to speculate about the existence and nature of a pressor substance, it was at present more profitable to bear in mind certain known etiological factors, and uttered a warning against the neglect of earlier methods of clinical study in the endeavour to unearth the specific causal agents. He regarded bacterial and intestinal toxins as unlikely factors, partly because most of these toxins had a depressor rather than a pressor effect, and partly because the majority of hyperpietic patients had been robust and healthy individuals with a striking immunity from infection. The question of diathesis was of particular importance in hyperpiesia. It had long been recognized that hyperpiesia was more common in robust individuals, and that there was frequently a family history of deaths from cerebral haemorrhage or "cardiac defeat" in the fifth and sixth decades. An analysis of fifty cases of hyperpiesia which he had made resulted as follows: 62 per cent. of the patients were recorded as "robust," "healthy," "stout," "plethoric," or "hypersthenic"; 18 per cent. as "average"; 14 per cent. as "poor physique"; 6 per cent. as "lean and nervous." The outstanding characters of the hypersthenic diathesis were a full habit, a broad chest, a good colour, and a pronounced tonic of both skeletal and plain muscle. The stomach was hypertonic, and the appetite and capacity for work were exaggerated. He defined "diathesis" as an inherent liability to retain the impress of certain adverse stimuli. Patients with a physiological hypertonus of vascular plain muscle were more likely to retain permanently the effects of stimuli such as overwork, overeating, and over-anxiety, which were normally known to raise the blood pressure. Infections only appeared to play an important part in the small group described under the heading "poor physique" and in a few of the "average" group. The high incidence of the female cases—54 per cent. as compared with 46 per cent. of males in his series—was probably due to the inclusion of cases of menopausal hyperpiesia. Dr. Ryle next reviewed the early and later subjective symptoms and signs of the disease. The incidence of seventeen common symptoms in his series was discussed and the value of routine employment of the sphygmomanometer and ophthalmoscope emphasized. Particular attention was drawn to the question of differential diagnosis from chronic interstitial nephritis; from primary cardiac disease; from neurasthenia; from anxiety states; and (in a small number of cases with haemoptysis and fatigue symptoms) from pulmonary tuberculosis. Prognosis was shown to depend rather upon the response manifested by the heart and arteries to the hyperpiesis than upon the degree of hyperpiesis. The modes of death were enumerated. Finally, among therapeutic measures, the influence of altered mode of life, holidays, dietary, weight reduction, venesection, and diathermy were considered. A special plan was made for prophylaxis based on the popularization of periodic physical examinations after the fourth decade, attention to the family history and physical type, and the systematic use of the sphygmomanometer.

HYDATIDIFORM MOLE.

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, held on January 7th, the President, Mr. T. G. STEVENS, read a communication on a case of hydatidiform mole, with expulsion, and death from pulmonary haemorrhage.

The patient, aged 32, was admitted to hospital on July 17th, 1924, complaining of intermittent haemorrhage for three months; the

last normal period occurred in March. The uterus was too large for a normal pregnancy of four months, and the diagnosis of a hydatidiform mole was made tentatively. On July 18th the cervix was dilated and the diagnosis was confirmed; a small Horrocks's bag was then introduced. On July 22nd, the mole not having been expelled, pituitary extract was given in three-minim doses every two hours. Uterine contractions occurred, and at 9.45 p.m. the mole was expelled. About half a pint of blood was lost during expulsion, and the patient's condition became very bad, the pulse rising to 180 and becoming very feeble. Intravenous gum-saline solution was given, and at 11 there was considerable improvement. At 11.45 the patient coughed up bright red frothy blood and died immediately from asphyxia. At necropsy the lungs showed general oedema, and general ecchymosis of the smaller bronchi. The cause of death was obscure. Sections made from different parts of the placenta, showed that it was the result of the capillaries in the alveolar walls by fragments of deported villi. These seemed to be universally distributed, as sections from several parts showed the same lesions.

Deportation of villi had long been known, but this was the first occasion on which Mr. Stevens had observed any serious results from it, apart from the secondary deposits of chorion-epithelioma. Although the uterus in this case showed some invasion of its walls by trophoblastic proliferations, nothing was found which suggested a chorion-epithelioma. It must be concluded that, normally, deported villi are dead structures and disappear by liquefaction or absorption. In this case they evidently retained their vitality, and exercised their normal function of attacking and opening up blood capillaries, with disastrous results to the patient.

The President also read notes of a case of hydatidiform mole removed by hysterotomy.

The patient, aged 30, had missed one period and then complained of intermittent haemorrhage, with a little pain for several weeks. The uterus reached the umbilicus and was larger than it should have been, assuming that pregnancy had occurred. It was hard in parts, doughy in others. No fluctuation, fluid thrill, or foetal parts were felt. A provisional diagnosis was made of hydatidiform mole, which was confirmed by dilating the cervix and removing a fragment with forceps. A small Horrocks's bag was introduced, but the cervix was very hard and unyielding, and in spite of leaving the bag in four days, putting weights upon it, and giving small doses of pituitary extract intramuscularly, nothing happened. As the patient was very nervous, the cervix very unyielding, and a slight rise of temperature had occurred, it was determined to open the abdomen and remove the mole by incising the uterus. This was done, and proved a very simple procedure, the mole being completely and cleanly removed by turning the uterus partly inside out. The uterine incision was sutured as in a Caesarean section. The patient made an uninterrupted recovery. The succeeding periods were somewhat irregular and abnormal, but six months afterwards the patient was quite well.

Mr. Stevens deduced from this case that when the uterus was sluggish and did not respond to stimulation hysterotomy was the operation of election for hydatidiform mole.

Mr. ARTHUR CROOK had had about eight cases of cystic mole, all of which had been spontaneously expelled. He had made it his practice to explore the cavity of the uterus under a general anaesthetic, going to the fundus if possible with the finger only, to remove any debris that might be there. Also, after the exploration, at an interval of at most a month, he performed curettage, irrespective of the presence or absence of symptoms.

Dr. LOUISA MARTINDALE referred to two cases of hydatidiform mole she had had. In both cases, severe haemorrhage was the symptom calling for immediate intervention. She had had no difficulty in dilating with Hegar's dilators, removing the mole with two fingers and a blunt Rhein-städter's curette. In both cases she had watched the patients for two years after, and there had been no development of chorion-epithelioma.

Carneous Mole.

The PRESIDENT also read particulars of a case of carneous mole retained fifteen months *in utero*.

A woman, aged 23, who had given birth to a child in 1922, had a natural period on August 16th, 1923. A sharp attack of pain occurred on December 22nd, but there was no haemorrhage. At the end of January, 1924, pregnancy of four months' duration was diagnosed. On February 28th the pregnancy appeared normal, and the uterus reached the umbilicus. Soon after this a slight attack of pain and haemorrhage occurred. On April 9th the uterus was smaller, and its upper level reached half-way between the pubis and the umbilicus; no movements were felt. A mole

was diagnosed, and ergot in full doses was given, but apart from a small amount of pain nothing happened. On May 31st the uterus was a little smaller, and the patient felt perfectly well. She was advised to come to hospital for an examination, but did not do so until August 13th, one year after the last natural period. Except for the slight haemorrhage in February, there had been absolute amenorrhoea during the whole of this time. The uterus was enlarged and reached half-way between the umbilicus and pubis; it was very hard, and the upper part appeared spherical, as if it contained a fibroid. The cervix was long, hard, and rigid. She felt perfectly well, and did not wish to have anything done. In October the uterus was found to be unchanged; there had been no haemorrhage in the meantime. Finally, she was admitted to St. Mary's Hospital on November 11th in exactly the same condition. The uterus was so hard and its fundus so spherical in shape that it was thought that there must be a fibroid present, in spite of the amenorrhoea. The possibility of a retained carneous mole was not lost sight of, but the absence of haemorrhage and the shape and consistence of the uterus seemed to negative it. Accordingly an exploratory operation was performed by Mr. Stevens. A vertical incision was made in the anterior surface of the uterus, and it was then seen that the enlargement was due to a retained carneous mole. This had no attachments to the uterine wall, and was removed entire, the uterus being sutured as in a Caesarean section. The patient made an uninterrupted recovery. The mole was a very large one and was solid; the amniotic cavity, being squeezed quite flat, was very difficult to recognize. On section it showed chorionic villi, decidua, and blood clot. The villi showed some degenerative changes, chiefly in the form of accumulation of fluid in the connective tissue core.

There seemed to be no doubt that this was a true case of retention of a mole for fifteen months, as the case was watched the whole time, and at no period was anything passed except a trifling amount of blood on two occasions.

Dr. W. H. F. OXLEY gave particulars of a case of carneous mole, with a history of six months' amenorrhoea. The patient on examination was found to have a uterus about the size of a three months' pregnancy. Carneous mole was diagnosed, but the patient was told to return for a further examination in a month's time. She did not do so, but six months later she passed the carneous mole completely, and made a good recovery.

Dr. J. S. FAIRBairn reported the case of a young married woman with a history of amenorrhoea of about fifteen months, and a hard enlarged uterus that closely simulated one containing a fibroid. The age of the patient and the total absence of menstruation shortly after marriage in one who had been previously regular did not, however, suggest fibromyoma in this case. Three months' trial of various preparations of ergot proving ineffective in exciting uterine action, the cervix was dilated, and a hard mass of old blood clot removed in pieces with some trouble, but almost without any fresh bleeding. He agreed with the President that in treating a vesicular mole an attempt should be made to encourage the uterus to empty itself rather than to remove the mole digitally or otherwise. Cases, however, occurred in which artificial removal was required because of delayed or incomplete expulsion with haemorrhage. He had not found the difficulty as great as the President made out, either in dilating the cervix or in reaching the contained material. He would agree that in all, or nearly all, the cases in question the mole had probably been partially expelled, but by clearing out the lower portions within reach by the finger and those higher up with ovum forceps, and by squeezing down the uterus from the abdomen, he had found it possible ultimately to explore the whole cavity with the finger. The cases were watched carefully afterwards, and in one in which bleeding recurred the uterus was explored again, and an attempt made to remove attached fragments with the curette. The material contained masses of blood fibrin, fragments of muscular wall of the uterus, and degenerate villi without any evidence of cellular proliferation. Nothing further was done, and the patient remained well. He thought the President was treading on dangerous ground in advocating hysterotomy.

Krukenberg Tumours of the Ovary.

Dr. WILFRED SHAW, in a paper on Krukenberg tumours of the ovary, said that the tumours originally described by Krukenberg in 1896 were solid, with smooth surfaces, retaining the shape of the normal ovary, bilateral, and usually accompanied by ascites. Microscopically they had the form of a fibrosarcoma, but, in addition, large signet-ring-like cells were present. Krukenberg considered that these cells were derived from connective tissue cells, and

called the tumour a fibrosarcoma mucocellulare carcinoma-todes, in view of the mucin content of the signet-ring cells and of the attempt at alveolar arrangement that was sometimes seen. It was afterwards shown—particularly by Kraus—that such tumours were usually found in association with carcinoma of the stomach, and at the present time the Krukenberg view of their origin was strongly disputed. Dr. Shaw described five cases of Krukenberg tumour, in four of which there was good evidence that the tumours were secondary to carcinoma of the stomach. In almost all the recorded cases of Krukenberg tumour that had been examined completely at autopsy or at operation a carcinoma of the stomach had been found. It was difficult in many cases to demonstrate that the tumours were secondary in nature unless an autopsy was performed, for the primary growth might be small and missed at operation, while the ovarian tumours were the dominant feature of the case. On the other hand, apparently true Krukenberg tumours had been found in cases where no primary growth had been found at autopsy. It was difficult to agree that the signet-ring cells were derived from connective tissue in view of their mucin content and because of the alveolar arrangement sometimes seen; it was much more likely that they were epithelial structures. In the complete cases recorded the primary growth had been almost invariably carcinoma of the stomach. Ovarian metastases of carcinoma of the sigmoid or caecum frequently resembled Krukenberg tumours, but it was doubtful if a true Krukenberg tumour had been found in association with any growth other than carcinoma of the stomach. The common metastasis of carcinoma of the stomach found in the ovaries was a nodular tumour resembling the primary growth, and these metastases were probably produced by implantation. In the case of Krukenberg tumours this mode of spread did not hold, for cases had been recorded where the peritoneum had been free of growth, and it was difficult to explain the smooth surface and the histological structure of these tumours by this hypothesis. It had therefore been suggested that they were produced by retrograde lymphatic spread—as had been shown to occur in cases of carcinoma of the breast. On this hypothesis it was assumed that the superior lumbar glands were blocked by carcinoma from the primary growth of the stomach, and that the ovarian lymphatics which passed to these glands were invaded by retrograde lymphatic spread. In this way the ovaries were invaded from the medulla and not from the surface, which accounted for the shape of the tumour and for its smooth surface. This hypothesis explained the isolation of the signet-ring cells amongst the stroma cells, and the loss of the characters of the primary growth, for it must be assumed that only isolated cancer cells disseminated along the lymphatics in this way. There was a certain amount of evidence in support of this view. It had been pointed out by Schottlaender that in early metastatic carcinoma of the ovary nodules of growth were frequently found in the medulla when the cortex was free of growth. O. Frankl had shown that in cases of metastatic carcinoma of the ovaries it was possible to demonstrate metastases in the wall of the uterus, while in the cases of primary carcinoma of the ovaries such metastases were not found. Krukenberg emphasized in his paper that the tumours occurred in young women. This was illustrated by the records of cases since recorded. Of 35 cases 9 were found in women between the ages of 21 and 30, 17 between 31 and 40, and only 7—that is, 20 per cent.—in women over the age of 40. This was a very important feature of these tumours, for carcinoma of the stomach occurred most typically in patients over the age of 40. Metastases of carcinoma were found very frequently in the ovaries compared with other organs of the body, and this was well marked in cases of carcinoma of the breast. It had been suggested that the ovaries afforded an excellent culture medium for these metastases, and that the sarcomatous changes in the stroma represented the action of the ovaries to the invasion of the cancer cells. A diagnosis of malignant disease of the ovaries was usually made, for ascites accompanied these tumours, but the immediate mortality of ovariectomy was high, and with modern methods of x-ray examination of the stomach the operation of ovariectomy should be performed less frequently than had been the case in the past.

The PRESIDENT considered that these tumours were more common than was generally thought. Not infrequently they were removed and looked upon as fibromata of the ovary unless a microscopic examination was made. Their histological structure was that of the "leather-bottle" stomach—namely, a carcinoma composed of an embryonic stroma enclosing small alveoli of large epithelial cells, usually arranged in a single row of not more than three or four elements. The epithelial cells always showed a large vacuole, which pushed the nucleus on one side and produced the well known signet-ring appearance. The embryonic stroma, which had often been wrongly looked upon as sarcomatous, was only the response of the ovarian stroma to an unusual stimulus supplied by the secondary epithelial growth. This stroma closely resembled that of many ovarian fibromata, in which the whole growth was often intensely cellular and yet not malignant in any sense. Mr. Stevens had always regarded these tumours as the result of epithelial implantation, but in the light of modern opinion, as shown by Dr. Shaw, he considered that invasion via the lymphatic channels seemed highly improbable. Secondary ovarian carcinomata might follow a primary growth in the stomach, intestine, or breast, but in view of the histological characters of the Krukenberg tumour Mr. Stevens considered that the primary growth was always gastric, as a tumour of intestine or breast never had the peculiar characters usually found in these tumours. The most striking clinical feature was that the cases so seldom showed any gastric symptoms, but only came under observation when the abdomen commenced to enlarge from ascites due to the secondary growths.

ISOLATION OF SPORES AND BACTERIA.

At the meeting of the Pathological Section of the Royal Society of Medicine held on January 19th, Dr. SYDNEY DICKINSON, of the Rothamsted Experimental Station, described a simple method of isolating and handling particular spores and bacteria. The method described consists in holding the bacteria in a film of water and then moving one of them to another part of that film by means of a local thickening, the whole process being observed through an oil immersion lens. In practice the film of water used is that on the surface of a layer of agar on a coverslip, while the local thickening is obtained by bringing a fine glass rod in contact with the agar, and then withdrawing it slightly, so forming a column of water; it is in the column so formed that a bacterium is carried to another part of the agar, and that part is cut off and put into the new culture tube. The glass rod is capable of fine adjustment in all directions, being mounted on a three-movement machine, clamped to the microscope stage, which is called an isolator, being made for the purpose by Messrs. Ogilvy and Co. Dr. Dickinson added that with this machine it was possible, starting from a culture, to isolate a single bacterium and transfer it to a fresh test tube in from three to five minutes.

TESTS OF FUNCTION.

A MEETING of the Leeds and West Riding Medico-Chirurgical Society was held at the Leeds General Infirmary on January 15th, with Mr. A. L. WHITEHEAD in the chair.

Dr. W. MACADAM (Leeds) read a paper entitled "The uses and limitations of function tests in medical and surgical practice." In this he laid stress on the axiom that the simpler the method the more likely was it to prove helpful, and that the lengthy, elaborate, and complex procedures were out of place in clinical medicine. The various function tests were of little value if considered alone; they must always be viewed in relation to the clinical condition of the patient. Nor must inadequate function and disease of an organ be regarded as necessarily synonymous. A study of the amount of urea retention in the blood in conjunction with a comparison of the percentage of urea excreted in the urine was the simplest and safest guide to the state of renal function. But a high

blood urea was found in many conditions other than kidney disease; even a high blood urea plus albuminuria was not sufficient for diagnosis. Examples were given of the applications of these tests in various medical and surgical conditions. So far tests of hepatic function had not yielded the reliable results that renal tests had, and from the medical point of view were disappointing. The most useful was the laevulose test, while the value of such dye tests as phenoltetrachlorophthalein was still uncertain. Van den Bergh's test, although failing to be of much practical value in the clinical differentiation of the various types of jaundice, was proving useful in detecting early or latent jaundice, and in distinguishing between haemolytic and secondary anaemias, etc. The numerous factors that might vitiate estimations of basal metabolism were emphasized, while the failure of the basal metabolic rate as a diagnostic adjunct in those doubtful early cases of hyperthyroidism in which the clinician also was uncertain was discussed. But as a measure of the efficacy of various lines of treatment, and as a guide to the best time for operative procedures in connexion with the thyroid, the basal metabolism rate was of distinct value. The most useful pancreatic tests and their clinical applications were also briefly discussed.

Cases.

Mr. P. J. MOIR (Leeds) showed two cases of hydro-nephrosis. The first was a long-standing case, and the pyelogram taken after the injection of sodium bromide solution into the pelvis of the kidney through a ureteric catheter showed a very large pelvic cavity. In the second case the pyelogram demonstrated an early condition. Mr. Moir emphasized the usefulness of this method of diagnosis and examination.

Dr. WALKER demonstrated for Dr. WARDROP GRIFFITH a case of thoracic aneurysm occurring in a man of 33 years. When admitted to the ward there was a well marked pulsating swelling of the chest, which had subsided with rest and iodides. Dr. Walker expressed the opinion that the condition on admission left room for no doubt that the condition was one of aneurysm; there was no history of syphilis and the Wassermann test was negative. Dr. CURTIS BAIRN (Harrogate) and Dr. VALE (Leeds) both indicated that they were not convinced that this was a case of aneurysm; in their opinion dilatation of the aorta associated with aortic disease, probably rheumatic, was a likely alternative.

Dr. VIXING, in association with Mr. DOBSON (Leeds), showed a child of 4 years upon whom the operation of thoracoplasty had recently been performed for unilateral fibrosis and bronchiectasis following empyema at the age of 11 months. Parts of the sixth to the eleventh ribs had been removed, and Mr. Dobson expressed his opinion that it would be necessary to remove probably two or three more before efficient collapse of the base of the lung was attained. Following the operation there had been an immediate decrease in the quantity of the sputum.

Dr. VIXING (Leeds) also showed a boy of 10 years with a three years' history of vomiting, believed to be functional. No organic or toxic cause had been found to explain the condition, and the x-ray examination demonstrated no obstruction, organic or spasmodic. A month previously the boy's condition was critical, the emaciation being extreme, his weight being only 27 lb. Following the passage of the stomach tube the vomiting had completely ceased, and his weight was now 41 lb.

Cases were shown also by Dr. BURROW, Mr. BRAITHWAITE, and Dr. W. H. ROWDEN.

EPILEPSY IN CHILDHOOD.

At a meeting of the Liverpool Medical Institution on January 14th Dr. DINGWALL FORDYCE read a short paper on epilepsies in childhood. He noted first the difficulties in early diagnosis of epilepsy, when the manifestations were of the nature of incomplete forms, such as visceral spasms. An epileptiform attack having occurred, the cause might in the first place (apart from diabetes or uraemia) be a gross intracranial abnormality, such as

birth trauma, infantile cerebral paralysis, or some forms of amentia. In the second place the attack might occur as a symptom of, or in conjunction with, primary amentia, and unassociated with gross intracranial abnormality. It was most important for prognosis to recognize whether or not amentia was present apart from the fits. He had recently in review 129 children of school age, reported as being sufferers from epilepsy, and of this number in 35 cases there was evidence of an organic cause or of primary amentia—that is, 18 cases of primary amentia, 10 cases of infantile cerebral paralysis, and 7 cases of birth trauma. The significance of such differentiation was shown by the figures for imbeciles. Of the 129 children, 32 were noted as imbeciles or probable imbeciles, and of this number 16 were cases of idiopathic epilepsy, 9 of primary amentia, 4 of infantile cerebral paralysis, and 3 of birth trauma—or, in other words, 16 out of 94 cases of idiopathic epilepsy and 16 out of 35 cases of organic lesion of the brain or primary amentia. In the third place cases might show no evidence of gross organic abnormality or of primary amentia. In this group were to be placed cases of spasmodophilia, infantile eclampsia, occasional fit or fits, pyknolepsy, and characteristic idiopathic epilepsy. In all the types of cases in this group the presence or absence of an essential or idiopathic epilepsy might be conjectural—for a time at least. Dr. Fordyce considered these last types in detail, with special reference to differential diagnosis and treatment.

Mr. K. W. MONSARRAT, in a paper on prolapse of the rectum, distinguished two types: the one in which the prolapse always commenced immediately above the anal canal, the prolapse increasing by the protrusion of the rectal wall progressively through the canal; the other in which the prolapse or invagination commenced high in the bowel, the primary invagination being of that segment where the pelvic colon became rectum. He considered the process in the former analogous to ileo-colic intussusception, in the latter to ileo-caecal intussusception. He described a series of cases of high rectal invagination without protrusion through the anus, and remarked that this invagination might have an acute onset and require an emergency operation. He described also the symptomatology of chronic cases and discussed the conditions of success in colopexy, which he considered a reliable remedy if these conditions were observed.

GAS AND OXYGEN ANAESTHESIA IN MAJOR SURGERY.

At a meeting of the Aberdeen Medico-Chirurgical Society on January 14th, Dr. J. F. CHRISTIE in the chair, Dr. J. ROSS MACKENZIE read a paper entitled "Some advantages of gas and oxygen anaesthesia in major surgery."

Dr. Mackenzie emphasized the fact that, although the technique of surgical operations had now reached a very high standard, there were still many unexplained cases of early post-operative mortality. He suggested that a toxic anaesthetic might be the deciding point against the recovery of a patient who was already suffering from a general toxæmia directly due to the disease. A new apparatus was described embodying a triple sight feed for the administration of nitrous oxide, oxygen, and carbon dioxide, with or without ether. Any combination and percentage of the gases could be obtained at will. He defined the advantages to the patient as operative and post-operative. The operative benefits were as follows: (1) ease of inhalation and induction; (2) safety of patient; (3) blood and circulatory apparatus unaffected; (4) anoxæmia absent with normal metabolism; (5) rebreathing with conservation of patient's own carbon dioxide; (6) de-etherization with rapid recovery. His methods of de-etherization of the patient were described in detail: first, by using the expired carbon dioxide; and secondly, by supplying through the apparatus pure carbon dioxide from a cylinder. He emphasized the benefits of rapid return to consciousness of the patient as being something of a triumph for gas and oxygen. The post-operative advantages were: (1) the marked relief to the patient from nausea, sickness, and

gastro-intestinal distension; (2) throughout the period of anaesthesia all the organs performed their normal functions; (3) the marked absence of chest complications. He put forward the suggestion that this form of anaesthesia acted as a protective against post-operative thrombosis and embolism. He thought that surgical shock was due more to a toxic anaesthetic, lack of oxygen, and loss of carbon dioxide than to operative trauma and loss of blood. In conclusion Dr. Mackenzie referred to the difficulty hitherto experienced in inducing anaesthesia with gas and oxygen in young children and infants, the explanation of this being the small tidal wave and the difficulty in expiring into a closed bag. This had been overcome by using a facepiece with a graduated expiration valve attached directly to the gas-bag.

Dr. A. OGSTON spoke of the safety and the approach to the ideal in gas and oxygen anaesthesia. He held that it had limitations, and required for success close co-operation between the surgeon and anaesthetist. Infiltration with novocain was essential for muscular relaxation. As regards surgical shock, he did not believe that the anaesthetic was the principal cause.

Mr. A. MITCHELL remarked that a great advance had been made in anaesthetizing children since the advent of gas and oxygen. He found it especially helpful in poorly nourished children where an operation of necessity had to be performed. He also appreciated the improvement in the atmosphere of the operating theatre as compared with open ether anaesthesia.

Mr. W. ANDERSON stated that a mixture of gas and oxygen was now recognized to be the best anaesthetic from the point of view of post-operative mortality in serious cases, and he did not see why it should not be used to reduce post-operative morbidity in all cases. Gentle handling of the tissues and infiltration with novocain were essential, and the surgeon and anaesthetist should share the responsibility for the patient's condition immediately following an operation.

FOREIGN BODY IN THE BRAIN.

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on January 15th, the President, Mr. R. C. B. MAUNSELL, in the chair, Sir WILLIAM WHEELER showed a patient, aged 21, who had been wounded in the head in May, 1921.

During some street fighting the patient received what was then thought to be a small scalp wound above and to the right of the occipital protuberance; he was not detained in hospital. He heard at the time of his wound sounds of music in his ears, like a band with drums. A fortnight later, while smoking, he noticed a black dot in his right lateral field of vision. The speck moved medially, growing larger and becoming bright, until it appeared as a blinding light in the centre of his visual field; at this stage he became totally blind. He never lost consciousness, but he thought he saw men firing at him and that he was surrounded by companions. The attack was followed by headache and vomiting. These attacks lasted about twenty minutes, and recurred once or twice a month for four years. In the intervals he was well, and led an energetic life, but the constant appearance of the black spot made him feel morbid. There was no paralysis, motor or sensory; no alterations in the reflexes, and both fundi were normal; the fields of vision had not as yet been accurately examined. X-ray examinations disclosed that the nickel case of part of a conical bullet was lying in the base of the brain just behind the petrous portion of the temporal bone at the level of the eminence in the superior semicircular canal. To approach the bullet in a direct line it would have been necessary to open the skull behind the vertical line dividing the mastoid into equal parts. The direct route would have led through the sigmoid portion of the lateral sinus and some of the posterior branches of the middle meningeal artery. The skull was opened at a level above the location of the bullet, and when the meninges were divided a finger was passed under the temporal lobe in front of the cerebellum. After some difficulty a feeling of resistance was detected with the finger, and a pair of forceps was pushed through the temporal lobe in its direction. A mass about the size of an olive was located and enucleated; there appeared to be a line of cleavage between the mass and the brain substance. On removal, the "tumour" proved to be a mass of fibrous tissue encapsulating the conical point of the bullet. Before it could be extracted it

was necessary to nibble away bone towards the base of the skull, and the sigmoid portion of the lateral sinus was wounded; control of the bleeding was not difficult. During the removal some brain matter on the lateral surface of the temporal lobe was injured and removed. In bulk, the brain matter sacrificed was about the size of the tumour.

The after-history was uneventful; a month after the operation the patient appeared quite well; he had no recurrence of his previous attacks. On placing a model of the brain in position in a skull, and with the aid of x rays mapping out the exact position of the foreign body encapsuled in the fibrous mass, it appeared that the area involved was the association area between the visual area behind and the portion of the brain concerned with hearing in front.

Commenting on the case Sir William Wheeler said it was interesting to correlate these findings with the clinical history given by the patient. There were three points in the history: the sounds of band music on the day he was wounded, the distorted visual phenomena occurring on an average twice a month for over four years, and during each attack the reproduced impression of troops firing at him and of his being surrounded by his friends.

Dr. H. LAW remarked that when a foreign body had to be approached in a way which was not shown by x rays it was an extremely difficult operation, and he thought Sir William Wheeler was to be congratulated on the fact that he had only removed a piece of brain which could be spared. It was a pity that the field of vision in this case had not been tested before the operation, as comparison of the field of vision before and after operation would have been very interesting.

In reply to Dr. D. J. CANNON, Sir WILLIAM WHEELER said there had been no olfactory disturbances, and the bone had not been replaced; he had not tried to make an osteoplastic flap.

Infantilism due to Polyposis of the Colon.

Sir WILLIAM WHEELER showed lantern slides of a case of infantilism due to polyposis of the colon. The patient was a girl aged 16; she was stunted and dwarf-like, but not emaciated. Since early childhood she had suffered from diarrhoea and the passage of blood in the stools. Her height on admission to hospital was 4 ft. 5 in., and her weight 4 st. 13 lb. (the average normal height being 5 ft. 1 in.—weight 7 st. 8½ lb.). The breasts were undeveloped and there was an absence of axillary or pubic hair; mentally she was alert and normal. The speaker referred to the varieties of infantilism recorded in medical literature, and said that it was rational from the observations of the writers of these articles and the contributions of many other eminent physicians to conclude that polyposis of the colon might be the cause of infantilism, but that no other actual case was on record. The operative treatment in the present case consisted in removal of the polypi which were present in the rectum, and three months later the excision of a portion of the pelvic colon 8½ inches long by the operation of Mikulicz. Through the resulting colostomy opening more polypi could be felt with the finger, as high as the splenic flexure, and these were dealt with by capillaries containing emanations of radium inserted in the end of a rubber tube. When all signs of bleeding had disappeared the spur of the colostomy was crushed and the opening closed. Six months later the mother reported that the child was progressing well; she had grown 1 in. in ten months and had put on nearly a stone in weight. Sir William Wheeler referred to a second case of polyposis of the colon, in which he had performed complete colectomy. The colon in this case had lost all flexibility and on removal weighed 2½ lb.; the normal weight was only about 1 lb.

The PRESIDENT said that the case shown that evening reminded him of a case of multiple polyposis which Sir William Wheeler had shown at the Academy previously. He thought there must be some connexion between these two cases, although they were not identical. The case that evening looked to him like one he himself had seen recently, which was supposed to be tuberculous, in which the intestines were very much thickened, and which had been diagnosed as hyperplastic tuberculosis of the intestines. He

thought that Sir William Wheeler's case might be one of non-tuberculous ulceration.

Dr. H. LAW asked if the colon was smaller as a result of contraction of ulcerations. He thought that the lumen should have been contracted if there were a large number of ulcerations; to account for the formation of polypi by contraction he thought the lumen should have been large.

Dr. R. R. LEEFER had recently seen a case of polyposis of the intestine in a girl, aged 21, who had been sent to him certified as insane. She had a very fetid discharge from the rectum, and the whole intestine was a mass of small polypi. He asked whether this condition was associated with tuberculosis. In his case he had given injections of silver nitrate into the intestine, and the discharge had diminished appreciably.

Dr. C. J. MACAULEY said that it was not often that cases of polyposis of the colon were found in children. If the colonic condition was caused by want of absorption of foodstuffs, he wondered what the connexion was between the diarrhoea in this case and the want of growth. He asked if a barium enema and barium meal had been given. If that had been done it might have induced Sir William Wheeler to excise the whole colon. If infantilism was due to non-absorption by the colon, he did not think that good health in after-years could be expected in these cases by removal of the colon. It was strange to get infantilism of the whole body, and yet an overgrowth in the colon.

Dr. D. J. CANNON asked if a sugar tolerance test had been performed in this case, and if the symptoms of infantilism had decreased since the operation. He referred to a case of coeliac disease in which a necropsy had shown ulceration of the colon.

Sir WILLIAM WHEELER, in reply, said that he had had the patient x-rayed and had also had a proctoscopic examination carried out, but that neither of these had really given him any help. X rays showed a condition which was consistent with ulcerative colitis. All known cases of multiple polypi of the colon which were not treated by colectomy became malignant. In some cases, even in young children, when the colon had been removed it had been found to be already malignant. He did not think that polypi of the colon were associated with tuberculosis. He referred to the distribution of intestinal polypi in the rectum, where they could be felt and found, and said that he thought polypi in the colon, where they could not be felt, were probably much more common than was generally supposed. It seemed to him that the diarrhoea which occurred in colitis was in some way associated with infantilism. A sugar tolerance test had not been performed in this case.

Double Vestibulotomy.

Dr. H. LAW and Dr. G. BEWLEY showed a patient on whom Dr. Law had performed the operation of double vestibulotomy. A girl, aged 7, had developed acute supuration of the left middle ear, which appeared to be progressing favourably, but a week later she complained of headache and nausea, and had some convulsions. A tentative diagnosis of meningitis was made, but the cerebro-spinal fluid was found to be clear and sterile, though under considerable pressure. Shortly afterwards her pupils became unequal, the left being dilated; there was nystagmus to the right, and the eyes tended to deviate to the same side. Her knee-jerks were equal and normal; there was no ankle clonus and no Babinski's sign. Double vestibulotomy was done, and in a few hours the nystagmus, which before had been to the right, changed to the left, the pupils became equal, and the temperature fell to normal. Subsequently the child did not develop any signs of giddiness, and she was now practically well.

Dr. G. BEWLEY said that when he first saw the child he thought from the symptoms that it was a case of septic meningitis, following on ear trouble. He performed a lumbar puncture, under very much increased pressure, but found no signs of meningitis. This was done at 1 o'clock, and at 5 the reflexes had completely disappeared from the lessening of the pressure caused by the drawing off of the fluid. Before the operation the child was in a moribund state, and he did not think that she would live more than a few hours.

Reviews.

CLASSICAL STUDIES.

THIS group of essays by Professor J. W. MACKAIL, collected in a volume entitled *Classical Studies*,¹ sets out with a charming lucidity the meaning and value of the classics for us at the present day. He pleads that the classics should not be merely the study of the select few, but that, as is fitting in a democracy, they should be in widest commonality spread. Education should mean an initiation into the whole world of human knowledge and human activity. The classics form a large part of the best which has been said and thought in the world, and with this it is man's duty to try and make himself acquainted. Obviously everyone cannot be a Greek or Latin scholar, but everyone who gets as far as a secondary school might at least learn enough Latin to realize that there once existed a great civilization and a great literature, from which our own is directly derived; that, indeed, the classics are the very soil out of which the modern world has grown.

The main purport of the book is to show how large a place Greek and Roman civilization does still occupy in human life, and how that the literatures of Greece and Rome came nearer to perfection, both in their form and subject-matter, than any literature since then. The time has long gone by when anyone could, like Bacon, seriously think of taking all knowledge for his province; but the classics more than any other study help us to recapture that idea of the unity of learning, which is a symbol of the unity of life, and enables us to become, if but for a moment, in the words of Plato, the spectators of all time and all existence. This conception of the unity of all knowledge is easily lost amid the distracting multitude of optional subjects of study offered to us at the present day.

The essay on patriotism should be particularly helpful to the ordinary citizen. The stories of the old world Roman patriotism ("Then none was for a party, then all were for the State,") which group themselves around the names of Fabricius, Cincinnatus, and Regulus, show us a love of country springing out of a dignified sense of duty to the commonwealth. Reflections such as these would seem to have animated the Prime Minister in his recent (January 8th) inspiring address to the Classical Association. In this he pointed out that patriotism with the Romans was something innate and so sacred that it was never paraded, sought no reward, was taken for granted, and had no single word to express it. To dedicate the highest gifts to the public service was expected of every Roman citizen. Mr. Baldwin thinks that England has inherited much of the *pietas* and *gravitas* of ancient Rome, and still more might be said of those moral judgements which have guided men and women in England as in Rome, where moral instincts, rather than the clear reasoning of the Greeks, predominated.

Though Greek and Latin may no longer be spoken, they are certainly not dead languages, for they give expression to ideas which are still vital forces in the everyday life of man, strengthened as they have been lately by the new insight which has been given to them through historical, geographical, and archaeological studies.

Professor Mackail, himself a translator of Homer, is severe on translations, and maintains that even in prose the essential meaning of the original is but imperfectly and ineffectively given; at the same time he is of opinion that quite a small amount of Latin will enable a reader to appreciate the Latin poets. In our experience considerable acquaintance with a language is required before it is possible to enter into all the subtle associations and beauties clustering round particular words and phrases—before, in fact, we can appreciate, in the words of Tennyson, "All the charm of all the muses often flowering in a lovely word." Be this as it may, the book with its essays on the Odes of Horace and Virgil's Italy can be fully enjoyed by those in whose busy lives knowledge of Greek and Latin has grown rather rusty. R. O. MOON.

THE WORKING OF SANATORIUMS AND THE RESULTS.

ONE of the fullest descriptions of the sanatorium viewed in all its aspects is contained in Dr. L. GUINARD's *La Pratique des Sanatoriums*² (the working of sanatoriums), a book written in honour of the twentieth anniversary of the inauguration of Bligny. The sanatorium that he describes is a popular one under the control of a society in Paris, whose aim is to render treatment available to the poorer classes. It is divided into three portions, each capable of accommodating about 150 patients. This number the author considers critical; if it is exceeded, the difficulties of introducing the atmosphere of intimacy and familiarity that is so desirable are rendered almost insuperable. There is a long and detailed account of the structure and general arrangement of the buildings, illustrated by numerous figures and plates. One point of value is that a bathroom containing wash-basins and other toilet accessories is provided for every two wards. This obviates the necessity of a walk down a long corridor, an uncomfortable shave in a communal wash-house, redolent of steam, toothpaste, and other odours, filled with men who have risen late, and who in their anxiety to be in time for breakfast are only too ready to distribute water freely over any object, animate or inanimate, in their vicinity. The daily routine, the mode of cure, the food with an appetizing menu for each day of the week, the cost of upkeep, the direction, organization and administration, the general and special therapeutics, the heating, lighting, and disinfection—these and a host of other matters are related fully, not excepting a reproduction of the sixty-three rules for patients and of the twenty-five for the personnel.

We are interested to read of the high opinion in which the exercise treatment has come to be held. It is, of course, not practised according to its original rites, in which the dose of a hypothetical toxin to be absorbed by a patient could be regulated with nicety by his medical attendant, but is guided by that principle of truth which has been evolved from the work of Paterson and his successors—a principle taking account not only of the pulmonary lesion but of the whole mental and moral attitude of the patient.

As to the results we shall say little. Using the Turban classification, the author reports that the immediate effect of treatment was very good in 84 per cent. of Class I, in 14 per cent. of Class II, and in 0.4 per cent. of Class III. Figures for the after-history of the patients are so scarce as to be unworthy of notice. This failure to investigate the results of a method about which he can write a book of nearly 450 quarto pages we consider to be reprehensible on the part of the author. The sanatorium has been in existence for twenty years, and has treated 4,600 civil patients, and yet there is no record of value concerning the success of the treatment given. The figures that are reproduced are so few as to be quite useless, either for an estimation of this point or for a comparison with those of other countries. Surely the time has come when medical officers in responsible positions should realize that it is their duty in the interests of scientific medicine to collect their results and have them analysed by a reliable statistician. The public spends large sums of money on facilitating the execution of certain forms of treatment; it has the right to know their value. And we, who are interested from another point of view, are anxious to obtain a quantitative expression of this value. In many cases the data are available, but unless more attention is paid to the lead in this country of the Medical Research Council, and in the United States of the Metropolitan Life Assurance and other bodies, they will be utterly wasted. It is in problems such as the assessment of the results of sanatorium treatment of tuberculosis that the statistician is of inestimable value; without his aid the figures are meaningless.

Apart from this stricture we have little to say against the book. It is not likely to appeal to a wide circle, but among those interested in the planning, construction, and direction of sanatoriums it should be received with approval.

¹ *Classical Studies*. By J. W. Mackail, LL.D. London: J. Murray. 1925. (Cr. 8vo, pp. vii + 233. 7s. 6d. net.)

² *La Pratique des Sanatoriums*. Par L. Guinard. Paris: Masson et Cie. 1925. (9 x 11, pp. xiii + 436; 31 figures, 32 plates. 60 fr.)

CHRONIC INFECTION OF THE JAWS.

THE object of Dr. STANLEY COLYER's little book on *Chronic Infection of the Jaws*¹ is not so much to discuss the relation of oral sepsis to general disease as to make a strong attempt to emphasize the close relation of these conditions. The author's presentment of the position as his experience has led him to see it is well constructed and logical. The book contains one of the best and most complete collections of pathological skiagrams we have yet seen, and, unlike many writers, he makes uniform use of *negative* films; this will be much to the advantage of the non-expert reader. One of the best and most useful chapters is on normal radiograms, though on the page depicting them he is careful to describe them as "comparatively" normal. Dr. Colyer brings out a most important point of interest to the medical practitioner as well as to the dental surgeon. He states that he is much impressed by the damage that the forcible regulation of children's teeth may bring about in the jaws. He shows that in some cases absorption of the apices of all or most of the teeth regulated occurs, accompanied by a general infection of the supporting tissues. This view is strongly and emphatically expressed, and we shall await with interest the opinions of expert orthodontists on it. Dr. Colyer concludes with an account of the various disease conditions believed to depend upon oral or chronic maxillary sepsis.

Although this book contains only 75 pages of text, its price is high (10s. 6d.), but this, no doubt, is due to the fact that it contains an unusually large number of full-page sets of skiagrams. Its one blemish is that it has no index.

THE WAR HISTORY OF THE VETERINARY SERVICES.

It is not necessary to go very far back in history to reach a time when there intervened between the medical and veterinary professions a considerable gulf, across which in recent years efforts have been made, with the progress of science, to build a bridge, and not without success, so that two years ago a Section of Comparative Medicine was instituted in the Royal Society of Medicine. The many points common to the two professions are exemplified in a remarkable degree in the history of the veterinary services during the great war, which was published not long ago in a single, bulky volume,² edited by Major-General Sir L. J. BLENKINSOP, a former Director-General of the Royal Army Veterinary Corps, and Lieut.-Colonel J. W. RAINEY. It demonstrates how closely the R.A.V.C. resembles the R.A.M.C. in its development, organization, and establishments for service in the field, and for the treatment and prevention of disease. The preparation of the volume was commenced in August, 1923, but the editors state that they were hampered by the absence of complete historical records, except in the case of the services on the Western Front. There was, however, no lack of statistical records, although only relatively few of these have been included in the volume. Reliance was placed to a great extent on contributions from individual officers, who kept records for their own interest, and, as these officers were dispersed throughout the empire, the production of the history was unavoidably delayed until last autumn. The result has justified the delay, for a history has been written that will prove to be of great value to the military as well as to the veterinary and medical services. The Royal Army Veterinary Corps served during the war in many lands, equalling in this respect the Royal Army Medical Corps; for apart from their work in the major campaigns, its units and personnel were employed in South and South-West Africa, East Africa, South Persia, North and South Russia, and with remount commissions in Canada, the United States of America, and Uruguay. The opening chapter describes the preparations for war from the time when the army veterinary services, as the

result of the experiences of the South African war, underwent a complete reorganization, similar to that of the army medical service at an earlier date. Previous to this reorganization the Army Veterinary Department consisted mainly of regimental veterinary officers, who worked with the aid of regimental farriers. In 1903 an Army Veterinary Corps of non-commissioned officers and men was created to assist the officers of the Army Veterinary Department, and eventually both officers and men were formed into one corps, just as the medical staff and Medical Staff Corps were amalgamated to form the Royal Army Medical Corps in 1898. Following on the establishment of a veterinary corps of officers and men, important steps were taken to form, for purposes of mobilization, veterinary hospitals, mobile veterinary sections (the equivalent of the R.A.M.C. field units), and base depots of veterinary stores. The number and capacity of these units expanded enormously during the progress of the war, and a number of new units were created, such as camel hospitals, camel mobile veterinary sections, field veterinary detachments, convalescent horse depots, veterinary examination stations, rhesus economizer detachments, army school for farriers, veterinary bacteriological laboratories, and reserve hospitals. The mere mention of these units shows how closely the organization and work of the veterinary resembled those of the medical services. A chapter on animal management has its counterpart in the work of preventive medicine during the war. As the authors of the volume remark, "animal management was looked upon at one time as entirely separate from veterinary science, just as in the dawn of human medicine there was little recognition of the essential connexion of the latter with the principles of hygiene." Animal management during the war became, in short, preventive veterinary medicine, and, as such, the chapter relating to it is of exceptional interest.

On the outbreak of war the personnel of the veterinary services consisted of 364 officers (of whom 169 were regulars, 148 territorial, and the remainder reserve or special reserve) and 322 other ranks. During the progress of the war 1,306 veterinary surgeons were given commissions, out of a total of 3,350 veterinary surgeons on the register. On July 1st, 1918, only 1,200 were left in civil practice in Great Britain, and, just as in the case of the medical services, it became a matter of extreme difficulty to decide on the relative claims of the War Office and of civil practice. The subordinate personnel reached a maximum strength, at one time, of 27,950, and altogether 41,755 passed through the ranks of the R.A.V.C. The casualties amongst the officers were: 4 killed in action, 11 died of wounds; 25 were wounded, 31 died of disease and 19 from other causes. Amongst other ranks 62 were killed in action and 358 died.

The volume as a whole is of great interest, containing as it does chapters on the veterinary services in the different areas of operations, on animal diseases, animal surgery, various statistics connected with these, and on the methods of collection, evacuation and transportation of sick and wounded animals from the front to the veterinary hospitals at the base, and the care of healthy animals on board ship. There are also chapters on voluntary aid and the work of the Royal Society for the Prevention of Cruelty to Animals, and on the disposal of carcasses, together with interesting extracts from the war diaries of veterinary officers. There are several useful appendices, charts, plans, diagrams, and photographs, and a good index. The volume is exceptionally well arranged, written in good, clear language, and is a fine record of the work which won for the Army Veterinary Corps its Royal title.

THE ESKIMOS OF LABRADOR.

DR. SAMUEL HUTTON's study of the health conditions and of the incidence of disease among the Eskimos of Labrador³ is the outcome of seven years' residence in close contact with the pure-blooded northern native population. The author has traversed a field of unique medical and sociological interest, and has rendered a significant service to medical science.

¹ *Chronic Infection of the Jaws*. By Stanley Colyer, M.D. London, D.M.R.E. London: H. K. Lewis and Co., Ltd. 1926. (Demy 8vo, pp. x + 75; 12 figures on 19 plates. 10s. 6d. net.)
² *History of the Great War based on Official Documents: Veterinary Services*. Edited by Major-General Sir L. J. Blenkinsop, K.C.B., D.S.O., and Lieut.-Colonel J. W. Rainey, C.B.E. London: H.M. Stationery Office, 1925. (Roy. 8vo, pp. x + 782; 17 charts, plans, and diagrams, and 15 photographs. 41 ls. net.)

³ *Health Conditions and Disease Incidence among the Eskimos of Labrador*. By Samuel King Hutton, M.D. Manchester, F.R.G.S., J. Locker, Ltd., The Wessex Press. 1925. (Cr. 4to, pp. 74. 6s.)

Dr. Hutton commences his interesting survey by a consideration of the effects on Eskimo health of environmental conditions, and at the outset discusses climate, food, and habits of life. The climate was fairly consistent, changing from a moderate summer to a prolonged and excessively cold winter. During the winter brief periods of thaw occurred which appeared to have an adverse influence on health. The main part of the Eskimo's diet is flesh or fish, the vegetable part being meagre. The flesh of the seal was eaten raw, dried, boiled, or rotten. Rotten seal flesh could be eaten with impunity by the pure-blooded Eskimo, but caused illness in Europeans and half-breeds. Trout and codfish were the principal fish foods. Cod-liver oil was in frequent use. Berries also were gathered and stored for winter use. The dietary was one rich in vitamins, with the possible exception of the antiscorbutic vitamin, which would be found in the berries.

The Eskimo life is one of activity and strain. Men and women alike showed marked power of withstanding fatigue. Very little clothing is worn considering the severity of the weather. The average Eskimo house is small, ill-ventilated, dirty, and ill-smelling. Tents used in the fishing time are more sanitary. Speaking broadly, the Eskimo constitution is weak and resisting power to disease is low. Old age sets in at 50, and in the years beyond 60 the Eskimo is aged and feeble. Careful records had been kept by the missionaries for more than a hundred years, and from these it seems that only in recent years have measles, small-pox, and enteric fever gained a footing.

A pandemic of rubella in 1906 ran a severe course, showing the powerful influence an otherwise mild disease might exert upon the native constitution. One of the most striking peculiarities of the Eskimo constitution was the great tendency to haemorrhage; epistaxis, menorrhagia, and haemoptysis all being common. This haemoptysis had to be distinguished from that due to pulmonary tuberculosis—a disease more frequently seen in Eskimos who had adopted a semi-European way of living. Other striking features were the tendency to debility of the heart and of the uterine muscle; for while in the Eskimo the voluntary muscles were in a state bordering on perfection, the involuntary muscles were weak. Typical scurvy was rare among the Eskimo, boils and abscesses common. A pandemic of a pustular skin eruption known as "kallak" followed the failure of the berry crop in 1904-5. This was almost certainly of scorbutic origin. The disease resembled scabies in appearance and distribution. The tendency to suppuration was pronounced. Nearly all cases of mumps ended in suppuration. Tuberculosis was apparently one of the diseases which had reached Labrador from other lands. It was not a widespread cause of death among the Eskimos, but ran markedly in certain families. A large proportion of Eskimo males had a small epigastric hernia. Other forms of hernia seemed to be extremely rare. No case of cancer in an Eskimo had been seen or heard of. In this connexion it might be noted that cookery holds a very secondary place in the preparation of food, most of it being eaten raw. Influenza was endemic on the Labrador coast. The gastric type was the most fatal. The commonest complication of the bronchial type was otitis media. Syphilis had recently become prevalent. Since its prevalence the birth rate had fallen to an extent which augured badly for the future of the race.

NOTES ON BOOKS.

MR. DODDS and Dr. LICKLEY, in their book *The Control of the Breath*,^a have sought to present a description of the mechanism of respiration, with an explanation of its action, so that the student of singing, elocution, or physical culture may have a basis upon which existing systems or authorities may be judged. Apparently writers on the subject, of equal celebrity, have expressed very divergent views, with the result that seven types of breathing have been taught by different instructors in singing, such as the abdominal, the thoracic, and varying types of inferior and lateral costal. Mr. Dodds and Dr. Lickley favour the combined abdominal

and thoracic type, which in their opinion gives the most complete chest expansion possible. The explanations of the respiratory act given by teachers of the combined abdominal and thoracic type have not been sufficiently convincing to dispose of the theories of other writers. In the present volume the structure and mode of action of the respiratory apparatus are described and diagrams and illustrations are reproduced from Cunningham's *Textbook of Anatomy*. The explanation of the second portion of the inspiratory act is, it is said, often unconvincing because writers have overlooked the fact that the diaphragm may act from more than one fixed point. It is held also that the function of the intercostal muscles is not respiratory but the maintenance of the form of the chest wall. The authors lay great stress on the development of the mechanism of quiet inspiration instead of the use of the muscles of forced inspiration for improving the breathing capacity for singing, believing that in this way breath capacity can easily be made to exceed the average usually given. The mechanism of quiet inspiration will, we are told, suffice for every voice user; but as it is with expired air that he actually works, his control of expired air must be absolute. And the power of the singer or speaker over his expiration lies in the strength and control of the abdominal muscles. The second part of the book contains directions for breathing exercises and for singing practice.

STENHOLM'S monograph on osteodystrophia fibrosa⁷ deals with the pathological conditions which von Recklinghausen embraced under the term "ostitis fibrosa." In this country it is customary to limit the name ostitis or osteitis fibrosa to one fairly definite disease, occurring usually as a local affection, less often in a generalized form; we also speak of it as fibrocystic disease of bone. On the Continent, on the other hand, the clinical aspect has, under the influence of von Recklinghausen, given way to histological considerations, and all diseases of bone in which a fibrous transformation of the marrow is a distinguishing feature are included under the term. It is therefore made to include osteitis deformans in its generalized and local forms, osteitis fibrosa, both generalized and local, certain cases of leontiasis ossea, possibly also myeloma and multiple myelomata, and the fibrous tumour-like formations met with in the lower animals. It would appear that these conditions are regarded as identical in so far as the underlying lesion is essentially identical, although the determining cause may differ in the several diseases. Thus Stenholm regards osteitis deformans as caused by arterio-sclerosis of the nutrient arteries of the bones, a condition which would not account for the osteitis fibrosa of young subjects. As usually understood (though etymologically this is incorrect) the word "osteitis" involves the notion of inflammation, and to this Stenholm objects. He considers that the primary change is a degeneration of the marrow, and that this is followed by a cirrhosis in a way similar to that which occurs in degenerations of the liver. He has therefore adopted the term "osteodystrophia" to indicate what, in his opinion, is the essential change. Several carefully studied cases are described in the monograph, which contains a very thorough discussion of the many difficult problems involved in the interpretation of these diseases. Full justice is done to the numerous authors who have studied the subject and as a summary of present views the book is of value. The essay, though the work of a Swede and published in Upsala, is printed in German in accordance with a custom which is less common than it was.

A second edition of a book on cellular electricity,⁸ by R. KELLER, contains an account of researches with vital staining which the author has carried on for many years in the hope of determining by means of selective staining the electrical potentials existing on cell surfaces and in cell contents. The factors governing the existence of electrical potentials in cells is discussed in the first part of the book, and the remainder consists of two equal portions describing experiments upon the staining of animal and vegetable tissues respectively. Among special forms of technique mentioned are the selective vital staining of plankton as elaborated by Gieckhorns, and Pétérff's methods for the micro-measurement of electric potentials in individual cells. This last represents a remarkable development exceeding in delicacy even the methods of micro-dissection and micro-injection as practised by Chambers and other American workers on single cells. The monograph as a whole deals with some of the most obscure problems of cytology, and the experimental results recorded are of great interest, even though there may not be any general agreement as to their exact significance.

^a *The Control of the Breath. An Elementary Manual for Singers and Speakers.* By George Dodds, Mus.B. Dunelm, and James Dunlop Lickley, M.D. London: H. Milford, Oxford University Press. 1925. (Roy. 8vo, pp. xii + 65; 25 figures. 6s. net.)

⁷ *Monographie anatomische Studien über die Osteodystrophia Fibrosa.* I. Lic., Fil. Mag. Norrl. Upsala: Almqvist and Söner, pp. 211; 18 figures.
⁸ *Zelle.* By Rudolf Keller. Second edition. Kittl. 1925. (Med. 8vo, pp. 320; 40 figures, 1.22.)

Dr. J. B. HURRY's book on poverty and its vicious circles,⁹ which we reviewed on September 24th, 1921 (p. 490), has now been translated into Italian. A Japanese edition appeared in 1921, and a French edition in 1924. The third English edition of vicious circles in disease,¹⁰ by the same author, has also been translated into Italian. We mentioned the Spanish edition on April 4th, 1925 (p. 664), and the Italian edition is very similar, but includes a full bibliographical appendix of the author's contributions about vicious circles to British periodicals.

The *Minutes of the Dental Board of the United Kingdom* and of its various committees for the year 1925, with twelve appendices,¹¹ have now been published in a bound volume. A list is given of the chairmen, officers, members, and trustees of the Board from 1921 to the end of 1925, and the reports of committees show the work that has been done in connexion with education, research, and dental health propaganda.

We have received a copy of *Fräulein Else*,¹² which is a translation by F. H. LYON of a work by ARTHUR SCHNITZLER. Schnitzler, like Sir A. Conan Doyle and Mr. Somerset Maugham, is one of the best known contemporary novelists and dramatists who have forsaken medicine for literature. The work, which is the first volume of a series known as "The Black and White Novelettes," is a piece of poignant psychology, describing the mental conflicts of a young girl who finally poisons herself with veronal.

⁹ *La Povertà ed i suoi Circoli Viziosi*. By Jamieson B. Hurry, M.A., M.D. With a preface by A. Graziani. Turin: Fratelli Bocca. 1926. (Demy 8vo, pp. xvi + 404; 1 plate.)

¹⁰ *I Circoli Viziosi in Patologia*. By Jamieson B. Hurry, M.A., M.D. With a preface by Professor Vittorio Ascoli. Rome: Luigi Pozzi. 1925. (6½ x 9½, pp. vi + 285; 24 figures, 1 plate.)

¹¹ *Minutes of the Dental Board of the United Kingdom and of its Various Committees for the Year 1925, with Twelve Appendices*. Vol. IV. London: Constable and Co., Ltd. 1925. (5s. net.)

¹² *Fräulein Else*. A novelette. By Arthur Schnitzler. Translated by F. H. Lyon. London: A. M. Philpot, Ltd. 1925. (Demy 8vo, pp. 149. 5s. net.)

PREPARATIONS AND APPLIANCES.

Ring Grip Forceps.

MR. N. BISHOP HARMAN, F.R.C.S. (London), writes: There is perhaps no more delicate manipulation in surgery than that required of the left hand of the ophthalmic surgeon when he picks up with forceps a minute strand of the iris preparatory to iridectomy. The tissue to be gripped is so slight, it is so often obscured by overlying tissues or blood, and the margin of safety in the movement of the iris is so narrow that the mastery of the forceps through which the actual movement has to be made should be as perfect as is possible: the instrument should be a part of the hand of the surgeon, as much part of it as ungual appendages to his fingers.

There are many excellent iris forceps in use. The main differences between them are in the set of the teeth of their extremities and in the size of the blades. But they all remain an instrument in the hand—they do not become part of the hand. In the forceps of which an illustration is given, instead of the customary solid side plates or bows with their serrations, fluting, or grooves designed to give some security of grip, the bows are expanded so as to allow a ring to be cut through the flat of each side. These rings are 8 mm. in diameter inside; their edges are square and not bevelled. They are cut in the positions into which the thumb or first finger naturally falls when holding the forceps. The pads of the extremities of the thumb and index finger fill these holes in the forceps, and at the moment that the teeth of the forceps engage the skin of the thumb or finger comes into contact so that the surgeon feels that the forceps are almost a part of the hand and that the points are just the extensions of the finger-tips. The sense of direction and security this gives is remarkable.

I have asked Messrs. John Weiss and Son, Ltd., 287, Oxford Street, London, to apply this new ring grip to iris forceps in the first instance, as these supply the most delicate test of its efficiency; but it is equally applicable and useful for any form of forceps.

Portable Illuminated Test Type.

Dr. W. R. Dunstan, deputy school medical officer, East Sussex, having experienced difficulty in refraction work owing to bad lighting, especially in the winter months, has had made for him by Messrs. F. Davidson and Co., 23, Great Portland Street, London, W.1, a portable illuminated test type. The contrivance consists of an opal tablet, carrying four lines of letters and forming one side of a box which measures six inches square and is one and three-quarter inches deep. It is illuminated from within by an electric lamp supplied by a battery attached to the box.

THE CRIMINAL RESPONSIBILITY OF THE INSANE.

LECTURE BY SIR THEODORE PIGGOTT.

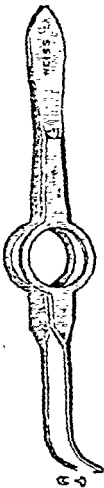
A LECTURE on "Insanity, legal and medical," was delivered at University College, London, on January 20th, by Sir THEODORE PIGGOTT, I.C.S. (late Puisne Judge in the Allahabad High Court). The chair was taken by Sir ARCHIBALD GARROD (Regius Professor of Medicine at Oxford), and among those present was Lord Justice Atkin.

Sir THEODORE PIGGOTT said that lawyers—at any rate English lawyers—had never attempted to define insanity. To them the question was always one of the civil capacity or criminal responsibility of the individual in stated circumstances. On the medical side a definition had often been attempted, but the results were admittedly unsatisfactory. To the doctor what the lawyer called insanity was a form of nervous disease, and the doctor held that all nervous diseases, whether primary or secondary, congenital or acquired, should be regarded as one inseparable whole, of which so-called mental diseases comprised an inconsiderable proportion. It was only grudgingly that the medical profession would ever draw a line between hysteria, hypochondriasis, and delirium on the one hand, and mania, melancholia, stupor, and dementia on the other. The lecturer suggested as a short definition of insanity: "A symptom of nervous disease affecting the brain," and he had medical authority for the more elaborate definition: "Morbid conditions of the brain the results of defective formation or altered nutrition of its substance induced by local or general morbid processes and characterized especially by non-development, obliteration, impairment, or perversion of one or more of the psychical functions."

Historical Review of English Law.

In questions of civil practice the courts of justice seemed content to leave the matter in the hands of medical experts so long as these did not differ amongst themselves. It was with regard to criminal responsibility that conflict between the legal and medical points of view arose. The lecturer limited himself to those cases in which a plea of insanity was raised in defence of a person arraigned on a criminal charge. The fact that the success of this plea necessarily involved an order for indefinite detention in a criminal lunatic asylum explained why it was scarcely ever heard, outside works of fiction, except in cases of murder. To Coke belonged the credit of having definitely challenged the view of the older lawyers that insanity was not a defence in an attempt on the life of the sovereign; but Coke added a qualification so rigid that if it were acted upon it would sweep away the defence in the great majority of cases—namely, that insanity, in order to free an accused person from responsibility before the law, must be an absolute madness and a total deprivation of memory. It was Sir Matthew Hale who laid the foundations of the present law on the subject by recognizing the existence of what he called partial insanity, but the weak point in Hale's exposition was that he had not emancipated himself from the tendency to seek some artificial standard, which he suggested should be the mentality of a young adolescent, thereby confounding healthy immaturity with unhealthy maturity.

Sir Theodore Piggott then passed in review some notable criminal trials of the early part of the last century, and so came to the consideration of the trial of McNaghten for the murder of Mr. Drummond in 1843, and, arising out of that case, the answers given by fourteen out of the fifteen judges to the questions put to them by the House of Lords—answers which remained to this day the authoritative expression of the law of England on this subject. He drew attention to a latent ambiguity in one of these answers: "If the accused was conscious that the act was one which he ought not to do . . . he is punishable." But suppose the disease of the mind to take the form of a delusion that the person was under divine command to break the law of the land, or that circumstances had cast upon him the duty of saving others from intolerable ills



by taking the life of one, would it be said of him that he did what he was conscious he ought not to do? With regard to the taking of medical evidence, the answers were of some significance because they insisted upon the principle that the ultimate verdict of guilt or innocence was not to be taken by expert witnesses out of the hands of the jury. That was a protest of the law against the doctrine, found even in a book so generally sound as Sydney Smith's *Forensic Medicine* (1925) (unless, indeed, it was there put forward as a *reductio ad absurdum*), that rather than enlarge the scope of the rules so as to include deficient control it would be better to "throw over the whole principle of trial of the insane by jury and make insanity and irresponsibility coextensive."

Law as Codified in British India.

The lecturer glanced at the code in British India, where great pains had been taken to make the existing state of mind of the prisoner a matter for judicial determination. In India the prisoner could not be consigned to custody on anything corresponding to a Home Secretary's warrant, but only by order of the court, and in all cases of doubt the court had to try, as a preliminary issue in the case, the question whether the prisoner was competent to make his own defence. The custody to which he might be sent was not necessarily at the public expense; special power was given to consign into any custody approved by the court. In the Indian Evidence Act a brief section enacted the principle laid down in the M'Naghten rules that the burden of establishing the defence of insanity was on the accused, and for the substantive law recourse was had to the Indian penal code. It was laid down in Indian law that "nothing is an offence which is done by a person who at the time of doing it by reason of unsoundness of mind is incapable of knowing the nature of the act or that what he is doing is either wrong or contrary to law." This agreed with the second answer in the M'Naghten rules, except that it substituted the phrase "knowing the nature of the act" for the less definite phrase "knowing the nature and quality of the act," but such difficulties as had arisen in India had surrounded even this definition. The learned judges of the Calcutta High Court had laid it down that it was only unsoundness of mind materially impairing the cognitive faculties which could form an adequate defence.

"Moral Insanity" and "Irresistible Impulse."

Of all eminent lawyers, Sir James Fitzjames Stephen had come nearest to adopting the medical point of view. In his *Digest of Criminal Law* Stephen attempted a summary of the existing law on the subject in this country, and he found himself compelled to set forth alternative statements, in the one showing what was certainly settled law and in the other the law as he thought it really was and as he was sure it ought to be. The essential difference between the two lay in the suggested provision that it should be a defence if the accused was prevented by disease from controlling his own conduct. Stephen's argument brought out the essential points in the controversy between the medical and the prevalent legal view. The former demanded practical recognition of the existence of mental disease in which the moral faculties were more obviously diseased than the mental—the affections and will rather than the reason. "Moral insanity" was a phrase profoundly suspect to a lawyer. What was moral insanity but an unhealthy condition of the moral sense? To admit it as a defence was to open out for the benefit of the criminal too wide a prospect of possible immunity—a thing more dangerous in its practical consequences than immunity itself.

For the doctrine of irresistible impulse there was much more to be said. This had been widely recognized in criminal codes on the Continent, and it could be supported by the great authority of Stephen. Let it be remembered that what was being discussed was not an overwhelming impulse towards a certain line of conduct arising out of mental delusion as to existing facts; that was provided for

by the English law as it stood. The question was whether a man, clearly understanding what he was doing, was to be held exempt from responsibility on the sole ground that what he did was done under the impulse of a diseased mind which it was impossible for him to resist. But whatever Stephen might have imagined or desired, irresistible impulse as a defence against a charge of murder was not at present a part of the law of England. This was shown by the case of Ronald True (1922) and also in that of Alfred Kopsch (1925) in what was known as the Ken Wood murder. In the latter case the doctrine of irresistible impulse was laid before the court in its extremest form, fortified by the theories of up-to-date psychology as to the working of the subconscious mind. The lecturer here remarked that his own respect for the medical profession would prevent him from saying in his own words what had been long ago said by Stephen, whom he would quote: "Many people—and in particular many medical men—cannot be got to see the difference between an impulse which you cannot help feeling and an impulse which you cannot resist."

Is Amendment Required?

Was any change desirable in English practice? He had already expressed his preference for the Indian system, whereby the mental condition of the accused was invariably made a matter for determination by judicial authority. It seemed to him that the English system threw a burden upon the Home Secretary which he could not satisfactorily discharge. He thought that in all doubtful cases in which the defence of insanity could be raised with any hope of success the question whether or not the accused was disabled by disease from making his own defence should be tried out in advance before his defence was undertaken. It was dangerous to depart from the sound principle that a man who was incapacitated by mental disease from making his own defence should not be tried. He saw an illustration of this danger in the True case. True was found guilty of murder, and the appeal from his conviction failed, yet he was respited by the Secretary of State and was now in confinement as a criminal lunatic. Was it to be taken that the Secretary of State was giving effect on his own account and outside the ordinary law to Sir James Fitzjames Stephen's suggestion of a possible alternative verdict: "Guilty, but his power of self-control was diminished by insanity," or was the explanation to be sought in the nature of the medical evidence given at the trial? If the four doctors were right in deposing that the accused as he stood in the dock was certifiably insane it became a matter for serious doubt whether he ought to have been put on his trial in that condition.

What was involved in the concept of a true defence of insanity propounded as his own defence by an unhappy man who had taken human life at a time when his reason was dethroned by disease? One powerful consideration was suggested. According to what the lecturer understood to be the best medical opinion on the subject, a sufferer from such an impulse, succumbing to it after desperate resistance, would be overwhelmed with horror and remorse as soon as the impulse had spent itself. The abiding element in this horror would be a dread lest a return of the impulse should lead to a repetition of the crime. Would not the wretched man regard his own condemnation and execution as being entirely just and desirable as a reparation for a wrong done to society, as a possible deterrent in the future to some other sufferer, and as the one certain guarantee against a recurrence of the same ghastly experience for himself? In any conceivable case in which irresistible impulse would be a true defence it would never be raised at all; it would be precluded by the prisoner's plea of "Guilty." In conclusion the lecturer fell back upon the words of the Solicitor-General (Sir William Follett) in the M'Naghten case, when he said that the public safety required that the law should stand firm. The clemency of the Crown would cover extreme cases. It was too dangerous to unfasten a door through which many would seek to pass whose self-control had been impaired only by persistent indulgence of base passions and the gratification of evil desires.

THE HEALTH OF THE ARMY.

ANNUAL REPORT FOR 1923.

THE annual report on the health of the army for 1923,¹ just published, has followed somewhat closely on the heels of the report for 1922, and, from the Director-General's statement in submitting it, the report for 1924 should also be well on its way. This is all to the good, and to the credit of Sir William Leishman's efforts to expedite the issue of these annual reports. In the 1923 report new features have been introduced, and information formerly distributed under a variety of headings has been collected, analysed, and presented, as a general survey of the more important diseases from both an individual and economic standpoint.

There was a general decline in disease incidence in 1923 as compared with the two previous years. The admission rate for officers was 286.9 per 1,000 of strength, as compared with 298.3 in 1922 and 374.2 in 1921; the death rate was 3.93, as compared with 4.48 and 5.90. Among other ranks the admission and death rates in 1923 were 484.0 and 2.84 per 1,000 respectively, as compared with admission rates of 515.8 in 1922 and 649.9 in 1921, and death rates of 3.22 and 4.20. The most prevalent disease in both officers and men was malaria. Among the former the next most prevalent disease was inflammation of the areolar tissues, and among the latter venereal diseases. Malaria, sandfly fever, inflammation of the tonsils, and dysentery were slightly in excess of the ratios for the previous years; but a considerable decrease occurred in influenza and venereal diseases, the admission rate of the latter being 56.4 per 1,000, as compared with 70.7 in 1922 for the whole army. Several pages of the report are devoted to short summaries of information regarding individual diseases, and some interesting facts are recorded. Dysentery and diarrhoea together accounted for an admission rate of 219.6 per 1,000 of strength in Iraq, but only 33.7 in Turkey and 28.2 in Egypt. Nearly all the cases in Iraq were amoebic, whereas only one of the cases in Turkey was of that type; in Egypt 35 out of 64 cases were amoebic. This bears out much of what has previously been recorded in connexion with the geographical distribution of amoebic and bacillary dysentery.

The remarkable change in the picture of the incidence of enteric fever in the army is again noticeable. Including the paratyphoid groups, only 1.1 cases were recorded per 1,000 of troops. The admission rate in India alone, where the disease used to be most prevalent, fell from 3.0 in 1922 to 2.3 in 1923, the same as in 1913, when the ratio was the lowest on record. The inoculation rate was 95.1 per cent. in India and about 90 for the whole army.

In the notes on malaria it is remarked that the judicious use of arsenic alternately with quinine proved the most efficacious method of preventing relapses in chronic cases. Small-pox was very prevalent among the civil population in the United Kingdom, but no case occurred in the army. In India there were 14 cases, 3 on board ship returning from there, and 13 in Turkey. Nothing, however, is mentioned regarding the state of vaccination in these cases.

Figures are given in connexion with age and service incidence of tuberculosis, but they are somewhat confusing. Fifty-three per cent. of the cases occurred in the first five years of service and 65 per cent. between the ages of 18 and 25, but it is difficult to understand the conclusion drawn that a proportion of the cases could be eliminated by more careful recruiting; for the greatest incidence actually occurred among men with five to ten years' service, and there was a consistently high ratio, double that of the whole army, among men with over ten years' service, and up to the age group 35 to 40 years. As in the previous year, the incidence of venereal diseases was highest in the army on the Rhine, when the ratio of admissions was 136.3 per 1,000. In the United Kingdom it was as low as 27.4, and in other oversea commands 96.9 per 1,000.

There is an interesting statement under the heading of

flat-foot. Recruits with high arched insteps, it is stated, are liable to acquire this affection when they put on weight and are made to carry equipment before the supporting muscles are properly trained to bear the extra weight. Any good that may have resulted from weeks of treatment of such cases by special boots may be undone in an hour by reverting to gymnasium shoes!

In the remaining pages of the report the usual statistical tables are given for the army as a whole, and for each command. The average strength of officers was 10,423, of other ranks 181,621, of women on the married roll 16,876, and of children 27,052. The strength of the troops in the United Kingdom was 88,468, in India 63,139, in Turkey 11,560 (entirely withdrawn in September), in Egypt and Palestine 10,482, in the Rhine Command 8,214, and in other oversea commands less than 2,000. The British troops in Iraq, numbering 1,935, were under the administration of the Air Ministry. It was by far the most unhealthy command, with an admission, death, and invaliding rate of 1,289.2, 10.8, and 51.39 per 1,000 respectively. Turkey showed the next highest rates among commands with strength of over 1,000—namely, 635.5, 2.85, and 16.08 respectively. The Iraq figures are also greatly in excess of the figures for 1922 and 1921, when the admission rates were 700.8 and 894.8; the death rates 4.45 and 10.74, and the invaliding rates 37.43 and 33.18 respectively. This marked difference may be due to the statistical fluctuation arising from the smaller strength in 1923. The general statistical tables are followed by an account of the work of the special departments of medicine, surgery (including x-ray departments, massage, and electro-therapeutics), hygiene, pathology, dentistry, and medical examination of recruits. In a short review it is not possible to note the many interesting features of the work of these departments.

The records of the medical and surgical departments are new features in the report. Their interest, as well as that of the other departments, lies in the evidence they present of the wide extent, activity, and opportunities of professional work and scientific research in the army. In future reports it is understood that still greater prominence will be given to this aspect of the army medical service, and should go far to remove the impression among newly qualified men that the army is not a good field for the exercise of their profession. The report for 1923 is bulkier than that of 1922, and the price has gone up sixpence, but this is chiefly due to its being printed in larger type.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee forty-one cases were considered, and £451 18s. voted to thirty-two applicants. The following are notes on some of the cases relieved.

Widow, aged 60, of M.D. Edlin, who died in 1905. She has two children—a daughter, aged 26, who is a dispenser earning £3 a week, but not living at home, and a son, aged 25, who has defective hearing, is unable to get employment, and lives with applicant. Only income £29 per annum and £10 10s. received from letting rooms. Has applied for the Epsom pension. No rent, but rates amount to £9 a year. Voted £12 in twelve monthly instalments.

Widow, aged 59, of M.R.C.S. who practised in England and then went to New Zealand for eight years, and died in 1905. The applicant and her daughter lived on the £3,000 he left, but £1,700 of this was lost by bad investments. The daughter, who is not strong, is nursing in a sanatorium, receiving £2 10s. a month. The applicant has had to give up nursing at present owing to bad health. Voted £10.

M.R.C.S. Eng., aged 71, unmarried, is unable to obtain employment as a locum tenens owing to age, and suffers from rheumatism. He has been in receipt of the old age pension for the past twelve months; board and lodging cost him 25s. a week. Voted £50 in twelve monthly instalments.

M.R.C.S. Eng., aged 54, who up to 1923 had a practice in the Midlands and afterwards acted as locum tenens. He has been unable to get work, and since Christmas, 1923, has lived on savings and been helped by the charity of friends. He had to apply recently to the guardians. The rent of his room is 12s. 6d. a week. Voted £9.

Widow, aged 68, of M.R.C.S. Eng. who died in 1890, has maintained herself ever since, and it is only owing to an accident which happened last August that she has now applied for assistance. She was married for nine weeks. Her only income is an Epsom pension of £20, and 8s. a week from her married daughter; her rent amounts to 10s. a week. Voted £18 in twelve monthly instalments.

Daughter, aged 52, of L.R.C.P. who died in 1883, is unable to earn her own living as she has to look after her mother, aged 85. The mother has the old age pension, an annuity from the Fund, and is assisted by the Guild. The rent is paid by applicant's sister. Voted £18 in twelve monthly instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos Street, Cavendish Square, W.1.

¹ Report on the Health of the Army for the Year 1923. Vol. IX. London: H.M. Stationery Office. (8vo, pp. iv + 156; with 72 statistical tables and 2 charts. Price 3s. 6d. net.)

British Medical Journal.

SATURDAY, JANUARY 30TH, 1926.

HYPERPIESIA.

IN the early seventies of the last century Clifford Allbutt and Frederick Mahomed were working, together with Burdon-Sanderson, on arterial pressure, attempting its measurement with the sphygmograph, and in the following years Mahomed published a series of papers dealing with the relationship of high arterial pressure to renal disease. In his last paper,¹ entitled "Chronic Bright's disease without albuminuria," Mahomed endeavoured to show that a high arterial pressure was not necessarily the consequence, but was in fact often the antecedent of renal disease; that it might occur in youth and mark out the individual as a future victim of Bright's disease; and that it produced a series of generalized vascular changes accompanied by hypertrophy of the left ventricle, all of which might or might not be followed by renal disease. By Mahomed's early death English medicine lost a brilliant investigator of relentless energy, and with the gradual recognition of the fallacies involved in sphygmographic records as measurements of arterial tension much of the clinical observation that accompanied them was neglected and forgotten. Allbutt, however, persisted, and taking advantage of every improvement in our methods of estimating arterial pressure, and with an ever-widening clinical experience, gradually brought into focus the clinical picture which he termed "hyperpiesia."

It is now pretty generally admitted that there is a disease, not necessarily associated with demonstrable disease of the kidney, of which the cardinal symptom is a persistently raised arterial pressure, frequently accompanied by thickened arteries and cardiac hypertrophy. If as a clinical entity hyperpiesia is now generally recognized, yet the etiology and the pathological basis on which it rests are still largely matters of speculation and hypothesis; and it was with these aspects that the speakers were mainly concerned at the discussion which was held at the Annual Meeting of the British Medical Association last summer,² and again at a recent discussion at the Royal Society of Medicine, a report of which appears in our pages this week (p. 190). So far as the morbid anatomy is concerned we have, indeed, some definite knowledge, for as a result of a careful study of the smaller arteries and arterioles Dr. Geoffrey Evans³ has established in diffuse hyperplastic sclerosis a narrowing of the lumen of these vessels by an intimal thickening which he finds constantly present. There is, however, no clear evidence whether the hyperpiesia or the vascular proliferation is the first to occur, or whether, as Dr. Evans himself suggests, they are both the simultaneous result of some common pathogenic agent. The search for such a pathogenic agent of a pressor type has occupied many workers, but no substance has yet been found that fully satisfies the conditions. Dr. Batty Shaw,⁴ whose monograph details a long and careful consideration of the subject both on the clinical and experimental side, has suggested that, in some cases at least, hyperpiesia may be

produced by the escape of renin into the circulation from diseased kidneys, but no positive evidence of this is as yet available.

It had thus become obvious that inquiry along other lines was essential, and Lord Dawson, who opened both the discussions referred to, has endeavoured to obtain further light by tracing the condition from an early stage. In an inquiry as to the occurrence of raised arterial pressure in a series of school children, Lord Dawson found that out of 650 children examined 8 per cent. showed a systolic blood pressure above 130, and in classes working for a higher examination involving some anxiety and strain the incidence of an abnormally high blood pressure was two and a half times as high as in other classes; this, he claims, is evidence, not of a degenerative process, but of an inborn peculiarity of function in virtue of which the arterioles of such individuals are oversusceptible to what for most people are normal stimuli; and he puts forward the view that the overtone so produced may increase and persist, to be followed gradually as time passes by vascular thickening and cardiac hypertrophy. This is an alluring thesis, and those who remember Dr. F. L. Golla's⁵ fascinating experiments with mental arithmetic by the fireside will not deny its importance. Professor F. R. Fraser thinks it a mistake to look for one cause common to all cases, and suggests rather that the condition may be due to one or more of a number of causes in different individuals; and in emphasizing the need for a careful investigation of the early history at the onset of the raised pressure he urges the more extended use of the sphygmomanometer and the importance of registering the diastolic as well as the systolic pressure. The need for a more general use of the sphygmomanometer in general practice was also urged very strongly by Dr. Otto May in his presidential address to the Assurance Medical Society, of which we recently published a report.⁶ But here a certain difficulty comes in, for although there is general agreement that in order to get the full value from blood-pressure readings a measurement of the diastolic as well as of the systolic pressure must be made, there are unfortunately a number of methods of selecting the moment chosen for taking the diastolic reading; and Dr. R. A. Young observed on the same occasion that, although he knew what he himself meant by the diastolic pressure, he did not know what anyone else meant. Doubtless this difficulty will disappear with further experience, and the insurance companies are doing good service to medicine in encouraging a much more common use of the sphygmomanometer in general practice.

Dr. McCrae suggested at Bath that the elucidation of the problems of hyperpiesia lay largely in the hands of the general practitioner, and it is this point that we wish to emphasize particularly here. Some years before the war there was at one of the summer exhibitions of the Royal Academy the portrait bust of a medical man in which the artist had portrayed his subject in an attitude of rapt attention, trying, as the legend said, to catch the moment "when that which drew from out the boundless deep turns again home"; or, in more prosaic language, seeking for the first beginnings of disease. In no disease is this search more essential than in hyperpiesia, whether we consider the interest of the patient or the wide aspect of pathology, and in the main it is possible only for those who can watch their patients in what we are apt to call, perhaps somewhat thoughtlessly, the minor

¹ F. A. Mahomed: *Guy's Hosp. Reports*, 1880.

² *British Medical Journal*, 1925, vol. ii, pp. 1161-1170.

³ Geoffrey Evans: *Goulstonian Lectures*, *British Medical Journal*, 1923, vol. i, pp. 454, 502, 548.

⁴ H. Batty Shaw: *Hyperpiesia and Hypertension*.

⁵ F. L. Golla: *Croonian Lectures*, 1921.

⁶ *British Medical Journal*, January 15th, 1926, p. 58.

upsets of a healthy life. When once the condition of hyperpiesia is fully established we cannot hope to repair the structural damage, and the chief therapeutic measure can only be to regulate the manner of life in accordance with the capacity of the patient; but if it be possible to detect the future victim while still in the potential stage we may hope that Lord Dawson's vision may be realized, and that hyperpiesia will pass into the beneficent realm of preventive medicine.

MANIPULATIVE SURGERY.

THE discussion on manipulative surgery at the Medical Society of London last Monday, of which a report is published at page 187, was of great interest and should be of much value to the profession, and if an epitome of it could be conveyed to the general public through the lay press it would go far towards disabusing the minds of newspaper readers of the delusions which now possess them, and which are so sedulously propagated even by journals of the greatest eminence. Herein lies the great difficulty, for while leading daily papers are too eager to give all the glory of large type on the leader page to false statements by popular writers of fiction and others, it appears that no room can be found for the refutation of such misstatements even when they are guaranteed by the signatures of responsible and highly respected officials.

If we were to believe the daily papers we should have to conclude that manipulative surgery is the exclusive preserve of the irregular practitioner, whereas it is practised, and practised with success, by a far greater number of qualified practitioners than of bonesetters. When the irregular practitioner succeeds with a case in which a qualified surgeon has failed, the fact is widely advertised by the patient and others. When, however, the converse happens—as it does much more often—nothing is heard of it, for the patient is not proud of his excursion into the realms of unqualified practice and the surgeon does not advertise his successes. In the last ten or twelve years there has been a great development in the theory and practice of orthopaedic surgery, and the number of surgeons who practise it has been largely increased. They were originally concerned mainly with deformities and diseases of bones and joints in children—whence the name, now rather out of date; but adults have benefited by the growth of knowledge, and one result is that specially skilled manipulative treatment by qualified surgeons is far more generally available than it was before the war. This being the true position, it may be asked why it is that such a campaign of detraction of the surgeon and glorification of the bonesetter has been carried on. It was referred to by several of the speakers in the debate as a press “stunt,” and such in a great measure it no doubt is; but is it not possible that at the back of it all is the apprehension by the bonesetter and the osteopath that the regular practitioner is curing more and more of the cases which used to go to him, and that the instinct of self-preservation has really inspired this desperate counter-attack, in which professional humorists and lovers of paradox have delighted to take part? By what means the lay press has been so strangely influenced we do not know, but it might be found that personal experience or the knowledge of some isolated case may have influenced the directors of the policy of the newspapers in question.

In their excellent addresses opening the discussion on Monday Mr. Elmslie and Mr. Rowley Bristow admirably described the class of cases on which

the bonesetters thrive, and also the methods employed by orthopaedic surgeons; they expressed the opinion that even more time and care might wisely be devoted to teaching students the principles and methods by which derangements of joints and muscles are best treated. In this connexion Sir Holburt Waring reminded the meeting that the General Medical Council had some time ago recommended the licensing bodies to pay attention to the teaching of what it somewhat unfortunately described as mechano-therapeutics. The surgeon, apart from the fact that he is trained in diagnosis, has one great advantage over the bonesetter which the lay public does not properly appreciate: he is able in the last resort, and practically without risk, to lay open the affected joint or to expose the painful bone, and so to treat the evil radically. There is, however, one class of case in which the irregular practitioner has often been successful, and which was referred to by more than one of the general practitioners whose contributions to the debate were so valuable. We refer to cases of backache or low back pain, due often to some small adhesion in the erector spinae, which can be broken down only by vigorous passive movement, but in which such breaking down works an instantaneous cure. There may be truth in the suggestion that such methods should be more systematically taught to students and followed by practitioners, though we are aware that in some centres this teaching is very far from being neglected. Dr. Des Voeux made a useful contribution to the discussion when he spoke of those cases, often described by the patient as neuritis, in which the original cause was some small and perhaps forgotten injury to a joint at a distance from the later site of pain, cases which may be relieved instantaneously by the breaking down of some small and hitherto overlooked adhesion in the joint at fault.

The debate seemed at one time likely to drift into a revival of the old controversy between specialists and general surgeons. Mr. J. E. H. Roberts, who is himself skilled in orthopaedic surgery, protested against the restriction of manipulative surgery to orthopaedic specialists; and he is not alone in taking this line. As Mr. Elmslie pointed out, nobody, least of all the orthopaedic surgeon, wishes to prevent the general surgeon or the general practitioner from carrying out manipulative methods. His desire is, on the contrary, that the general surgeon should devote much more of his time and attention than he does at present to the injuries and disabilities on which the bonesetter thrives, and that he should teach in the ward and in the out-patient department the importance of those conditions and of this line of treatment. If, however, his predilections do not lead the general surgeon to do this, or the manifold and overwhelming claims upon his time made by emergency operations, especially on the abdomen, stand in his way, then it may be well for every teaching school to consider the advisability of establishing an orthopaedic unit constituted on some such plan as that sketched by Sir Robert Jones in the address on fractures published in our columns last year.¹ This suggestion was made, and is here revived, not as a defence for the regular profession against bonesetters and osteopaths, but in the interest of the public, and especially of the industrial worker, who would be the first and chief sufferer were the scheme for a special register of inferior manipulative practitioners, which it is rumoured has seduced a considerable number of members of Parliament, carried into effect.

¹ BRITISH MEDICAL JOURNAL, 1925, vol. 1, p. 903.

WHOLESALE PATHOLOGY.

PATHOLOGICAL investigations of clinical material are an essential to good medical work. The examination of urine, faeces, blood, lymph, discharges, and excised tissues are matters of daily necessity. In many cases exact diagnosis cannot be obtained without these examinations; and the omission of them in such cases would be blameworthy. Treatment often cannot be carried out without such examinations; for many therapeutic measures can only be controlled through periodic pathological examinations. The busier and more experienced the private medical practitioner the more will the need for these examinations become manifest, and the less will he be able to acquire the necessary skill or find the time to make them for himself. Further, the technical elaboration of many modern pathological investigations is such that a practitioner, with rare exceptions, will not himself attempt them as part of his regular clinical work, but must rely upon the assistance of medical colleagues who devote themselves to what is commonly known as clinical pathology.

Given clinical pathology as a legitimate and most necessary medical specialty, the point arises: How is this work to be done most efficiently and in the best interest of the patient? Will the pathologist do his work best in his own laboratory, with his own colleagues and assistants, and in personal contact with his clinical colleagues who come to him for aid in the diagnosis of the disease of their patients? Or will the pathologist do his work best as the employee of some one or other of the many bodies which maintain pathological laboratories—universities, hospitals, sanitary authorities, commercial firms, and the like—so that he works behind the screen of some impersonal concern? To put the matter in another way, should the pathologist be a colleague of the clinician, or a veiled oracle whose methods and the quality of whose work may be unknown or very little known?

At the present time both of these two lines of pathological practice are being pursued. There is a growing body of private pathologists whose work is highly valued by their clinical colleagues. There are also many university and hospital laboratories of high standing. And there is a rapidly increasing exploitation of the work by numbers of "clinical laboratories" established and maintained by commercial companies, institutes, and even hospital and sanitary authorities. The activity of the latter class of laboratories is manifest. The private practitioner receives through the post numberless offers of service from them, with schedules of tests and equipment and scales of fees. These offers, brought to our doors as it were, often look, upon the face of them, somewhat attractive. The necessary collecting and packing equipment is at hand, the material has but to be posted, and a telegraphic or postal report is received. It is as easy as a penny-in-the-slot machine.

Easy it is. But the question arises, Is it good pathology? Do the practitioner and the patient get the same thing as can be gained by even the briefest communication or consultation between two persons who know each other and their work? Experience seems to suggest that they do not. Urine from an unknown patient, collected in an unknown manner, is examined. What value, in a critical case, can be attached to a report thereon? Maybe it swarms with *B. coli communis*: is that an indication for vaccine treatment, or merely a sign of defective collection? Will a negative Wassermann reaction on a specimen of blood be of value apart from knowledge of the treat-

ment being given, or without consideration of the possible need for examination of cerebro-spinal fluid? A septic tooth may be so dispatched that the finding of streptococci is inevitable: will a vaccine be justified? This is a point touched upon by Dr. Mackey in his "common sense" paper read to the Coventry Division and published elsewhere in this issue. Again, what pathologist can, and what worker of experience will, give an opinion on a snippet of "new growth" presented bare of information; and what value can be attached to an opinion given under such conditions? Common examples such as these show that personal contact between clinician and pathologist is imperative if findings are to be of real service, and not, possibly, a source of danger to the patient. Only by such contact can the clinician know the limitations of the pathologist, and how specimens must be presented. Only by such contact will the pathologist be a "clinical" pathologist and free from the vice of *ex cathedra* dogmatism.

There are other sides to the problem. Commercial firms and "institutes" freely advertise the facilities they offer, and the manner in which these firms and institutes advertise their facilities is alleged to be a hardship to the private pathologist and to handicap him severely. The private practitioner, be he clinician or pathologist, cannot and will not resort to such practices, so that he is overshadowed by the impersonal advertising laboratories. If the work of these advertising laboratories be done by registered medical practitioners it may even be argued that these practitioners are involved in what is something like a breach of ethics in lending themselves to such practices. Added point has been given to this problem by the recent acclamation in the lay press of the establishment of a clinical laboratory by a hospital in London, which thus becomes a new competitor in the field for all cases, whether patients of the hospital or not; and of a provincial sanitary authority which has advertised to the practitioners in its area that it is prepared to do all such work.

It is sometimes good to take a critical survey of new developments in medicine and try to ascertain the effects thereof, whether good or bad. The arrangements under which the routine work of clinical pathology is carried out need such a critical survey; and the Council of the British Medical Association has appointed a Special Pathological Committee to investigate and advise it upon the present position. The task will not be easy, but it is one that must be faced. We may hope to obtain some concerted opinion at no distant date.

THE PREVENTION OF MENTAL DEFICIENCY.

It is in general unwise for eminent persons to make public pronouncements upon subjects with which they are not specially acquainted. One reason is that they may speedily be shown to be in error by those having a deeper first-hand knowledge of the subject. Another and more important objection is that the very eminence of the persons making the pronouncement is apt to mislead the public, who take them as having authority in fields where in fact they have little. These disadvantages are illustrated by two letters which appeared in the *Times* last week. The first letter, signed by a number of well known physicians and surgeons (including one laryngologist), was an appeal for the sterilization of all mentally defective persons, with a view to stamping out the condition in a more effective and more economical way than by segregation in institutions. The second letter, which seemed to be a complete refutation of this thesis, was written on behalf of the Council and

the Medical Committee of the Central Association for Mental Welfare. This communication refers to facts which are now beyond dispute, but which, as the earlier letter reveals, are not as well known, even to the medical profession, as they should be. Yet the British Medical Association and the JOURNAL have on a number of occasions drawn attention to these facts. At the Annual Meeting in Portsmouth in 1923 the whole-day session of the Section of Medical Sociology was devoted to this subject (BRITISH MEDICAL JOURNAL, August 11th, 1923, pp. 219-234), and at Bradford in the following year one session of the Section of Diseases of Children was given to that very aspect of the matter which is the subject of these letters (BRITISH MEDICAL JOURNAL, August 23rd, 1924, pp. 316-332). Further, an important pamphlet on "Sterilization and mental deficiency," published in 1923 by the Central Association for Mental Welfare, was noticed in our columns at the time, and in a leading article on "Mental defectives in New Zealand" (September 12th, 1925, p. 486) we again drew attention to the conclusions therein reached. Mental deficiency, of course, is distinguished from mental disorder or disease and from mental degeneration or infirmity by being due to a defect in the germ which prevents the proper development of mental powers to within the limits of the normal. It is therefore a primary amentia—an innate incapacity for normal development—though there is a minority of similar cases where an early arrest of normal development is due to some adverse factor operating directly on the embryo or young child. It follows, therefore, that mental defect is a lifelong incapacity in some degree, and that it is usually of an inherited and inheritable nature. But this does not justify the two fundamental statements made in the earlier *Times* letter: (a) "If propagation by the mentally deficient be stopped their numbers will rapidly decrease"; (b) "With few rare exceptions the feeble-minded remain as they are no matter what is done for them." It is true that "the offspring of mental defectives are themselves mostly mentally deficient," but elementary logic reminds us that the converse of a true proposition is not itself necessarily true. It is very far from true that mentally deficient children are mostly the offspring of mentally deficient parents; in fact, only a small minority of them are the offspring of such parents. The inheritance, whatever its exact nature, is usually derived from parents who appear to be normal, although many of them may be "carriers" of the germinal defect, or who are in some way mentally unstable, but not certifiable defectives. It follows that even were all certifiable defectives sterilized mental deficiency would not be eradicated, and its prevention would be effected only to a relatively insignificant extent. Moreover, sterilization alone (not castration) would leave the defectives free to pursue such antisocial conduct, including promiscuous sexual intercourse, to which most such persons are prone in the absence of institutional care, with its consequences in the matter of venereal disease. It might even lead to an increase of such evils. The other serious statement quoted above is also incorrect. The signatories allow that "everything possible should be done to render the lives of these defectives as happy as possible," and it may be agreed that this is almost all that can be done with the lower-grade feeble-minded as with the imbecile and idiot, and that public expenditure to this end should be strictly limited. The case of the moron, or higher-grade feeble-minded person, is different. Very much can be done to improve even the mental powers of such children, so that they reach the highest possible development of which they are capable, through an education adapted to their condition. The actual results of such an education are, indeed, surprising and most gratifying. After this care not all higher-grade mental defectives are socially defective, though a lack of self-control and of foresight persists to an abnormal degree.

Many, with a relatively small amount of supervision, can do useful and self-supporting work in the lower ranks of industry, though for the most part, even on leaving the special school, morons are the better for institutional control, which is made more beneficial to them, happier for all concerned with them, and much less expensive for those who support them, by their previous training. To suggest the routine sterilization of all these higher-grade defectives as they leave the special school implies misapprehension of the circumstances, for it is safe to say that the public opinion of this country, with the facts put before it, would never tolerate such a procedure.

INFLAMMABLE MIXTURES OF ETHER AND OXYGEN.

IN our issue of October 17th, 1925 (p. 713), we gave a brief account of the medical evidence at an inquest on the body of a lad who died in consequence of an explosion in his mouth during an operation for fractured jaw. Ether and oxygen was the anaesthetic, and warm air was applied with a dental syringe in order to keep the teeth dry. On the third application of the syringe an explosion occurred at the back of the boy's throat; acute haemorrhage followed, and he died within ten minutes. The light at which the syringe was warmed was fully six feet away from the operation table, there was no naked flame near, and the surgeon satisfied himself that the syringe was not red-hot. Death was due to rupture of the bronchi and collapse of the lungs. In our issue of November 28th (p. 1034) a correspondent suggested that ignition of the ether vapour and oxygen might have been due to catalytic action on the surface of a warm platinum syringe needle, or that in the absence of platinum some metallic part of the syringe might have acted in a similar manner. On December 26th (p. 1246) another correspondent suggested that the explosion of the anaesthetic might have been due to a minute burning piece of wick or a drop of burning methylated spirit being carried on the end of the hot-air syringe. We have now received from Dr. Charles F. Hadfield, honorary secretary to a joint anaesthetic committee of the Medical Research Council and the Royal Society of Medicine, a note by Professor H. B. Dixon, F.R.S., of Manchester, drawing attention to the fact that mixtures of ether vapour and oxygen will ignite at relatively low temperatures. Professor Dixon's report (which is of a preliminary nature only) is as follows: "As the Anaesthetics Committee of the Medical Research Council and of the Royal Society of Medicine have done me the honour to co-opt me as a colleague with special reference to questions concerning the ignition of gaseous mixtures used as anaesthetics, may I take the opportunity of urging the desirability, in the public interest, of issuing some warning as to the high inflammability of mixtures of ether with oxygen? It is curious how little information is given in textbooks on the temperatures at which gases inflame, and there are some puzzling discrepancies between results that have been published in scientific journals. I have been experimenting for many years with different forms of apparatus on the ignition point of vapours and gases, and for the past three years have been making researches for the Mines Department on the firing of various gases by bringing the gas and air together (after each has been separately heated) in a modified 'concentric tube' apparatus—first described in 1909. Among other vapours, I have tested ether vapour by bringing it into heated oxygen through a silica tube equally heated, and have found a delayed ignition at 220° C. (428° F.)—a figure I believe to be too high (as a minimum ignition point) rather than too low. Other observers have put the ignition point of ether in oxygen as low as 190° C. (374° F.). A peculiar difficulty exists in the determination of the

ignition point of ether mixtures, because the vapour itself decomposes rather rapidly in contact with heated surfaces, and secondly, because the mixture may undergo a partial combustion with an almost invisible flame, and this may develop into the normal luminous combustion. The late Sir William Perkin found that ether vapour began to show this incomplete burning in air at 260°C ., and Mr. A. G. White, of Messrs. Nobel's Explosives Company, has observed a 'cool flame' to start under certain conditions below 190°C . Now the normal ignition of the most inflammable mixture of ether and air has been found by several observers to occur about 360°C .,—the ignition not being violent. But ether and oxygen form highly explosive mixtures in which the detonation-wave may be rapidly set up once the flame is started. The lowest ignition point of such ether-oxygen mixtures has yet to be determined precisely, but it is obvious that there is a special danger in bringing a heated body in contact with such mixtures. That the heated body is not visibly red-hot is no guarantee of safety; the danger point begins at least 300°C . below visible redness. From the ignition temperatures so far found for mixtures of ethylene with oxygen, I believe these gases are far safer from risk of inflammation than ether-oxygen mixtures." Dr. Hadfield informs us that arrangements are being made for Professor Dixon to carry out further researches into the ignition temperatures of various anaesthetic gases; but in view of the fatal accident reported last October the committee does not feel justified in delaying publication until this work is completed. The committee expressly disclaims any wish to give an opinion as to the cause of the particular fatal accident referred to, since it is without sufficient detailed information to warrant such a course. But it points out that in this or similar cases the metal tube of the dental syringe used for drying purposes might easily be at a temperature above the danger point (200°C .) without such a possibility occurring to the mind of an operator unacquainted with the facts detailed in Professor Dixon's communication.

THE BISMUTH TREATMENT OF SYPHILIS.

THE expanding horizon of chemotherapy is already bringing into view new phenomena which are confirming and extending the brilliant speculations of Paul Ehrlich, whose pioneer work has already led to the addition of so many valuable weapons to our therapeutic armoury. Dr. H. H. Dale, in his address to the Section of Physiology at the meeting of the British Association at Toronto (*JOURNAL*, 1924, vol. ii, p. 219) referred in some detail to the investigation of the therapeutic action of bismuth by Dr. C. Levaditi, whose book on this subject we reviewed on December 27th, 1924 (p. 1203). The great progress that has been accomplished step by step was set out clearly by Dr. Levaditi in an address, entitled "New discoveries in the chemotherapy of syphilis," which he delivered to the Dermatological Section of the Royal Society of Medicine on January 21st. Commenting on some of the earlier reports of this research on March 18th, 1922 (p. 443), we drew attention to the welcome degree of restraint which characterized them; it is therefore possible to accept the present description of the success that has been achieved with the greater confidence. As the outcome of very extensive experimental work at the Pasteur Institute, Dr. Levaditi has formed the conclusion that bismuth possesses the specific power of accelerating and intensifying the production in the living organism of spirochaetal antibodies. Insoluble preparations of bismuth were found to form protein compounds, which remain in the tissues and kidneys for a very long period—a point he illustrated by numerous photomicrographs—and so was explained the prolonged and complete change in the Wassermann reaction

which is obtained by bismuth treatment, as contrasted with the transient effect following the use of arsenic, which is eliminated much more rapidly. Such antispirechaetal action appears to be correlated with the metallic atomic weights, and it has been shown that vanadium, mercury, gold, and platinum have this power similarly, though with an increased toxicity. The well known value of arsenic in the treatment of syphilis suggested that some combination of the two elements would be attended by enhanced efficiency, and the potency of stovarsol (acetyl-amino-hydroxy-phenyl-arsonic acid) as a prophylactic and curative agent was vividly illustrated by the lecturer, who then explained how, by combining this substance with a sodium-potassium-bismuth tartrate, a stable preparation had been obtained which was very suitable for therapeutic use. The new compound is a yellowish-white powder insoluble in water but soluble in alkalis; it may be used as a suspension in saline solution or oil for intramuscular injections. It has been employed with success in spirochaetal infections of man and the rabbit, and appears to be better tolerated than simpler forms of bismuth; it has proved very effective in changing a positive Wassermann reaction to a negative. The chairman, Dr. J. H. Sequeira, conveying the thanks of the Section to Dr. Levaditi for his most interesting address, drew attention to the great reduction in the cost of treatment which the new discoveries about bismuth would render possible—a point which had been already recognized in Africa in connexion with yaws and syphilis.

ABRAMS'S BOXES FOR HIRE.

UNDER the heading "A new method of treating disease" an enterprising company has lately favoured a number of medical men with a pamphlet offering to hire out to their patients at three guineas a week a modified form of the magic boxes introduced by the late Dr. Abrams of San Francisco. The name of the company has been chosen ingeniously; and further ingenuity is displayed in dealing with a matter which, on the most charitable estimate, can only be said to be still in the stage of nebular hypothesis. Thus the covering letter issued with the pamphlet begins by attributing the reluctance of medical men to acknowledge the value of Abrams's work to the manner in which it has been introduced. It is then mentioned, with an air of putting the whole thing on a scientific basis, that the "first authoritative statement as to the existence of Abrams' reaction" was made by Sir Thomas Horder at the Royal Society of Medicine on January 17th, 1925. We may remind our readers that Abrams asserted that having found, from the reaction of a spot of dried blood, the disease from which a patient suffered, he could then remove the reaction (and the disease) from the patient by means of what he called an oscilloclast. We may also recall that the conclusions arrived at by Sir Thomas Horder's committee (to quote their own words) "leave the position of the practising electronist as scientifically unsound and as ethically unjustified as it was before. They give no sanction for the use of E.R.A. in the diagnosis or in the treatment of disease. Nor does there appear to be any other sanction for this kind of practice at the present time."¹ The pamphlet and circular letter now introduce us to British-made machines to take the place of the oscilloclast of Abrams, and we read in large print that "the results obtained by it [that is, the new instrument] have far surpassed those achieved by any other form of treatment used in medical practice at the present day." Any differences of opinion on the value of the method in diagnosis are dismissed as of "merely academic interest"; treatment, it is said, does not depend on the diagnosis of a definite disease, but is merely the treatment of blood

¹ BRITISH MEDICAL JOURNAL, January 23th, 1925, p. 185.

reactions. The reaction is determined, the instrument is tuned to the reaction, and away goes the disease—at all events it usually does. The most suitable cases for treatment are “ill-health” (especially when associated with that blessed word toxæmia), rheumatoid arthritis, and osteo-arthritis; but “it is theoretically possible to treat any disease by this method,” and the pamphlet ends with notes on patients cured or relieved of various diseases, including sarcoma and disseminated sclerosis. Naturally it is added that hundreds of other cases are available. Elaborate directions are given for taking the blood specimen “from the dorsum of the terminal phalanx of the forefinger,” and a pleasant air of orthodoxy and correct procedure is conveyed by a statement that the machine cannot be supplied direct to the public, but only obtained by the patient on the prescription of a physician. Let us hope that if any medical man feels moved to employ one of these machines “under a simple hire agreement” he will endeavour to record his experiences with well balanced judgement.

ROYAL SOCIETY OF MEDICINE: HONORARY FELLOWSHIP.

At a general meeting of the Fellows of the Royal Society of Medicine held on January 19th the following seven medical men, two British and five foreign, were elected to the Honorary Fellowship of the society: Major-General Sir David Bruce, K.C.B., F.R.C.P., F.R.S.; Sir Henry Morris, Bt., F.R.C.S., a former President of the society; Dr. Fritz de Quervain, Professor of Surgery and Director of the Surgical Clinic, University of Berne; Dr. Camillo Golgi, Emeritus Professor of Histology, Royal University of Pavia (whose subsequent death we record with great regret this week); Geheim Med. Rat Dr. Karl F. J. Sudhoff, Professor of the History of Medicine, University of Leipzig; William James Mayo, M.D., D.Sc., LL.D., Surgeon and Chief of Staff, the Mayo Clinic, Rochester, Minnesota, U.S.A.; and his brother, Charles Horace Mayo, M.D., D.Sc., LL.D., Professor of Surgery, University of Minnesota, and the Mayo Clinic, Rochester.

BUREAU OF HYGIENE AND TROPICAL DISEASES.

By decision of the honorary managing committee of the Tropical Diseases Bureau, and with the approval of the Secretary of State for the Colonies, the bureau's name has been changed to “Bureau of Hygiene and Tropical Diseases.” The bureau traces its history back to 1908, when, as a result of the International Sleeping Sickness Conference of 1907, the Colonial Office founded the Sleeping Sickness Bureau, which for four years carried on its work of preparing and publishing the *Sleeping Sickness Bulletins* in a room put at its disposal by the Royal Society. Towards the end of this period it brought out also the *Kala-azar Bulletin*, and in 1912 it outgrew its accommodation and moved to the Imperial Institute. Here its scope was widely increased, and it became the Tropical Diseases Bureau, publishing in place of the journals named the *Tropical Diseases Bulletin*, now in its twenty-third volume, and the *Tropical Veterinary Bulletin*, of which thirteen volumes have appeared. In 1920 it again outgrew its quarters, and removed to what was then the new building of the Seamen's Hospital Society at 23, Endsleigh Gardens, where it now occupies rooms put at its disposal by the new School of Hygiene and Tropical Medicine. Last year the managing committee, recognizing the advances in the practice of preventive medicine, and the need of the tropical and other colonies for recent information on all branches of hygiene, decided to replace the *Sanitation* supplements of the *Tropical Diseases Bulletin*

by a monthly *Bulletin of Hygiene* planned to meet the needs of the Dominions as well as the Colonies. The new journal will make its appearance this week. Dr. J. F. C. Haslam, recently Government medical officer of health for British Guiana, has replaced Colonel A. Alcock, F.R.S., as assistant director, and is in editorial charge of the new *Bulletin*. The bureau's name is now coextensive with its activities. It may be added that the tropical diseases library of the London School of Hygiene and Tropical Medicine received 648 bound volumes during the year ending July 31st, 1925. According to the librarian's report, the number of attendances in the reading room increased by 37 per cent. over the previous year, and the library is being used in an increasing degree for reference purposes and study.

MEMORIAL TO SIR WILLIAM MACEWEN.

THE committee in charge of the arrangements for a memorial to the late Sir William Macewen intends closing the list of subscriptions at an early date. After paying for the busts, which have now been received, there is in hand a sum of about £1,400 towards the endowment of a Macewen Memorial Lectureship and, if funds permit, the institution of a Macewen medal or prize in surgery to be awarded annually to the students of Glasgow University. It is still open to those who have not yet subscribed, and who may wish to do so, to send contributions to the honorary treasurer, James Macfarlane, Esq., D.L., LL.D., Wesleyan Street, Glasgow, S.E., who will make due acknowledgement.

INDUSTRIAL MEDICINE AND SURGERY.

A LETTER published in our correspondence columns this week invites medical men interested in industrial health questions, especially medical officers to industrial firms, to join the Council of Industrial Medicine. This body came into existence in connexion with the Congress of Industrial Hygiene held in Amsterdam in September last. In a paper which was published in our columns on September 19th, 1925 (p. 530), Sir Thomas Oliver (who was president of the British Section at the Congress) detailed some of the achievements of industrial hygiene and gave an account of the legislation by which various precautions have been made compulsory in this country. There can be no question that the subject is important and that it is regarded with growing interest by industrial workers and by industrial firms. We make no doubt that the International Congress on Industrial Accidents and Diseases, which is to be held in London two years hence, will be well attended, and will excite a good deal of general interest. The two aspects, though of course related and appropriately discussed at a single congress, are not identical, for a healthy occupation may have a very high accident rate; this is illustrated by coal mining, in which the health of the workers is good but their accident rate very high. The chairman and vice-chairmen of the Council of Industrial Medicine are the British members of the permanent committee of the international congress.

A MEDICAL congress, which will be called *Journées médicales de Paris*, will meet at Paris, under the presidency of Professor F. Widai, from July 14th to 18th. The inaugural meeting will be held in the Grand Palais, when Professor Calmette will deliver an address on antituberculosis vaccination. Excursions to spas and other places of interest, including Rheims, will be organized. A detailed programme will be published later.

THE "ARCHIVES OF DISEASE IN CHILDHOOD."

Published by the British Medical Association.

NEARLY a year ago some of the medical men whose work lies chiefly among children, and who for a considerable time had felt that English work in this branch of medicine was inadequately presented by existing publications, met together, and after discussion determined to sound their colleagues on the advisability of establishing a new journal. Their aim was to collect and publish the work which was being done here in this sphere, which they knew was, from a variety of causes, overlooked and ill appreciated, not only in our own country but also abroad. Notably in the United States and Canada they had often been asked where their fellow workers in those countries could obtain some knowledge of the problems which were being attacked in Britain. The answers to their inquiries among their colleagues in various parts of the country showed that the dissatisfaction they had felt was more widely spread than had been imagined, and their tentative proposals received enthusiastic support from all quarters. Edinburgh, Glasgow, Liverpool, Manchester, Sheffield, Leeds, Newcastle, Bristol, Oxford, and Cambridge, and many other centres gave the proposal to found a new journal a warm welcome, and at once promised support to the venture. Without that assurance of welcome and support the *Archives of Disease in Childhood* would certainly not have been launched, for no one who has any knowledge of the ocean of medical publications can doubt that it is a perilous venture to furnish and equip a new vessel for a voyage on those seas.

With these promises of support the promoters of the venture cast about for means to realize their aims, and, as is not unusual, found difficulties in their path—difficulties which were suddenly, and to them unexpectedly, dissolved. Their desire to establish a new journal was at once supported, indeed accentuated, by the reception given to their proposals by the British Medical Association. They saw their difficulties vanish, and the decision of the Association last July has enabled them to produce the *Archives* earlier and in much more favourable conditions than they could have expected. The pages of the BRITISH MEDICAL JOURNAL are not, perhaps, the most appropriate place in which to celebrate the actions of the Council of the British Medical Association. But the promoters of the *Archives of Disease in Childhood* desire to take advantage of the appearance of the first number to express their gratitude for the timely help given.

The first number will be published in the first week of February. It will be edited by Dr. Hugh Thursfield (St. Bartholomew's Hospital and the Hospital for Sick Children, Great Ormond Street) and Dr. Reginald Miller (St. Mary's Hospital, London, and the Paddington Green Children's Hospital), with the help of physicians and surgeons representative of Glasgow, Edinburgh, Liverpool, and London. There is a general committee still more widely representative, including Edinburgh, Manchester, Bristol, Oxford, Cambridge, Sheffield, Birmingham, Leeds, and Newcastle-on-Tyne. The journal will be well illustrated, and the first number contains a coloured plate to illustrate a paper on hepatic cirrhosis in children, by Dr. Poynton and Dr. W. G. Wyllie. The *Archives* will appear every second month, and the annual subscription is 25s., payable to the Financial Secretary of the British Medical Association, at the House of the Association,

Tavistock Square, London, W.C.1. Application may be made by a banker's order, and a form for this purpose will be sent by the Financial Secretary on request.

The reputation of this country in the study of the diseases of children has always stood high. In the fascinating anthology which Dr. John Ruhrah of Baltimore has recently published, entitled *Pediatrics of the Past*, the names of English physicians occur with frequency, and Dr. Fielding Garrison, in his introduction to the volume, when speaking of Thomas Phaer, notes what "is common to English clinicians, his unquestionable power of localizing the salient and definite clinical aspects of a disease." The names of Phaer himself, of Glisson, Harris, Sydenham, and, in more recent times, those of West, Cheadle, Eustace Smith, and Barlow, are well known to all students of the subject. But, though the reputation for clinical knowledge and teaching still stands, it has been an obstacle to its wider growth that work, both in clinical and laboratory research, in this branch of medicine has for the most part hitherto been published in journals which exist mainly for the purposes of general medicine, and that, in consequence much good work which is done in the special sphere is overshadowed by the greater mass of more general work, or has even not been published. Sir Thomas Barlow, a name honoured wherever diseases of children are studied, has made this point clear in the introduction which he has written for the first number, and at the same time has considered some of the arguments for regarding the study of children's disease as a specialty. It is, of course, evident that it is in no sense a specialty as is, for example, ophthalmology; there is nowhere a sharp dividing line separating it from the province of general medicine. There are few indeed who would even pretend that it is so, although in practice some physicians, especially in America, have definitely made the divorce from general medicine and confine themselves to children's work alone. Yet the manifestations of disease in infancy and childhood are often so strikingly different from those of the adult that the student is compelled to acknowledge that there is a distinct, though hardly a separate, sphere. Many would, as Sir Thomas Barlow has hinted, go further, and claim that none can hope to excel in his general work who has not devoted considerable time to the study of children's ailments; that the man who confines his work to the diseases of adults is apt to fail to realize how much disease is altered in its essence by the interposition of extraneous factors; and that in the young uninjured tissues of the child the phenomena, strikingly different from those of the same illness in the adult, may often throw considerable light on the problems of later life. A notable example is afforded by acute rheumatic fever: it is no exaggeration to say that no one can understand or attempt to unravel its problems without constant reference to and study of the disease in young children.

The *Archives of Disease in Childhood* will therefore be able to concentrate the work which is being done in this country in a more accessible fashion than has hitherto been the case, and will expect to enlist the services, not only of those more especially engaged in children's work, but also of those who are concerned with the wider and more complicated problems of general medicine, whenever their studies lead them to

the consideration of embryological, physiological, or anatomical questions. The biochemical investigations which now occupy general medicine so largely have in the disorders of children a field which, however difficult to explore (and its difficulties at the age of infancy are enormous), is yet one of great promise, and at present, in this country at least, but little examined. The *Archives* has already received a paper which its editorial committee believes to be entirely new work on the difficult chemistry of sclerema, and it is hoped that such work, which has hitherto often escaped the notice of clinicians because it has appeared in non-clinical journals, may in future find its readiest means of dissemination in the pages of the new periodical.

The generosity and enterprise of the British Medical Association; the support already promised from so many centres; and the certainty that the volume and standard of the work done in this country in the study of the disorders of children are high, encourage the editorial committee to hope that the *Archives* will speedily prove a worthy peer to its elder brethren in France, Germany, and America.

The following are the contents of the first number:

- INTRODUCTION. By Sir Thomas Barlow, Bt., M.D., F.R.S.
 HEPATIC CIRRHOSIS IN CHILDREN: with special reference to the Biliary Forms. By F. J. Poynton, M.D., F.R.C.P., and W. G. Wylie, M.D., M.R.C.P. (With coloured plate.)
 ADRENALINE IN SEVERE RHEUMATIC HEART-BLOCK. By G. A. Sutherland, M.D., F.R.C.P.
 REMARKS ON THE DEFORMITY OF PES CAVUS. By A. S. Blundell Bankart, M.Ch., F.R.C.S.
 THE INCIDENCE OF RICKETS IN A LONDON HOSPITAL OUT-PATIENT DEPARTMENT. By Helen Mackay, M.D., M.R.C.P., and others.
 A NOTE ON THE CLINICAL DIAGNOSIS OF RICKETS IN INFANCY. By Helen Mackay, M.D., M.R.C.P.
 A STUDY OF RICKETS: INCIDENCE IN LONDON. By Donald Paterson, M.B., M.R.C.P., and Ruth Darby, M.B., Ch.B.
 RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF PURPURA HAEMORRHAGICA. By Bruce Williamson, M.D.
 KETONURIA AND URINARY ACIDITY. By Kenneth H. Tallerman, M.C., M.D., M.R.C.P.
 FOUR CASES OF IMMOBILIZATION: with Remarks on the Method. By E. I. Lloyd, M.B., B.Ch., F.R.C.S., and B. E. Schlesinger, M.B., B.Ch., M.R.C.P.
 NOTES ON MEASURES IN INFANT FEEDING. By G. A. Harrison, B.A., M.D., with Hugh Thursfield, D.M., F.R.C.P.

SUNLIGHT TREATMENT: ARTIFICIAL AND NATURAL.

AMONG a number of inquiries from readers relating to various aspects of this subject, we have had one lately from a medical man in Hertfordshire who seeks guidance as to the best form of artificial sunlight lamp, at a moderate price, for the treatment of a patient with surgical tuberculosis (psoas abscess), and as to the necessary precautions to be taken during treatment. We referred this query to Sir Henry Gauvain, medical superintendent of the Lord Mayor Treloar Cripples' Hospital and College at Alton, Hants, and he has been good enough to give the following advice:

"A cheap and simple lamp that would be likely to be of some use in the treatment of a private patient suffering from spinal caries with a psoas abscess would be a mercury vapour lamp, and the type I would recommend would be the Jesionek. The patient should first be tested for an erythema dose. This test could be most easily made by exposing small areas of one leg of the patient for two, three, four, and five minutes. Probably with a Jesionek lamp there would be erythema after three or four minutes' exposure. That should be the initial dose. Treatment can be given daily, the doses increasing a minute every day or every second day, probably up to about fifteen minutes' maximum.

In my opinion it is hardly worth while buying a lamp for one patient, and in a case such as this the doctor would probably be well advised to wait until after Easter and then start a graduated course of natural sun treatment, according to rules I issue to our nurses, of which I enclose a copy."

As many practitioners would no doubt be glad to have in detail the rules adopted at Alton, to which Sir Henry Gauvain refers, we reproduce them in full.

INSTRUCTIONS FOR THE CONDUCT OF SUN TREATMENT.

The following rules must be observed, unless other instructions are issued, or special directions given for the treatment of individual patients.

1. No new patient is to be exposed until he is acclimatized and insolation ordered.
2. The patient's head must always be protected by a canopy or sun hat.
3. The patient must never be allowed to become too hot or too cold. If he complains of the heat, his bed or stand must immediately be put in the shade; if he is faint a cold compress to be applied to the cardiac region and the medical officer on duty summoned. If he appears cold or shivers he is to be instantly covered, hot bottles applied, and current switched on if he occupies electrically heated bed.
4. Blistering the skin must be always avoided. Excessive erythema (redness) or any blistering to be immediately reported.
5. In commencing treatment, as a general rule (usually individual instructions will be given) parts of the patient's body may be exposed as follows (five, ten, or twenty minutes hourly means an exposure for either of these periods in three separate hours):
First day—Legs to knees for five minutes hourly.
Second day—Legs to knees for ten minutes hourly.
Third day—Legs to groin for ten minutes hourly, and where possible turn patient and treat other side of body as on first day.
Fourth day—Expose to groin and buttocks for ten minutes hourly. Total exposure twenty minutes hourly.
Fifth day—As on fourth day, and in addition one aspect of trunk exposed for five minutes hourly.
Sixth day—As on fifth day, and in addition other aspect of trunk exposed for five minutes hourly.
Seventh day—As on sixth day, but double exposure of trunk permissible.
Eighth day—Total exposure of trunk twenty minutes hourly permitted and exposure of legs to be increased.

Subsequently, periods of exposure may be gradually increased if the patient is pigmenting satisfactorily. When pigmentation is fully established, the patient may be completely exposed for increasing periods until he can tolerate continuous exposure, which may now be undertaken whenever sunshine is available up to a total of three hours daily, and to a limited extent even in the absence of direct sunshine. Certain cases will be found in which these rules cannot be rigidly followed, and less exposure is called for or more exposure may be tolerated. Individual instructions will be specially given for these patients.

6. If unsuitable weather supervenes which interrupts treatment, insolation must be resumed at the earliest possible moment. If pigmentation is fully established, half the exposures last given may be permitted.

7. Sinuses or ulcers should be exposed for as long as and whenever possible, as soon as pigmentation is established. Any purulent discharge must be immediately swabbed. If there are flies about or it is windy and there is any dust, sinuses or ulcers must be touched with a little iodine. The iodine is to be confined to the sinus and not swabbed over healthy skin.

8. Even in the absence of sunshine, discharging wounds on the face, neck, and extremities are to be exposed unless contrary directions are given. Dressings in these situations should be applied only at night time, or if the patient remains in the ward.

9. In any case where a patient's evening temperature exceeds 100° F., the patient must not be exposed the following day unless special orders are given.

10. A daily record should be kept of the period of exposure of each patient.

11. Patients who do not pigment, or who freckle, are to be reported and are not to continue insolation unless specially ordered.

12. Under no circumstances may a nurse leave the patients in her charge while they are receiving sun treatment.

NOTE.—It is desired that pigmentation of the skin be secured as speedily as is safely possible. That pigmentation must be maintained and intensified whenever weather conditions permit, with due regard to the above rules. These rules refer to May sun in the southern counties. At other seasons and in other districts they require modification.

COMMON SENSE.*

BY

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"SCIENCE is a first rate piece of furniture for a man's upper chamber if he has common sense on the ground floor." These words of Dr. Oliver Wendell Holmes well express what was in my mind when I chose the subject for my paper.

From the very outset of the student's life common sense is necessary; in fact it is needed before a parent can come to a decision as to the suitability of his son or daughter for a medical career. It would be an act of common sense for a boy or girl who wishes to become a doctor to ascertain the conditions of medical practice, its labours and rewards, its openings and its opportunities; yet in far too many instances the student toils through years of arduous work to find himself at last a member of a profession for which he has neither the taste, temperament, nor physique.

Common sense will tell the medical student whether he has embarked on the right career; when to work and when to play; how to choose his teachers and his books; how best to gain the necessary knowledge; how to distinguish essentials from trivialities; it will prevent him being led away by new and unproven things from simple, sound, established principles and facts; and will finally be of great help to him in passing his qualifying examinations. By this time he will have made up his mind what branch of medicine he intends to take up, and in any case will need more practical experience than he can have acquired as a student.

If he has decided to go into general practice he will take some appointment where he can make his early mistakes without disaster to the patient or himself, and at the same time gain the very necessary practical experience which can only come from daily contact with the sick. A resident post in a good hospital is invaluable at this stage, provided a man has the common sense to realize that the proportion of rare and serious cases is far higher than he is ever likely to encounter in private practice, that the surgeons and physicians are not as a rule intimately acquainted with the conditions of general practice, and that a successful autopsy, however educative to oneself, cuts very little ice with the general public.

I think we have shown a lack of common sense in failing to devise some scheme whereby a young doctor before setting up in practice could undergo a sort of post-graduate apprenticeship, say for six months, under an experienced and able practitioner. In any case let us hope that when, after some period of probation, he embarks in general practice, common sense will pilot him through his first disappointments and disillusion when he begins to realize that his favourite professors and the authors of his textbooks were obviously unacquainted with the sort of work of which general practice consists; that most people appear to suffer from complaints he never encountered in hospital; and that so large a proportion of his patients are certain to recover in any case that the scope for his medical and surgical skill is limited to a very few. Then for the first time common sense will make him realize that his professional success and reputation are going to depend more on his common sense, tact, industry, sympathy, straight dealing, and even temper, than on his skill in diagnosis and treatment; though it will also remind him that this skill is of the greatest importance and must be exercised and improved at every opportunity.

Common sense is common ground on which doctor and layman meet; it is the touchstone by which a patient tests his doctor. A patient can understand a plain, common-sense explanation of his complaint, and will willingly carry out a line of treatment which satisfies his common sense. Lack of common sense on the part of the doctor is invariably detected and not easily forgotten or forgiven.

COMMON SENSE IN DIAGNOSIS.

A correct diagnosis is a good start in tackling a case, but the public do not realize the difficulty which we often encounter in making it. What, then, is one to do when faced with the question, "What is the matter?" at a time when we do not know the answer? One does not satisfy the patient by saying quite frankly, "I do not know," for he may think you are concealing something from him, or that he can get a better answer by going to another doctor. Besides, it is always possible to tell him what you *do* know, and how you propose finding out still more; thus common sense here comes to our rescue and enables us to satisfy the patient while we make further investigations or more commonly wait a little longer for further evidence; "Time is the third leg of diagnosis." But it is neither common sense nor straight dealing to put the patient off with a diagnosis which we do not believe ourselves. If in genuine doubt as to the seriousness of the complaint common sense whispers "Safety first"—I mean safety for the patient; keep an eye on him, perhaps put him to bed; a few days in bed hurts no one and helps to cure most things. Should an illness develop seriously it is some satisfaction to recall that the patient had been put to bed at the beginning of it rather than allow him to visit you until sheer weakness made further visits impossible. In all cases of pyrexia, severe pain, breathlessness, diarrhoea, vomiting, jaundice, hæmorrhage, sore throat, rheumatism in children and young people, and many other conditions, common sense tells us that bed is the right place.

In making a diagnosis let us always remember that patients usually suffer from common diseases, and be chary of diagnosing rarities. For example, let us see how common sense applies in the diagnosis of hæmoptysis.

A young person has coughed up a little blood, and your medical knowledge tells you that the case is *probably* one of pulmonary tuberculosis. If the patient has not valvular disease of the heart, has had no recent illness making an infarct probable, and nothing suggesting pneumonia, the diagnosis becomes practically a certainty—it is pulmonary tuberculosis. You examine the lungs to find physical signs of a lesion and you find nothing; common sense here must tell you that in large organs like the lungs a small tuberculous focus may give no signs at all, so do not be influenced by a negative examination—stick to your diagnosis. Forget for the moment the textbooks that tell you of slight impairment of resonance, the slight diminution of breath sounds; you did not find them, so do not imagine them.

Do not take "No" for an answer when you ask the patient if he spits up any phlegm; give him a sputum pot and tell him to cough first thing in the morning and expectorate into it. You will be surprised how frequently you can get a fair sample of sputum. Perhaps it is too soon to expect tubercle bacilli—but common sense says perhaps it is not, and at any rate it cannot hurt to try. Well, suppose no tubercle bacilli are found in the sputum even after several examinations—all the better for the patient. After all, tuberculosis is an *infection*, and common sense tells us that there should be some of the common signs of an infection—look for them. Pyrexia—a temperature of 99° or more about 4, 5, or 6 p.m.—some sense of weakness or lack of usual energy, perhaps anaemia, breathlessness, lack of appetite, sweating; a previous history of pleurisy, a bad family history—any of these with hæmoptysis makes tuberculosis so near a certainty that we can reasonably act upon it.

But suppose we have made a mistake and labelled a man tuberculous who has nothing the matter with him except hæmoptysis from some unknown cause, have we done him any harm? No; a restful fresh-air holiday, a period of careful observation cannot do harm, and if we have tackled him properly he will not be alarmed or depressed. Suppose, on the other hand, we have let him go on working, waiting for something more definite to develop before making so serious a diagnosis, have we done any harm? Probably; for as a rule after hæmoptysis tuberculosis advances till treatment begins.

So common sense tells us that, with certain obvious exceptions, hæmoptysis means a diagnosis of pulmonary tuberculosis; and common sense has told me for many years that

* A paper read before the Coventry Division of the British Medical Association, November 3rd, 1925.

the luckiest phthisical patient is he who gets his haemoptysis at the beginning of his infection. Does not common sense also tell us that pulmonary tuberculosis has acquired its evil reputation because it is often diagnosed too late, whilst we on our part hesitate to diagnose it on the flimsy evidence available in its early stages because of its evil reputation, and so the vicious circle is completed? Cannot common sense do something to break it?

Diagnosis is tending to become daily more accurate and more complicated, thanks to radiography, bacteriology, and biochemistry; and although it is obviously impossible for every doctor to carry out radiological and laboratory investigations for himself it is very important for him to know when they are likely to be useful.

Radiography may fail to confirm a diagnosis, though that diagnosis is obviously correct. Gall stones, renal and bladder calculi, some ulcers of the stomach and duodenum do not necessarily reveal themselves in a skiagram, and a patient who has been advised to undergo an operation is apt to be confused by the negative finding unless the situation is clearly explained to him before he is x-rayed. It may be asked, Why resort to the trouble and expense of x rays if you are certain that your diagnosis is correct? The answer is, that at present the patient is unaware of the difficulties of radiological diagnosis, and he naturally expects a doctor to avail himself of this means of confirming his diagnosis before submitting him to the ordeal of an operation. In this instance, and many others, common sense should remind us that the public are not well acquainted with the merits and limitations of modern methods of investigations and treatment, and it is impossible sometimes to refuse a request which is rational and logical from their point of view even when it seems rather superfluous to us. The matter is quite on another footing when they want something which we believe to be harmful.

When it is necessary to send something to a laboratory it is important to know how the specimen should be collected and exactly what is required; it shows a lack of common sense to send blood or urine or a swab in such a way as to make a reliable examination impossible. Some things can be safely sent by post—for example, sputum for tubercle bacilli, a swab for diphtheria bacilli, or blood for the Wassermann reaction. Other things may become useless after slight delay—for example, nasal swabs in cases of catarrh, sputum that requires examination for any germs other than tubercle bacilli, and blood for cultures; but in all cases the laboratory should get the specimen as fresh as possible. The common-sense reason is, that while some germs die quickly at lower temperatures than the body, others multiply with great rapidity, and so we get the extraordinary paradox that cultures made from a fresh warm nasal swab may show a profuse and practically pure growth of pneumococcus, while cultures made after a few hours' delay show a profuse growth of staphylococcus and no pneumococci at all. Again, urine which when fresh is normal in every way and microscopically free from any germs, may after twenty-four hours in warm weather be crammed with bacteria even though kept in a sterilized bottle.

There is room for common sense in the matter of collecting samples of urine for bacteriological and microscopical examination. If an ordinary sample shows no deposit on centrifugalization, and no germs by microscope or culture, there can be no need for a catheter specimen. In a man the meatus can practically always be cleaned sufficiently to make the catheter superfluous, though exceptionally a catheter sample may be wanted to examine for tubercle bacilli. In a woman there is nearly always contamination from the vagina or vulva; pus, epithelium, and germs get into the urine from those sources, and can only be avoided by taking a catheter specimen. Bacteria make urine turbid; speaking generally, it may be asserted that urine which is as clear as whisky when viewed in a clean glass is not infected.

It seems only common sense to learn beforehand what sort of a specimen the bacteriologist or biochemist requires before asking him to examine it. A little common sense could usefully be incorporated in the bacteriologist's report. For example, in reporting that a tonsil swab shows a profuse culture of streptococci, he might often usefully

add that vast numbers of streptococci are present normally in every throat; or in reporting that cultures from a catheter specimen of urine show several colonies of *B. coli*, he might usefully add that such a finding is probably not of the slightest significance; and if blood shows a pure culture of *Staphylococcus albus* it might help to point out that this germ is undoubtedly only a contamination from the patient's skin. To send a tooth in a sterilized receptacle to a bacteriologist and expect him to find the nature of the infection which was at its apex previous to extraction is ridiculous, but it does not appear so unless we are superficially acquainted with the bacteriology of normal gums and teeth.

Common sense tells us that a correct diagnosis should explain all the patient's symptoms, and that whilst, as a rule, these are due to one disease, yet it is no law of nature that a patient should have only one disease at a time; how frequently is functional disorder harnessed to organic disease!

COMMON SENSE IN TREATMENT.

Vis medicatrix naturae—that wonderful natural power of recovery—is usually working on behalf of the patient, though not always fast enough to satisfy him or you. So that in most cases it is only necessary to follow the most common-sense advice that was ever given: "*Primum non nocere*"—see that your treatment does no harm (perhaps we might add the words "on balance," for we may have to do the patient a good deal of harm—amputate a limb, for example—in order to do him good).

To my mind treatment divides itself into two main classes: (1) Removal of anything tending to tax the patient's strength and lessen his natural powers of recovery. (2) Adding something to the patient to give him more power to fight his disease.

The first class seems to me the more important; it includes all surgical operations, the removal of dirt, pain, exertion, strain, worry, sleeplessness. Our treatment of typhoid fever and pulmonary tuberculosis, for example, amounts to removing from the patient all debilitating stresses except those due to the poisonous effects of the bacillus itself, which at present we are unable to remove. Take an everyday example of a patient complaining of some discomfort after food. We may give him some rhubarb and soda and at once relieve him, but it is unlikely that we have removed the cause of his discomfort or prevented the return of his symptoms. Just a little more time, a little more common sense, and we may light on the cause of his complaint; we might at any rate see if his teeth are bad, or if he is drinking too much, or if his meals are badly spaced, and if so tell him frankly that these are faults which must be rectified before he can expect to be cured.

In a case of neurasthenia it may be extremely difficult to discover where the fault lies, and before we can cure the patient it may be necessary to discover and remove some hidden worry or anxiety, some obscure infection, some bad habit, or perhaps some foolish fear. It is in such cases that common sense comes to the rescue and effects a cure that no amount of drugs alone could achieve. Common sense tells us that we should always examine our methods of treatment from this point of view. Have we really done anything to help the patient, have we tried to remove something which is harming him?

Take a case of pneumonia. Can we add anything to the patient which will increase his fighting power? I think we may answer, "Nothing that is certain to do so"; and although drugs, vaccines, and alcohol have ardent advocates they have still more ardent opponents. So we will avoid controversy and agree that we must be doing right if we carefully conserve what natural strength the patient has for the great fight before him.

Now is the time for judgement and common sense. Shall the patient remain at home, where adequate nursing seems impossible, or be removed to a hospital replete with every modern convenience? Let each case be judged on its merits, but, speaking generally, I regard a case of pneumonia as the worst possible case for hospital treatment: the distressing journey, the strange surroundings, the

proximity of the dying, the noises of the ward, strange foods at strange hours, washing and changing, fatiguing examinations by strange doctors—all these things sap a patient's fighting power and discount the advantages which hospital treatment affords. Personal experience is a most fallacious test in pneumonia, yet I must frankly confess that I have seen recoveries take place in the lowest slums of Birmingham that I should have deemed impossible in hospital. I am inclined to think that a patient with acute pneumonia fights better in the atmosphere to which he is accustomed.

Now how can we spare his strength? By easing pain and cough and giving sleep. Again we must take each case on its merits; a poultice does good and can do no harm if it can be applied without pulling the patient about; but what about morphine? I think there are times when it is safe and times when it is fatal. Cough may be troublesome, yet may be better than no cough; sleeplessness is wearing, yet sleep may be purchased too dearly. Many a time have I begged a patient to make the best of his pain and sleeplessness because I dare not do more to soothe him.

Do you examine the chest in pneumonia? Of course you do; yet who of us can ever remember discovering anything by that examination, say, during the first week, which made the slightest difference to our treatment? A stethoscope applied to the front of the chest hurts no one, but to sit the patient up or turn him over fatigues him, makes him cough, may give him pain, and always increases the pulse rate. A time may come when you may have to look for an empyema, but that is later.

In all or most hospitals it is the custom to place screens round a patient when he is using the bed-pan; in private cases the doctor usually keeps out of the room on such occasions. This is the only excuse I can offer for my own ignorance for many years of the exhausting effects of defaecation in pneumonia. I rather fancy that of all the complications of pneumonia a brisk saline purge on the sixth day is the most fatal. These patients are usually constipated, and unless we can give some adequate reason for interference I fail to see why we should disturb them by aperients or enemata. We all agree that a suitable diet is a light one leaving little residue; abdominal distension is exceptional—why, then, insist on several actions of the bowels during one week? Perhaps it is because few of us have seen how comfortable such a patient may remain whose bowels have not acted between the rigor and the crisis.

We are becoming embarrassed by the wealth of proprietary remedies and medicines, glandular extracts, vaccines, foods, vitamins, advertised in the medical press and brought to our notice by seductive samples. While there can be no harm in giving a fair trial to a new remedy if we are satisfied that it cannot hurt our patients, we must do so with an open mind, unbiased and uninfluenced by the almost miraculous properties that may be claimed for it in advertisements and leaflets.

It is the soundest common sense to cultivate the habit of regarding every case from the patient's point of view. To detect behind some trivial complaints the patient's dread of cancer, serious disease, nay, even death, and be able to send him away cheerful and satisfied, is one of the greatest rewards that fall to our lot. It is common sense which tells us to treat patients and not diseases. It is common sense which enables those of us who are neither very clever nor very skilful to attain success by being safe, punctual, and cheerful.

Let me end by pointing out the situation when we doctors display our greatest lack of common sense—it is in dealing with our own ailments, especially by neglecting to take ordinary care of ourselves at the onset of common infections. I have seen many tragedies from this cause. Every one of us ought to realize that any day he may be suddenly taken ill, and common sense demands that he should make such arrangements beforehand that his commitments shall not prevent him going straight to bed and receiving just the same consideration as he would show a patient. I am not here to suggest a remedy, but I should have thought that adequate insurance against sickness and a friendly arrangement beforehand with neighbouring colleagues was common sense.

THE UNIVERSITY OF LEEDS.

GROWTH OF THE UNIVERSITY.

At a time when the University of Leeds is endeavouring to raise no less a sum than half a million pounds a few remarks as to its genesis will not be out of place. In the early seventies a few far-seeing Leeds men started the Yorkshire College of Science, and it is on record that at first there were three professors and for some forty-eight hours there was but one student, who was shortly joined by three others. Progress was rapid, and after some years the scope of the college was widened by the addition of a department of arts to those of science and technology, while the name was altered to that of "The Yorkshire College." The Leeds School of Medicine, founded in 1831, had for many years been carrying on excellent work, and with a wise foresight college and school united in the year 1884. This union carried with it certain improvements both in the college and in the school and paved the way for the admission of the Yorkshire College as a constituent college of the Victoria University, the other colleges of which were the Owens College of Manchester and the University College of Liverpool. The relations of the three colleges were always very cordial, and when Liverpool expressed a wish to cut the painter it came rather as a shock to Leeds, especially as Manchester, very reasonably, followed the action of Liverpool with the demand for a separate university for that city. Charters therefore were in rapid succession granted, and Leeds became the seat of an independent university in the year 1904. There can be no doubt whatever that the progress that Leeds has made since that date has more than justified the action that was taken. In the words of the appeal which has been issued,

"The growth of the university has been remarkable. The present number of whole-time students (over 1,400) is more than twice the number in attendance in 1913-14. During the same period the teaching and research staff has risen from 178 to 268. Departments have expanded and new departments have been added to the equipment of the university. The field of knowledge covered by the university contains over forty separate departments and about a hundred subjects of investigation."

Infirmiry and University.

The appeal for the large sum of £500,000 which has been launched is fully justified by the urgent necessity which exists for new buildings and for extensions of the present premises. The library—and here we are speaking of the general library, and not of that which is housed at the School of Medicine—is quite inadequate, and becomes more so year by year, and many of the departments for teaching and for research are inadequately housed. It is, however, with the development of the medical school of the university that we are mainly concerned. During the last few years the relationship between the Leeds General Infirmiry and the School of Medicine, always cordial and advantageous to both institutions, has become more intimate by the teaching in the infirmiry, and all that relates thereto, being taken over by the university; the members of the honorary staff are all clinical lecturers of the university—not, however, *ex officio*; they are appointed individually to the position. Many of the lectures formerly given at the school are now given in a modified form at the infirmiry. The pathological work of the infirmiry is carried on in the infirmiry laboratories by the university staff under the direction of the professor of pathology, who is also honorary pathologist to the infirmiry, for, as the rule of the infirmiry quaintly runs, "Every candidate for the post of honorary pathologist must be the professor of pathology at the University of Leeds." The union between the university and the infirmiry is therefore so intimate, and so certain to be permanent, that it is hoped that any structural alterations which may be necessary at the infirmiry in respect of teaching may be carried out by the university. But apart from this it is the definite intention of the university to build and equip an up-to-date pathological block on ground adjoining both the present school of medicine and the general infirmiry, which are next one another.

The dental department, which during the last few years has made great progress, is sadly lacking in accommodation, and much of that which it enjoys is provided

temporarily by the infirmary authorities. This will soon be remedied. On a site given by the infirmary the university has undertaken the responsibility of erecting a dental hospital fully equipped for the treatment of patients and for the teaching of students. Some details of this scheme will be given in a future issue. Financial support has come in part from private sources, in which the dental profession has set a good example.

The appeal of the university for half a million pounds was launched at a public meeting presided over by H.R.H. the Duke of York in October. It is gratifying to know that in the period of three months no less than £262,000 has been promised. A very pleasing feature in the subscription list is the representation on it of the members of the teaching staff and of former students who, having grasped their indebtedness to the university, desire that others shall have better opportunities for acquiring knowledge than they themselves could get.

CANCER CAMPAIGN IN YORKSHIRE.

In connexion with the British Empire Cancer Campaign a movement has been started for the establishment of a cancer research centre for Yorkshire, and it has been decided that this shall be in close connexion with the Medical School of the University of Leeds. Viscount Lascelles gave a luncheon at the Queen's Hotel on January 18th, which was attended by a very large number of influential people. Sir Berkeley Moynihan, chairman of the council, explained the objects of the research centre, and emphasized the necessity for it to be immediately associated with, if indeed not actually an integral part of, the university. Lord Lascelles was able to announce that a sum of £23,000 had been promised before the meeting. The meeting was then addressed by Sir Algernon Firth, who had been a generous donor to the university fund. He had been in conversation with the university authorities, and as a result of this he read the following letter:

"It is my intention, in order to further the objects of the Yorkshire Council of Cancer Research, and to assist them in securing their objective and to ensure that research is made possible, to give, through that council, to the Leeds University £20,000, to be applied, together with £5,000 promised to the university as per my letter of July 23rd, 1925, towards the erection of a pathological institute in which special laboratory accommodation will be provided for persons engaged in cancer research work."

This generous contribution stimulated the meeting to respond to the appeal of Lord Lascelles, and very shortly promises of donations were handed in which brought up the amount promised before the meeting to upwards of £30,000. With Sir Algernon's donation, therefore, the Yorkshire council starts with over £55,000. The sum which was mentioned as a minimum for the efficient carrying out of the work was £75,000, and there is little doubt that this will be forthcoming in time. The meeting was also addressed by Sir George Newman, who expressed the gratification of the Ministry of Health with the efforts which were being made all over the country, and by Dr. Gye, who spoke optimistically as to the future. At a subsequent meeting, held at the Medical School, the staff and the students had an opportunity of hearing from Dr. Gye a short lecture on the work upon which he had been engaged.

THE PROPHYLACTIC VALUE OF SCARLET FEVER ANTITOXIN.

SINCE April of 1922 it has been the general custom not to send into isolation hospitals patients from Tottenham suffering from scarlet fever. Thus from March till December, 1922, of the 919 patients notified during the whole year, 608 were nursed at home and treated there by the council's nursing staff by eucalyptus inunction and carbolic oil swabbing of the throat. Similarly, in 1923, of 335 cases notified, 347 were treated at home.

I want to say at once that I was not entirely satisfied with this form of treatment because of the frequency with which secondary cases occurred. To be precise, in 1922 there were 22 secondary cases notified between the date

of notification of the primary case and the thirteenth week thereafter; and 55 secondary cases were notified in 1923 between the primary notification and the end of the twenty-first week. In 1924, of the 367 notified cases, 295 were treated at home with 21 secondary cases.

My purpose in mentioning these facts is to show that there was favourable opportunity afforded in this locality to put to the test the efficacy of any treatment that claimed to be prophylactic against scarlet fever; and I take this opportunity of thanking the medical practitioners of the district for their co-operation, without which my efforts would have been in vain.

Late in 1923 my attention was drawn to the work of Sindoni, Cristina, and Caronia in Rome on measles and scarlet fever (*La Pediatria*, xxxi, Nos. 14 and 15), but I was unable to obtain material for trial.

In May, 1924, Dr. MacConkey, of the Serum Department of the Lister Institute, obtained from Dr. Dochez (of New York) a culture of his *Streptococcus haemolyticus scarlatinae*, and at once immunized horses by Dochez's method. Dr. MacConkey also received two bottles of serum (about 30 c.cm. each) from Dr. Dochez and passed one on to me. It is the result of my experience with this serum, and later with that supplied from the Lister Institute, that I desire to submit.

Fourteen contacts with 5 scarlet fever patients were given 2 c.cm. each of Dochez's serum intramuscularly.

One developed scarlet fever, mild attack, on the day following inoculation.

One showed a slight general reaction: rash on joints of arms and legs; temperature subnormal.

One showed a severe reaction: joint pains, extensive rash, collapse, and albuminuria for three days. This child had previously suffered from diphtheria and had had diphtheria antitoxin. It is suggested that there was in this case a sensitiveness to horse serum.

Eleven showed no reaction other than at the seat of inoculation (vastus externus)—redness, swelling, and stiffness for two or three days.

Of 101 contacts with patients in forty-five premises who were inoculated each with 2 c.cm. of serum derived from the animals of the Lister Institute, 10 contracted scarlet fever, in one instance as late as seven months after inoculation. In the remaining 9 the periods after inoculation in which the disease developed were as follows:

In two members of the same family the period was 11 and 12 days respectively.

In four members of one family the period was 6, 6, 7, and 9 days.

In the three remaining patients the period was 6, 9, and 5 days respectively.

Six showed symptoms suggestive of scarlet fever:

(a) This child was unwell previous to inoculation and on the same day developed a slight blush on the body and an injected throat, followed by powdery desquamation.

(b) This case had a profuse nasal discharge previous to inoculation and the injected throat and suggestive tongue. Three days later (October 21st, 1924) the temperature was 99.4°. There was powdery desquamation on October 23rd.

(c) Twenty-four days after inoculation enlarged cervical glands; no rash observed, but twenty-six days after inoculation slight desquamation.

(d) Rash on chest and behind the ears. No sore throat or other symptoms.

(e) Sore throat and vomiting same day as inoculation; four days later the patient was well. Powdery desquamation.

(f) Twelve days after inoculation there was slight rash; no sore throat, no rise in temperature.

Six showed slight general reaction. Puffiness of face, general blotchy rash from about the fifth to the twelfth day after inoculation. One of these cases had been treated with diphtheria antitoxin two years previously.

Seventy-nine showed no reaction other than at the seat of inoculation.

It was manifest that the serum was either of no value or that it was not given in sufficient quantity. In the case of the two children in the same family who developed scarlet fever on the sixth day, and in three other instances,

an area of about the size of the palm of the hand at the site of inoculation had the natural skin colour in the midst of an otherwise general scarlet rash (Schultz-Charlton reaction). If, then, the Schultz-Charlton reaction is a true indication of the specificity of the serum, it seemed probable that it was the dosage that was at fault.

Supplies of serum from the Lister Institute were increased, and it was thus made possible for us to employ larger doses.

Three contacts in association with three scarlatinal patients were given 5 c.cm. each. Two of the contacts had no reaction other than local; the other developed scarlet fever on the day of inoculation.

One contact was given 9 c.cm.; this was followed six days later by a mild general reaction.

Thirty-four contacts with 17 patients were given 10 c.cm. of unconcentrated serum, with the following results:

No general reaction in ...	...	...	...	16
Slight reaction in ...	...	...	...	13
Marked reaction (they had previously suffered from diphtheria) in ...	...	...	...	2
Symptoms of scarlet fever in ...	...	...	...	3

Of the three who showed symptoms of scarlet fever, one had sore throat (diagnosed as follicular tonsillitis) thirteen days later, and rash, followed by desquamation. Another had ulceration of mouth and sore throat (also diagnosed as follicular tonsillitis). The third had a rash which disappeared following an aperient (constipation for three days); there was no sore throat.

The administration of 10 c.cm. into the leg muscles of children was accompanied by some degree of tension and consequent discomfort, and it was sought to concentrate the serum.

As there is no animal test for the strength of the scarlet fever antitoxin, the serum can be tested only on susceptible human beings—that is, on volunteers who have never had scarlet fever. There are obvious difficulties in the way of obtaining these, and so the concentration of the serum was estimated by the reduction in bulk, of which the final volume was equal to one-quarter of that of the original serum. This concentrated serum was administered to 140 contacts with 41 patients as follows:

Received 2½ c.cm. ...	...	...	...	5
Received 3 c.cm. ...	...	...	...	55
Received 4 c.cm. ...	...	...	...	1
Received 5 c.cm. ...	...	...	...	79

Those who received 2½ c.cm. had no general reaction. Of those who received 3 c.cm., 49 showed no reaction, 5 had a slight reaction, and one had a modified attack of scarlet fever fourteen days later. The contact who received 4 c.cm. had a slight reaction. Of those who were given 5 c.cm., 64 had no reaction and 15 showed a slight reaction.

In addition to the above contacts I inoculated 131 school children derived from school classes where scarlet fever cases were recurring with unhappy frequency. The response to my offer to inoculate school contacts was greater than I had anticipated, about 50 per cent. consents being received. The teachers were instructed to space out the inoculated children alternately with the others. From the time of the inoculation no further cases occurred in the school for a fortnight, and all the inoculated escaped infection.

Comments.

The stiffness of the leg is obviated by administration deep into the glutei muscles.

Concentration has the effect of reducing the frequency and degree of general reaction. The local reaction with concentrated serum in the buttock is negligible.

The dosage of serum for prophylactic purposes is not less than 3 c.cm. concentrated.

It is too early to be dogmatic, but I am disposed to believe (1) that scarlet fever antitoxin is specific against scarlet fever; (2) that when given intramuscularly in 5 c.cm. doses (of concentrated serum) it protects for at least fourteen days.

DAVID C. KIRKHOPE, M.D., Ch.M., D.P.H.

Health Department, Tottenham.

France.

[FROM OUR SPECIAL CORRESPONDENT.]

Campaign against Tuberculosis.

A new sanatorium for university students is being erected in the French Alps above Grenoble. In response to a strong appeal, money enough has been collected, and the medical profession has subscribed very generously for the purpose, the importance of which it is particularly well able to understand. M. Masson, the well known medical publisher, has received the subscriptions, and the list is still open. It is hoped that the sanatorium will be in a position to welcome its first patients very shortly. The amount subscribed by the medical profession in France is all the more remarkable in view of the difficult financial position of the French doctor, described in my last letter. Not only has he to face personal difficulties which are continually increasing, but he has to include in his budget a tax which, though not imposed by law, nevertheless constitutes a very pressing obligation; I refer to the pecuniary aid he is bound to extend to all those doctors who, by reason of age or of bad health, cannot support themselves. They are infinitely to be pitied. In addition to the assurance companies, we have a number of professional associations which undertake to provide their members, in return for a contribution paid during the whole of the active period of their lives, with an income in their old age, which, if it does not make them rich, is at least sufficient to allow them to live in a proper manner in retirement. The fall in the value of the franc, combined with the increased cost of living, has reduced the real value of their pension by 90 per cent., and this means poverty. Thus is produced an obligation which weighs heavily on the shoulders of the whole medical profession.

The establishment of this new sanatorium is an important addition to our antituberculous armoury. It is well known that our country ran a special risk at the time when the war ended, for its territory had been a *bouillon de culture* for germs brought from all the four corners of the world. This risk appealed particularly to our American friends, who, under the auspices of the Rockefeller Foundation, brought us both technical and financial aid. The organization of the campaign against tuberculosis now carried on in France is due to the enthusiastic efforts of a statesman who died only a few weeks ago, Léon Bourgeois. The work of the Comité National de Défense contre la Tuberculose extends throughout every part of France; since the war it has established 580 dispensaries, which control 32,000 beds for tuberculous persons. It will be remembered that it was at the invitation of this committee in 1920 that thirty-four countries adhered to the Union Internationale contre la Tuberculose. The duties of a medical officer of a dispensary are very analogous to those of a tuberculosis officer in Great Britain. The number of French sanatoriums for pulmonary tuberculosis is 75; of these establishments, 45 are private and 30 public; together they possess 7,230 beds. This number is nevertheless wholly insufficient; according to the American formula the number of beds in sanatoriums ought to equal half the annual number of deaths from the disease. From the most recent statistics available it would appear that the number of deaths from tuberculosis per annum in France is 84,000, so that there ought to be six times as many beds. Recent information as to the results of sanatorium treatment is to be found in the important book of that apostle of the method, Dr. Guinard, physician to the sanatorium at Bligny.* Among the cases of tuberculosis of the first degree the results are very satisfactory, since 89.4 per cent. recover; among those of the second degree the rate is 14.2 per cent. These figures are no doubt encouraging. But if we have regard to all those in whose sputum the tubercle bacillus is found, it appears that at the end of ten years 76.6 per cent. are dead, so that though the results are good in the most favourable conditions, in the end we have to register a terrible mortality. That a very analogous result is reached in cases treated by artificial

* A review of Dr. Guinard's book *La Pratique des Sanatoriums* is printed at page 197 of this issue.

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pneumothorax is shown by a recent report of M. Naveau on an examination of the statistics in the service of Dr. Rist in Paris. After ten years 71 per cent. of such patients are dead. The harrowing conclusion is that for a patient suffering from established tuberculosis treated in the best possible way the chance of survival after ten years is 50 per cent. if his attack is slight, and 30 per cent. if his attack is more serious and he is treated by the production of artificial pneumothorax. As the prognosis is so gloomy common sense suggests that everything must be done to prevent the onset of tuberculosis; it is plain, therefore, that all our efforts must be directed towards preventive treatment; prevention is the policy to which we must come if we wish effectually to combat this scourge of tuberculosis.

The Birth Rate.

... of the Chamber of Deputies is always a member, and this year again Pinard carried out his duty.

The Birth Rate.
Chamber

The first meeting of the Chamber of Deputies is always presided over by the oldest member, and this year again this was a medical member. Professor Pinard carries lightly the weight of his eighty-four years, and took advantage of the occasion to impress on the representatives of the country the doctrine he has so often impressed on his students when he was professor of obstetrics in the Paris medical faculty. From the tribune of the Chamber he discussed the grave questions of the birth rate, of the protection of the mother, and of the care of early infancy, telling his fellow members that the first of all political questions is that the nation should have citizens.

Sea Voyages.
Médical

Our venerable Académie de Médecine, fine old lady as she is, is not devoid of a certain sense of humour. In the advice it has recently given on the best way of avoiding sea-sickness we find a reflection of the teachings of Rabelais. Dr. Loir, having in a recent paper praised the therapeutic value of long sea voyages, had to admit that they had at least one inconvenience—sea-sickness. About this the *Bulletin* of the Académie (December 29th, 1925) contained the following note: "According to M. Loir, sea-sickness is caused by the disorderly modifications which happen in the movement of ships. For treatment, therefore, by long sea voyages it is important to choose ships which do not obey the movements of the waves, and routes on which the sea is little agitated."

G. MONOD.

G. MONOD.

England and Wales.

England and Wales

PRESENTATION TO PROFESSOR RUTHERFORD MORISON.

THE firm place that Professor Rutherford Morison holds in the hearts of colleagues, practitioners, and students in the North of England was shown by the large and representative gathering on the occasion of the presentation of a testimonial to him at the College of Medicine, Newcastle-on-Tyne, on January 21st. The testimonial took the form of his portrait in oils, and a cheque for £1,100. The company numbered some 300 men and women, and among them were veterans in practice who had witnessed Mr. Morison's early beginnings in surgery, and could, no doubt, recall benefits received at his hands in years gone by. Many old house-surgeons, and among them his first house-surgeon, were present to honour their chief. From the industrial districts of Tyne-side, and from the hills and dales of Northumberland and Durham, and even from Cumberland and Yorkshire, doctors had journeyed to bear tribute to Professor Morison, to show their personal regard and affection for him, and their pride in his achievements and in the prestige he has brought to the Newcastle School of Surgery. Students too, with whom no teacher has been more popular, formed a large and enthusiastic part of the audience. On the platform with the guest of honour were the chairman of the testimonial fund, Professor H. Brunton Angus, Professor Howden, Dr. James Hudson, representing the British Medical Association, and Mr. R. J. Willan, the treasurer and honorary secretary of the fund. It was announced that the testimonial fund, which was limited to the medical profession, had met with a striking response from practitioners and old students in

D WALES. A portrait of Mr. Morison was painted by Mr. Harold Knight, and there remained a balance in the fund of about £1,100; the mode of the disposal of this sum was left to Mr. Morison to determine. By resolution of the subscribers it was agreed to leave the execution of the plan chosen by Mr. Morison to the executive committee. A photograph of the portrait has been made. The committee requests that any who may wish for copies should apply immediately to the honorary secretary of the fund (6, Kensington Terrace, Newcastle-on-Tyne).

The presentation speech was delivered by Professor Bruntun Angus, who, at the conclusion of his address, unveiled the portrait, and asked Mr. Morison's acceptance of it, at the same time handing him a cheque for the balance of the fund. In an eloquent speech, couched in warm and generous terms, Mr. Angus sketched Rutherford Morison's career from the time when, in 1867, he forsook general practice in Hartlepool to take up surgery in Newcastle. He began at once to teach the students, who soon learnt that they had a master in their midst, and were held in thrall by his simple, yet practical, methods; he then laid the foundation of the reputation as a great teacher which he has held ever since. In 1888 he was elected to the surgical staff of the old Royal Infirmary, and by his great surgical skill and prowess he soon made a reputation as an operator. No operation was too formidable for him; nothing daunted him; and the greatness of his faith began to spread among the practitioners of the North of England, and they sent him work in increasing amounts. By his writings and teachings he so impressed the leaders of surgery all over the world that they must recognize that when they came to England they must visit Newcastle. In other words, he made Newcastle famous. He trained a band of disciples in his own methods, and inspired them with his own ideals and zeal. Many of these, like their master, have since attained to eminence. He retired from the active staff of the infirmary in 1913, but he did not therefore rest on his oars or live on his past reputation, for the outbreak of war in 1914 called him forward to organize the Gosforth War Hospital. There he worked in his old strenuous way, and one of his great achievements was the introduction of the "hip" treatment of wounds, a method which was extensively adopted by the armies in France and other fields. Morison later went to France to demonstrate his technique. Even now, in his retirement, he devoted himself to paediatric work at the Gosforth Cripples' Home, and had recently published a most helpful book on Abdominal Pelvic Surgery for Practitioners.

paedic work at the General Hospital, Glasgow, recently published a most helpful *Pelvic Surgery for Practitioners*. In conclusion, Mr. Angus said: "Look back on the past and you will find that the progress of the last 20 years has been a most remarkable one."

medic work at the
recently published a most helpful
Pelvic Surgery for Practitioners.
In conclusion, Mr. Angus said:
"You, Sir, can look back on a life well spent. You
used your talents nobly and well. When the history of
this school comes to be written the name of Rutherford
Morison will stand out like a bright star. The subscribers
to this fund desire to show their admiration for your work
and their personal affection towards you this day. On
their behalf I have to ask you to accept this portrait of
yourself, which they hope will keep green your memory
to those who come after. Also I ask you to accept this
cheque for £1,100. In doing so, we would pray that you
may long be spared to see the results of your life's work."
Professor Rutherford Morison, on rising to return thanks,
was greeted with enthusiastic applause. He said: "I cannot
thank you properly for the great kindness you have shown
me to-day, but there is no honour and no distinction
which has given me so much pleasure as the gift with which
you are presenting me to-day." He hoped that some
place might be found to hang the portrait in the College
of Medicine. He was anxious to live to see the new College
of Medicine started in Newcastle. Mr. Morison expressed
the view that the day of the general surgeon was
over, with which he said Dr. C. H. Mayo had, in a recent
conversation, concurred, and that in future a man must
take up a specialty. He gave interesting reminiscences
of his house-surgeon days in Edinburgh, fifty-one years ago,
to illustrate the enormous advances in surgery since then.
In five years only two abdominal operations were per-
formed. He saw both operations. It was regarded as

miraculous that one patient recovered. The other died on the fifth day, and on *post-mortem* examination Mr. Morison found septic peritonitis, for which no cause could be ascribed. "We did not know then," he said, "that these things came from dirty finger-nails and dirty instruments." Speaking of the practice of medicine in general, he said: "The medical profession is the most important unit in the community. As soon as it is recognized that health counts before wealth, the doctors will come into their own." He went on to refer to the introduction of the Insurance Act, and said that the lesson learnt during that controversy was that they could do nothing without an organization. He spoke of the importance and strength of the British Medical Association, and commended its extension abroad through its Branches in the colonies. Mr. Morison concluded his vigorous and stimulating address by an interesting sketch of life's journey in the form of a parable, in which he likened it to the ascent of Mount Everest, directing his remarks particularly to the students present. "What you are going to be and going to do is the first thing to decide. The next thing is to carry on towards the goal in view. You must have courage—a courage that may sometimes flinch, but never falter. And that courage must be combined with faith, persistence, and perseverance."

Votes of thanks concluded a ceremony which will live long in the memories of those present. The portrait, which is a beautiful example of the art and a striking likeness, was much admired. Mr. Morison, whom all present were glad to see looking so well, was warmly greeted by many of his old friends and students after the meeting.

THE WORK OF A SURGICAL UNIT.

At a meeting of the Cardiff Medical Society held on January 19th, Mr. A. W. Sheen, professor of surgery in the Welsh National School of Medicine, gave an address entitled "Some aspects of three and a quarter years' work of the surgical unit." The address was based on an analysis of 1,807 admissions into the surgical unit beds of the Cardiff Royal Infirmary during the period October 1st, 1921 (the date of inception of the unit), to December 31st, 1924. He first drew attention to the value of hospital records, and recommended their being kept on a uniform system by all hospitals, using the official *Nomenclature of Diseases* as the basis of classification. Dry lists were of little use—they must be analysed, abstracted, and commented on, and a "follow-up" system was essential. A broad numerical statement was shown on blackboards indicating the frequency of the different classes of cases. Some interesting points in this were the frequency of abdominal cases, which formed 40 per cent. of the total; this preponderance was largely due to 264 admissions for appendicitis. Primary injuries, particularly fractures, gave 22 per cent., and cancers of all kinds 9 per cent. Half the admission were "emergencies" and half "non-emergencies." The operations numbered 1,645; there were 135 post-operative deaths. A detailed analysis of all the admissions had been prepared and was distributed to each member of the audience; Professor Sheen went through this, drawing attention to the lessons to be learned for surgeons and practitioners. He spoke in more detail of various groups of interesting cases and of other groups, such as fractures, which had been followed up over a long period. He expressed the hope in conclusion that medical men or medical teams in other fields of practice would on future dates give to the society a picture of their work. An animated discussion followed, in which Dr. Cameron (the President), Professor Kennedy, Dr. Picken, Dr. Ivor Davies, and Dr. Bowen-Jones took part.

WELSH HOSPITALS REUNION DINNER.

The first reunion dinner of the Welsh hospitals was held at the Royal Hotel, Cardiff, on Saturday, January 16th. Colonel A. W. Sheen, who commanded the Netley and overseas hospitals, presided, and was supported by Lieut.-Colonel H. G. Cook, who succeeded him in the command of the Netley Hospital; by Sir William J. Thomas, the greatest benefactor of the hospital; by Alderman J. Robinson, who as Lord Mayor of Cardiff gave the lead to, and throughout supported, the hospitals; and by a repre-

sentative company of all ranks. Over a hundred attended, and a very enjoyable gathering of old comrades took place. Colonel Sheen, proposing the toast "To the Memory of the Hospitals," reminded his hearers that the Welsh hospital was the first voluntary hospital in the war, its inception dating from August 8th, 1914. He spoke of the excellence of the Netley buildings, which were often used as a model for others, and referred appreciatively to the work of the architects, Messrs. Edwin and Stanley Hall. He recalled those who lost their lives on service, and spoke in detail of the work of the overseas hospital in India, with its 3,000 beds. Lieut.-Colonel Cook reminded the company of the 300 beds in the Netley Hospital, which endured until March, 1919, while Private Frank Williams voiced the regard felt for the hospitals by the rank and file. Captain Garfield Evans proposed "The Guests," and Sir Wm. J. Thomas and Alderman Robinson responded; while the final toast, by Major John Owen, paid tribute to the work of the ladies and the nursing staff, and was acknowledged by Mrs. A. W. Sheen and Sister Chitham. The dinner produced many interesting meetings of those who had served together, and there was a universal hope that future gatherings of a like kind would take place.

THE WELSH NATIONAL MEDICAL SCHOOL.

The conference between those in favour of the constitution of the Welsh National Medical School as an independent school of the university and those opposed to it, arranged by the meeting at Llandrindod last autumn of the Court of Governors of the university, was held, or perhaps it would be more correct to say began, in Cardiff on January 15th. The Court of Governors of the university contemplates the preparation of a draft charter, being of opinion that the full development of the school as a national centre for medical education and research could best be obtained by constituting it an independent school in the university. The official report of the conference in Cardiff states that the representatives of Cardiff College reaffirmed and maintained their opinion against the principle of separation. On some points agreement was reached, but on others fundamental differences were discovered. The conference lasted all day, but no definite decision was reached, but it was arranged that each party in the conference should discuss separately the various points raised. To the question, What was meant by an independent school in the university? it was answered that it would involve the entire transference to the medical school of the departments of physiology and anatomy in the faculty of science of the college.

Scotland.

ROYAL COLLEGE OF PHYSICIANS: ANNUAL DINNER.

The annual dinner of the Royal College of Physicians of Edinburgh was held on January 22nd in the College of Physicians Hall. Professor G. M. Robertson, President of the College, occupied the chair, while Sir Robert Philip, Vice-President, Sir Norman Walker, Treasurer, and Dr. George Gibson, the Secretary, acted as croupiers. Dr. Lewis C. Bruce proposed the toast of "The Imperial Forces," to which Vice-Admiral Sir Walter Cowan, K.C.B., and Lieut.-General Sir William Leishman, K.C.B., replied. The toast of "The City of Edinburgh" was proposed by Professor G. Lovell Gulland, C.M.G., and acknowledged by the Lord Provost, Sir William Sleigh. The toast of "Our Guests" was proposed by Sir Robert Philip, and responded to by the Rev. James Harvey, D.D., Moderator of the United Free Church, Sheriff M'Clure, K.C., and Sir Robert Bolam, Chairman of Council of the British Medical Association. The list of toasts concluded with that of the Royal College of Physicians and its President, proposed by Lord Ashmore.

LABORATORY FOR GLASGOW MATERNITY HOSPITAL.

An extension of the Royal Maternity and Women's Hospital at Rottenrow in Glasgow was opened on January 19th by Lady Blythwood at a meeting over which the Lord Provost, Sir Matthew W. Montgomery, presided. The new building has three stories, and consists of rooms

for administration and for the residence of the house superintendent and resident medical staff in its lower two stories, while the top flat is devoted to laboratory purposes. The establishment of the laboratory is mainly due to a bequest left some twelve years ago by the late Mr. William Robertson, shipowner. It consists of chemical, general, and private research laboratories, together with accessory accommodation for incubators, sterilizers, etc. Sir Donald MacAlister, Principal of Glasgow University, speaking on the advantages which the laboratory would confer, remarked that one important function of a laboratory was in regard to the diagnosis and treatment of individual patients, but the second, even more important, object was the prevention of the maladies from which these patients suffered. No effective prevention was possible unless they knew the cause at work and found how it might be neutralized or averted. Certain forms of infection of the blood and tissues to which mothers were specially subjected gave rise to much illness, ending frequently in death, and caused family tragedies in every rank of society. These tragedies would continue until they knew more about the cause and about the conditions which favoured their onset. Dr. Cruickshank, director of the laboratory, said that out of 24,000 mothers admitted to the hospital within the last ten years, 1,920 individuals, or 8 per cent., had suffered from dangerous and often fatal forms of blood poisoning. In addition, 850 individuals had suffered from eclampsia. It would be one of the objects of the laboratory to endeavour to distinguish and trace to their source these forms of poisoning. He thought that it would be possible to find accommodation for the development of teaching of both graduates and undergraduates in the many and complex methods and results of scientific inquiry into problems which midwifery still presented.

THE JAMES MACKENZIE INSTITUTE, ST. ANDREWS.

During the spring session of the James Mackenzie Institute for Clinical Research, St. Andrews, discussions will be held on various subjects. The first was opened by Professor David Waterston, who gave an account of Mackenzie's views on general medicine, as expounded in the fourth edition of *Diseases of the Heart*. In his first address Professor Waterston described Mackenzie's concept of the nature of symptoms and his insistence that their production is governed by general laws. The method of applying this concept to the investigation of symptoms with the view of ascertaining their mode of production was then discussed. Mackenzie's main contention was that the phenomena dealt with in medicine are peculiar to itself and are to be studied from a characteristic standpoint. Medicine must therefore be regarded as a distinct branch of science subject to special laws of its own, which govern its phenomena and dictate the appropriate methods of investigation to be employed in their study. The investigation of these laws is one of the main objects of the work of the institute. In his second address, Professor Waterston observed that in his earlier works Mackenzie made a provisional classification of symptoms into structural, functional, and reflex, the term "reflex" being limited to such manifestations as the visceromotor, vi-cero-sensory reflexes, and the like. But in his later work he pointed out that the functional activity of each organ is regulated and controlled so that it is adapted to the needs of the whole body from moment to moment, and that this regulation is effected by reflex activity. He therefore included functional symptoms in the class reflex. The view that the majority of symptoms, other than structural, are due to the disturbance of normal reflexes was, Professor Waterston said, of the greatest value to clinical medicine. It drew attention to the fact that symptoms are end-results, and that for their proper investigation it is essential that the intermediate processes concerned in their production be detected. A particular symptom, such as breathlessness, might occur as a normal event, as a result of experiment, as the result of administration of a drug, or in disease. The basis of medicine must therefore be a knowledge of the processes by which organs are regulated.

GLASGOW VICTORIA INFIRMARY: AUXILIARY BUILDING.

The ninth annual meeting of the Ladies' Auxiliary Association for the Victoria Infirmary of Glasgow was held in the board room of the infirmary on January 20th. The report submitted by the secretary of the association showed that the subscriptions for the year amounted to £2,667, while with other efforts the association had raised in all £3,896. Dr. A. E. Maynard spoke of the growth of the institution, and said that it was felt that to cope with its development the most effective method to increase the accommodation of the hospital was to build an auxiliary hospital, a practice which was now a modern development generally throughout the country. The Victoria Infirmary had already taken the initial step, having acquired 3½ acres of ground at Thorntonhall. This would enable patients when convalescent to be treated under better conditions of light and fresh air outside the city.

Ireland.

ULSTER MEDICAL SOCIETY.

At a meeting of the Ulster Medical Society on January 14th, the President, Mr. J. A. Craig, in the chair, Dr. F. M. Allen in a paper on rheumatism in children dealt with many of the moot points of this condition: the mild forms which were so often overlooked, the difference in symptoms between rheumatism in childhood and adult life, the type of the rheumatic child, and heredity. He discussed the relation of chorea to rheumatism, the occurrence of nodules, the cause of the continued mild pyrexia, and the cough which was often due to enlarged tonsils. In speaking of treatment he expressed the view that there was sometimes too long a delay in returning to mild exercise and school life.

Dr. R. R. L. Leatham could not agree entirely with the views expressed about the rheumatic diathesis. Rheumatism was exceedingly common in hospital, but rare in the better-class private practice. Of cases of chorea only 50 per cent. gave a history of rheumatism; chorea was chiefly found in the Nordic type of child, whereas rheumatism occurred in the Iberian; no nodules were ever found in chorea. Dr. R. Marshall, from observations made at the Ulster Hospital for Children, concluded that there was no rheumatic type of child. He was in favour of tonsillectomy, though statistics differed as to its utility. He believed in the prolonged administration of salicylates and of constant medical supervision over a considerable period. Care should be taken to prevent the choreic child from corporal punishment at school. Dr. Gardner Robb said that the very high percentage of scarlatinal cases indicated the existence of scarlatinal rheumatism.

Dr. W. Calwell read notes on cases of acro-cyanosis independent of any local vascular or general condition. He suggested a provisional classification of (1) weakened resistance at the periphery, with cyanosis, dystrophy, and pain; (2) a disturbance of the nerve roots, as in the condition of cervical rib; (3) disturbance at the vasomotor centre; (4) in acro-contraction and in hysterical monoplegia or hemiplegia, acro-cyanosis was occasionally found where the psychic or cortical disturbance produced both a voluntary motor and a vasomotor weakness.

COUNTY HEALTH APPOINTMENTS IN IRELAND.

As we announced on January 9th, the Local Government Department of the Irish Free State recently issued to county councils a circular directing each to appoint a county medical officer of health holding a degree or diploma in public health and having practical experience of administration. In order to further the second object, the International Health Board of the Rockefeller Foundation offered to send three medical men, selected by an independent committee, to the United States to familiarize themselves with public health procedure. The Local Government Department recognized also that existing tuberculosis officers possessing the D.P.H. were entitled to

special consideration, and it was announced that arrangements had been made with the Society of Medical Officers of Health to enable such tuberculosis officers to acquire further administrative experience. Accordingly six such officers, appointed by the Ministry, have been attached to as many districts in England, and will each receive a travelling fellowship from the Rockefeller Foundation. In addition to these official nominees, two other officers will be attached to other districts in England.

Correspondence.

POST-ENCEPHALITIC PARKINSONISM.

SIR,—Sufferers from post-encephalitic Parkinsonism, as well as their medical attendants, owe a debt of gratitude to Professor Arthur Hall for his account of the good results of belladonna in this most distressing sequela, of which I saw 37 cases in 1925. I also had given belladonna to check the sialorrhoea, and with some success, and at the same time in some cases the Parkinsonism improved; this I had not attributed to the belladonna, but in view of the evidence brought forward by Professor Hall I shall certainly increase the dosage of the tincture of belladonna to 45 minims daily.

As Professor Hall points out, many of these cases had not been recognized as epidemic encephalitis in the early stages, and this I can confirm. Hardly any of my cases had been diagnosed, except by the friends, who had better opportunities than the medical attendant to notice the slight lethargy or lack of energy which had developed; and even the Parkinsonism had not been recognized as such, many of the cases having been sent to me as "neurasthenics."

While on this subject, may I draw the attention of your readers to the condition of the tongue? In my opinion, this has not been emphasized sufficiently, as in many cases it is the deciding factor in diagnosing some of the cases in the early, and even in the later, stages. The manifestations of this truly terrible disease are so protean that I often say that to diagnose it you must think of all the diseases you know of, exclude them all except epidemic encephalitis, and if the tongue is foul, that is the answer to the puzzle. The tongue is very coated early in the affection, and does not clear up when any pyrexia has disappeared, but continues for weeks or months, sometimes during the whole course of the illness; it is swollen and flabby, but not tooth-marked; if not coated it is angry-looking and cracked; generally it is over-moist, but sometimes is dry and cracked, and "typhoid" like. But in one form or another the foul tongue is practically always present.—I am, etc.,

Manchester, Jan. 25th.

ERNEST S. REYNOLDS.

SPENCER'S "CAESAREAN SECTION."

SIR,—My attention has been drawn to a discrepancy in the comparative figures in my review of Dr. Herbert Spencer's *Caesarean Section*, which I take this the earliest opportunity to correct. Dr. Spencer's figure of 5.5 per 1,000 as the frequency of Caesarean section in University College Hospital would appear to refer to operations done for contracted pelvis only, while those from the hospital reports that I quoted were performed for all indications. This at once introduces an element of unfairness in the comparison which I ought to have noticed and for which I sincerely apologize. But there is still another possible fallacy. Dr. Spencer's figures were based on "5,647 women delivered in the maternity of University College Hospital" (that is, exclusive, as I read it, of cases attended in the outdoor practice). The figures for the St. Mary's Hospitals, Manchester, I based upon 138 Caesarean sections in 1,179 cases "delivered at or near full term" in the hospital, exclusive of outdoor cases, and abortions, etc., in the hospital. The Liverpool figures were 93 sections in 752 "labours conducted in hospital"; Sheffield, 41 sections in 717 cases "delivered in the wards"; Edinburgh, 54 sections in 1,460 cases "delivered at or near full term" in the hospital. Dr. Spencer's

figures may possibly include all the cases attended by the maternity department of his hospital, and were a similar basis to be taken for the other hospitals and the indication of contracted pelvis alone considered, the figures for the four hospitals mentioned would be probably less than half those given by me. Thus the Manchester figures would work out at about 36 per 1,000, Edinburgh at 8 per 1,000, and so on.

In justice to Dr. Potter, whose figures Dr. Spencer compares reprovingly with his own, it ought to be pointed out that his 88 sections per 1,000 cases were presumably performed for all indications, not merely contracted pelvis.

Trusting that this correction and explanation may overtake my mistakes,—I am, etc.,

January 19th.

THE REVIEWER.

COUNCIL OF INDUSTRIAL MEDICINE.

SIR,—May we invoke the aid of your columns to bring to the notice of all medical practitioners specially interested in industrial medicine the recent formation of an association of British industrial physicians and surgeons under the title of the "Council of Industrial Medicine." This body commenced its existence a year ago as the British Section of the International Medical Congress on Industrial Accidents and Diseases, which held its fourth meeting at Amsterdam in September last, and it has now been incorporated in the Federation of Medical and Allied Services. Its objects are to promote the study of this important branch of preventive medicine; to enable practitioners thus engaged to meet and discuss common problems; and to provide a source of information on industrial health questions. Already the medical officers of a number of the leading industrial firms in London and the provinces have joined the council, but it is known that there are many practitioners similarly engaged whose names cannot readily be ascertained. To all such full particulars will gladly be sent on receipt of a postcard addressed to the secretary.—We are, etc.,

D. A. COLES,

Chairman.

EDGAR L. COLLIS,

THOMAS OLIVER,

THEODORE THOMPSON,

Vice-Chairmen.

H. S. N. MENKO,

Honorary Foreign Medical Secretary.

12, Stratford Place, W.1, Jan. 19th.

VACCINE TREATMENT OF THE COMMON COLD.

SIR,—Dr. Glover's letter on this subject in the *BRITISH MEDICAL JOURNAL* (January 23rd, p. 165) is very apposite.

The Medical Officers of Schools Association has already appointed a committee to investigate this subject, which has sent out a questionnaire to the medical officers of a large number of boarding-schools asking for a return of any facts they may have and for their co-operation.

If there is any medical officer of a boarding-school who is practically interested in vaccine treatment and could supply us with data, and to whom the questionnaire has not been sent, I will gladly send him or her a copy.

Some of us (school medical officers) are, and have been for years, whole-hearted advocates of this prophylactic treatment, but others need convincing, and this is not easy to do unless we can get more facts. I agree with Dr. Glover that the large boarding-schools offer great possibilities for mass investigation, to secure which is the object of this committee.—I am, etc.,

L. R. LEMPRIERE, M.B.,

President, Medical Officers of
Schools Association.

Haileybury College,
Hertford, Jan. 25th.

HAEMOCHROMOGEN CRYSTAL TEST FOR BLOOD.

SIR,—I feel sure that Drs. Kerr and Mason, the writers of the article on "The haemochromogen crystal test for blood" (*BRITISH MEDICAL JOURNAL*, January 23rd, 1926, p. 134), will forgive me for mentioning that the pyridine-haemochromogen test was investigated very fully by me, and the results published in 1910 as a volume entitled

Atlas der Kristallformen und der Absorptionsbänder der Hämochromogene (Enke, Stuttgart), which had both a German and an English text. It was shown there that not only pyridine, but also its related compounds, including the piperidines, produced haemochromogen crystals, and an attempt was made to utilize the test for distinguishing between bloods of different species, with, however, unreliable results. The mode of formation of the pyridine and piperidine haemochromogens was described as well as the variation and their spectroscopic characters, and the various haemoglobin derivatives from which haemochromogen crystals could be obtained. The writers may be interested to know that Takayama—whose name appears to have become attached to a mere solution—had, previously to me, been with Professor R. Robert of Rostock, who asked me to investigate the test. My own conclusions were that the test—with pyridine alone—was one of extreme simplicity, and, as it was obtainable from fresh or dried blood, various metallic “haemols,” kathaemoglobin or from haematin, might be of considerable value in the field of medical jurisprudence. As I had been less successful with blood stains, etc., over six months old, even when they were dissolved by sodium hydrate or potassium cyanide, I felt that it could not supplant the haemin test, but I summed up by stating, “it forms an exceedingly simple and satisfactory means of confirming the haemin test, while it may be used in cases where the haemin fails to afford a result or gives doubtful results.” The grape sugar addition is, I think, more a means of lowering the solubility of the haemochromogen and of hastening crystallization than a reducing agent; the pyridine series is effective without it.

Your reviewer of my book (BRITISH MEDICAL JOURNAL, January 21st, 1911, p. 142), when it was published in what I soon realized to have been the wrong form, was prophetic in his sentence, “Our only fear is that the research may be lost sight of.” A summary of the evidence was given in the *Proceedings* of the eighth International Congress of Physiology in Vienna in 1910, where one was able to convince von Zeynek, who regarded the crystals as something different from haemochromogen, that they were indistinguishable from this substance even in the position of the invisible spectroscopic band, and that crystals of carboxyhaemochromogen could also be prepared.—I am, etc.,

WALTER J. DILLING, M.B., Ch.B.,
Department of Pharmacology,
Liverpool University.

January 25th.

TREATMENT OF CARBON MONOXIDE POISONING.

SIR,—In your issue of January 23rd (p. 166) Dr. Sydney Smith has raised the question of priority in suggesting blood transfusion for carbon monoxide poisoning. I should like, therefore, to point out that this treatment was actually used by Hüter in 1870, the patient's recovery being apparently due to the transfusion (*Berliner klinische Wochenschrift*, vii, 341). Lauder Brunton also advocated this treatment in 1873. Animal experiments on the subject were reported by Burmeister in 1916 (*Journal of the American Medical Association*, lxxvi, 164), and his conclusion was that transfusion was of great value for animals poisoned with coal gas; nearly all untreated animals died, whereas 75 per cent. recovered after transfusion.

There can be little doubt, however, that administration of oxygen is to be preferred, when it is available, on account of its greater simplicity. I have on one occasion considered giving blood transfusion to a man suffering from coal-gas poisoning, but at the suggestion of Dr. George Graham he was instead given oxygen through a Haldane's mask, with the result that he rapidly recovered.—I am, etc.,

GEOFFREY KEYNES, F.R.C.S. Eng.

London, W.1, Jan. 25th

PREVENTION OF PUERPERAL FEVER.

SIR,—Sir John Robertson and Dr. Layton have hit the right nails exactly in the right places in their letters to the JOURNAL of January 9th (p. 66).

In this area the puerperal mortality is as high as anywhere in England, if not higher. Yet the maternity

department of the Poor Law institution has, during the last year, delivered over 400 cases with no puerperal sepsis and no deaths. Moreover, such cases as needed instrumental delivery have for the most part been delivered by the same practitioners, whose results outside are not nearly so good.

The two-guinea fee, by no means always forthcoming, for these cases is totally inadequate, though certain members of the Royal Commission evidently thought it excessive. It must not be forgotten that it also includes subsequent attendance during the puerperium, which reduces the fee for the actual delivery to about 5s. Cannot the local authority furnish a simple sterile outfit in addition to this?

The cottage house is no place for operative midwifery. Indeed, there is a growing tendency to transfer difficult cases to the hospital. This tendency is just showing itself, but it should be encouraged in every possible way. If also medical students and midwives could be taught that surgeons do not now prepare the skin for operations by swabbing with weak solutions of coal-tar disinfectants, but that they must shave and adequately prepare the perineum; if simple sterile outfits were provided by the public health authorities; if institutional facilities were increased as much as possible—then, I am convinced, a greater advance would be made in this matter than by the appointment of any number of specialists to deal with the trouble after it has arisen.

Surely this discussion has gone on long enough. Is it not time to be up and doing?—I am, etc.,

Rochdale, Jan. 20th.

JOHN C. JEFFERSON, F.R.C.S.

THE RELATIONSHIP OF THE MEDICAL PROFESSION TO UNQUALIFIED PRACTICE.

SIR,—Dr. Hawthorne's amusing sarcasm (BRITISH MEDICAL JOURNAL, January 16th, p. 122) is somewhat premature. His conception of my notions as to the coming legislation for restricting medical practice to the qualified and registered is entirely at sea. My conception of such legislation is that medical practice will be defined. For instance, it would exclude the domestic therapeutics of the mother who doses her progeny on Saturday night with brimstone and treacle. The law would be administered as a piece of public health legislation by the medical officer of health, not by the police. This officer, on a complaint or on information received, would provide two or more test cases for the unqualified practitioner to treat. If the evidence obtained were satisfactory, then the practitioner would be summoned to a court of first instance. No doubt he would engage a lawyer skilled in the defence of such cases. After the case for the prosecution had been presented, then the defendant, as advised by his solicitor, might or might not enter the witness-box. Whether he did so or not would not matter much, as sufficient evidence of his methods of practice would be provided by the test cases. The Bench would then carefully weigh all the evidence, and if not too much impressed by the number of cures related by defendant's solicitor, they would probably fine defendant a pound or thirty shillings—say, for robbing a blind man by pretending to dissolve a skin that had grown over his eyes.

This is a milder picture than that of the mediæval tortures so eloquently described by Dr. Hawthorne. Modern legislation depends less on its punishments and more on its exposures and restraints for its good effects, all of which are of an educative character. No doubt it will take some centuries to modify the gullibility and credulity of the public, but that is no reason why a beginning should not be made and some measure of protection afforded while the process of education goes forward.

Dr. Hawthorne makes fun of my phrase “the analytic method,” but can he suggest a better to describe the legal process that has unveiled the methods of unqualified practitioners in the past? Dr. Hawthorne is good enough to remind me “that it is the right or even the duty of every individual citizen to expose, if he can do so, any fraud which he knows is being practised on the com-

munity." In turn, I should like to remind Dr. Hawthorne that what is everybody's business is nobody's business.—I am, etc.,

Warrington, Jan. 16th.

J. S. MANSON.

RETROBULBAR NEURITIS.

SIR,—Dr. Jordan summarizes the discussion on this subject (*BRITISH MEDICAL JOURNAL*, January 16th, p. 102) by saying that the condition has nothing to do with sphenoidal sinusitis, and he goes on to state that his "own experience confirms this, for no associated lesion is found by x rays in any of the paranasal sinuses." May I say that, having a somewhat extensive experience of x rays in sinusitis during the last eighteen years, I have never yet seen any skiagram, not even excellent stereoscopic plates, that definitely indicated the existence of sphenoidal sinusitis, and thus no skiagram has permitted my exclusion of such disease. There are much safer and surer methods of determining the existence or non-existence of such infections. Skiagrams have proved such valuable aids to the diagnosis of chronic frontal or maxillary sinus infections that it appears a pity to claim value for x rays in connexion with the diagnosis of sphenoidal sinusitis, though they are so helpful for defining the size and outline of the cavities.—I am, etc.,

Clifton, Bristol, Jan. 25th.

PATRICK WATSON-WILLIAMS.

ANAESTHETICS IN CHILDHOOD.

SIR,—Dr. Strange in his criticism of my defence of chloroform (*BRITISH MEDICAL JOURNAL*, January 16th, p. 121) states that "it is on him [the anaesthetist] that the blame will rest if the operation is successful but the patient dies some days later from pneumonia." Needless to say he is referring to ether; those who use chloroform are not troubled with such a sequela. He also admits that "ether is in some cases more dangerous than chloroform." After such an opinion from an anaesthetist I am more than ever inclined to champion chloroform, again with the proviso that it be properly administered.

The fact that Dr. Strange states that the naked flame and not the Shipway apparatus caused the explosion to which I referred, by igniting the inflammable ether, is merely another reason why we should use chloroform, even in such "contraptions." If the risk of death by violence can be eliminated there can be no valid reason why anaesthetists in institutions should not continue to use them; but I was referring principally to general practice, where the employment of cumbersome apparatus, besides being inconvenient in an emergency, might give the patient and friends the impression that a limelight entertainment was coming.

Further, by the use of chloroform sprinkled on a mask it is easy to admit the oxygen of the air at intervals. I am surprised at Dr. Strange's statement that chloroform in the hands of a competent administrator is not safe. All that is necessary (unless one has a danger complex) is to avoid an overdose, then there will be no cause for concern. The matron of a neighbouring hospital, under medical supervision, has administered chloroform almost daily for many years (approximately 30,000 times) without a death on the table. She is a competent administrator and the danger is nil.

After twenty-five years' experience of its use I have yet to see a single fatality, and until I do so I decline to seek out other inventions.—I am, etc.,

Cowdenbeath, Jan. 21st.

JOHN B. PRIMMER.

APPENDICITIS COMPLICATING GASTRIC ULCER.

SIR,—The memorandum by Mr. D. Diamond, M.R.C.S., on a case of simultaneous perforated gastric ulcer and acute appendicitis (January 23rd, p. 140) interested me greatly, in that I published an exactly similar case in a girl of 18 some sixteen years ago (*Lancet*, 1910, i, 103, 119).

As was pointed out editorially on that occasion, seeing that both conditions are common, it is not surprising that a case of their concurrently being present should occasionally turn up, whether or no there be any causal connexion between the two conditions.—I am, etc.,

Clifton, Bristol, Jan. 25th.

C. A. MOORE, M.S., F.R.C.S.

Obituary.

PROFESSOR CAMILLO GOLGI, Pavia.

WE regret to record the death, on January 21st, of Professor Golgi, the eminent histologist of Pavia University. Camillo Golgi was born on July 7th, 1844, at Corteno. He completed his studies at the University of Pavia in 1865, and was appointed extraordinary professor in that university in 1875. After being professor of anatomy in Siena for less than a year, he was appointed professor of histology in Pavia in 1876, and professor of general pathology there in 1881.

Professor Golgi's researches into the minute anatomy of the nervous system were of fundamental importance, and his name will be for ever intimately associated with this great field of knowledge. He invented a method of staining by impregnation with silver chromate, which demonstrates beautifully the structure of nerve cells, their processes being stained a deep black. The application of this method in the hands of Golgi himself, Ramón y Cajal, and others, provided the chief histological evidence for the neurone doctrine originally propounded by Waldeyer. According to this doctrine the entire nervous system is made up of a series of units known as neurones, and each neurone, consisting of a nerve cell and its processes, is anatomically independent of every other neurone, the physiological relationship between neurones being brought about by contact of their processes only. By Golgi's method the reduction of silver is confined to individual cells, together with their processes—namely, the axis cylinders and the dendrites—and the stain does not extend into neighbouring neurones. In the cells of Golgi Type I the axis cylinder is a long single process which becomes part of a medullated nerve fibre; this is exemplified in the pyramidal cells of the motor cortex, the anterior horn cells of the spinal cord, and the Purkinje cells of the cerebellum. Such an axis cylinder ultimately expands into an arborescence around the cell body of a second neurone. In the cells of Golgi Type II the axis cylinder breaks up at once into a wide ramification; such cells are found in the posterior horn of the spinal cord and in the granule layer of the cerebellar cortex, and are believed to have a distributive function, bringing a single neurone into physiological contact with many others.

The neurone theory receives powerful support from the effects of disease of the nervous system, in particular the limitation of Wallerian degeneration, in a nerve fibre separated from its parent cell, to the particular fibre concerned: the whole structure of clinical neurology is indeed based on this conception. Observations by Apáthy, Bethe, and others have tended to call the neurone theory into question, for they demonstrated fine fibrillar networks around and within the bodies of nerve cells which, they believe, establish an actual continuity between adjacent neurones. Golgi himself demonstrated these networks of fibrils on the periphery of cells, but regarded them as being concerned in the structure of the individual neurones and not as establishing anatomical continuity between neurones. While the final truth of this matter is still unsettled, there can be no doubt that physiological and pathological conceptions strongly favour the original neurone theory.

Professor Golgi also described a special form of nerve ending met with in tendons, and known as the "organs of Golgi," and another type of nerve ending in the subcutaneous tissue of the pulp of the finger under the name of Golgi-Mazzoni corpuscles.

The main achievement of Golgi's life was the work he did on the minute anatomy of the nervous system, and he well deserved the Nobel prize he received in 1909; but he did pioneer work also in the investigation of the malarial parasites. After Laveran had made his discovery in 1881, Golgi, in 1886, demonstrated the life-cycle of the parasite in man and the relation between the attacks of fever and its sporulation; later on he distinguished the parasites of quartan and tertian malaria.

GEORGE ROBINSON, M.R.C.S., Bedford.

Dr. GEORGE ROBINSON passed away at his residence in Bedford on January 16th at the age of 87 years. He succeeded his father in the practice, which he cultivated with great competence, shrewdness, and natural kindness. He received his education at Bedford Grammar School and St. Bartholomew's Hospital, where he commenced his medical studies in 1856, qualifying M.R.C.S. and L.M. in 1860. He was a devoted member of the British Medical Association.

For many years he was deputy chairman of the Bedford County Hospital, and he was J.P. for the town of Bedford. Dr. Robinson was endowed with physical energy to an unusual degree. He had on more than one occasion, when a student at St. Bartholomew's, walked all the way home to Bedford. He was fond of boxing, and many a boxing episode has he recounted to the writer of this notice. He was not only aggressive as a pugilist, but the same aggressiveness was marked in his whole-hearted friendship—he was with his friends heart and soul. He was the ideal companion for a tiger-hunt, or any exploit needing daring and go-aheadness. At the age of 65 Dr. Robinson frequently swam a mile before breakfast, then during the day he would play three rounds of golf, and dance for two hours after dinner. He was a keen huntsman, a good billiard-player and fencer—a sportsman, indeed, of no mean order. He was all but an abstainer from alcohol, but he consumed tobacco vigorously almost up to the end. He used to laugh when reminded that his head was like that of Julius Caesar in the British Museum, but the likeness was striking. A few years ago he sustained a fracture of the femur whilst playing golf; the fracture never quite united, and a period of semi-invalidism set in; for a considerable time he had been confined to bed, where he read and smoked and enjoyed the consolations and devoted attention of Dr. Boll, his successor in the practice. He married Miss Cookson of Luton in 1862. There were no children. His wife died in 1911. After a service at St. Paul's Church his remains were interred in Bedford Cemetery.

EDWARD WOOD, M.R.C.S., L.R.C.P., L.S.A., Enfield.

Dr. EDWARD WOOD, who died on January 14th, had a history which is somewhat unique and perhaps worth recording. He was a member of the London Stock Exchange for about twenty years, but from his boyhood was always most interested in everything connected with medicine. Later he determined to become a student, and, to this end, studied for and passed the London matriculation when about 35 years of age. He then gave up his City life and entered King's College Hospital, being strongly advised by the then dean not to start on such a career so late in life; but his enthusiasm was so great that he entered also at St. Bartholomew's, using both medical schools to achieve his object. He took the diplomas of L.S.A. in 1884, of M.R.C.S. in 1885, and of L.R.C.P. Lond. in 1886. He became a member of the British Medical Association, and settled down in Enfield, where he quickly obtained a considerable practice amongst all classes, and was especially beloved by his poorer patients, whom he always treated with the greatest kindness, and, it might be added, with the greatest liberality. He took a partner in 1893, finding his practice growing larger than he could carry on agreeably single-handed. He retired in 1897, but continued to reside in Enfield. However, this step in no way divorced him from his interest in the profession, for he sat for hours daily in his library reading medical literature, and as far as possible keeping himself up to date. Nothing pleased him more than receiving visits from his former colleagues and talking over medical matters with them, confirming his opinions by producing the latest textbook, which he would gladly lend to his visitor for perusal at home. Thus passed nearly thirty happy years amongst his books, in his rose garden, and at his electric piano-player—always of the latest type, and for which he had a most extensive collection of records of the best music.

Until over 80 years of age he regularly attended the annual dinner of the local Medico-Ethical Society, but to the sorrow of all its members advancing years, bringing failing sight and hearing, precluded his attendance on the last occasion. Many very sympathetic references were made about "dear old Wood" by those present. He passed away painlessly, aged 82, leaving a widow and two sons, one of whom is in the medical profession.

It is with regret that we announce the tragic sequel to an unfortunate mishap in the post-mortem room. Dr. C. Iris Fox died at the Royal Free Hospital on January 21st, as a result of pricking her finger while conducting such an examination there several weeks ago. Miss Fox was the daughter of Dr. R. Fortescue Fox. She studied at the London School of Medicine for Women, and took the diplomas of M.R.C.S., L.R.C.P. in 1915. The following year she graduated M.B., B.S. of London University, and in 1922 obtained her doctorate. Dr. Fox held the posts of senior assistant pathologist and assistant director of pathological studies at the Royal Free Hospital. She was formerly assistant pathologist at Swansea General Hospital and second assistant pathologist at St. Mary's Hospital. She had also been medical registrar at the Royal Free Hospital. She was the author of an article on lymphadenoma and tuberculosis, which was published in the *Lancet* in 1921. Among her contemporaries Dr. Fox was admired for the painstaking thoroughness which characterized all her work. The sadness of such a mishap is intensified by the high standard of Dr. Fox's work, which pointed most definitely to an eminently successful future.

Universities and Colleges.

UNIVERSITY OF OXFORD. Rollston Memorial Prize, 1926.

This prize, which is now of the value of about £100, is awarded every two years under the conditions stated below, for original research in any subject comprised in the following list: animal and vegetable morphology; physiology and pathology; and anatomy. No candidate will be eligible (1) who has not either for the B.A. degree or the B.M. degree at Oxford or the M.B. degree at Cambridge, or (2) who is not an advanced student for the degree of B.Sc. at Oxford or as an advanced student for the degree of B.A. at Cambridge, or (3) who has not attained the first of such honours more than one; (4) who has not attained the first of such honours more than one; (5) who has not attained the first of such honours more than one.

The next award will be made in Trinity Term, 1926. Candidates wishing to compete must forward their memoirs to the Registrar of the University of Oxford before March 31st. The memoirs may be printed, typewritten, or in manuscript, should be inscribed "Rollston Memorial Essay," and should bear the name and address of the author; memoirs already published are admitted to the competition. No account will be taken of any research which has not been prosecuted by the candidate subsequent to his matriculation.

At a congregation held on January 21st the following medical degrees were conferred:

B.M.—R. Lewthwaite, K. G. Norton.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on January 22nd the following medical degrees were conferred:

M.D.—F. R. Winton, *C. J. Wilson.

M.B., B.Chir.—N. F. C. Burgess.

M.B.—J. Gray.

B.Chir.—The Hon. C. B. Buckley, R. T. Chadwick, G. L. F. Rowell, R. W. Cunningham.

* Admitted by proxy.

UNIVERSITY OF LONDON.

APPLICATIONS for the Graham scholarship in pathology must be sent in to Sir E. Cooper Perry, M.D., Principal Officer, University of London, South Kensington, S.W.7, before March 14th. The scholarship (which is of the value of £300 per annum, in the first instance, for two years) was founded under the will of the late Dr. Charles Graham to enable a young man to continue his pathological researches and at the same time to secure his services to the School of Advanced College Hospital as a Lecturer in Pathology. Further information may be obtained from the Academic Registrar.

UNIVERSITY COLLEGE HOSPITAL.

Four lectures in the history of medicine (illustrated by lantern slides) will be delivered at University College Hospital Medical School by Dr. Charles Singer on Thursdays, February 4th, 11th, 18th, and 25th, at 4.15 p.m. The first will deal with the history of malaria, the second with the history of gout and diabetes, the third with the history of rickets, and the last with the history of small-pox. The lectures are open to all medical students of the University of London.

UNIVERSITY OF ST. ANDREWS.

At the graduation ceremonial held on January 15th the following degrees and diploma were conferred:

M.B., Ch.B.—Dorothy H. M. Ames, Mrs. Margaret S. Armit (*née* Marshall), Janet L. M. Inglis, alloy, Jane M. Miller, "I. Rattray, W. O. Reid, Renée Ritchie, E. H. T. Rutherford, Jean R. Sheriffs, Jean J. Smith, Dorothy G. Stewart.
M.D.—M. L. Abuja, A. A. B. Scott.
D.P.H.—Hermia M. Morrison.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

At the later winter commencements in Hilary Term, held on January 16th, the following degrees were conferred:

M.B., B.Ch., B.A.O.—C. Lord-Flood (*antea licentiatus*), W. J. van Zijl, Margaret O'Neil (*nunc Hill*) (*in absentia*).

The Services.

TERRITORIAL ARMY MEDICAL OFFICERS' ASSOCIATION.

THE Territorial Army Medical Officers' Association has been formed to provide an organization for the consideration of matters of interest to Territorial medical officers, active and retired. We are asked to remind officers that the first annual dinner will be held on Friday, February 12th, at 8 p.m., at the Café Royal, Regent Street. Tickets (12s. 6d., without wine) can be obtained from Colonel M. B. Ray, D.S.O., M.D., at 37, Russell Square, London, W.C.1. The guests of honour will be Lieut.-General Sir Hugh S. Jeudwine, K.C.B., Director-General of the Territorial Army, and Lieut.-General Sir William B. Leishman, K.C.B., Director-General of the Royal Army Medical Corps.

Medical News.

Dr. J. W. McNEE will lecture for the Fellowship of Medicine on the treatment of renal disease on February 4th, at 5 p.m., at 11, Chandos Street, W. A course in venereal diseases at the London Lock Hospital begins on February 1st and will continue through the month. From February 8th to 27th a combined course in diseases of children will be given by the Paddington Green Hospital, Victoria Hospital, and the Children's Clinic. The London Temperance Hospital has arranged a course from February 8th to 19th (4.30 to 6 p.m.). An intensive course in medicine, surgery, and the specialties will be held at Queen Mary's Hospital, Stratford, from February 15th to 27th. The following courses will be held in March: medicine, surgery, and the specialties at the Hampstead Hospital; bacteriology, Westminster Hospital; diseases of the chest, Brompton Hospital; gynaecology, Chelsea Hospital for Women; ophthalmology, Royal Eye Hospital; and tropical medicine at the London School of Tropical Medicine. Copies of syllabuses and of the general course programme may be had from the Secretary at 1, Wimpole Street, W.1.

The inaugural meeting of the London Clinical Society will be held on Thursday, February 18th, at 8.45 p.m., at the London Temperance Hospital, Hampstead Road, N.W., when Sir Arbuthnot Lane, Bt., will give an address entitled "Is Civilization a Failure?" All medical men and women will be welcomed. The Honorary Secretary is Dr. Philip Fildor, 150, Harley Street, W.1.

The British Science Guild will hold a conversazione at Carpenters' Hall, Throgmorton Avenue, London, on Thursday, February 11th, at 4.30 p.m. Brief addresses will be given on the scientific approach in administrative problems, the use and abuse of the "conference" instrument, losses from avoidable fires, and losses from timber disease. Cards of admission can be obtained from the Secretary, British Science Guild, 6, John Street, Adelphi, W.C.2.

The annual dinner of the Hunterian Society of London will be held at the Hotel Victoria, Northumberland Avenue, on Thursday, February 11th, at 7.30. Among the guests expected to be present are the Lord Mayor and Lady Mayoress of London, and the Bishop of Kensington.

A STONE tablet in memory of Sir G. Anderson Critchett, Bt., surgeon oculist to the King, who died on February 9th, 1925, is to be erected in the School Chapel at Harrow, from the design of Sir Charles Nicholson.

DR. JOHN BEATTIE, research assistant and demonstrator of anatomy at University College, London, has been appointed anatomist to the Zoological Society of London, with charge of the prosectorium at Regent's Park.

DR. E. R. A. MEREWETHER of Gray's Inn was called to the Bar on January 26th.

THE Educational Health and Food Campaign, inaugurated in 1907, is now being continued by the People's League of Health, at the request of the council of the Bread and Food Reform League. Efforts are made to circulate information about the most nourishing and economical foods and the value of finely ground wholemeal bread.

DR. E. HALFORD ROSS, medical member of the Council of the Industrial Welfare Society, is going to South Africa for a year to make observations on miner's phthisis on the Rand. From Africa he will go to India to advise on measures against malaria and mosquitos in some of the tea-growing industries in Assam.

THE fifth International Congress of the Science of Heredity will be held in the second half of next September at Berlin, under the presidency of Professor D. E. Bauer. This will be the first international congress held in Berlin since the war.

A REPORT on paraffin dermatitis and cancer, including its incidence, prophylaxis, and treatment, is published by the International Labour Office at Geneva, as one of its series (No. 20) of pamphlets in the *Encyclopaedia of Industrial Hygiene*. The pamphlet, and others of the series, may be obtained from the London Branch of the Office, 26, Buckingham Gate, S.W.1.

ACCORDING to statistics recently issued by the Metropolitan Insurance Company the mortality from small-pox in Canada and the United States, which was under 1 per cent. in 1923, rose to 1.5 per cent. in 1924 and 3.5 per cent. in the first half of 1925. The increasing severity of the disease was also shown by the fact that in one place 44 out of 97 patients died.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

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MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

LETTERS, NOTES, ETC.

THE NATURE AND ORIGIN OF CANCER.

DR. FRANK B. SKERRETT (Stratford, E.15) writes: Notwithstanding the brilliant researches of Dr. Gye, many of us who have given some time and thought to the problem still remain unconvinced as to the microbic nature of cancer—and not without reason. There are many well known grounds for disbelief in any specific organism as a cause of cancer, but I do not propose to enumerate them here. The school of adherents to the parasitic theory (largely in evidence in the early nineties) has been rapidly discarded it, so that it would appear that Dr. Gye's discovery—with the interpretation put upon it—must have fallen as a bomb-shell among them. Urged more by doubt than any desire to depreciate so valuable a piece of work, I venture to put forward

the following a for future inquiry of these new fac Leitch says: "It is difficult to see how the observations can be put in a line with many facts already known." It is usually admitted that the nucleus is the most vital and essential part of a living cell, the surrounding protoplasm playing a subordinate part in the way of protection and nutrition, its chief function no doubt being to elaborate the special food material (specific colloids) in the service of the nucleus. When a cell is injured or mechanically divided, the portion attached to the nucleus, even if it be the smaller part, recovers and reproduces the whole cell again, but a part containing no nucleus or portion of a nucleus perishes. The nucleus selects from the proteins of the cell body the special colloids it requires for growth and mitosis. Now in Dr. Gye's experiments it seems quite possible that in the process of grinding up the minced tumour with sterile sand, not only are the cancer cells broken up, but also many nuclei disintegrated, thus setting free in a very finely divided state minute fragments of living nucleoplasm. It is impossible to say to what degree of subdivision this might proceed, but it is quite conceivable that the results of this fragmentation might easily be of filterable dimensions. Now one of the specific characters of nucleoplasm is its power of auto-synthesis, if the medium in which it exists contains the necessary ingredients. May not the smallest fragment of living nucleoplasm automatically grow in contact, under suitable conditions, with the specific proteins of the disintegrated cancer cells, acting as the accessory factor, and may it not organize itself eventually into a biological unit if such specific requirements are present? Seeing that the nucleoplasm is the bearer of hereditary qualities, there is no reason why it should not be able to do so. Dr. Gye's experiments, in fact, show that the cell—that is, into nucleoplasm (acting as the virus) and cytoplasm (the accessory factor)—and, after filtration, reunited them under suitable conditions for growth in the body of the animals experimented on? This would account to some extent for the impotence of the virus alone and the specificity of the accessory factor; and may not the cultured bodies photographed indirectly by Mr. Barnard be the biological units of nucleoplasm? I would incidentally point out here that the recently discovered method of producing cancer experimentally, by painting the backs of mice with solution of tar (which contains a relatively high percentage of phenols and cresols), would appear to bring about the very conditions inimical to any hypothetical cancer-producing germ. In conclusion, I think it must be disquieting to the public mind to be led to think that cancer, after all, may be due to the fortuitous invasion of a ubiquitous germ capable of attacking all and sundry under suitable conditions, and irrespective of the fact that they may have led perfectly healthy and normal lives. I am therefore of opinion that the points herein raised should be considered before it is taken for granted from Dr. Gye's discovery that cancer is a germ disease.

DR. A. T. BRAND (Driffield), in the course of a communication on the same subject, writes: It strikes me as extraordinary that speculation as to the cause of cancer can still take place. To be told that hyperplasia may merge imperceptibly into cancer, that cancer can be caused by the fanning of rats, or by means of gall stones, etc., is like being told that pneumonia is caused by exposure to cold and wet, or that anthrax is caused by a shaving brush, or tetanus by a splinter of wood. Those who speculate on the origin of cancer completely fail to realize that it is a typically specific disease which cannot be caused by any mechanical agent or any intrinsic condition of the tissues, but only by a specific agent. They also fail to realize that the true cause of any disease must be present in every case without exception, and they further fail to grasp the fact that *post* and *propter* are not synonymous terms. That cancer is due to an extrinsic agent, as all specific diseases are, is logically established, and as cancer does not attack the healthy body, it is obvious that most of the alleged causes are simply and entirely pre-disposing. Of these pre-disposing agencies irritation (chronic or continuous, of all kinds) is probably the most potent, as has been known for many centuries. The only possible specific extrinsic agent, which alone fulfils the axiom of universal applicability, is a parasite, and this has been demonstrated by Dr. Glover of Toronto, now of New York, years ago, and confirmed by Dr. Young of Edinburgh. These two research workers, unknown to each other, made, independently, exactly the same discovery, even to the fact that the parasite is pleomorphic, existing in four forms, of which one is ultra-microscopic and filter-passing. It is interesting to note that Dr. Gye of London has dared to break away from the great antiparasitic majority of research workers and has stated his conviction that cancer is a specific disease. He discovered the fourth (filter-passing) form of the cancer parasite and declared it to be the cause of the disease. It seems that he has failed to discover the other and visible forms. He insists that there is a "specific factor," which must be present before the germ can attack successfully. There is, however, no "specific factor." As stated already, cancer does not attack the healthy body. The soil must be prepared for the specific agent, hence what I have always termed the "condition precedent" must exist. This is induced by many things which I need not again enumerate, among which continued irritation is a powerful one. For Dr. Gye's "specific factor" I substitute "vulnerability." That cancer can only be caused by its own specific agent, an extrinsic parasite, must commend itself to anyone who realizes to what an enormous extent parasitism is responsible for the causation of disease. There would be no

difficulty in appreciating this were we endowed with microscopic vision. One Manchester pathologist, who is bitterly opposed to the parasitic origin of cancer, has advanced the theory that the cancer cell is itself the parasite. This was originally suggested by the late Sir Henry Buntin, but it is manifestly untenable, since it will not account for the first or original case of cancer, where there was no cancer cell to cause the disease. The cancer cell, *per se*, is perfectly harmless, just as harmless as an empty Browning automatic. In the first case it is the intracellular parasite which acts, and in the second the live cartridge. The first cancer was caused by the parasite itself.

OCCIPITAL PAIN IN INFLUENZA.

DR. R. MURRAY BARROW (Long Sutton, Wisbech) writes: I have found that the severe occipital pain radiating over the scalp, which is very common with influenza, responds frequently to cloths rung out in hot lotio plumbi. Whether the pain is due to an irritation of the nerve roots or a synovitis of the cervical joints I am not certain.

AN IMPROVED URETHRAL BOUGIE.

MR. E. MUIRHEAD LITTLE, F.R.C.S. (London), writes: Sir Herbert Waterhouse's appreciative note on the late Mr. Bloxam reminds me of an experience which may be of interest to students of the history of minor surgery. Circumstances early honoured me with the acquaintance of Mr. Bloxam, and when I was studying for the final F.R.C.S. examination he kindly allowed me to attend his out-patient clinic at the Lock Hospital and also welcomed me to his wards at Charing Cross. On one occasion, when I was accompanying him round his beds, he came to a case of stricture of the urethra. Discussing with his students methods of treatment, he mentioned that Mr. Wormald of St. Bartholomew's used to use a quill pen as a bougie with considerable success. This statement caused some surprise among his audience, and Bloxam thereupon undertook to demonstrate the method. He sent down to the secretary's office for a long quill pen, for at that time—over forty years ago—these implements were not quite obsolete, and having stripped off all the bars from the rachis or stem, except a small tuft which he wrapped around the end, and having well oiled the whole, he triumphantly passed it into the bladder through a tight stricture. The improvised bougie did not look at all a suitable or comfortable instrument, but the patient made no complaint. I have not anywhere read of this bit of old surgical handicraft, nor have I ever heard it spoken of except by Mr. Bloxam, and I think that it may be thought worthy of rescue from oblivion.

THE COST OF BOROCAINE.

WITH reference to the remark by Drs. Harrison Butler and Gillan in their article on the clinical value of borocaine in ophthalmology (JOURNAL, January 16th, p. 83), that "the cost of borocaine makes it an impossible drug for hospital use," the British Drug Houses, Ltd., state that the list price of borocaine is 2s. an ounce, while that of cocaine hydrochloride is 46s. an ounce (these prices being subject to discount to hospitals), and the cost of the drug contained in 1 c.cm. of a 2 per cent. solution of borocaine is therefore one-fifth of a penny.

A BLACKBOARD ANATOMICAL CHART.

A CONVENIENT chart for teaching anatomy has been designed by Miss E. D. Ewart and produced by Messrs. H. K. Lewis and Co., Ltd., of Gower Street, London, W.C.1. Skeletal outlines are painted in white on flexible blackboard cloth, mounted on rollers, the length of the chart being 4 ft. 10 in. and the width 3 ft. 10 in. An arrangement of side tapes enables the lower portion of the chart to be raised to a convenient level, and the two sides show the front and back of the head, trunk, and limbs, the outlines being slightly larger than life-size. The positions of arteries, muscles, nerves, and organs can be drawn on the chart in coloured chalks and rubbed off as from an ordinary blackboard. It is thus well suited for instruction in surface markings, by way of supplement to the living model. The chart will be sent on approval to recognized teachers who apply for it to the publishers. The price is £2 2s., carriage extra.

INTESTINAL DIVERTICULA: Correction.

OUR apologies are due to Dr. E. I. Spriggs and Mr. O. A. Marxer for an error perpetrated by that imp of mischief, the printer's devil, after the proof of their article had been passed (correctly) for press. In page 133, column 2, the sixth line from foot of page should begin a paragraph and read as follows:

In the third stage of established diverticulitis the

The line which appears in the published JOURNAL is a duplicate of the first line under the figure in the same column, and was accidentally misplaced during final correction.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at pages 43 and 44.

An Address

ON

TWENTY-FIVE YEARS' PROGRESS IN
ABDOMINAL SURGERY

AT THE MANCHESTER ROYAL INFIRMARY.

Delivered before the Manchester Medical Society on
February 3rd, 1926,

BY

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MANCHESTER ROYAL INFIRMARY.

THE year 1925, in which you so greatly honoured me by electing me to your presidential chair, completing, as it does, the first quarter of the twentieth century, automatically invites retrospection. In 1900, as the resident surgical officer at the old Manchester Royal Infirmary, I was in very close touch with the surgical work of the institution, and it occurred to me that a comparison between the abdominal surgery of that time and of the present time might not be without interest and instruction to all of us.

In instituting such a comparison account must, of course, be taken of the increased number of beds available for general surgical use in the present as compared with the old Manchester Royal Infirmary (315 as against 186), and of the increase in the honorary surgical staff (from four surgeons and three assistant surgeons in 1900 to five surgeons and five assistant surgeons in 1925), as well as a corresponding increase in the resident and the junior non-resident staff. In 1900 the honorary surgical staff consisted of Messrs. Hardie, Southam, Wright, and Thorburn, with Collier, Platt, and Montgomery as assistant surgeons, and of these seven only one survives (Mr. F. A. Southam); while of the corresponding staff of physicians four survive (Drs. Steel, Bury, Wilkinson, and Reynolds), three of whom are still in practice. Thus the survival rate among the physicians is 66.6 per cent., as against 14.2 among the surgeons—nearly five times greater: one more proof, were any such needed, that the wear and tear of the strenuous and exacting life of a surgeon is very much greater than that of his medical brother.

For my purpose I will compare the abdominal operations (excluding gynaecological) performed in the year commencing January 1st, 1900, with those of the year ending December 31st, 1924. In 1900, out of a total of 2,343 operations of a general surgical character, 266 were upon the abdomen—that is, 10.97 per cent.; whereas in 1924 out of 5,353 operations 3,051—that is, 56.99 per cent.—were abdominal; the proportion of abdominal to other operations had increased more than fivefold. This increase is rather more marked in the "acute" (or "urgent") than in the "chronic" (or "non-urgent") type of case, since in 1900 "acute" conditions accounted for 30.8 per cent. of all the abdominal operations, but in 1924 for 40.6 per cent.

"ACUTE" ABDOMINAL SURGERY.

In 1900 82 operations were performed for acute abdominal conditions, with a mortality of 36.5 per cent.; in 1924 there were 1,241 such operations, with a mortality of 8.1 per cent.

Table I presents an analysis of the acute abdominal operations for the years 1900 and 1924 respectively, giving the proportion that each type of case bears to the total number of such operations, and the corresponding mortality. The total number for 1924 includes 85 cases not analysed in the table (acute cholecystitis 56, acute pancreatitis 6, other acute abdominal conditions 23), since these operations were unrepresented in the 1900 list. Presented in this form the great improvement in the 1924 percentage mortality of each type speaks for itself, ranging roughly from one-half that of the 1900 mortality in the case of acute intestinal obstruction to one-twelfth in the case of acute appendicitis.

TABLE I.—Operations for Acute Abdominal Conditions for the Years 1900 and 1924.

	Number of Operations.		Percentage of Total of Acute Abdominal Operations.		Mortality per cent.	
	1900.	1924.	1900.	1924.	1900.	1924.
Strangulated hernia ...	50	105	60.9	8.5	22.0	9.4
Acute appendicitis ...	14	798	17.07	64.3	64.2	5.1
Acute intestinal obstruction	13	144	15.2	11.6	44.4	20.3
Perforation of gastric ulcer	5	28	108	6.09	8.7	14.2
Perforation of duodenal ulcer	0	80				
Total acute abdominal operations	82	1,241			36.5	8.1

Strangulated Hernia.

The outstanding feature of the 1900 list is the great predominance of strangulated hernia—in fact, operations for hernia were the only common abdominal operations of that day, either acute or chronic. Those for strangulated hernia constituted 60.9 per cent. of all the acute abdominal operations, and those for the radical cure of hernia comprised 58.6 per cent. of all operations for chronic abdominal conditions, while, taken together, hernia accounted for 59.3 per cent. of all the abdominal surgery. In 1924 strangulated hernia constituted only 8.5 per cent. of the acute abdominal operations (slightly less than the proportion of perforations of the stomach or duodenum), and the radical cure only 18.8 per cent. of the chronic, while together hernia accounted for only 14.2 per cent. of all abdominal surgery.

Acute Appendicitis.

The outstanding feature of the 1924 list is the enormous proportion of operations for appendicitis—44.3 per cent. of all the abdominal operations; acute appendicitis accounted for 64.3 per cent. of all the operations for acute abdominal conditions, and quiescent appendicitis for 31.7 per cent. of those of a chronic type. In 1900 there were 14 operations for acute appendicitis—all for either appendicular abscess or peritonitis, there being no case of removal of an acutely inflamed appendix prior to abscess or peritonitis; the appendix was removed as an "interval" operation on 24 occasions. In 1924 there were 798 operations for acute appendicitis, with a mortality of 5.1 per cent., and 575 appendicectomies for quiescent cases, with a mortality of 1.4 per cent.

TABLE II.—Operations for Acute Appendicitis in 1924.

	Condition and Operation.	No. of Operations.	Mortality per cent.
Group 1 ...	Removal of acutely inflamed appendix, without drainage	337	2.07
Group 2 ...	Appendicular abscess, appendicectomy and drainage	360	4.7
Group 3 ...	Appendicular abscess, drainage only	42	16.6
Group 4 ...	Appendicitis with diffuse peritonitis, appendicectomy and drainage	59	16.9
Total ...		798	5.1

Although at the beginning of the present century the rational treatment of acute appendicitis by early operation was being practised both on the Continent and in America, there was considerable delay before any general adoption of its principles in this country. This was mainly due to the strongly adverse attitude towards any operative interference in the acute stages of appendicitis that was taken up by Treves, who at that period was undoubtedly the outstanding figure in British abdominal surgery. Treves taught that operation should not be undertaken unless there was evidence of suppuration, and that even then the surgeon should wait until the abscess had become well localized. Owing to his powerful influence this was recognized as the usual practice in this country, whereas abroad

The appendix still holds its pride of place, though much less outstandingly so than in the "Acute abdominal" list (Table I), constituting 22.3 per cent. only of the non-urgent, as against 64.3 per cent. of the urgent abdominal operations. The percentage of operations for the radical cure of hernia has dropped from 58.6 in 1900 to 18.7 in 1924; 333 such operations were performed in 1924 with but one death, that of a male with a large umbilical hernia, who died of diabetic coma.

Chronic Ulcers of Stomach and Duodenum.

No operation for this condition was performed in 1900, whereas there were 250 in 1924, with a mortality of 4 per cent. These comprised 173 gastro-enterostomies (mortality 2.8 per cent.), 31 partial gastrectomies (mortality 3.2 per cent.), and 46 treated by other procedures. The operation of gastro-enterostomy, first performed by Wölfler in Vienna in 1881 for pyloric obstruction from carcinoma, was for eleven years restricted to cases of actual organic pyloric stenosis. In 1892, however, Doyen applied it successfully to a case of chronic gastric ulcer without organic pyloric stenosis, on the view that the symptoms associated with gastric ulcer were largely due to a spasmodic obstruction at the pylorus induced by the presence of the ulcer. In the following year Codivilla extended its use to chronic duodenal ulcer, again with success, and thereafter it came to be increasingly recognized as a most useful measure in the treatment of chronic gastric and duodenal ulcers; indeed, for many years whenever such ulcers were considered to require operative treatment at all it was the only procedure adopted. Unfortunately, however, its very success in true ulcer led to its abuse as a "cure-all" for all types of dyspepsia, and it is even on record that gastro-enterostomy has been performed for the vomiting of pregnancy, of cerebral tumour, of uraemia, and of locomotor ataxia. Naturally, therefore, the operation fell into some disrepute, from which it was rescued only when it came to be firmly restricted to cases of actual and demonstrable organic lesions in the stomach or duodenum. Even when so restricted it early became apparent that its results, both immediate and remote, were definitely better in duodenal than in gastric ulcer—that whereas it was almost invariably followed by healing of a duodenal ulcer such did not always eventuate in gastric ulcer. For a short period excision of a gastric ulcer without gastro-enterostomy was given a trial, but was soon abandoned, since recurrent ulceration and even perforation occurred.

Essentials in the Operative Treatment of Gastric Ulcer.

It has now come to be recognized that there are two essentials in the surgical treatment of gastric ulcer: (1) the removal of the ulcer itself, either by excision, which to me seems preferable, or by the cautery (Balfour); and (2) the performance of a gastro-enterostomy as a preventive of further ulceration. The ulcer should be removed, not only to rid the patient of its presence, but to anticipate any possible future malignant changes in it. This relation of gastric ulcer to gastric cancer is still a subject of much discussion; on the one hand, the pathologists to the Mayo Clinic, Wilson and MacCarty, make the alarming statement that 71 per cent. of specimens of carcinoma of the stomach removed there showed evidence of preceding ulceration, and that 68 per cent. of ulcers removed under the impression that they were simple ulcers showed early carcinoma at their periphery; on the other hand, Dible and Morley, investigating a series of cases at the request of the Manchester Pathological Society, found that of 126 ulcers removed on a clinical and macroscopic diagnosis of simple ulcer, none showed any microscopic evidence of malignant change, while out of 33 gastric cancers in 2 only (that is, 6 per cent.) did the clinical and histological evidence point to pre-existent ulceration. Most of us will agree, I think, that the latter view much more nearly represents the truth of this question.

Much discussion has taken place as to how gastro-enterostomy exerts its beneficial action—whether by mechanical drainage, or whether by its "physiological" or, as Sherrin prefers to call it, its "chemical" effect in allowing the alkaline bile and pancreatic juice to enter

the stomach and thus neutralize the gastric hyperacidity usually, although not invariably, present; the probable truth is that both factors play their part, the mechanical factor being the one at first mainly concerned, and leading to healing of the ulcer by overcoming muscular spasm and by rapidly emptying the stomach, while the chemical factor prevents recurrence by lowering the acidity of the gastric contents.

The two essentials already referred to—the removal of the ulcer and the performance of gastro-enterostomy—can be carried out either as separate procedures (for example, wedge excision of the ulcer *plus* posterior gastro-enterostomy), or they can be combined in the single operation of partial gastrectomy as advised by Sir Berkeley Moynihan. This undoubtedly, in some case, proves a technically easier and shorter operation than the former. As a routine procedure, however, it has the great objection that it entails the loss of a large amount of healthy stomach, often many times greater than the actual ulcer, and unless we are obsessed with the American ideas as to the great frequency with which gastric ulcers become malignant this would seem a quite unnecessary mutilation. The mortality of partial gastrectomy in the Manchester Royal Infirmary in 1924 was 3.2 per cent., as against 2.8 per cent. for gastro-enterostomy—not a great difference; but were partial gastrectomy to become the adopted routine procedure for gastric ulcer by all of those who at the present time are, throughout the country, undertaking abdominal operations I fear the mortality would show a very material increase.

Operative Treatment of Duodenal Ulcer.

The immediate results of gastro-enterostomy in duodenal ulcer are remarkably good, the proportion of cures being returned at the Mayo Clinic as 94 per cent., and it is certainly very rare for a properly performed gastro-enterostomy to fail in bringing about healing of the ulcer. There is a "fly in the ointment," however, and this is the occasional later development of secondary ulceration either at the stoma (gastro-jejunal) or in the jejunum within a short distance of the stoma (jejunal). The frequency of this complication is estimated at 2 per cent. in the Mayo Clinic, and it may develop almost immediately or be postponed for several years. Its cause is the persistence of hyperacidity after gastro-enterostomy, this operation in certain cases not producing a sufficient lowering of the pre-operative gastric acidity, and I certainly consider that its incidence can be minimized by careful attention to diet, together with the administration of alkalis for a long time following the operation. There is too strong a tendency to consider the operation as the end of all treatment—it is really only the commencement of a new period. To avoid this complication some surgeons have recently shown an inclination to replace gastro-enterostomy in the treatment of duodenal ulcer by either, (a) on the one hand, a reversion to such procedures as pyloroplasty with excision of the ulcer, Finney's operation, and gastro-duodenostomy, which are stated to be less liable to be followed by secondary ulcer, though none of them can claim immunity therefrom; or, (b) on the other hand, more radical measures, such as duodenectomy, or partial gastrectomy; these, however, in the presence of duodenal ulceration and cicatrization are difficult operations, and were they to become widely adopted I fear their increased mortality would prove a more serious matter than the 2 per cent. incidence of secondary ulceration they are intended to prevent. Moreover, this complication has been known to have followed partial gastrectomy, and will, sooner or later, follow a duodenectomy, should that operation continue to be performed at all extensively.

The surgical treatment of these chronic ulcerative conditions may, then, be summarized as local excision of the ulcer *plus* gastro-enterostomy for gastric ulcer, gastro-enterostomy *plus* careful after-treatment for duodenal ulcer.

Time will not permit me this afternoon to do more than mention the marked advances that have occurred during the past twenty-five years in the surgery of the biliary passages, of the intestines, and more recently of the spleen, but were I to do so it would be but a repetition of the same tale of steadily continued progress.

New Methods of Diagnosis.

During the period under review important advances have been made in the methods applicable to the investigation of abdominal conditions, and of these may be mentioned, as of special help to the surgeon, the more extended use of the sigmoidoscope, test meals for the estimation of gastric acidity—whether the old single test of Ewald or the more recent “fractional” method—the Einhorn duodenal bucket and its modification for the investigation of the duodenal contents, the Meltzer-Lyon test to determine the physical characters of bile from the various parts of the biliary tract, and the van den Bergh tests for the detection of bilirubin in the blood serum and the differentiation of obstructive from non-obstructive jaundice. Unquestionably, however, by far the greatest debt of the abdominal surgeon of the present day is to the radiologist, who, by his improved technique, and especially by the combination of x rays and opaque (bismuth or barium) meals and enemata, has produced a veritable revolution in abdominal diagnosis. One need only mention the wonderful degree of accuracy of the present-day radiological diagnosis of all types of oesophageal obstruction, of gastric and duodenal ulcers and neoplasms, of hour-glass stomach, and of hair balls in that viscus, of all obstructive conditions of the bowels, and of all diverticula therefrom. But radiology is as yet scarcely out of its infancy, and we confidently look to it for further triumphs; meanwhile we note with satisfaction the gradually increasing frequency with which the radiologist can demonstrate the presence of gall stones, and still more so the promise he holds out to us, by further elaboration of the technique of “cholecystography,” of being able to recognize cholecystitis in its pre-calculus stage.

Improvements in Surgical Methods.

Concurrently with improvements in the diagnosis of abdominal lesions there has been a marked advance in the technique of surgical procedures designed for their relief. So outstanding has this been, in fact, that it is scarcely surprising that in the past the actual performance of the operation has perhaps loomed too largely in the surgeon's eye, to the comparative neglect of other important, even if less dramatic, factors that contribute to success. In recent years, however, there are evidences of betterment in this respect, and a steadily increasing amount of attention is now being paid to the more careful selection of patients that are submitted to operation at all; to the better choice of the operative procedure suitable to their particular case; to a more thorough pre-operative preparation, so that the patient may be brought into the best possible condition to withstand the immediate effects of the operation itself; and to the necessity, in many cases, of a more or less prolonged period of medical after-treatment and observation, so that the fresh start towards a healthy existence which the operation has enabled them to make may not be carelessly jeopardized. Patients who, from the operative point of view, represent poor surgical risks may nevertheless frequently be restored to health by the adoption of the “two-stage” principle; at the first operation nothing more is attempted than the relief of that factor which is immediately threatening death, leaving the radical cure of the condition—the removal of its cause—until such time as the general state of the patient has been sufficiently improved by the preliminary procedure as to render success probable.

This “multi-stage” principle, which has been applied so successfully in the case of growths of the colon associated with any degree of obstruction, and of prostatic patients presenting evidence of renal back pressure, might with advantage, I think, be further extended—as, for instance, to some cases of carcinoma of the stomach with severe obstructive vomiting and consequent ill nutrition, and especially to cases of calculous obstruction of the common bile duct associated with long-standing jaundice. These latter are admittedly extremely poor surgical risks; they are on the verge of both hepatic and renal insufficiency, and in them nothing further should be attempted in the first instance than the relief of the biliary obstruction by the quickest and least disturbing procedure—a rapidly performed cholecystostomy (or choledochostomy if the cystic duct be obstructed)—no attempt being made to remove the calculi from the common duct until, as the result of free

drainage, all trace of “hepatic back pressure” has disappeared.

The comparative ease, safety, and success with which, nowadays, quiescent appendicectomy can be undertaken has led to its performance on a very large scale—often on very insufficient evidence that the appendix is the real cause of the symptoms complained of. I feel very strongly that the steadily increasing number of patients coming into our hospitals and nursing homes with chronic abdominal disease, upon whom a more or less recent appendicectomy has been performed without material relief to the symptoms, constitutes a very serious reproach to abdominal surgery. The appendicectomy *qua* appendicectomy has been skilfully performed, the wound has healed primarily, without complication, and yet, the symptoms not having been relieved, it is obvious that the appendix was not the cause of the trouble, or at any rate not the sole cause. The incision has usually been of the “gridiron” type, but sometimes Battle's or other variety of limited incision has been adopted. The fault lies in the fact that no general examination of the abdominal viscera was made during the operation, nor is such possible through any of these limited incisions; so far as non-urgent conditions are concerned “gridiron” appendicectomy is the curse of abdominal surgery, and there should be but one incision for this type—the “paramedian.” This reproach to our work will never be removed until surgeons generally come to regard every abdominal section for non-urgent conditions as essentially and primarily an exploratory laparotomy, however certain they may feel of their pre-operative diagnosis. It is the opportunity of a lifetime to discover the state, not only of the organs suspected, but of all the other abdominal and pelvic viscera; nor should the abdomen be closed until the surgeon knows the condition of every viscus it contains, at any rate so far as inspection or palpation can reveal it.

This routine examination should be thorough and carried out upon a systematic plan. A good rule, I consider, is to postpone the examination of the suspected viscus until the last, otherwise, should one's pre-operative diagnosis be immediately verified, there may be a tendency rather to scamp the rest of the systematic examination and so to overlook other concomitant, and possibly even more serious, lesions. It has happened to me on six occasions that, with a confident pre-operative diagnosis of chronic gastric ulcer, confirmed by radiography, this preliminary routine examination has disclosed an absolutely unsuspected early carcinoma of the bowel, a well marked gastric ulcer being also present in each case. The futility of treating surgically, however skilfully, a gastric ulcer and leaving behind a carcinoma needs no emphasis. It must be admitted that the prolongation of the operation necessary for this routine examination will slightly increase its risks, but I believe this to be more than counterbalanced by the advantage of not overlooking any other coexistent lesion. The general state of the patient must, of course, be considered, and where this is such that any prolongation whatever is considered unjustifiable, this routine examination should be omitted. In the majority of abdominal sections for non-urgent conditions, however, the general state of the patient is sufficiently good to permit of it, and, if otherwise, I believe it to be better practice to postpone operation for a while and attempt, by medical measures, to improve the general state rather than to operate at once and omit the routine examination.

CONCLUSION.

In concluding this review of the abdominal surgery of the last twenty-five years I feel very strongly that its progress has been such as successfully to stand comparison with that attained in any other branch of the arts and sciences—not even excepting the brilliant achievements of the “wireless.” So great has it been, in fact, that it seems difficult to believe that the next twenty-five years can continue this progress on quite such a dramatic scale. There are unquestionably plenty of problems connected with abdominal surgery still awaiting solution, but these are details of administration and of technique rather than the elucidation of great principles—the consolidation of positions already gained rather than the storming of new

"fortresses." One may almost say that there are no new "fortresses" left to storm, since all the abdominal viscera are now the subject of the surgeon's frequent attention; certainly there can be nothing in the next quarter of a century to compare with the victorious advance made during this in the treatment of acute abdominal crises by the general adoption of early operation.

Having personally witnessed this twenty-five years' progress, as I have, and glorying in it, as I do, I naturally decided to select this as the subject of my presidential address to you, and to illustrate it by reference to the statistics of the Manchester Royal Infirmary—an institution around which the whole of my professional life has revolved, and of which I am, we all are, intensely proud. And if I have failed to arouse in each one of you something of the profound faith and enthusiasm in the progress of abdominal surgery which I myself feel, then I must ask you to ascribe such failure, not to any inherent defect in the theme itself, but to the inadequacy of my descriptive powers to do even the most rudimentary justice to this truly wonderful chapter of surgical progress.

HODGKIN'S DISEASE IN MAN AND ANIMALS.*

BY

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Synonyms.—Hodgkin's lymphogranuloma, lymphadenoma, lymphogranulomatosis, or granulomatosis maligna.

Nomenclature has been a stumbling-block, for the terms "lymphosarcoma" (Virchow) and "pseudo-leukaemia" have been applied to what we understand by Hodgkin's disease, whereas quite a distinct and different significance now attaches to these two words. Cohnheim in 1865 employed the term "pseudo-leukaemia" to a condition in which the enlarged lymphatic glands showed the histological structure in leukaemia while the blood did not—in fact, to what would now be called aleukaemic leukaemia, the aleukaemic phase of leukaemia, or probably better aleukaemic lymphadenosis. Lymphadenoma, which in this country is synonymous with Hodgkin's disease, has the disadvantage that in America and France it is sometimes employed for what would be more accurately described as lymphadenosis, since it does not run the inevitably malignant course. Except for the drawback of the change it might be well to adopt the term, used for seventeen years by H. M. Turnbull, and also employed by Ewing, of "Hodgkin's lymphogranuloma."

Incidence.—As the nomenclature is a source of confusion, and the clinical diagnosis, especially from lymphosarcoma, difficult, the Registrar-General's returns may not settle whether the disease is becoming commoner, as some have thought, but they show an increase in the last ten years, from 280 deaths in 1913 to 371 in 1923.

Criterion of Hodgkin's Disease.

As the cause of Hodgkin's lymphogranuloma is unknown, it is necessary to fall back on its histological structure as the only means of defining exactly what is meant by the name; indeed, the diagnosis of a given case can be made with certainty only on its microscopic characters, for the clinical features and the response to treatment, especially to radiations, though strongly suggestive, cannot be regarded as final courts of appeal. The histological appearances, described independently and almost simultaneously by F. W. Andrews and Dorothy Reed in 1902, are so well known that it is unnecessary to do more than mention them—namely: (1) diffuse alteration of the structural architecture of the gland as a whole, showing (2) a diminished number of lymphocytes; (3) endothelial hyperplasia; (4) "lymphadenoma cells"; and (5) sometimes well marked eosinophilia. The blood changes are not patho-

gnomonic; there is often a leucopenia, especially in the earlier stages and in the cases of predominant splenic enlargement; when the disease is widespread a polymorphous nuclear leucocytosis is common, and in rare instances there is a well marked eosinophilia, the significance of which is not clear.

Valuable as microscopic examination of an excised gland is, biopsies are not free from fallacies, for although there is lymphadenoma elsewhere the gland excised may show nothing more than indefinite lymphoid hyperplasia due to simple inflammation or compensatory for the destruction of other lymphatic glands. But Webster found that biopsies gave more positive results in Hodgkin's disease than in cases ultimately proved to be lymphosarcoma.

Nature of Hodgkin's Disease.

Lymphadenoma has been thought to be (1) a neoplasm, (2) a transition between a neoplasm and an inflammatory formation, and (3) as seems most probable, an infective granuloma, though the responsible virus, in spite of the descriptions of the tubercle bacillus (C. Sternberg; Frankel and Much), a Gram-positive pleomorphic diphtheroid bacillus (Bunting and Yates), and a spirochaete (White and Proecher), has not yet been established.

The view that Hodgkin's disease is a neoplasm rests on several considerations, and perhaps chiefly on the assumption that in its early stage it is confined to existing lymphadenoid tissues, and that later it generalizes like sarcoma and invades tissues, such as muscle and bone, which do not contain any lymphoid tissue; this generalization, however, is quite compatible with the characters of the infective granulomas. The second reason is that in the late stages the histological characters may become those of a sarcoma—"Hodgkin's sarcoma," as Ewing (1922) calls it. If and how often this sequence has been actually proved by biopsy and necropsy I do not know; it is said by Ewing to occur often in mediastinal lymphadenoma, but these are just the cases in which a biopsy may be impracticable. Now the various kinds of cells seen in the early stage are much more like the inflammatory changes in the infective granulomas than the structure of a sarcoma, even though a mixed-celled. But Mallory groups together under the term "lymphoblastoma," as true tumours, Hodgkin's disease, lymphoid leukaemia, and lymphocytoma. It is a rather different and difficult question whether Hodgkin's lymphogranuloma becomes transformed during its course into Hodgkin's sarcoma, or whether the condition is sarcomatous from the start and becomes more virulent with the progressive impairment of the patient's resistance. On the analogy of chronic irritation as an antecedent of carcinoma and of the rare occurrence of sarcoma and carcinoma in the same growth, it would be reasonable to believe that a gland originally the site of chronic inflammation may later become sarcomatous, and Ewing (1913) has observed this sequence of events in cases in which repeated operations have shown the elimination of the original granulomatous lesion. But it would appear to be an open question whether the sarcomatous change occurs in the cells of Hodgkin's lymphogranuloma or in the tissues around, the latter process being analogous to the occurrence of a squamous-celled carcinoma in the site of cutaneous lupus.

Situation of the Disease.

The primary site of lymphadenoma is usually regarded as the cervical glands, as shown by the statement that these are first affected in from 50 (Ziegler) to 75 per cent. (Bunting) of the cases. But it does not follow that the glands first palpably enlarged are necessarily those first attacked; on the rather slender basis of fourteen cases Symmers has insisted that primary enlargement starts in the abdominal or in the abdominal and thoracic glands ten times more often than in the cervical, and Ewing confirms this. Its starting-point after that of practical importance as determining not permit me this area to be treated by x rays or radium. The marked advances that of Hodgkin's disease is that just twenty-five years in the to is in the lymphadenoid masses, of the intestines, and more keen, the mesenteric and but were I to do so it would be but, it very rarely attacks same tale of steadily continued progress

* An opening paper of a joint discussion of the Sections of Medicine and Comparative Medicine at the Royal Society of Medicine on January 26th, 1926.

the lymphoid tissue of the alimentary canal. It is true that cases, such as G. N. Pitt's collection of twenty-five cases, have been described, but it is significant how few have been recorded since 1902, when the histological characters were established.

Satisfactory evidence that Hodgkin's disease has ever been transmitted to animals is wanting; Bunting and Yates, after repeated injections of their diphtheroid bacillus isolated from lymphadenomatous glands, obtained appearances in five *Macacus rhesus* monkeys resembling "the early changes of Hodgkin's disease as seen in man"; but this is rather ambiguous, for the lymphocytic hyperplasia which Bunting describes in the early stage of Hodgkin's disease resembles inflammation. Other observers have failed to confirm this. Inoculations of material from lymphadenomatous glands into monkeys have given negative results (Longcope; Cunningham and McAlpine; Stewart and Dobson). Stewart and Dobson described "a peculiar giant-celled reaction, probably of foreign body type, around the implanted material," which is of some significance in relation to the early changes of lymphadenoma reported by Bunting and Yates. C. C. Twort found that guinea-pigs frequently reacted to inoculation of pieces of lymphadenomatous tissue by the production of transient local nodules which histologically were entirely of an inflammatory nature.

HODGKIN'S DISEASE IN ANIMALS.

The chief interest of to-night's discussion, at which we welcome our colleagues of the Section of Comparative Medicine, is the question of the occurrence in animals of Hodgkin's disease as established by the histological appearances now accepted as characteristic in man. It is described as occurring in the so-called lower animals, but how far is this based on clinical rather than on microscopic evidence either by a biopsy or necropsy? In 1903 John McFadyean, under the title "Five cases of Hodgkin's disease in the lower animals," quotes F. W. Andrewes's account of the histological picture, and adds: "If the characters above mentioned are essential to Hodgkin's disease or lymphadenoma, the cases which I am about to describe have no title to be called by these names." This frank admission applies to nearly all the few recorded cases of lymphadenoma in animals that I have come across, which might more safely be headed lymphoma; thus in Hodgson's brief account of "Hodgkin's disease in a pig" the glands microscopically "showed simply an excess of lymphocytes above their normal structure." In G. Simons's case of Hodgkin's disease in an Aberdeen terrier there was no *post-mortem* examination; in Reed's case of Hodgkin's disease in a horse the microscopic appearances of the glands were "a hyperplasia of the cellular elements and an increase in the gland stroma." Hobday's case in a dog, however, was examined after death by Sir John McFadyean, who is quoted as stating that "it was a typical case" without any further details. There does not appear to be any reason why Hodgkin's lymphogranuloma should not occur in animals, but more information is required about the microscopic appearances of cases so diagnosed on clinical grounds.

DIAGNOSIS.

The greatest difficulty in the differential diagnosis of Hodgkin's disease is the clinical differentiation from the variously named primary sarcomas of lymphoid tissue—lymphosarcoma, malignant lymphocytoma, endothelioma. In many cases this can only be done by microscopic examination of an excised gland.

Cases of secondary malignant growth in the cervical and supraclavicular glands may imitate Hodgkin's disease when the primary growth in the mediastinum, or even the oesophagus, is latent and the chest is not skigraphed. I have seen a case which, after imitating Hodgkin's disease, became one of cancer en cuirasse, so that a small primary carcinoma of the mamma probably escaped detection. I have twice seen the following condition suggest Hodgkin's disease: a primary malignant hypernephroma of the left adrenal or kidney producing a tumour, taken for an enlarged spleen, and secondary glands above the left clavicle.

There are certainly a number of chronic enlargements of a hyperplastic or inflammatory character, though of undetermined origin, which clinically are regarded as Hodgkin's disease, and in which the doubt about the diagnosis only arises when a biopsy or necropsy upsets the clinical opinion. These may be toxic or probably due to a low-grade infection. Ledingham found that the virus of vaccinia, and possibly of small-pox, may set up changes in the cells of the reticulo-endothelial system resulting in an acute granuloma. In chronic infection of the urinary tract by *B. coli* I have seen glandular enlargement suggesting Hodgkin's disease. Brill, Baehr, and Rosenthal described splenomegalia lymphatica hyperplastica, a condition showing generalized and gigantic hyperplasia of the lymph follicles of the lymphatic glands and of the Malpighian bodies in the spleen: the blood count was normal, and the condition was rapidly cured by x rays; but before this was found out splenectomy was performed in two cases (one followed by death). Cases described as infectious mononucleosis and glandular fever run a short course, and so are not likely to give rise to much difficulty in diagnosis.

Tuberculous adenitis may come before us in three forms in connexion with the clinical diagnosis from lymphadenoma; the first is common and often commonplace, the second very rare, and the third so exceptional as to have aroused some scepticism (F. P. Weber; Lyon; Sprunt). (1) Tuberculous glands in the neck often simulate lymphadenoma, especially when the glands show tuberculous large-celled hyperplasia without necrosis or caseation. (2) Generalized tuberculous adenitis may, as MacNalty showed, be accompanied by the relapsing fever described in lymphadenoma by Murchison (1870), Pel (1885), Ebstein (1887), and often, regardless of strict priority, called the Pel-Ebstein syndrome, for Morgagni in 1769 briefly recorded an example. This generalized tuberculous adenitis, when it occurs, may be associated with visceral infection—for example, of the lungs (MacNalty)—though the absence of splenic enlargement, which occurs in about 75 per cent. of generalized lymphadenoma, is of some diagnostic value. In very rare instances, of which Crip and Narr could not find more than a very few recorded cases, the infection appears to be confined to the glands; in their patient and in another recovery occurred. (3) The condition, little if at all accepted in this country, described as adeno-lipomatosis, in which fatty growth occurs around lymphatic glands which may be tuberculous, a process regarded as an effort to localize the disease. In fat persons in the early stage of lymphadenoma the question of diagnosis from adeno-lipomatosis has arisen, at any rate in my mind.

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INFANTILE PARALYSIS.

A CLINICAL STUDY.

BY

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THERE have been many epidemics of infantile paralysis in Australia and New Zealand during the present century. The first occurred in Sydney in 1903, during November and December, when about forty cases were treated at the Children's Hospital. From Sydney it spread during the course of the following year over the greater part of New South Wales and Queensland. From 1903 to 1909 there was an interval, but from 1909 to 1916 there were annual epidemics, always reaching their height in the later half of the summer and in the autumn. There was again an interval till 1921. There were mild epidemics in Sydney in 1921, 1923, and 1924, but none this year (1925). In 1923 I collected the notes of about ten or twelve cases altogether, some being doubtful. In 1923 there were forty cases in the hospital, seventeen being under my care; one doubtful case was fatal, but no *post-mortem* examination was allowed. In 1924 there were forty-five cases in the hospital, one fatal; no *post-mortem* examination was allowed. The last two epidemics were very similar. They both reached their maximum later than usual. In 1923 most cases were admitted in May, a cool month; in 1924 in March. Both epidemics were mild, with a high recovery and a low mortality rate. A very extensive epidemic visited New Zealand, but not Australia, in 1925.

Age.—Of forty cases in the Children's Hospital in 1923, eighteen were between 1 and 2 years of age, and twelve between 2 and 3 years; that is, thirty out of forty were in the second and third years of life. There was only one under 12 months (7 months); the oldest was 8 years of age. The age incidence in the 1924 epidemic was very similar. These figures agree with those published by other writers. In Sydney cases in adults have been very rare, and the disease is very seldom seen even in adolescent boys and girls.

Most authors follow Wickman and describe eight clinical types. These are usually given as follows:

1. Spinal or common type.
2. Landry's paralysis type.
3. Bulbar or pontine.
4. Encephalitic type, which is responsible for many of the fatal cases in infants.
5. Neuritic type. There is some doubt about this forming a separate group, as neuritic symptoms are very common in the spinal form. Speaking for myself, I have never seen a case in which the central nervous system was not involved.
6. Meningitic form.
7. Transverse myelitis type.
8. Abortive form.

The classification into types is convenient, as the symptoms vary a good deal in different cases.

CASE I.—*Rigidity of Spine with Paralysis of Legs.*

I shall begin by describing a typical case in the Children's Hospital last year (1924). She had been treated at the outdoor department for about a week before admission. She was 1 year and 10 months old, well nourished and healthy-looking. She cried as the cot was approached, and evidently found the process of undressing preparatory to examination very disagreeable. On placing the hand behind her head, the neck was found to be stiff and the child cried with pain. On raising her from the bed the whole spinal column was found to be rigid, and the child fell quite helplessly back when her hand was removed. Both legs were paralysed, one more than the other; both knee-jerks were absent. When the muscles were all flaccid and not tender on handling, the paralysis appeared to be perfectly normal in every way. The arms which would usually be

We have here a typical case, which the disease affecting the motor cells of the legs, due to a neurone lesion. The rigidity of the neck and trunk, which is usually much engorged and infiltrated with leucocytes—that is, Wickman's Type 6.

3. Paralysis of the neck and trunk, which rendered the child quite unable to maintain herself in the sitting posture, was due to a general involvement of the motor cells in the spinal cord.

This kind of case is the most common and ends in complete recovery except for some of the muscles of the legs.

CASE II.—*Rigidity of Legs.*

A child, aged 2½ years, had rigidity of the neck and spine, and paralysis of the muscles of the trunk, but with the legs rigid and stiff in the extended position. The knee-jerks were exaggerated. This case differs from the other, only because the lumbar enlargement has escaped injury. It corresponds to the meningitic type of Wickman.

CASE III.—*Rigidity and Flaccidity of the Legs.*

A child, aged 2 years, presented a combination of the symptoms of the previous two: some of the muscles of the legs were rigid, while others were flaccid. One leg was kept stiff with the knee extended, and the knee-jerk was exaggerated; the other was quite flaccid and helpless, and the knee-jerk was absent.

This last type is quite common, although not so common as the first case. Rigidity of the legs quickly disappears, generally in a week or two, leaving the limbs more or less completely paralysed. Probably rather less than half of all cases show rigidity; though in some it may have been present before admission. Wickman called attention to this condition and recognized its cerebral origin; he suggested that it was caused by the spread of the inflammatory process from the anterior cornua to the lateral columns, thereby leading to a condition similar to lateral sclerosis. The rigidity of the trunk does not disappear so rapidly as that of the legs, and stiffness of the neck last of all. Paralysis of the trunk and neck remains long after all stiffness has disappeared—that is, the child is unable to raise itself into the sitting posture in bed and unable to maintain itself in that position even when placed in it. These three types constituted the vast majority of all cases in our last two epidemics. There were indeed some mild cases, which showed no rigidity, but yet had paralysis of the trunk. I give the notes of one such child under my own care.

CASE IV.

A boy, aged 4 years, was admitted on April 19th, 1921, with a history of a week's illness; the onset was said to be sudden with paralysis of both legs and inability to walk. When examined on April 20th he had fair power in the legs and no anaesthesia. He could not sit up in bed or stand. There was no head retraction or other stiffness. The knee-jerks were absent. The legs moved freely when tested with a pin prick. On April 25th he could sit up; the knee-jerks were still absent. On May 2nd he could sit up well; the knee-jerks were still absent. Three days later he could sit up quite well, but could not stand; the knee-jerks were present, but difficult to get. By May 16th he was improving, and could stand with assistance. He was discharged, well, on June 2nd. The temperature was normal throughout.

In this mild case paralysis of the trunk was the most prominent symptom; the legs were only slightly affected and the arms not at all. Such cases, though, without rigidity are rare.

CASE V.

In this case, a girl aged 1 year and 10 months, the onset was quite sudden. She was quite well on March 27th at 11 a.m. She was suddenly seized with paralysis and was admitted to hospital the following day, when it was found that she was unable to stand or sit up. The legs were flaccid, but the knee-jerks were present. There was some difficulty in micturition and defaecation, which, however, quickly disappeared. Recovery was rapid and continuous. She was discharged on June 1st, having made a complete recovery.

This case is of interest because the mother was able to state almost to a minute when the paralysis set in. It suggested at the time that there was a vascular lesion. It is difficult to conceive a diffuse lesion of the spinal cord arising in this way. The different symptoms shown by the cases quoted will now be discussed.

Rigidity of the Neck.

Rigidity of the neck is a very common symptom in infantile paralysis; it is present in 80 per cent. of all cases, according to Foster. I have not endeavoured to work out the percentage in our cases, as many are not admitted till after all acute symptoms have subsided. It is probably entirely absent in a few only. It varies a great deal in severity from day to day and from case to case. Retraction may be so marked that the child can only lie on its side. In mild cases it may be necessary to flex the patient's neck

to bring rigidity out. The muscles all round the neck, back and front, are stiff. Usually great pain is caused by any attempt to flex the neck. It may be very variable from day to day; it may even be very stiff one day and quite relaxed the next. The mistake should not be made that it is voluntary on the part of the child.

Rigidity of the neck in infantile paralysis is precisely similar to that of the common forms of meningitis in childhood, but the extreme degree of retraction sometimes seen in the pneumococcal or posterior basic form, in which the occiput may almost touch the buttock, does not occur.

It is important to realize that this symptom is not necessarily due to meningitis, although it is often the most prominent sign. In cerebro-spinal meningitis it is of course usually very well marked, as also in the posterior basic form described by Barlow and Lees. In tuberculous meningitis it is only occasionally present, is never early, is less intense, and is much less persistent. In pneumococcal meningitis it is sometimes present and well marked. All writers remark on the frequency with which it appears in meningitis of the posterior fossa. It may also appear as the result of otitis media, disappearing as the ear gets well. But it is frequently present when there is no meningitis at all, as in pneumonia. In severe cases of gastro-enteritis it may be very marked, again without any sign of meningitis, and often ends in complete recovery. In pneumonia it does not seem to add to the gravity of the prognosis, and does not usually last more than two or three days. The absence of actual pneumococcal meningitis can be established by lumbar puncture. I have seen it also in a case of cerebellar tumour. At the post-mortem examination a tumour was found in the left lobe of the cerebellum, but no meningitis. This child was aged 2 years, and during life had been looked upon as an example of the chronic form of cerebro-spinal meningitis, owing to the marked retraction of the head and rigidity of the spine and legs. Though rare in typhoid fever, it may occur, leading to the well known clinical resemblance between this fever and meningitis. Almost any toxic condition in a small child can lead to it. For instance, a child was admitted to hospital with a retraction of the head due to a sinus in the buttock. The sinus healed after a few days' treatment, and the retraction of the head disappeared at the same time. It is therefore certain that rigidity of the neck, trunk, and legs may appear in children as the result of a great variety of infections without meningitis, and also from cerebellar tumour.

It has been suggested that retraction of the head is due to increased fluid collecting in the cerebello-pontine angle. This explanation cannot apply to infantile paralysis, as the rigidity of the spine and legs must be explained also. I believe that it is generally supposed that in meningitis of the posterior fossa irritation of the first three cervical nerves, direct or reflex, leads to head retraction. This explanation is inadequate for two reasons: it does not account for the cases where there is no meningitis, and it does not take into account the effect of meningitis on the cranial nerves in the posterior fossa. If there be irritation of the cervical nerves, should there not be also irritation of the cranial nerves? Spasm of any of the muscles supplied by the facial and other nerves traversing the posterior fossa is unknown in meningitis and the other conditions described above. The supposition that rigidity of the neck is due to "irritation" may therefore be dismissed.

Rigidity of the spine frequently accompanies retraction of the neck in infantile paralysis, though not always. When it is present it clears up before the latter. It is often present in meningitis. It is evidently similar in nature and origin to retraction of the neck, the same causes leading to each. It is obvious, of course, that "irritation" is an inadequate explanation, since the extensors of the trunk alone are involved in the spasm, the flexors escaping altogether, as well as the muscles of the arms, and frequently those of the legs. The abdominal muscles always escape.

The rigidity of the legs has already been mentioned. In my experience, the legs are always kept in the extended position. The spastic condition never lasts long, disappearing before that of the trunk. It is clearly of cerebral origin, although it is doubtful whether Wickman's sugges-

tion that it is due to involvement of the lateral columns by the inflammatory process is the true one.

Any satisfactory explanation of these phenomena must apply to all three, since the same characters belong to each. In each certain muscles only are spastic—namely, those which maintain the trunk and limb in the extended position; the muscles of the upper limbs remain free, as well as the abdominal muscles. The spasm may be maintained for days and weeks. Now these are the attributes of contracting muscles, subserving "posture," as pointed out by Sherrington; the "lengthening and shortening" reactions are difficult to demonstrate, as the muscles are too tender as a rule to admit of much manipulation. But there is no doubt that the attitude of a child with infantile paralysis may be very similar to that of the decerebrate animal, dog or cat, described by Sherrington, with the significant exception that the arms of the child are not rigid, like the forelegs of the animal, which are used for standing. As Sherrington puts it, the position is one of reflex standing. Following Hughlings Jackson, one may attribute the rigidity to loss of cerebral control. Warner and Olmsted have lately described a tract, proceeding from the cortex of the frontal lobe, capable of inhibiting decerebrate rigidity, as postulated by Hughlings Jackson. One is naturally tempted to think that this tract may be injured in some part of its course. Decerebrate rigidity may also be inhibited by electrical stimulation of the vermis of the cerebellum, as Sherrington and others have pointed out. There is nothing in the clinical aspect of rigidity to lead one to a definite conclusion as to how inhibition may be brought about in the human being. It is clear, however, that in infantile paralysis we sometimes have a clinical condition strictly comparable to the "decerebrate rigidity" described by Sherrington, as occurring in a cat, the section passing posterior to the mid-brain, but leaving the pons and cerebellum intact.

Retraction of the neck is not so often seen in the adult as in the child, and when present is usually less marked. Tumours and abscesses in the cerebellum, haemorrhage into the posterior fossa, and meningitis just about exhaust the list. The neck is generally rigid rather than retracted. In a boy aged 15 retraction of the neck was the most marked symptom. In the adult pneumonia is never associated with rigidity of the neck, so far as I know, nor are any of the other toxic conditions already mentioned. The question arises, then, Why should retraction and rigidity of the neck occur so frequently in childhood in a variety of diseases in which it is never present in the adult? No satisfactory answer to this question has been given. The rigidity of the adult presents exactly the same attributes as that of the child; it is certain that a similar mechanism is involved in each. It is reasonable to suppose that in the child rigidity, being a more primitive (a lower level) function, is less completely inhibited than in the adult. In other words, it is a "release" phenomenon, in Hughlings Jackson's sense.

Paralysis of the Trunk.

Paralysis of the trunk usually occurs side by side with rigidity. Rigidity may be absent in exceptional cases as already mentioned. In most cases in which rigidity and paralysis of the trunk are combined rigidity clears up before the paralysis. Generally speaking, rigidity disappears in a week or two, or a month at most, while the trunk still remains paralysed. A child, aged 17 months, under treatment in 1923, admitted with paralysis of the trunk and rigidity of the neck and trunk, did not recover the power of sitting up in bed for seven and a half weeks. During the whole of this time she lay on her back in bed quite helpless, unable even to turn in bed; there was no paralysis of the legs or arms, but the knee-jerks were exaggerated. Complete recovery took place without wasting of any of the muscles.

A lesion of the lower motor neurone is not infrequently absent, but at the age at which infantile paralysis is common paralysis of the trunk is the most characteristic symptom. It is demonstrated by putting the child on its back in bed, placing the hand behind the shoulders and raising them from the horizontal to the sitting-up position. If there be rigidity, the head, neck, and trunk may be held

in one almost straight line; but still the child is absolutely helpless. This symptom does not, I think, occur in other diseases than infantile paralysis in early childhood. I noticed, for instance, in a case of pneumococcal meningitis, that the child was able to raise herself in bed without any special difficulty, although her neck and back were quite stiff. This child appeared to be recovering, but died soon after.

This paralysis of the trunk is too obvious a symptom to have escaped notice before. Many writers mention it, but do not attach any special importance to it, evidently looking upon it as one of the many manifestations of the lesion of the lower motor neurone. There are two sufficient reasons for rejecting this view. (1) Any subsequent wasting of the muscles of the trunk is unusual. Complete recovery is the rule, although it may take some weeks, as in the case already quoted. This is in striking contrast to the paralysis of the legs, in which complete recovery is the exception. In the last two epidemics, which have formed the principal basis of this paper, only one case of residual paralysis of the muscles of the neck or trunk was observed. This child recovered completely from the paralysis of the trunk after about two months, but paralysis of the muscles of the neck remained with wasting. A mechanical contrivance had to be devised to hold her head up. In this case it was clear that the motor cells in the upper cervical portion of the cord had been destroyed. Permanent paralysis of the muscles of the upper extremity, also rare. (2) Usually the muscles of the upper extremity, and occasionally those of the upper limb, escape paralysis altogether. It is impossible to suppose that such a widespread and destructive lesion could involve the thoracic and cervical portions of the spinal cord and leave out the cervical and lumbar enlargements.

There must be some connexion between this paralysis of the trunk and the rigidity previously described. They have much the same muscular distribution and are generally associated with one another. It is natural to suppose that the cerebellum is the organ involved. Usually the child can carry out all voluntary movements other than those involved in the assumption of the erect posture. The child can talk, feed itself, and otherwise use the hands as well as ever. It can move the legs in bed, lift them up, and carry out any ordinary muscular movement; but yet cannot use the legs for standing. It is clear that we have here no ordinary form of muscular paralysis, due to disease of the lower motor neurone. The incidence of the paralysis shows clearly that it must be of cerebral origin. It cannot be due to disease of the cerebral cortex, as all ordinary voluntary movements can be readily carried out, apart from those of the trunk. "Atonia" has been regarded as a result of disease of the cerebellum for many years. It is clear that in infantile paralysis the function of standing is lost for a time. This function is almost automatic. It is also exceedingly interesting that rigidity of the neck and trunk should be so often combined with paralysis of the trunk in infantile paralysis, and yet be dissociated from it in other cases; also that in some cases of meningitis rigidity should exist without any real paralysis of the trunk. The explanation would seem to be that in meningitis the cortex alone is injured, while in infantile paralysis the cerebellum is injured in addition.

The question arises, Why are these two symptoms, rigidity and paralysis, so common at this early age, whether the case be one of infantile paralysis, meningitis, pneumonia, gastro-enteritis, or other form of toxæmia? I think that one of Hughlings Jackson's axioms may be the answer to this question—namely, that the most recently acquired function is the first to be lost in disease of the nervous system. The most important functions a child acquires during the first two years of life are those of standing and walking. Few things are more striking in the newborn infant than the total want of tone in the muscles of the neck and of the arms, but it has no control whatever over the muscles of the neck. It is not till after about three months that the child is able to hold the head up; at about 12 months of age it should be able to stand and perhaps to walk. This process is very slow and gradual; even when acquired, the child is for a

long time very unstable in standing, running, or walking. It seems reasonable to suppose that this function is particularly vulnerable in the second and third years of life when infantile paralysis is common. No doubt the cerebellum is the organ which controls it. The cerebellum exercises, in conjunction with the medullary and pontine nuclei, a tonic influence on the muscles of the trunk especially, and on those of the legs to a less degree, which makes the assumption of the erect posture possible. In infantile paralysis the power of assuming the erect posture is lost altogether for a time in many cases.

Landry's Paralysis and other Types.

The acute ascending type, which is often fatal and which resembles the form of paralysis described by Landry in 1859, has not formed a feature of recent epidemics in Sydney. It usually occurs in older children, and includes most of the fatal cases in some epidemics. It seems likely that further investigation along the lines here set forth might give useful results. The cerebral type is very apt to be mistaken for meningitis; there may be rigidity of the neck with convulsions, as in one of my cases. A child, aged 1 year and 11 months, was admitted in general convulsions in March, 1909; the convulsions next day were limited to the left half of the body. The left half of the body was paralysed. She was subject to fits of the Jacksonian type for some ten years, and then she passed from my observation. The cerebral cortex was no doubt the chief seat of disease in this child. Is it too much to assume that the cerebellar cortex was also affected?

I did not intend in this paper to deal with the subject of rigidity in anything like a comprehensive way, but merely to discuss one aspect of it. The work of the late Professor Hunter has directed the attention of the profession to the whole question, in a most lucid and masterly fashion. Almost all the observations given in this paper were carried out before his work was published. The issues of the *BRITISH MEDICAL JOURNAL* of January 31st, February 7th, 14th, 21st, and 28th, 1925, which contain references to recent researches bearing on the subject, should be consulted for a full description of Hunter's work.

THE ACTION OF PITUITARY EXTRACT ADMINISTERED BY THE ALIMENTARY CANAL.

BY

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SINCE von den Velden¹ first showed the specific action of pituitary extract in cases of diabetes insipidus this drug has been used very widely by clinicians, and has proved a helpful remedy, not only in diabetes insipidus, but also in surgical shock, and especially for its action on the uterus. This widespread use of pituitary extract has naturally led to administration by various methods. It has been recognized generally that pituitary, when given intravenously, subcutaneously, or intramuscularly, shows a distinct influence on all those organs on which it is known to act. The effect of pituitary after any method of injection is, however, limited to a comparatively short time, and repeated injections are required in order to keep the patient under the influence of the drug. In cases where repeated injections have been tried, but there has been no unanimity as to the results. Kennaway² and Blumgart,³ Barker and Mosenhall,⁴ report that they have never observed any pituitary action after administration by the mouth. Wolpe,⁵ Hamill,⁶ and Donaldson,⁷ on the other hand, observed a distinct action after oral administration. Abel and Gisling,¹⁰ Rowntree, and Blumgart have produced evidence of the successful application of pituitary by the nose, and finally Rosenfeld¹¹ may be mentioned for having observed a slight effect after rectal administration. All these observations have been made clinically on patients suffering from diabetes insipidus or from uterine haemorrhage, except Hamill's investigation, which was carried out

on cats. As the literature up to date does not give any clear evidence of the pituitary action on blood pressure and uterine movements after administration through the different parts of the alimentary canal, an accurate study of this subject appeared to be desirable.

In the investigation here described cats were used; they were anaesthetized with chloralose and the blood pressure was registered from the carotid artery. The uterine movements were recorded in the following way. The abdomen was cut open in the mid-line just above the urinary bladder. A small incision was then made in the vaginal wall as near the vulva as possible. A glass tube was inserted and tied into the vagina and the uterus was then filled with liquid paraffin. The vaginal glass tube was connected by rubber tubing with a manometer in order to regulate the pressure, and the rise and fall of the oil caused by uterine contractions were recorded by means of a tambour. The pressure naturally varied according to the size and condition of the uterus, but on an average was about 10 cm. This method was very successful, as the abdomen could be kept closed, trifling movements of the animal did not affect the record, and an accurate investigation could be continued for a prolonged time. All experiments were completed by an intravenous injection

The results obtained by using the methods described above are more or less in accordance with the bulk of observations made by clinicians. Clinical observations of this kind are by the nature of things extremely difficult to interpret, as they lack the necessary controls.

So far as Wolpe's and Donaldson's observations are concerned, the authors may probably be right in stating that pituitary extract acts when given by the mouth, but the important fact to appreciate is that the absorption of the active principle takes place in the mouth and not in the stomach. Hamill's observation that strong uterine action is produced by pituitary extract when introduced into the stomach is based on experiments which are open to many criticisms. The method of recording uterine movements was such that any small movements of the animal upset the record, and in a long experiment this is a very important point. Hamill does not appear to have employed curare to counteract this. He states himself that the records were difficult to obtain on account of peristalsis and straining. My own experience is that the method employed by Hamill is not valid for this type of experiment on account of the difficulty in interpreting the results. My own experiments point to the fact that no pituitary action whatever occurs when the drug is intro-

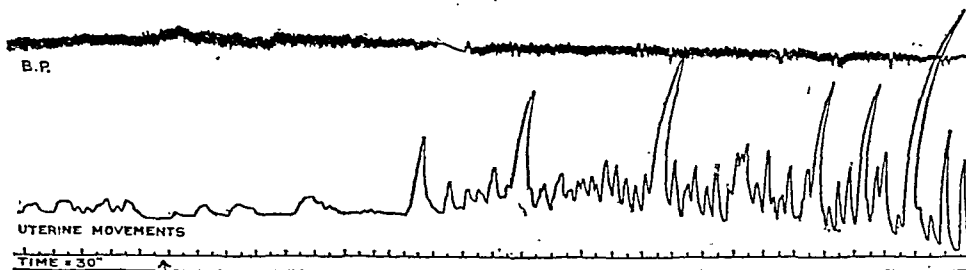


FIG. 1.—Cat, weight 3 kilos, uterus big and relaxed; at the arrow 1 c.cm. of pituitrin was administered by the mouth.

of pituitary extract in order to test the reliability of the method. The pituitary extract used was that of Parke, Davis and Co., and my thanks are due to this firm for the free supply of the drug.

1. Action when given by the Mouth.

The oesophagus was tied at its entrance into the chest, and the pituitary extract was then placed under the tongue, this being considered the best place for absorption. The tracing (Fig. 1) shows quite distinctly the powerful action on the uterine muscle, and the complete lack of any simultaneous pressor effect. This experiment, which may be regarded as typical, shows quite clearly that pituitary extract is not only absorbed by the mouth, but that the absorption was remarkably rapid in the instance illustrated, a marked effect being obtained in eight minutes.

2. Inaction when given by the Stomach.

In these observations care was taken to avoid any absorption in the mouth. The pituitary extract (1 to 2 c.cm.) was introduced directly into the stomach by means of an elastic catheter. As a result of repeated experiments it is certain that under the conditions stated no effect is produced, either on the blood pressure or on the uterine muscle after administration by the stomach. A subsequent intravenous injection of an appropriate amount of pituitary extract given at the close of the experiment has always shown its typical effect.

3. Inaction when given by the Small Intestine.

In order to introduce pituitary extract directly into the small intestine a small incision was made in the mid-line of the abdominal wall and a short loop of the jejunum exposed. This exposure was always followed by a marked rise of blood pressure, and thus it was necessary to wait a certain time until the animal came back to normal conditions before giving the pituitary extract. When the blood pressure had regained its normal level 1 to 2 c.cm. of pituitary extract was injected into the jejunum by means of a very fine needle attached to a syringe, and immediately afterwards the exposed loop was replaced and the cut in the abdominal wall closed. The result of these experiments was in all cases the same as those obtained after the pituitary was introduced into the stomach—namely, that no action whatever, either on the blood pressure or on the uterus, was obtained.

4. Action when given by the Rectum.

These experiments were made under conditions identical with those already described: 1 to 2 c.cm. of pituitary extract was introduced into the rectum by means of an elastic catheter attached to a syringe. These experiments have shown quite clearly that pituitary extract produces a distinct but slight effect on the uterine muscle, but has no action on the blood pressure. The effect is first seen about fourteen minutes after administration.

duced into the stomach or small intestine in reasonable amounts.

Furthermore, it seems to me important to draw attention to the fact that pituitary extract, when absorbed from the mouth or rectum, produces only the uterine effect. I have shown elsewhere¹² that there is every evidence of the existence of two distinct principles in the pituitary body—namely, the oxytocic and the pressor substances, the latter of which is very easily destroyed by passing through capillaries. The investigation here reported affords further proof of that assumption, for the remarkable change of the uterine movements proves the absorption of the oxytocic principle, while the absence of effect on the blood pressure proves the non-absorption or immediate destruction of the pressor substance.

Summary.

1. When pituitary extract is administered at any part of the alimentary canal—mouth, stomach, small intestine, rectum—pressor action is never observed.

2. When pituitary extract is introduced into the stomach or small intestine it exerts no influence on uterine muscle.

3. When pituitary extract is administered by the mouth, after a latent period of about eight minutes it exerts a marked action on the uterus, increasing both the tone and automatic movements. The oxytocic substance is therefore absorbed. The rectum absorbs the oxytocic substance also, although the absorption is probably not so complete.

My sincere thanks are due to Dr. W. E. Dixon, F.R.S., for his kind help and criticism during the course of these experiments.

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APPENDICOSTOMY FOR THE RELIEF OF THIRST AND INANITION AFTER ABDOMINAL OPERATIONS.

BY

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In the surgery of the digestive tract post-operative treatment is of great importance throughout the first week. A patient who has suffered for months from malnutrition due to ulceration or gall stones comes to operation in a cachectic and emaciated condition, the operation perhaps made urgently necessary by perforation or pain. Such a patient, lacking reserves, is unable to stand the semi-starvation which follows, and may die within three or four days from thirst or starvation. The stomach will not retain enough fluid. The rectum returns it. Blood transfusion and intravenous infusions of various kinds are useful for the moment, but their effect is transitory.

Jejunostomy jeopardizes a most vulnerable and important part of the gut, and appendicostomy has hitherto entailed a gridiron or other secondary incision.

I wish now to describe a method by which appendicostomy may be performed in a few seconds at the close of any ordinary abdominal operation by means of a stab incision.

Method.

1. At the end of the main operation the appendix is palpated and freed from any lateral attachments so that it is supported by the mesentery alone.
2. A small scalpel is placed on the middle finger and palm of the left hand and inserted into the abdomen. The tip of the middle finger is applied to the inside of the right abdominal wall about 2 inches internal to the right anterior superior iliac spine at the level of the appendix base. The knife is then pushed through the wall forwards and slightly outwards by flexing the wrist and hand.
3. The knife blade is gripped by a small artery forceps and then pulled back into the abdomen, carrying with it the jaws of the forceps.
4. The knife is removed from the jaws of the forceps and the tip of the appendix is substituted for it. The forceps is then pulled out, followed by the appendix. It is important not to twist the appendix, and palpation of the meso-appendix will determine whether or no this has happened. I have found that most of the appendix comes out without severe pulling, and there is apparently no need to be afraid of using some force.
5. The mesentery is ligatured a quarter of an inch outside the skin and two sutures of silkworm-gut are passed through the skin and appendix wall to anchor the latter.
6. Finally, after closing the main abdominal wound, the appendix is cut off half an inch from the skin. A small catheter is introduced for several inches and tied in. The dressing is arranged so that the catheter comes through and is controlled by a clip.

Before leaving the table one pint of saline and glucose is run in through a funnel, and this is repeated hour after hour as long as may be necessary. Usually when conscious the patient resents the introduction of a whole pint at a time, and the best direction to the nurse is that she pour in the fluid at regular intervals until the patient complains.

I used this method first in 1912 in a case of perforated gastric ulcer. Seventeen pints were given in the first seventeen hours, and as the pulse had then fallen from 144 to 70 there was no need to continue. This patient did not ask for any drink by the mouth.

Since then I have used it in nine cases, of which only one has died. This was a gas infection of the liver due to gunshot wound in France. He died two weeks after operation.

My last case was an emaciated woman, aged 39, with hour-glass stomach, upon whom I performed hemigastrectomy. She vomited small amounts for two days, in spite of which her pulse fell from 100 to 72 in the first six hours and to 60 by the eighteenth hour. She did not complain of thirst. The quantities she received were as follows:

Intravenous infusion 1 pint.

	By appendix.	By mouth.
First day (in 7 hours) ...	3 pints	2 oz. (vomited)
Second day ...	4 pints	12 oz. "
Third day ...	4 pints	23 oz. (retained)
Fourth day ...	6 pints	20 oz. "
Fifth day (12 hours) ...	3 pints	24 oz. "

Total ... 20 pints ... 3 pints 7 oz. retained

No attempt was made to give a maximum quantity on each occasion.

When the appendix stump is no longer required it is treated according to the amount of sloughing present. In two cases a touch of silver nitrate was required to close it. In the rest boric fomentations or wet dressings were used for a few days. In no case was there any real trouble, the track being evidently shut off early by adhesions and granulation tissue.

The chief points about this method are as follows: There is none of the intolerable thirst so common after severe abdominal operations. The pulse slows quickly and the blood pressure rises. There is very little restlessness. The skin is moist, the mouth and tongue are clear and moist. The kidneys act well. Peristalsis is markedly stimulated. Incidentally the appendix is eliminated; with regard to the frequent presence of chronic disease in the appendix this is important. The patient is fed without disturbance, whether awake or sleeping. There is no futile coaxing of the rectum to fulfil the functions of the colon, and the stomach is allowed to rest.

THE TECHNIQUE OF ADENO-TONSILLECTOMY.

BY

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It appears to be generally agreed that if a tonsil has to be removed this should be done completely. It is often impossible to decide whether the tonsil is healthy or not. In markedly diseased tonsils the diagnosis is not difficult, but this applies only rarely to children, from whom 50 per cent. of tonsils are removed for reasons of size and because they give rise to more or less difficulty in breathing. I believe, however, that after the age of 5 nearly all tonsils are useless, and are in most cases a danger to the child's health at that time or later.

Enucleation with a guillotine seems to be the best method, and I have consistently used it since 1910. During a visit to Newcastle in 1908 I saw operations with the reversed guillotine for the first time, but being then in general practice I did not attempt it myself. While on a voyage to South Africa in 1910 I spent an hour daily in the study of Ballenger's description of Sluder's method, and on beginning ear, nose, and throat work in Johannesburg I employed this method, using no other in children under the age of 13. The usual guillotines had not then been reinforced, but within a few months Down Bros. and Mayer and Meltzer produced two very serviceable guillotines, though with the drawback, in my opinion, that the blades had dagger points. Then came Ballenger's handle guillotine—a very satisfactory instrument, now extensively used. This was followed by O'Malley's square blade, which impinged on a blade of soft metal when pressed home. Later came the Elphick pattern, with the crusher and blade; following this was Howarth's double blades, one blunt, one sharp, and a variety of other patterns in America, including those of La Force, Beck, and Sluder. For some time I used the La Force pattern with considerable success. With any of these guillotines I should say that 90 to 95 per cent. of tonsils can be completely enucleated. But there remain 5 per cent., which include the long, flat tonsil; the small buried tonsil glued to the pillars, especially the anterior pillar, as the result of frequent tonsillitis; and tonsils which have been previously operated upon.

Most of my tonsil operations during the last thirteen years have been performed under ethyl chloride anaesthesia. During a visit to America in 1921 I visited Sluder's consulting room in St. Louis, where I studied his original life-sized diagrams, which have now been incorporated in his book, and I often operated under his supervision. I thus learned that by following accurately the steps defined by him the 5 per cent. of impossible tonsillectomies soon dwindled to 1 per cent. The anaesthetic used was gas, and the guillotine was the Sluder pattern, of which there are three sizes. In this instrument the handle and shank are in one piece; the handle, somewhat oblong and very

strong, is placed at the correct angle to the shaft. The distal end of the shaft is as fine as possible compatible with strength; in Sluder's first step in the operation it is fine enough to separate the tonsil from the tongue should they be continuous, as well as to separate easily the lower pole. The fenestra is oval, and in the recent pattern, when the blade is driven home with the thumb, a small lever is raised which locks the blade against the concavity of the fenestra, a solid piece of soft metal taking the place of the usual slot into which the blade enters. The instrument being locked can be kept on the tonsils as long as is desirable, provided the anaesthetic is ether or a combination.

Instruments made without a small slot are more difficult to manipulate, in that the tonsil capsule is not cut through when the blade is driven home, and Sluder's seventh step is often needed, the instrument being rapidly and forcibly raised out of the mouth at a right angle to the tension of the palate. This movement transforms the action of the blade from that of a chisel to that of a knife, facilitating its cutting power. This guillotine gives an almost bloodless operation in a large percentage of cases, the adenoids being removed by a Beckman curette, which I consider the safest of all.

For patients between the ages of 13 and 17 the anaesthetic is ether with oxygen, and the locked guillotine is retained in position for three minutes after removal of the tonsil. Should there be any oozing the enucleated tonsil is fixed on a volsellum, the raw surface being distal, while the buccal surface is rapidly rubbed with 5 per cent. tincture of iodine. The tonsil is then replaced in its fossa and retained there rather firmly for two minutes. This will arrest all the general oozing, and in most cases when the tonsil is again removed the fossa is perfectly dry, any bleeding that continues coming usually from the upper pole (descending palatine artery), more towards the middle line and anteriorly. While the fossa is being kept dry with a small Soronsen's electrical exhaust pump the tonsil is picked up with a long pressure forceps and tied with a slip-knot. A full description by Coakley of this method appeared in the *Journal of Laryngology* for January, 1922. After dealing with both tonsils the adenoids are removed by Kelly's direct-vision adenotome, with which the adenoid mass is plainly seen; it removes all the tissue in about 85 per cent. of the cases. As is known, the contour of the post-nasal space varies, and occasionally a small mass may require removal with an ordinary curette, particularly if it is situated at the upper and outer angle of the space.

In patients over 18 years of age I prefer removal of the tonsils by dissection under local anaesthesia, the posterior accessory palatine nerve being blocked as it emerges from the tip of the pterygoid plate, followed by infiltration with novocain and adrenaline. Unfortunately, about ten minutes must elapse before the operation is commenced. The tonsil capsule is then seized above and below with a powerful volsellum and drawn out; it is divided with a Mayo curved scissors, also used as a plain and expanding dissector. After separation of the upper pole a long strip of gauze is inserted and carried behind and externally until the tonsil is hanging by its lower pole. A strong French snare (Lermoyez) of No. 7 piano wire is then slipped round it and the thumb-screw tightened, but not so as to cut through. It may then be left hanging from the angle of the mouth while the other tonsil is dealt with. Should bleeding occur the tonsil is slipped back into its place and held there for a couple of minutes. If either of the three vessels requires ligaturing it is picked up and tied in the usual way. The cocaine gauze packing which was previously inserted into the post-nasal space is now removed, and any adenoids excised by the direct-vision adenotome. The blood lost by this method is seldom more than half an ounce. The patient is kept under the influence of morphine for the first twenty-four hours, and pain is relieved by gargles of aspirin or antipyrin; frequent hot Vichy water gargles are given, followed by salol.

In every tonsil operation, whether in a child or an adult, the patient should be re-examined during the subsequent six to twelve weeks and a note made of the throat condition. In a town like Johannesburg it is comparatively easy to follow up such cases, and it is surprising

to see the results of some tonsil operations. Usually the condition of the throat is all that could be desired, but in an appreciable number of cases the lower pole of the tonsil—or, at any rate, tissue like that of the tonsil—remains present. It is difficult to say whether some part has been overlooked at the operation, or whether an inroad from the lingual tonsil has occurred, Nature endeavouring to compensate by depositing adenoid tissue. It is sometimes comparatively easy to see that tonsil tissue has been left; this is of little importance, as it can be readily removed. What is far more serious is an entire absence of the anterior pillar, which materially interferes with the singing voice, both in the child and adult.

When the crushing guillotine was first placed on the market many thought it would obviate most of the bleeding, but it was quickly discovered that both primary and secondary haemorrhage was far more frequent than with the single-bladed guillotine, and that about 10 per cent. of children had no vestige of the anterior pillar left, though the difficult tonsils mentioned above had scarcely been touched. The loss of the anterior pillar cannot, however, be wholly attributed to the crushing instrument, as it is occasionally found with a single-bladed one, no matter how carefully the operation is performed. Recently I saw a small boy whose tonsils had been removed by dissection. The anterior pillars had completely disappeared; so there must be other causes for this than the actual operation. I believe it will be found that these children are of a special type from the endocrine point of view, and, from my own limited observation, I look upon them as belonging to the status thymico-lymphaticus group, allied to the vagotonic (constitutional inferiority) class of Eppinger and Hess. These children are more vulnerable to infections, and on their tissues slight traumatism has far-reaching effects.

My experience, derived from many visits to schools in England, Scotland, and America, was that in children the guillotine was the method of choice, while in adults favour was equally divided between the guillotine and the dissection methods, with a slight bias towards the latter. In the Mayo Clinic dissection under local anaesthesia in the sitting-up position in a tonsil chair is favoured; in the Sluder Clinic at St. Louis the guillotine; in the North Chicago Hospital Beck's guillotine snare; in the Philadelphia Skillern Clinic the La Force crushing guillotine is used, but since the guillotine is retained from five to seven minutes before being released this may be called a bloodless method.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

INGUINAL HERNIA CONTAINING A RUDIMENTARY HORN OF A BICORNUATE UTERUS.

THE following case is considered worthy of record owing to its comparative rarity, for Latteri¹ in 1923, in describing a case, was able to find only seventy-seven other cases in the literature. He concludes that the uterus can only enter a hernial sac when some congenital abnormality is present, either of the uterus, or in the development of the canal of Nuck and the genito-inguinal ligament. He considers that diagnostic points are: pain and increase in volume of the hernia at the menstrual periods; lengthening and narrowing of the vagina, with marked inclination to the side of the hernia, which is usually on the left and irreducible, while on bimanual examination the movements imparted to the vaginal walls and cervix are transmitted to the contents of the sac. Latteri considers that operation should be undertaken as soon as the condition is diagnosed, to obviate the possibility of complications, and in particular the complications which may ensue if pregnancy should supervene; the procedure adopted should aim at reduction of the contents rather than hysterectomy.

A married woman, aged 32, was admitted to the Royal Infirmary, Sheffield, on October 17th, 1925, for operation on an irreducible left inguinal hernia. The rupture was first noticed after a fall at the age of 9 years, but gave rise to no trouble

¹ Latteri, F. S.: L'Ernia Inguinale dell'Utero, *Arch. Ital. di Chir.*, 1923, 7, 39.

until puberty, after which it became painful and increased in size at the periods, and during her one pregnancy. For five months she had had attacks of pain localized in the swelling, and occasional vomiting, particularly at the menstrual periods. The bowels were constipated, and there was nocturnal frequency of micturition. For the same period menstruation had occurred twice monthly, for two or three days, and had been painful. She had one child, aged 4½, and had had no miscarriages. Morning sickness was troublesome and persistent, and the hernia was painful and swollen during the whole pregnancy. Delivery was instrumental, but, apart from the hernia, nothing abnormal was then noticed by her medical attendant (Dr. Michael Pettigrew).

Examination revealed an irreducible inguinal hernia in the left groin, which was tender on palpation; and from the history and examination it was thought that the left ovary might be contained in the sac.

At operation the sac was dissected out after separating off well developed muscular and internal fascial coverings. On opening the sac the fimbriated end of the Fallopian tube was recognized, and the tube and its mesentery were found to be continuous with an elongated rounded muscular structure which also occupied the sac and ran back into the abdomen through the internal abdominal ring; near the external ring, where it joined with the Fallopian tube, it became adherent with the apex of the sac, and its muscular fibres appeared to run into the round ligament which continued through the external ring outside the sac. On gentle traction on the tube and its mesentery the ovary slipped out through the internal ring. On bimanual examination it was apparent that the cervix was continuous with a larger right cornu and with this smaller left cornu, which could be traced into and dragged on as it lay exposed in the open sac.

The apex of the uterine horn was freed and replaced with the tube and ovary inside the abdominal cavity, and the sac and canal were dealt with in the usual way.

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A VAGINAL CALCULUS.

An instance of this extremely rare condition, recorded by Lieut.-Colonel W. F. Brayne, was published in the *JOURNAL* of January 2nd (p. 17). It is of interest that a small vesico-vaginal fistula was present both in Colonel Brayne's case and in that recorded below.

The patient, married six months previously, complained of dyspareunia. On examination a large cone-shaped calculus was found filling the vagina. It weighed 5½ oz., and was densely hard. Urine flowed from the vagina during the examination. An anaesthetic was given and a perineal section performed before the calculus could be removed. A portion broke off revealing a nucleus as large as an acorn, and section showed that it was an oxalate calculus, the surrounding deposit being of hard phosphatic material impregnated with blood. A fistula, admitting the tip of a finger, was found at the junction of the urethra and bladder. Careful inquiry elicited no history of bladder trouble other than incontinence, from which the patient had suffered since childhood.

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ACTINOMYCOSIS OF THE APPENDIX.

The following case is of some interest in view of the comparative infrequency of the condition, and also in demonstrating the response of the disease to appropriate medicinal treatment.

A cowman, aged 50, when admitted to hospital stated that two days previously he had been seized with diffuse and generalized abdominal pain. Later he began to vomit frequently. Next day the pain became localized to the right iliac fossa. His bowels had been open regularly without difficulty and there was no abnormality of micturition. He looked very ill, the temperature was subnormal and the pulse 80. Nothing abnormal was discovered in the chest. The abdomen was distended and moved very little with respiration. It was generally rigid and very tender in the right iliac fossa.

At the operation, which was performed by Dr. T. Turner, the lower part of the peritoneal cavity was found to contain some brownish pus. The appendix, which was removed, was very inflamed and contained a whitish concretion. A large drainage tube was put down to the pelvis.

The pathological report, by Dr. A. G. Shera, stated that films from the pus showed many streptothrix threads, but on culture only a few colonies of *Bacillus coli* were obtained. The concretion was faecal in nature and was infiltrated with streptothrix actinomycetes.

The wound was very slow in healing, and it was observed that there was a rapid tendency to the closing of the sinus following on the administration of potassium iodide in large doses combined with irrigation with tincture of iodine, 1 drachm to the pint.

Within five weeks the patient was quite well.

No history of any lesions in the common regions of the tongue, jaws, or lungs could be obtained, nor were any

signs in these places apparent. The patient's occupation is interesting in considering the etiology of the disease, as is also the remarkable response to specific treatment.

C. F. J. BARON, M.R.C.S., L.R.C.P.,
House-surgeon, Princess Alice Hospital, Eastbourne.

MIDDLE MENINGEAL HAEMORRHAGE IN A BOY.

In view of the comparative rarity of such cases, and the importance attached to diagnosis, the following case is thought worthy of record.

A boy, aged 12, was sliding between 10 and 11 a.m. on December 6th, 1925, when he tripped and hit his head on the ice; he lost consciousness at once, and was taken home. He recovered consciousness in two hours, and was able to sit up and answer questions; he complained of intense vertical headache, and felt sick, but did not actually vomit. At 3 p.m. he was growing irritable, and at 4 p.m. he became very drowsy, and paid no attention to his surroundings. He was seen by his doctor and sent to Preston Royal Infirmary for observation.

On admission at 6.30 p.m. he was unconscious. Respirations were 20 a minute and stertorous; the temperature was 98° F., the pulse full and bounding, 90 a minute. There was no facial paralysis. Marked spasmodic twitching of the right arm and leg was present; the right knee-jerk was exaggerated, and the plantar response flexor. The left arm was rigid and motionless; the left leg was motionless, but could be flexed at the hip and knee. The left knee-jerk was markedly exaggerated, and the plantar response extensor. The right pupil was dilated, irregular in outline, and did not respond to light. The left pupil was circular, not dilated, and reacted to light.

A diagnosis of right middle meningeal haemorrhage was made, and a subtemporal decompression over the bifurcation of the right middle meningeal artery was performed by Mr. McKerrow at 8.30 p.m. No anaesthetic was used, as the boy was still unconscious. A large extradural pulsating clot was exposed; the artery was not seen owing to continuous oozing from the wound. As much clot as possible was removed, and the wound irrigated with hot saline, and packed lightly with gauze soaked in adrenaline. There were signs of returning consciousness at the end of the operation.

Anti-shock treatment was given on return to the ward, and haemostatic serum administered every four hours, but the boy died at 6 o'clock the following morning, without having regained consciousness.

Permission for a post-mortem examination was refused.

I am indebted to Mr. McKerrow for permission to publish this case.

W. A. SIMPSON, M.B.,
House-surgeon, Royal Infirmary, Preston.

ACUTE APPENDICITIS IN THE AGED.

In the *BRITISH MEDICAL JOURNAL* of September 26th, 1925 (p. 584), Dr. Brian B. Metcalfe reported a case of appendicitis in a man aged 80, and asked for information as to the greatest age at which operation had been done. The following case may be of interest.

In March, 1921, a rather stout lady, aged 88, a sufferer for many years from diabetes, became ill with the usual symptoms of appendicitis. She had had a slighter attack about a year previously. On the third day, after consultation, Dr. George Clemens operated by the usual oblique incision and removed an acutely inflamed appendix which was adherent to the surrounding bowel by masses of lymph. The wound was closed without drainage. As the patient was subject to bronchitis, eucaïne was injected along the line of incision and I gave chloroform throughout.

The general condition was critical for about a week after operation, and in the second week an area of about 1½ square inches of skin and underlying fascia sloughed. Subsequently recovery was complete and she lived three years, surviving an intracapsular fracture of the femur about eighteen months.

Westbury, Tasmania. B. ANDERSON, M.B., C.M.Aberd.

OSSIFICATION OF THE CONOID LIGAMENT.

SOME time ago I attended a man who fell off his bicycle and struck the ground with the point of his shoulder (the tip of the acromion process). He had considerable pain on making any attempt to move his arm; the pain was situated over the outer third of the clavicle. The skin was discoloured over the seat of injury, and crepitus was very distinct when the outer part of the clavicle was moved. A skiagram showed no fracture of any part of the clavicle or acromion process, but there was a fracture of the conoid ligament, which was ossified, and the crepitus on moving the bone was transmitted through the clavicle.

Dublin.

G. E. PALMER.

Reports of Societies.

VITAMINS.

At a meeting of the Section of Comparative Medicine of the Royal Society of Medicine held on January 27th Professor R. H. A. PLIMMER read a paper upon the relation of quantity of vitamin B to quantity of food.

Professor Plimmer gave an account of a series of experiments conducted during the past two years, designed to determine quantitatively how much vitamin B was needed to maintain health, and how this quantity was affected by alterations in the total quantity of fats, carbohydrates, and proteins in the diet. The chief series of experiments were performed on chickens fed on a diet of rice and fish meal with cod-liver oil and yeast extract as the sources of vitamins A and B respectively. It was found that 8.6 per cent. of yeast extract was needed to maintain health on a basal diet containing 5 parts of fish meal, but that when the protein in the diet was increased by raising the fish meal to 30 parts deficiency symptoms appeared, the most striking of which were deficient bone formation and bow legs. These and other similar experiments proved that when the protein of the diet was increased the vitamin B supply also needed to be increased to maintain health. Similar experiments were performed with the addition to the diet of fats in the form of cotton-seed oil. The addition of 20 parts of this to the diet caused ill health. The chief symptoms of ill health in this case were dirty plumage and a deficient growth of feathers. An increase in the yeast ration prevented the appearance of these symptoms. Finally, feeding chickens with excess of carbohydrate also caused ill health in birds receiving a yeast ration which proved sufficient for animals fed on the normal basal ration. The symptoms of ill health in this case was defective growth and considerable fatty infiltration of the intestines. Such symptoms developed in birds receiving 8 parts of yeast, whereas birds receiving 16 parts of yeast developed in a perfectly normal manner.

Other experiments were performed on pigeons, and in these the quantitative results were even clearer, for birds receiving a ration containing 8 per cent. or more of yeast extract developed normally, whereas birds receiving less than this amount died of polyneuritis in about twenty weeks. (Pigeons fed on a diet completely devoid of vitamin B developed polyneuritis in about three weeks.) In the case of rats the graded effects produced by varying quantities of yeast extract were equally striking. Animals deprived of vitamin B—that is, receiving no yeast extract—died in about nineteen weeks. One per cent. of yeast extract in the diet prolonged life indefinitely, and a few females became pregnant, but ate all their young at birth. Animals receiving 2 per cent. of yeast extract produced more young, but likewise ate all their offspring, whereas animals receiving 4 per cent. yeast extract reproduced regularly and nourished their young.

These experiments showed in the first place that there was a marked specific difference in the vitamin B requirements of animals. The amount of yeast extract needed in the diet by different animals was approximately as follows: fowls, 12 per cent.; pigeons, 8 per cent.; rats, 4 per cent.; cats, more than 4 per cent. These figures, Professor Plimmer concluded, suggested that man probably required a vitamin B supply equivalent to about 8 per cent. of yeast extract in the diet. Secondly, the experiments showed that the vitamin requirement of an individual could be expressed by the formula

$$\frac{\text{Vitamin B supply}}{\text{Total food}} = \text{constant.}$$

This conclusion was a modification of a suggestion of certain French workers who had suggested that

$$\frac{\text{Vitamin B supply}}{\text{Carbohydrate in food}} = \text{constant.}$$

The experiments showed very clearly that one of the chief effects of a partial deficiency of vitamin B was to produce intestinal stasis which resulted in the retention in the bowel of putrid food residues and the absorption of products of putrefaction. McCarrison had noted this

intestinal effect as a preliminary stage in the production of polyneuritis in pigeons deprived completely of vitamin B. In the experiments described in which there was only a partial lack of vitamin B, this stage, which was only a temporary one in the acute experiments, became a chronic condition.

Professor Plimmer suggested that the fundamental effect of vitamin B lack was to produce atony of the gut, and that polyneuritis was possibly due to absorption of some toxic products of putrefaction. He pointed out that these experiments raised the very serious question as to whether the supply of vitamin B in normal human diets was really adequate.

To throw light on this point he had made quantitative tests of the vitamin B content of certain common foodstuffs. Pigeons were used for this test, and the criterion taken was whether the animals on the diet remained healthy over long periods and produced fertile eggs. The animals were fed on the foodstuff and varying percentages of white rice were added, and the degree of dilution determined below which symptoms of vitamin B deficiency appeared. It was found that the following percentages of varying foodstuffs were needed in the diet to provide an adequate amount of vitamin B:

Whole meal ...	75%	Bran (middlings) ...	30%
Rye ...	55%	Wheat germ ...	10%
Whole barley ...	65%	Yeast extract ...	10%
Oatmeal ...	95%	Potatoes ...	90%

Dried fruits and dried cabbage given in as large quantities as the birds would eat were inadequate. Professor Plimmer showed that in an ordinary human diet, out of a total of about 3 lb. of food there were only about 6 oz. of foods containing significant quantities of vitamin B. He suggested that the ordinary daily diet was seriously deficient in vitamin B, but that the tendency to intestinal atonia thus produced was counteracted to some extent by the widespread use of purgatives.

Professor J. C. DRUMMOND contributed a paper on the new facts concerning fat-soluble vitamins. He gave a short history of the identification of these vitamins, and mentioned that the growth-promoting fat-soluble vitamin A was identified by McCollum in 1913. In 1919 Mellanby showed that the lack of a fat-soluble factor was concerned with the production of rickets, and in 1922 McCollum brought forward definite proof that this antirachitic factor, now called vitamin D, was a separate entity from vitamin A. Evans during the past few years had shown that there was a third fat-soluble factor (vitamin E) which was necessary for reproduction. Professor Drummond explained that he wished to show that the vitamins were not mere hypothetical substances, nor even bodies of completely unknown chemical structure, such as the bacterial toxins, but that they were substances concerning whose chemical nature a good deal was already known. He described the fractionation of cod-liver oil, and showed that the whole of the fat-soluble vitamins were contained in the 1 per cent. of non-saponifiable matter in the oil. Half of this active residue was cholesterol and was inactive. Fractional distillation of the remainder under low pressures showed that the whole of the active portion was contained in the fraction boiling between 180° and 200° C., at 1 to 2 mm. Hg pressure. This active fraction consisted very largely of an unsaturated alcohol, and contained only the elements carbon, hydrogen, and oxygen. The daily dose of the most active fraction was only 0.002 mg. for a 100-gram rat. The recent work on the production of the antirachitic vitamin by ultra-violet light gave much information as to the chemical nature of the antirachitic vitamin D. The discovery of Steenbock that irradiation of food caused the production of vitamin D had led to a large amount of work, which first showed that only oils and fats could thus be activated, and next showed that only the unsaponifiable matter in fats could be activated. Finally it was shown that the exposure of chemically pure cholesterol to ultra-violet light caused the formation of vitamin D. Prolonged exposure of waxy material that had an intense antirachitic action. Professor Drummond pointed out that this last discovery meant that one of the vitamins had actually been synthesized, and that there was

every reason to hope that before long the exact chemical nature of some of these substances would be known.

The papers were followed by a discussion in which a number of Fellows took part.

Dr. ROWLANDS pointed out the high importance of the two papers. Professor Plimmer's proof of the association of intestinal stasis with lack of vitamin B was of great clinical importance. In this country beri-beri was almost unknown, but intestinal toxæmia was extremely common. He expressed the belief that rheumatoid arthritis was chiefly intestinal in origin. Dr. HALLÉ DALLY raised the question of the relation between intestinal toxæmias and high arterial tension.

Dr. ANDREWS said that he had watched experiments at Pretoria on feeding horses and cattle on vitamin B deficient diets, and that this had caused no definite effects of avitaminosis, but that numerous minor effects, such as digestive disturbances and laminitis, had occurred. Other speakers emphasized the great importance of the public health aspects of the problem of partial vitamin deficiency, and the importance of informing the public about the ascertained facts.

In reply, Professor PLIMMER said that the essential point he wished to make was that the population of this country was living on a diet partially deficient in vitamin B. His experiments suggested that the amount of wholemeal bread needed for an adequate supply of this vitamin was about 75 per cent. of the total diet. He pointed out the disadvantages of such foods as milk puddings made from vitamin-free white rice with a little milk.

Professor DRUMMOND mentioned that only vitamin D could be synthesized by ultra-violet light from cholesterol or fats, and that the other two fat-soluble vitamins had not been synthesized in this manner.

CLINICAL ASPECTS OF SIMPLE GOITRE.

At a meeting of the Hunterian Society held in the Hastings Hall at the British Medical Association House, Tavistock Square, on January 25th, with Dr. HOWARD HUMPHRIS (President) in the chair, Sir JAMES BERRY delivered a Hunterian Lecture on "Some clinical aspects of simple goitre, with remarks on its causation."

Sir James Berry opened with a reference to John Hunter, who, he said, would have entered with characteristic zeal and enthusiasm upon the fascinating study of the thyroid had he not lived in a time when very little was known about that gland, which consequently was of little interest to the surgeon. Goitres, other than malignant and some rare forms, might be classified as (1) ophthalmic goitres, with excess of the cellular elements of the gland, essentially a hypertrophy, and (2) simple goitres, which were essentially degenerations of the gland, showing distension with colloid and atrophy of the epithelial elements. In later stages there were cysts, masses of ill formed thyroid tissue more or less encapsuled (adenoma), fibrosis, and calcification. These were produced by the long-continued action of some irritant. The pathological and clinical pictures of exophthalmic and simple goitre were strikingly different in typical cases. He discussed various difficulties in diagnosis which might arise. One difficulty occurred where symptoms of Graves's disease supervened on simple goitre. Again, in simple goitre tachycardia and tremor might occur, especially in the deep-seated substernal condition, and such cases were often classified as Graves's disease or hypertrophy; this the lecturer considered to be undoubtedly incorrect, and to lead to confusion in statistics. Acute catarrhal conditions or sudden hæmorrhage into a soft encapsuled goitre might produce tachycardia and irregularity of pulse; and, further, septic foci in distant parts of the body, such as the appendix, in cases where a goitre was present might also cause these symptoms, which had nothing to do with the goitre. Colonel McCarrison, by giving animals food polluted by faecal matter, obtained an enlarged thyroid, but of the hyperplastic form.¹ Colloid distension was only obtained when excess of lime was added. The view that simple goitre

was a degeneration, not a hypertrophy, was in direct opposition to what was adopted generally by those who experimented on animals without much previous experience of the disease as it occurred in man.

The lecturer said that he did not propose to discuss the various theories of the causation of endemic goitre, because these could be found in the textbooks; but he wished to mention one theory which had attracted much attention lately—namely, that lack of iodine in food or water was the main, if not the only, cause of goitre. This was really the revival of an old theory of three-quarters of a century ago. Iodine was useful in the treatment of goitre, especially of the early forms, but there was no real evidence to show that it had a causal relation to endemic goitre. It had been stated that goitre was absent near the sea coast, and this was attributed to the iodine in sea air. But there were many places near the sea coast which he had himself visited where goitre did exist. The principal districts where endemic goitre was known comprised the great mountain ranges of Europe, Asia, and America, such as the Alps, Pyrenees, Himalayas, and Andes, also the Alps of New Zealand. All these were, in the geological sense, young mountains. Goitre was not prevalent in the worn-down older formations, the remains of former higher ranges, like the Highlands of Scotland, crystalline rocks such as those of Western Norway, and volcanoes, extinct and active. In the ranges just mentioned where endemic goitre was prevalent, an interesting point was the existence of glaciers, especially in the most goitrous regions, the glaciers producing turbidity of the rivers by their constant grinding action. The green or blue of the Swiss lakes was due to finely suspended mineral particles, and was in striking contrast to the clear waters of the Scottish lakes. Not only the existing glaciers but the glacial debris which covered so much of Switzerland produced streams of similar character. In any hilly country sedimentary pollution of the streams might occur where the rocks were soft and easily eroded. The lecturer had himself noticed that goitre was common among those who drank turbid water, and he knew of many instances where the introduction of a better water supply had largely diminished the incidence of goitre. The attempt to prevent endemic goitre by introducing iodine into the water supply was, he considered, of doubtful value, and unnecessary in a country like Great Britain, with no very high endemicity.

In conclusion, the lecturer said that he wished to emphasize the point that simple endemic goitre was not a hypertrophy, but essentially a degeneration of the thyroid gland; the gland was not overactive but underactive. Whatever might be the connexion between iodine and the thyroid gland, there was no reason to believe that a lack of iodine had anything to do with the causation of endemic goitre as found in the human subject. In the vast majority of cases it was quite certain that the disease was produced through the agency of drinking water. There was much evidence that practically all waters which produced goitre contained frequently—although not necessarily at all times—mineral matter in suspension, usually in an extremely fine state of subdivision. There was also a good deal of evidence that this mineral matter was generally of a calcareous nature. Organic matter in suspension, although capable of causing, apparently, a hyperplasia of the gland, at least in animals, had not been proved to be the cause of endemic goitre as seen in man. Sir James Berry's lecture was illustrated by the epidiascope.

Dr. STRICKLAND GOODALL referred to a patient, whom he first saw as long ago as 1903, suffering from laryngitis, rapidly losing weight, and having a very irregular heart. Even at that time he thought that the cardiac condition had something to do with goitre. The irregularity of the heart was similar to the irregularity in mitral stenosis towards the latter end. He described the records which he took then and later, including electro-cardiograms, and said that about 1912, when the condition of auricular fibrillation was described, he had recognized this irregularity, originally noticed in 1903, as being identical with it. After further experience of patients suffering from goitre, he had been impressed by the number of patients who died suddenly either before or after operation, and, with Dr. Lambert Rogers, in trying to investigate the

¹ BRITISH MEDICAL JOURNAL, June 7th, 1924, p. 983.

cause he had collected some interesting specimens to show the degeneration which took place in the heart muscle.

Mr. T. P. DUNHILL said that the chaos which had characterized the subject of goitre up to the present decade was being cleared away, and the subject was now becoming intelligible. Although very many problems remained to be solved, it was now possible to work along more sure lines. Many men had made different contributions which could now to some extent be sorted out and placed in their proper perspective.

Dr. SCOTT WILLIAMSON thought it probable, at first sight, that endemic goitre must be regarded as consisting of at least two forms. One of these might well be caused by something in the nature of calcareous matter suspended in drinking water. The addition of calcium to the thyroid in animals could produce this, the colloid variety of goitre. The other type, which Gaylor had described as endemic in the fish-breeding tanks, had little or no relation to the colloid goitre. It was controlled very easily by pharmacological doses of iodine added to the water, and it had been demonstrated that where this condition arose there was a considerable lack of iodine. This had led to the use of iodine for endemic goitre. The more closely endemic goitres were examined the more clear it became that there was one type of endemic goitre in which, if iodine were administered, very serious toxic disturbances were induced. In association with Mr. Dunhill he had been making experiments on the action of iodine. The thyroid gland was fundamentally lymphatic, and in applying iodine to it care was taken to control the experiments by the inspection of other organs in the body. If iodine were given to an animal which had been put into the colloid state, the gland would slightly enlarge, and then soften; the liver, pancreas, and kidney were also profoundly affected. Iodine accentuated the activity of the gland, which had a general effect on the whole body.

The PRESIDENT, referring to the geological aspect of the problem, said that for some years he had lived on a volcanic island in the middle of the Pacific, and there he had never seen a single case of exophthalmic goitre, either in hospital or in private practice.

Dr. COLE asked if the absence of sunlight was not one of the factors contributing to the presence of goitre. In New Zealand goitre occurred among the people living in the narrow valleys, but not among those who lived on the tops of the hills, and generally not among the people of the plains. There were also exceptional cases of goitre in the Swiss valleys where there was little direct sunlight, and the same was true of other parts of Europe and of Palestine. The theory appeared to be supported by the fact that actinotherapy was beneficial in goitre.

Mr. MORTIMER WOLF said that surgeons tried to conserve the thyroid, and, in any operation, to remove as little of it as was consistent with the suitable treatment of the patient. With regard to a remark by Sir James Berry that the majority of simple goitres were to be viewed as significant of a degenerative process rather than a hypertrophy, he thought that this might explain some of the difficult cases in which there were symptoms reminiscent of Graves's disease. He felt confident that many of the cases which he had seen classified as exophthalmic goitre were actually cases of hypothyroidism. It might be difficult to imagine that a patient with a large swelling in the neck was suffering from a lack of thyroid secretion, but he was convinced that it was true.

Dr. W. LANGDON BROWN agreed that there were many cases of enlarged thyroid due to lack, rather than excess, of secretion. There were many ways of determining between the two types, and his experience was that the basal metabolic rate gave the best indication as to whether a patient with an enlarged thyroid was suffering from oversecretion or lack of secretion. It was much better to study the matter in that way than to take the blood sugar curve, because in border-line cases the latter was not the help that it might be. Professor Mellanby, in one or two papers, had furnished some evidence that there was a condition which led to the abstraction of iodine from the gland and from the body. The speaker related some experiments in Canada in 1921 illustrating the influence of iodine in preventing goitre. These experiments were started owing

to the occurrence of goitre among lambs. Some of the observations made on animals had been of great value; animals were not so liable to suggestion as human beings, and there was better opportunity for observation without interference by the nervous system. In the experiments referred to, 89 ewes were dealt with: of these, 23 were separated as a control group, and the remainder were divided into three batches of 22. The first batch were fed on the rations they had had the previous year; the second had the same rations, with exercise in addition—that is, the food was placed some distance away, and the ewes had to go that distance to reach it; the third had the same ration, with a 2 per cent. solution of potassium iodide; and the fourth had a diet rich in vitamins. The first group had 38 per cent. of goitres, the second 45 per cent., the third (where potassium iodide was added) had none at all, and the fourth had 38 per cent. Factors of this sort seemed to him to suggest that iodine did play a very considerable part, one much more important than many people, particularly some surgeons, were prepared to admit, perhaps because they did not allow for certain factors not yet fully understood which removed iodine from the gland and from the body.

Sir JAMES BERRY, answering Dr. Cole, said that absence of sunlight could not be the cause of goitre, for many people, such as miners, who spent their working hours in the dark, did not get goitre, nor did the pit ponies which spent their whole lives underground. It was true that stout people seldom had goitres; if they did one should be very chary of operation unless there was very great need. He had remarked some months ago that it was possible to get hyper- and hypo-thyroidism at the same time; there were mixed cases. He deprecated operating on children, and said that he had never operated on anybody younger than 10, and on very few children under 14. The views expressed by Dr. Scott Williamson were not very different from his own. With regard to the basal metabolic rate, he had used this a good deal at one time, but he had given it up because he could tell generally by merely looking at a patient whether the trouble was hyper- or hypo-thyroidism; he had had the advantage of having examined many thousands of goitres. He had also seen wrong statements due to error in the way the metabolic rate was taken.

HODGKIN'S DISEASE IN MAN AND ANIMALS.

A JOINT meeting of the Sections of Medicine and Comparative Medicine of the Royal Society of Medicine was held on January 26th, the President of the Section of Medicine, Dr. HUGH THURSFIELD, being in the chair.

The discussion was opened by Sir HUMPHRY ROLLESTON, Bt., whose paper is published in full at page 230 of this issue of the JOURNAL.

He was followed by Professor G. H. WOOLDRIDGE (Royal Veterinary College), who regretted that he was able to discuss Hodgkin's disease in animals only from the clinical point of view. The disease was a rare one in the domestic animals—in fact it was only in the dog that it was occasionally met with. Its true nature was unknown, and it was quite probably not the same condition as existed in man. The condition was not neoplastic, but was probably inflammatory in nature, and should properly be called lymphadenitis. The onset was slow and insidious, and the clinical picture one of progressive emaciation. The symptoms began with a cough and a catarrhal pharyngitis accompanied by a slight rise in temperature. Patients, however, were seldom seen until the condition was well advanced. At first the prescapular lymph glands became enlarged, but ultimately all the superficial glands were involved. At this stage the dog was emaciated, easily excited and tired, and might faint. There was now no pharyngitis. The spleen became enlarged, and might be easily palpated. The lymph glands were firm to the touch and painless. There was no pleuritis, no pigmentation of the skin, and the blood picture was normal. On section the lymph glands showed only hyperplasia, and were not changed in structure. Old dogs seldom recovered, but the prognosis was more hopeful for young animals. In treatment excitement must be avoided. Donovan's solution was given, together with cod-liver oil,

extract of malt, and phosphates. Digitalis and squills were prescribed in alternate weeks. So far x rays and radium had not been tried, and it was doubtful if the animals could, on economic grounds, be so treated. He had seen one case in a bull in which there was no possibility of tuberculosis; all the superficial glands were swollen, and the animal was emaciated; it was treated on similar lines to dogs, and made a complete recovery.

The mention of diphtheroid organisms by Sir Humphry Rolleston recalled the condition in sheep called caseous lymphadenitis, which was caused by the bacillus of Preisz-Nocard, an organism of the diphtheria group. Professor Wooldridge did not suggest that this disease was related to Hodgkin's disease, but the presence in animals of a condition caused by an organism related to those which had sometimes been associated with it was of interest. The sheep affected were generally in excellent condition, and the lesions were only found on examination by the meat inspector, or indeed sometimes only after the mutton had gone to the table. The gland most frequently affected was the inguinal, the "pope's eye," and it was often in a very soft caseous condition. The disease was of interest, however, in showing a form of lymphadenitis due to an infective organism.

Dr. H. MORLEY FLETCHER dealt with the clinical aspects of the disease in man. The presence of eosinophilia and the apparent success of arsenic suggested a parasitic origin of the disease. He drew attention to the pruritus which was often associated with the condition, and which was often ascribed to the arsenic used in treatment. He had seen cases, however, in which the pruritus was present before the use of arsenic. Another important point was in connexion with the relapsing fever which so often accompanied Hodgkin's disease—the so-called Pel-Ebstein symptom. This temperature curve could exist below the normal line as well as above it; and if the subnormal temperatures were plotted it was often possible to see a Pel-Ebstein curve which never rose above the normal. It was accordingly important in Hodgkin's disease to make a careful record of minimum as well as maximum temperatures. In the abdominal type the disease was apt to be overlooked, and diagnosis was very difficult. He thought that modern methods of treatment with x rays and arsenic were having better results than the older methods, although complete recovery could not yet be claimed. He would like to know if antimony had ever been used for this condition.

Mr. L. PUGH drew attention to leptospiral jaundice in dogs, which showed certain resemblances to this condition.

Professor M. J. STEWART (Leeds) described his experiments, in which he infected two series of monkeys, the first with pieces of gland and the second with pulped glandular material. He exhibited a series of microscope slides illustrating the results he had obtained. He had made an analysis of the glands which had been sent to him for diagnosis. This analysis showed only glands which fell into one of three classes. The first were those sent to him marked "Hodgkin's?"; the second marked "Hodgkin's? tubercle?"; and the third were simply "Disease?" He found that about 25, 17, and 4½ per cent. respectively were lymphadenomas, while more than half of each series were tuberculous. This, he thought, showed that a positive diagnosis could only be given after a microscopic examination.

Dr. W. H. ANDREWS (Royal Veterinary College) was afraid that his evidence was mainly negative. He considered that true Hodgkin's disease did not exist in the lower animals. In all the cases seen the histological picture was certainly not that of Hodgkin's disease. It was quite probable that the disease which existed in dogs was caused by more than a single organism. Other similar conditions existed in animals, but as the cause became known they were described under their correct name. For example, East Coast fever, a disease in cattle in Africa due to a protozoan parasite, showed similar enlarged glands. In any case, should Hodgkin's disease exist in the lower mammals there was no reason why it should exhibit symptoms identical with or even similar to those found in man.

Dr. MERVYN GARDON indicated the lines along which he had worked at the etiology of the disease. His experiments had not been successful, but he suspected a spirochaete,

and he thought that if investigators used anaerobic media they might have some success.

Dr. H. H. SCOTT recalled that he had examined a marmoset at the Zoological Gardens which he thought showed typical lesions in the lymph glands.

The Chairman (Dr. THURSFIELD), in closing the discussion, said that he was sure that the general opinion was that Hodgkin's disease as it existed in man did not occur in the domesticated mammals. The condition which was found in them should probably be called lymphadenitis rather than lymphadenoma. This was the first occasion on which the Comparative Medicine Section had met with the Medical Section, and he was sure that these joint meetings would be of value.

DICEPHALY.

At a meeting of the North of England Obstetrical and Gynaecological Society on January 15th, with the President, Mr. W. GOUGH (Leeds), in the chair, Miss K. EDGECOMBE (Liverpool), on behalf of Miss Ivens and herself, described a case of dicephalus dibrachius dipus, an unusual type of monstrosity, which recently occurred in the Liverpool Maternity Hospital.

A primigravida, aged 24, married for three years, had felt well during pregnancy, and had not had an ante-natal examination. Labour started under the care of a midwife, and two days later the breech was delivered to the level of the umbilicus. The arms were pulled down under anaesthesia, but it was not possible to deliver the after-coming head, and the patient came into hospital after she had been in labour fifty-three hours. A large sausage-shaped tumour with two rounded prominences was visible above the brim of the pelvis, the higher prominence being situated in the left iliac fossa. The uterus was contracting strongly, pains occurring every minute with incomplete relaxation between the contractions; the abdomen was acutely tender, and there was some haemorrhage from the lacerated and oedematous soft parts. The legs, body, and arms of a small dead child protruded from the vulva, the back being in front. The patient was anaesthetized, and the haemorrhage was traced to a vaginal tear extending high into the left fornix. A thickened band could be felt on the left side, resembling an incompletely dilated rigid cervix; this was not present on the right side, and was probably the stretched neck of the left head, the right head being extended immediately above the brim. The child's body was rotated, so that its abdomen faced the mother's left thigh. Delivery was effected by a combination of the Prague method with jaw traction and suprapubic pressure, the child's body being carried up over the mother's abdomen. The second or left head followed immediately, and it appeared probable that the rotation of the body had released the twist of one neck round that of the other, and so made delivery possible. Subsequently a fracture of the first neck was found. The single placenta was expelled spontaneously. After delivery the perineum and vulva were found to be badly lacerated, portions of the levatores ani hanging loose on either side of the wound.

After a mercurial douche the bruised tissues were cut away and the lacerations were repaired with silk-worm gut. Good union resulted, and apart from slight pyrexia due to a urinary infection the puerperium was uneventful. Two months after delivery the perineum had completely healed, and micturition and defaecation were normal. The Wassermann reaction was negative or indefinite on two occasions.

The specimen was a double-headed monster or dicephalus dibrachius dipus, a female weighing 6 lb. 15 oz. There were two distinct heads, two arms, two legs, and a single body, which showed, however, on x-ray examination, two distinct spinal columns, approximating in the sacral region. The shoulders were broad, and there was a tag of skin in the suprasternal region. The two heads were flattened on the inner surfaces where they had been in contact. The dissection, by Mrs. Barton Hall, showed the presence of single abdominal and thoracic cavities, with one sternum and two clavicles. There was a single heart and pericardium, with one auricle and two ventricles, two aortas, two pulmonary arteries, two superior venae cavae, and one inferior vena cava. The right aorta supplied the right head and upper limb only; the left aorta supplied the left head and upper limb, and continued as a normal thoracic and abdominal aorta. There was a trachea from each head leading to four lungs in four pleural cavities. The organs developed from the branchial arches and clefts were duplicated (tongue, thymus, thyroid). The alimentary canal was duplicated as far down as the duodenum; the left stomach opened into the first part of the duodenum; the right stomach into the second part of the duodenum. The spleen was single and in a normal position on the left side. The liver was normal in position. An accessory lobulated portion continuous with the normal liver appeared to have passed as a hernia through the diaphragm, and lay in the thoracic cavity posterior to the heart and pericardium. There was a single gall bladder and bile duct, the pancreas being double. Below the duodenum the alimentary canal was single. The kidneys, ureters, suprarenals, and female pelvic organs were those of a single foetus. On deep dissection a complete fracture of the right neck was found; the spinal cord of that side had been dragged upwards, and lay in a loop at the site of fracture.

Miss Edgcombe pointed out that since all double malformations developed from a single ovum, there was in this case a single placenta and single chorion. Under certain conditions dicephali were capable of living; the best known example was Ritta Christina, born in Sardinia on March 13th, 1829. These twins of female sex had four upper and two lower limbs (dicephalus tetrabrachius dipus). The vertebral columns, separate above, were joined below by a rudimentary os innominatum, and there was also union of the two manubria. In this malformation union of the internal organs often occurred. In the present case a pelvic presentation was favourable, as one head could pass after the other. It had been recommended to draw the trunk when expelled up over the abdomen of the mother, so as to bring the posterior head into the hollow of the sacrum; the second head then slipped up anteriorly above the pelvic brim and remained behind. Blacker (1912) had noted that of twelve cases of dicephalus recorded in the *Transactions of the Obstetrical Society* (seven in Playfair's paper (1867) and five after that date), in four the breech presented; when care was taken to cause the two heads to enter the pelvis one after the other they passed through without difficulty.

The PRESIDENT thought that the comparative ease of delivery, which appeared impossible in the specimen as shown, was largely due to the broken neck of the second head, allowing greater stretching.

Professor BRIGGS (Liverpool) emphasized the lesson to be drawn from this and similar rare specimens in favour of version, which was so often rejected both in practice and in publications. It confirmed the teaching of Potter's latest work, *Version in Obstetrics*. Rupture of the uterus was extremely rare in these cases.

Mrs. BARTON HALL (Liverpool) had studied the literature on dicephaly as far back as 1866, when Playfair collected seven cases; she found thirty-seven published cases from all parts of the world. Three main types were definable, depending upon three stages in the superior dichotomy of the primitive streak. The first group, which was rare, was the true dicephalus dibrachius dipus, of which Miss Ivens's specimen was an example. The second and common group included specimens which resembled the first group externally, but on dissection or x-ray examination they were found to have a rudimentary third upper limb in the form of a fused scapula and clavicle. The third group was the true dicephalus tribrachius tripus, and occurred with about the same frequency as the first group. She thought that the lungs and oesophagus in these cases of dicephaly were always duplicated, and the extent of the reduplication in the rest of the thorax and abdomen depended entirely upon the level of separation. With regard to the viability of these monsters, she thought that the greater the degree of separation the more chance there was of the foetus being viable, and quoted a case of dicephalus tribrachius tripus delivered alive which lived twenty-four days, but died with convulsions.

Nægele Pelvis.

Miss EDGECOMBE also reported, on behalf of Miss Ivens and Miss Brookfield, a case of Nægele pelvis, which was admitted to the rest home of the Liverpool Maternity Hospital under Miss Ivens.

There had been two previous pregnancies, the first terminating in a difficult forceps delivery with a stillbirth, the second by an induction at the thirty-eighth week, the child being 5 lb. 15 oz., and surviving. The patient was aged 23, of medium stature, and in good general health. There was no lameness, but an inspection of the pelvis showed a slight obliquity from the right, downwards towards the left. The right anterior superior spine and the left posterior superior spine were more prominent than their fellows. The labial cleft also deviated slightly downwards, and to the left. On vaginal examination the right ilio-pectineal line was found to be straight, reducing considerably the capacity of this side of the pelvis. The right ischial spine also formed a very marked projection into the pelvic cavity. The symphysis pubis was markedly deviated to the left side. The left side of the pelvis felt approximately normal. The measurements of the pelvis were as follows: Inferior strait 8½ in., internal conjugate 10 in., external conjugate 8½ in. The distance from the right posterior superior spine to the left anterior superior spine was 8.2 in., and that from the left posterior superior spine to the right anterior superior spine was 7.5 in., showing a difference, therefore, of about three-quarters of an inch.

The diagonal conjugate was 3.9 in., and the transverse diameter of the outlet 3 in. (approximate). On her admission, at about

the thirty-eighth week, the patient had a purulent vaginal discharge, coming mainly from the cervix, and also two vaginal cysts. Vigorous local treatment was adopted, but induction of labour was felt to be contraindicated on this occasion, and pregnancy was allowed to proceed to term, when Caesarean section was performed by Miss Ivens, a female child, weighing 8 lb. 4 oz., being delivered from the left occipito-anterior position. A prophylactic dose of 10 c.cm. antistreptococcal serum was given to the mother, and she made an uninterrupted recovery, being discharged on the fourteenth day after the operation. Inquiries were made from the patient's mother as to any history of deformity or dystocia in the family. All the immediate relatives had had normal deliveries and healthy families. There was no history of the patient having been lame or suffering from any serious illness during infancy or adolescence. The only conclusion seemed to be that the deformity was due to a defect in development of the right ala of the sacrum.

The obliquely contracted pelvis of Nægele was observed first in 1802. In 1839 he published a monograph on thirty-five specimens, one a mummy. It was a developmental defect due to absence of one lateral mass of the sacrum; bony union of the sacrum with the ilium was usually present, the bones being otherwise healthy. There was compensatory scoliosis of the lumbar portion of the vertebral column with its convexity on the diseased side. The obliquity was caused by the unequal pressure of the body weight and upward thrust of the femora on each side. On the defective side the femur was nearer the middle line than on the sound side, so that the pressure was upwards rather than outwards. On the sound side the acetabulum was further outwards than usual, the wing of the ilium looked more forward and less inwards than usual, and the symphysis pubis was pushed over to the sound side. On the defective side, in consequence of the more directly upward pressure, the ilium between the acetabulum and synchondrosis was compressed and thickened, and the ischial tuberosity and spine were displaced inwards, upwards, and backwards.

All specimens described were exactly alike, and there was no sign of bone disease. The defective development of the sacrum was the essential condition, although it had been suggested that the synostosis resulted from destructive inflammatory changes, but cases had been described where synostosis was not present.

Commenting on this case Miss Edgcombe said that in 1861 Thomas reported fifty cases, but the entire number was only about one hundred. For labour to end naturally the head must be small, and must enter the pelvis with the occiput towards the obturator foramen on the sound side. In labours reported only a quarter of the children had survived. Litzmann stated that in pre-antiseptic days twenty-two out of twenty-eight mothers died in the first labour. Pinard in one case performed ischio-pubiotomy on the diseased side, but was criticized by Budin on the ground that ankylosis at one sacro-iliac joint might prevent expansion of the pelvis.

Advantages of Vaginal Hysterectomy.

Professor BRIGGS read a note on the advantages of a vaginal hysterectomy, and showed two specimens, the first being a uterus with multiple fibroids, and the second one with glandular erosion of the cervix, a sessile adenoma, and an interstitial fibroid. Both had been removed by vaginal hysterectomy.

He asked, were there any advantages in vaginal hysterectomy in the treatment of these uterine non-malignant new growths? He was content with the success and safety of vaginal hysterectomy in cases where the site and size of uterine innocent new growths pointed towards treatment through the pelvic floor. Not infrequently during vaginal hysterectomy the laxity of the pelvic floor aided the operator, and could finally be corrected by him. This addition was made to the vaginal hysterectomy in the case of the removal of the second specimen; convalescence and repair were very satisfactory. In such cases vaginal hysterectomy offered bright prospects and was easy in performance. Other cases were fairly represented by the first specimen, which was capable of filling the outlet of the pelvis and of becoming fixed there pending reduction in bulk and alteration in shape.

Morcellement, enucleation, or other similar method of removing some of the group of fibroids converted an immobile ovoid or sphere into a flexible, yielding column of collapsed and partially cut walls of the uterus, surrounding any remaining fibroids. The preservation of the pelvic floor was watchfully observed. Morcellement was used in the case of tissues which were to be removed, and not retained at the patient's risk; a normal convalescence after vaginal hysterectomy was not exceptional. After Péan's introduction of morcellement in the eighties of the last century its excessive use early trespassed on the

grounds of abdominal hysterectomy; the overlapping had not been one-sided. In 1898, on the ample evidence of the day that vaginal hysterectomy for fibroids was a sound operation, Professor Briggs had published a report of thirteen cases, and confirmed the value of morcelllement at a time when the French total figures made others seem absurdly insignificant. In 1897 was published *The History and Technique of the Vaginal Radical Operation*; this was a translation by Eastman and Giles of the German work by Leopold Landau and Theodor Lander entitled *Die vaginale Radicaloperation*, which was based on Freund's publication (1878) and Péan's *Morcelllement*. In the early years of the present century (1906) was published in Leipzig a work on the technique of vaginal operations, by E. Wertheim and T. Micholitsch. This latter work the speaker had reviewed for the *Journal of Obstetrics and Gynaecology of the British Empire*, 1906, p. 188. Both those works were designed to go beyond or outside the scope of vaginal hysterectomy; they intensified the ill-advised competition of vaginal and abdominal section, hence the need for limitation followed. The article by Herbert Spencer on vaginal hysterectomy in the treatment of uterine fibroids in Allbutt, Playfair, and Eden's *System of Gynaecology* (1906) remained to-day for guidance.

The PRESIDENT said that in his earlier days he had performed vaginal hysterectomy for fibroids, some of which reached the umbilicus. Of recent years, however, he had used the abdominal route for such tumours as being easier, since the operator was able to see what he was doing. He thought, however, that vaginal hysterectomy had a very useful place in the treatment of the bleeding uterus about the menopause, as it was associated with much less shock than the abdominal operation. He had found that the convalescence was often rather delayed by discharge of pus and small sloughs from the vagina.

Dr. DONALD said that at one time he had removed uterine fibroids by vaginal hysterectomy on a good many occasions, and in some of the cases the upper level of the tumour was as high as the umbilicus. It was an interesting experience, and he thought that even at the present time a gynaecologist should be familiar with the technique. Vaginal hysterectomy should, however, be now limited to cases of chronic metritis or hypertrophy in women approaching the menopause, with fairly patulous vaginas. In these cases there was still a place for it. The convalescence was generally smooth, and free from some of the discomforts that often followed the most successful abdominal operation for fibroids.

Carcinoma of the Cervix and Pregnancy.

Dr. J. W. BURNS (Liverpool) described a case of carcinoma of the cervix in a pregnant woman aged 41.

This patient, who was admitted to hospital on March 20th, 1925, complained of pain in the back and lower abdomen, and stated that for some time the menstrual periods had been irregular, and that for the past six months there had been bleeding following coitus. More recently there had been a constant blood-stained vaginal discharge. On abdominal examination the uterus was found enlarged and the pregnant state was confirmed. The cervix was soft, and there was a ragged patch on the posterior lip which bled very freely on touching. Under anaesthesia a small portion of the cervix was removed for examination; it was found to be malignant. Total hysterectomy was performed, the operation being easy owing to the softened condition of the tissues. No enlarged glands were found. The patient made a very good recovery, and returned home within three weeks. Nine months later a small recurrence was found in the scar in the roof of the vagina. The specimen showed the uterus to be about sixteen weeks pregnant; it was opened through the posterior wall. The foetus and its membranes could be seen *in situ* with the placenta on the anterior wall. A small area of the posterior lip of the cervix shows a dark discoloration, and a section of this shows microscopically the typical appearance of carcinoma. Cancer of the cervix complicating pregnancy was a comparatively rare condition. Gross found 120 cases in 224,080 cases of childbirth, equivalent to 1 in 1,867. Sarvey collected 53 cases in

84,148 cases of childbirth investigated—1 in 1,600; Dr. Lee gave the incidence as 1 in 2,000. In the reports of the St. Mary's Hospitals, Manchester, for the years 1915 to 1923 inclusive six cases were reported in 23,867 cases of childbirth, an incidence of 1 in 4,000. The Rotunda Hospital reports for a period of twenty-five years, dealing with about 45,000 cases of childbirth, did not contain a single case. The reports of the Liverpool Maternity Hospital for the years 1916 to 1923 inclusive, and dealing with 16,680 cases of childbirth, were similarly negative. These figures, together with the fact that the speaker had been able to collect only about twenty-eight cases in British literature, would suggest that the incidence, for the British Isles at least, was much less than that given by the above authorities. It was not known whether the malignant condition usually antedated the pregnancy or developed after conception had taken place. Gross found in 16.7 per cent. of his cases that the cancer was present before the pregnancy. John T. Williams, John W. Williams, Keyes, Sarvey, and Schweitzer all agreed that in the majority of cases the cancer was present before the pregnancy. In the present case there was some evidence that the malignant condition of the cervix was present before conception could have taken place. The patient complained of bleeding following coitus for six months, and the pregnancy was only of four months' duration. Most authorities agreed that if the malignant state was discovered before the fourth month, hysterectomy ought to be performed after full explanation to the patient and her relatives. After the fourth month the pregnancy could be allowed to go to term, and Caesarean section performed with or without hysterectomy.

The PRESIDENT had seen two cases of malignant disease of the cervix complicating pregnancy. In both he had been struck by the softness of the growth and the absence of any craggy edge. In one case, which he was able to observe through labour, the cervix dilated quite easily, and delivery was normal. The case was treated by Wertheim's hysterectomy about three weeks later.

MANCHESTER MEDICAL SOCIETY.

At a meeting of the Manchester Medical Society on January 13th, with the President, Mr. A. H. BURGESS, in the chair, Dr. C. V. LAPAGE read a paper on erythroedema (pink disease).

Erythroedema.

Dr. Lapage mentioned that the disease had been first described in Australia, then in America, and more recently in Europe; the characteristic pinkness of the hands and feet had given the name to the disease. This symptom followed an onset with loss of appetite, insomnia, and other signs of failing health, combined with irritability, a malarial rash, photophobia, and stomatitis; sometimes dropping out of the teeth occurred. The differential diagnosis from toxic oedema, meningitis, tuberculosis, congenital syphilis, rheumatism with sweat rash, and other rarer conditions was not easy without previous experience, but once the characteristic persistent pinkness of the extremities, the misery, the loss of tone, and, if present, the photophobia and falling out of the teeth, had been seen the disease was easy to recognize. There was little doubt that many cases were at present unrecognized. Dr. Lapage gave a summary of twelve of his cases, which had occurred in the Manchester district during the last two years. In several of these cases the babies were breast-fed, so that the disease was probably not due to deficiency of diet. It was probably an infective condition, but so far no organism had been demonstrated. Another theory was that it was due to disease of the vegetative nervous system; this was supported by the fact that salivation, rapid pulse, high blood pressure, insomnia, mental depression, and pink oedema of the extremities occurred. The treatment consisted in alleviation of the symptoms, and in stimulation when the child was very weak and in danger of dying. Artificial sunlight did good in some cases, and attention should be paid to any discharge from the nasal passages, while removal of the tonsils had been attended

with marked improvement in some cases. Open-air treatment was also of great value if the child was kept warm. The disease occurred chiefly in the spring and early summer months, but might occur at other seasons. The usual course was complete recovery, but death was not uncommon, either by terminal infection or by sudden collapse during the time when the child was weak. He had collected fifty-three references from medical literature.

Operative Treatment of Infantile Paralysis.

Mr. ROBERT OLLERENSHAW, in an address on the operative treatment of infantile paralysis, said that those who had not followed the progress of orthopaedic surgery during the past fifteen years would be astonished at the change in the treatment of the residual paralyses of anterior poliomyelitis. Whereas these conditions were formerly looked upon simply as cases for special boots, irons, and the like, there were now many well established surgical procedures directed to the improvement of function in the paralysed limbs. The speaker emphasized the need for a proper period of correct splinting to afford complete relaxation of the over-stretched paralysed muscles in addition to suitable physio-therapeutic measures before any operation was undertaken. Tendon transplantation, with its indications, technique, pre- and post-operative treatment, and effects, was fully discussed. The speaker showed lantern slides illustrative of transplantation for talipes valgus, varus, cavus, and paralysis of the quadriceps. Slides were next shown to illustrate the value of arthrodesis of the shoulder-joint in paralysis of the upper arm group, of subastragaloid arthrodesis for stabilization of paralysed foot, of subastragaloid arthrodesis, combined with a "bone stop," for dangle foot, and of bone plastic operations for talipes calcaneo-cavo-valgus. Illustrations of cases of the same condition, showing astragalectomy with backward displacement of the foot by Whitman's method, were next shown. In conclusion, the speaker urged again that each case should be taken as an entirely separate problem and carefully studied in all its aspects before any form of operative measure was undertaken, and, further, that most cases of residual paralyses were capable of acquiring improved function as the result of one or other of the methods demonstrated.

NATURAL AND ARTIFICIAL CREAM IN INFANT FEEDING.

At a meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health on January 21st, Dr. HAROLD SCURFIELD (Vice-President) in the chair, Dr. REGINALD JEWESBURY opened a discussion on the use of cream (synthetic and otherwise) in infant feeding.

Dr. Jewesbury said that fat was one of the most difficult and important constituents of the infant's diet, and that nearly all prepared infant foods were deficient in this constituent. The fat chosen might be natural cream, or other fat, but natural cream possessed the disadvantage of uncertain composition, depending on whether it was separated or centrifugalized cream, as well as the ordinary inconveniences associated with cow's milk. He had found emulsified fats more satisfactory in use, and recommended a 50 per cent. emulsion containing cod-liver oil. The introduction of such a fat must in all cases be gradual. "New Zealand cream" was an example of such an emulsion; it was made from a recipe carefully compounded by the director of infant welfare in New Zealand, and was intended for use throughout that country. It was manufactured in a New Zealand Government factory, and Dr. Jewesbury had found it most satisfactory in use, readily assimilable, sterile, and keeping indefinitely, containing the vitamin intact, and having the high caloric value of 180 per oz. The composition was 50 per cent. fat; two-thirds of this fat was animal oil, including fresh New Zealand butter and cod-liver oil, and one-third vegetable oil, mainly pea-nut oil; sugars, mainly dextrose, and a little lactose, made up 40 per cent. The addition of the pea-nut oil was found of great assistance in promoting the digestibility of the animal oils. Whether this particular cream appealed to people or not, he strongly advocated the use of some

such product of uniform content in infant welfare work throughout the country.

Dr. E. A. BARTON summarized the process of the digestion of fat and reminded members that the digestibility of fats was very variable and was in inverse ratio to their melting points. Although human and cow's cream seemed comparable in this respect, the infant had difficulty at first in taking a milk mixture containing cream in similar proportion to breast milk. He believed that artificial creams should only be used when clean cow's cream was unobtainable. During the late war this had been the case in poor districts, and he had accordingly designed a synthetic cream which was cheap, clean, readily assimilable, and which, in contrast to the early synthetic cream of Dr. Eric Pritchard which he had previously used, contained the fat-soluble vitamin A. With help from Dr. Hampshire a cream had been derived from the emulsification of beef suet (of which owing to a higher melting point the digestibility was less than that of butter fat, but only to a matter of 4 per cent.), and this they had found was readily tolerated by infants; the fat content was 25 per cent.

Dr. DONALD PATERSON thought that synthetic creams were an unnecessary complication of ordinary cod-liver oil emulsions. People erred in exaggerating the chances of too little fat being given; the curds in infant stools were nearly always fat curds. Infants suffering from this condition were typically those who developed summer diarrhoea. The fat tolerance of the infant was easily overstepped, and as fat was slow in leaving the stomach it was often, if given in excess, a cause of vomiting when the next feed was given. The vitamin content of ordinary cream varied greatly and was liable to be deficient in winter. He believed in giving all children cod-liver oil for its vitamin content, and this was the practice at Great Ormond Street. The psychology of the mother was a factor in whether the child accepted fat or not. He advised giving cod-liver oil before instead of after three of the daily feeds.

Dr. J. F. HAINES described the process of fat digestion, and stated that while the fine state of emulsification of fat in breast milk contributed to its ready digestion by the infant, it was possible that each kind of fat required its own enzyme, and that foreign fats given to the infant suffered on this account. It was recognized that it was necessary to approximate as far as possible to breast milk in composition and in ratio of constituents, and he thought that for this reason milk fat in the form of cream or butter was better than any vegetable or other animal fat. He had tried many synthetic creams, but for some years now had advised the addition of fresh butter to infant feeds in a poor district where expense and simplicity had to be considered, and his results had been extremely satisfactory. The percentages were easily calculated—a quarter of a teaspoonful of butter in a three-ounce feed raised the percentage of fat 1 per cent. The important point was to introduce fat into the feeds slowly and gradually, remembering the infant's tendency to intolerance, and if necessary giving alkalis and biliary stimulants as well. Cod-liver oil given in a similar manner was the best substitute for milk fat.

Dr. W. COX followed with some statistics of his results from the administration of "vitoleum cream," and Dr. FLORA SHEPHERD dealt with the possibility of infection from cow's cream or butter. Dr. MARGARET AIDEN quoted a series of letters from various medical officers to whom she had written asking for information regarding their practice in the use of fats; cod-liver oil seemed to be the fat in general favour. Drs. GREIG, CHODAK GREGORY, KIDD, EMSLIE, and NASH also contributed remarks, and the CHAIRMAN, in closing the discussion, referred to the pasteurization which is, or used to be, the natural procedure in the making of Devonshire cream and Devonshire butter; such butter and cream might be inferred to be sterile.

Dr. JEWESBURY briefly replied to the discussion, and it was decided to consider the subject of cream further by appointing a subcommittee, which would report to the Secretary of the National League for Health, Maternity, and Child Welfare in due course.

Reviews.

FRACTURES AND DISLOCATIONS.

THE importance which the treatment of fractures acquired during the war has been, to a great extent, maintained owing to the increase in the frequency of such injuries which has followed the multiplication of motor cars and lorries and motor cycles. These injuries are being treated all over the country, in cottage hospitals as well as in the larger institutions in the great towns. It is not surprising therefore that the first edition of the book on *The Treatment of Fractures in General Practice* by MAX PAGE and BRISTOW, which we reviewed two years ago (JOURNAL, January 5th, 1924, p. 17) has been sold out. We are glad to see that the second edition has been extended to include the treatment of dislocations.¹ This new chapter has all the good qualities which we found in those on fractures. In the section on dislocation of the hip the authors brush aside most of the elaborate descriptions, classifications, and manœuvres of the textbooks, and state that practically two kinds of luxation—namely, anterior and posterior—are met with, and two sets of symptoms and of manœuvres for reduction are all that need be considered in practice. Other dislocations are discussed in a similar practical spirit. There are more illustrations in this than in the first edition, and the number of pages is necessarily increased, but despite this the price remains unaltered. A rather fuller index would be a boon to the busy man who is looking for advice on some one point.

Professor PIERRE DELBET is well known as an authority on the treatment of fractures, and although he contributes only a preface to the book on the subject just issued in Paris² has former pupils who have written it expound almost exclusively his opinions and practice. It is therefore one of a greater importance than the names of its authors might at first sight imply. Professor Delbet tells us that in France (as in England) there has been a tendency to neglect the study of these injuries; that dislocations were not fashionable; and that those who were interested in fractures were attracted chiefly by plating and analogous methods, which really are only applicable to certain special cases. In the 187 pages devoted to the "orthopaedic" treatment of fractures the appliances and methods of Delbet are described. These are not so much ambulatory as intended to secure early active movements of the joints above and below the sites of fractures, and so to prevent or remedy muscular atrophy and stiffness. For fractures of the femur Delbet's combination of plaster-of-Paris and steel spring extension, leaving the knee and hip free, is fully described and illustrated, but we find no references to the ice-tongs method of direct extension of the lower fragment such as has given good results in the treatment of gunshot fractures, while Codivilla's and Steinman's methods of securing the same end by nails or pins are damned with faint praise. Pott's—or, as it is called in France, Dupuytren's—fracture receives brief notice in this section. As it is a fracture into a joint it is held that unless complete reduction can be obtained open operation is preferable to orthopaedic methods, and this applies to other fractures about the ankle. The technique of open operations in this region is very fully described. Much space is devoted to the open (*sanglant*) treatment of fractures, and here the methods of Lambotte receive a good deal of notice as well as Delbet's and other more or less complicated apparatus for fixation of fracture of the neck of the femur by means of screws.

The chapters on luxations are in general adequate, but we cannot pass over without comment the unqualified

condemnation by M. Raoul Monod of Kocher's method of reduction of dislocations of the shoulder, a modification of which is generally employed in this country, and is recommended in the book by Max Page and Bristow, the second edition of which is noticed above. The method recommended as the only good one ("*la seule bonne*") would, it appears to us, in many circumstances be inapplicable. Professor Delbet warns the reader that he will find neither bibliography nor discussion. It should also be noted that he will find no reproductions of radiograms and very little attention to diagnosis; but for those who wish to learn the methods which are favoured by a master of his art we can recommend this book.

MURDER AND THE DEFENCE OF INSANITY.

THE *Trial of Ronald True*³ has been added to the series of Notable British Trials. The volume is edited by Mr. DONALD CARSWELL, a barrister-at-law, whose father, Dr. John Carswell, an authority on mental disease, gave evidence before the Committee on Insanity and Crime set up by Lord Birkenhead as the result of the controversy about True's reprieve. Of these advantages the author has made good use in the admirably lucid introduction which precedes a verbatim report of the trial.

The trial of Ronald True possesses the usual sordid details of lust and callousness, but it differed from other trials of the type because it revealed in sharp contrast the positions taken up by the legal and medical professions in cases where insanity is raised as a defence to a charge of murder. The circumstances of True's reprieve were distinctly unfortunate, and we are indebted to Mr. Carswell for setting out those facts which, had the newspaper press devoted its columns to their correct presentment, would have given the general public a truer appreciation of the legal and medical aspects of the trial, instead of—even to this day—a garbled idea that True was reprieved because of "influence in high circles," whereas Jacoby (a hotel porter under sentence for the murder of Lady White at the time of True's reprieve) was executed because he had none.

True's medical history, as described by Mr. Carswell, reveals clearly a condition of mental disorder aggravated by the morphine habit. In all likelihood it was only because his family did not move to have him certified until he actually disappeared from them to enter upon the final debauch in which he committed murder that he was not an inmate of a lunatic asylum long before. Where the issue is one of insanity, both the prosecution and the defence can usually find medical witnesses having opposite opinions, but the prosecuting counsel in the True trial was faced with the fact that medical opinion as to True's mental condition tended all one way. This explains a somewhat singular feature of the trial: that, although insanity was the issue, no medical witness was produced by the Crown to rebut the array of medical evidence called by the defence. Sir Richard Muir, the counsel for the Crown, relied entirely upon the M'Naghten rules: briefly he set out to prove, and did in fact prove, to the satisfaction of the jury, that True knew what he was doing when he murdered his victim, and knew that what he was doing was wrong. This epitomizes the legal doctrine of responsibility in murder cases where the defence is one of insanity. The jury brought in a verdict of wilful murder, and the True case illustrates the circumstance that a man may know what he is doing and that what he is doing is wrong, and so be legally responsible for his acts—and yet be insane by medical standards. The Home Secretary (who was then Mr. Edward Shortt) was bound by Act of Parliament to appoint a committee of alienists to inquire into the sanity of the condemned man, and, further, was bound to respect that committee's finding of insanity and reprieve True because, by the Common Law of England, an insane person must not be hanged. The reason for this ancient humane rule was stated quaintly

¹ *The Treatment of Fractures and Dislocations in General Practice*. By C. Max Page, D.S.O., M.S.Lond., F.R.C.S., and W. Rowley Bristow, M.B., B.S.Lond., F.R.C.S. Second edition. Oxford Medical Publications. London: H. Milford, Oxford University Press. 1925. (Demy 8vo, pp. xiii + 273; 148 figures, 12s. 6d. net.)

² *Traitement des Fractures et Luxations des Membres*. Par Jacques Delbet, Ch. Girard, P. Mornard, Raoul Monod. Préface du Professeur Delbet. Paris: Masson et Cie. 1925. (Cr. 8vo, pp. vii + 464; 247 figures, 25 fr.)

³ *Trial of Ronald True*. Edited by Donald Carswell of the Middle Temple, Barrister-at-Law. Notable British Trials. Edinburgh and London: W. Hodge and Co., Ltd. 1925. (Demy 8vo, pp. x + 295. 10s. 6d. net.)

by Sir John Hawles, Solicitor-General in the reign of William III, in one of the State trials, to be: "That it would be inconsistent with humanity and inconsistent with religion to make examples of such persons as being against Christian charity to send a great offender 'quick,' as it is styled, into another world when he is not of a capacity to fit himself for it."

It is, however, a commonplace of medicine that there are degrees of insanity, and the further question: "Do you agree with the jury's finding that True, though insane, knew what he was doing and knew that what he was doing was wrong—that is, possessed a sufficiently guilty mind to be held responsible and hanged?" was never asked of the committee. Whether the Home Secretary had power to ask this question, and whether the committee would have felt justified in answering it, is not for us to decide, but it would have gone some way towards bridging the divergency between the medical and legal positions. It was Lord Brougham who once quoted the striking story of the patients confined in York Asylum. They discussed the case of the incendiary Martin when he was about to be tried for setting York Cathedral on fire, and the conclusion which they reached was: "He will be all right for he is one of us, so the law will take no notice of him." And so, it may be asked, if a certified lunatic, legally responsible if tested by the M'Naghten rules, murders an asylum warder or doctor, ought he not to be hanged? Clearly, the question of legal responsibility and the question of insanity are distinct from one another. The medical profession has never said "an insane man ought not to be hanged for murder." This is not a medical dictum, but it is an axiom of the Common Law of England.

The appendixes render the book invaluable for reference purposes. They contain the questions framed by the House of Lords after the assassination by M'Naghten of Sir Robert Peel's private secretary in 1843, and the answers of the judges thereto—which are now known as the rules in M'Naghten's case. Mr. Carswell devotes a portion of his introduction to an illuminating analysis of their legal bearing. The appendixes include also a report of the proceedings in the Court of Criminal Appeal on True's appeal, the Home Secretary's justification before the House of Commons of his act in reprieving True, and the report of the Committee on Insanity and Crime over which Lord Justice Atkin (to whom the book is appropriately dedicated) presided. Incidentally, it might be mentioned that this committee expressed substantial agreement with the memorandum on criminal responsibility submitted to it by the British Medical Association. In its recommendations the committee said: "It should be recognized that a person charged criminally with an offence is irresponsible for his act when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist. It may require legislation to bring this rule into effect. Save as above, the rules in M'Naghten's case should be maintained." This recommendation, it may be remarked, was strongly disapproved by the legal profession as a whole.

Lord Justice Atkin's committee further expressed the general opinion that "to the insane person justice is done," but made no reference to the question whether in the interests of the public a murderer of the type of True, though insane, yet possessed a sufficiently guilty mind to be made to suffer the legal consequences of his crime. So future juries in murder trials where insanity is raised as a defence will still be asked whether the prisoner is sane enough to possess a guilty mind, and, having answered in the affirmative, and the prisoner having been sentenced to death, the Home Secretary, by Section 2 (4) of the Criminal Lunatics Act, 1884—"if it appears either by means of a certificate signed by two members of the visiting committee of the prison in which the said prisoner is confined, or by any other means, that there is reason to believe such prisoner to be insane"—will continue in such a case to appoint medical experts to examine the prisoner and report on his sanity.

The book is well worth perusal by all interested in so delicate a medico-legal issue as that raised by the trial of Ronald True.

A GERMAN TEXTBOOK ON TROPICAL MEDICINE AND HYGIENE.

WHEN three authors of repute in the world of tropical medicine collaborate in writing a book on their specialty readers naturally expect a high standard. Such expectations are not completely fulfilled in the new edition of the diseases and hygiene of warm climates⁴ by Professors RUGE, MÜHLENS, and ZUR VERTH. Their aim has been to include what will be useful for the practitioner, and therefore diagnosis and treatment are the chief ends in view. Since rational treatment is based on pathology, this aspect of the subject merits more than the few lines of small print which is all that is given to many of the diseases. With the exception of the binding, which is flimsy, the get-up of the book is very good, the print is clear, misprints almost absent, and the illustrations, with few exceptions, excellent. The coloured plates at the end, taken from works such as the *Handbuch* of Mense and of Kolle and Wassermann, are very good.

The text might be better balanced. In the first section, on tropical hygiene, only housing is adequately dealt with. The article on the blood, though short, is sufficient and well expressed, and contains an excellent section on the pathological conditions and artefacts to be distinguished from malarial parasites. As regards malaria, we note that the subtertian parasite is called *Plasmodium immaculatum*, and that *P. praecox*—the parasite of avian malaria—is given as a synonym, while *P. falciparum* is not. Dysentery is exceptionally well treated, and a sound attitude is taken with regard to diarrhoea associated with the presence of flagellates.

As examples of inequality we may say that seven pages are allotted to typhus, five to *ulcus tropicum*, two to syphilis, alastrim half a page, and five lines to tabes, general paralysis, and mental diseases together; treatment of undulant fever by serum and vaccines is dismissed in a line as worthless. Under tuberculosis the information given is little more than a list of places in which the disease is met with; there are no statistics and nothing as regards its characters, the reasons for prevalence, and so on. The article on sprue is also poor and practically disregards the work done on this disease during the last three years.

The section on schistosomiasis is fairly full and the pathological anatomy clearly described, but the part dealing with cestodes is weak. Neither echinococcus nor any of the taeniae are described at all. In fact, *H. nana*, *H. diminuta*, *Sparganum mansoni* and *Sp. prolifer*, relatively unimportant worms, are the only ones deemed worthy of notice in the text, and the reader is told to diagnose *H. nana* by "recognizing the scolices [sic] in the large oval eggs." The mode of liberation of *Dracunculus* embryos, as described by Professor Leiper, is not mentioned, but the time-honoured error of oral parturition is perpetuated. A great feature of the helminthological section is the series of diagrams by Professor Fülleborn illustrating life-histories and modes of conveyance.

Poisons are, on the whole, adequately dealt with. Exception, however, must be made of the vegetable poisons, the account of which is scrappy. Selection seems to have been made without any idea of relative importance. Lathyrism, atropicism, lacquer dermatitis, and poisoning by *Hippomane mancinella* only are described, whereas there are many other more important poisonous tropical plants of which not a word is said.

We have considered it our duty to mention these points, as this is a second edition, said to be completely revised. It contains much that is helpful, and the price is not excessive; moreover, it is written in clear language, interesting to read, so that future editions are certain to be called for, when by revision, a little amplification, and a few additions it will become a standard and will deserve high appreciation as a textbook on tropical medicine and hygiene.

⁴ *Krankheiten und Hygiene der warmen Länder*. Von Professoren Reinhold Ruge, Peter Mühlens, und Max Zur Verth. 2 vollständig umgearbeitete Auflage. Leipzig: Dr. Werner Klinkhardt. 1925 (Sup. roy. 8vo, pp. 491; 443 figs., 9 plates. Paper cover, M.30; bound, M.32.50.)

DISORDERS OF THE SYMPATHETIC NERVOUS SYSTEM IN HEMIPLEGIA.

THE occurrence in hemiplegia of changes of body temperature, of sweating, of blood pressure, etc., on the affected side has long been recognized, and Dr. JOSEPH PÉRISSEUX has made a valuable contribution to our knowledge of these changes in his recently published *Etude Clinique et Pathogénique des Troubles Sympathiques dans l'Hémiplégie*.⁵ Working in Professor Guillaumin's clinic at the Salpêtrière, he made a detailed study of a large number of cases of hemiplegia from various causes, with reference to the condition of the sympathetic nervous system. The monograph before us embodies the details of his researches and the conclusions which he has drawn from them.

Evidence of some degree of disturbance of the sympathetic nervous system is practically constant, and the author's first conclusion is that such disturbance is the direct result of the brain lesion and not simply a consequence of the loss of movement of the affected limbs. His cases came to group themselves into three types, and led him to distinguish in consequence three syndromes. The commonest he describes as the "syndrome hypothermique," and this is characterized chiefly by the occurrence on the paralysed side of a lowered temperature, lowered arterial blood pressure, and increased sweating.

Exactly opposite conditions prevail in the "syndrome hyperthermique," which is found to occur as a rule at the onset of hemiplegia and to pass rapidly into the "syndrome hypothermique." Occasionally, however, this second syndrome persists for weeks or months before finally passing into the first type; this delayed reaction the author terms the "syndrome hypothermique secondaire." The early hyperthermal syndrome he attributes to inhibition or paresis of the sympathetic system consequent upon the cerebral lesion, and he draws an analogy between this and the early flaccid stage of the motor hemiplegia. The later hypothermal state he regards as due to liberation of the activity of the medullary vegetative centres—a release phenomenon—and analogous to the spastic stage of paralysis of the voluntary muscles, though not corresponding exactly in point of time, the motor changes preceding the sympathetic. As a rule, therefore, changes referable to the sympathetic nervous system coexist with a lesion of the pyramidal tract, and vary in intensity directly with the degree of pyramidal disease. It appears, however, that extrapyramidal pathways are also concerned in the mechanism of sympathetic regulation, and from his pathological observations the author concludes that the corpus striatum plays an important part; the optic thalamus, on the other hand, is apparently not concerned in the mechanism. While some doubt may be felt as to his anatomical conclusions, and especially his postulation of a controlling pathway from the cortex to the corpus striatum, this careful record of investigations will well repay study.

OBSTETRICS AND GYNAECOLOGY.

THE first edition of Dr. BETHEL SOLOMONS'S *Handbook of Gynaecology* was published six years ago, and we are glad to welcome the second.⁶ It has been brought up to date in many directions and has been somewhat enlarged. Without pretending to be at all exhaustive, this book is yet a great deal more than a mere cram-book. It is written from a strictly practical point of view, and practitioners will find much simple lucid teaching to help them in the gynaecological work they may be called upon to do. Students will also find it useful for examination purposes. The book is now very well illustrated and two coloured plates have been introduced. The illustrations are practical and helpful, but we are not sure that those of Treadwell's operation for keeping the Fallopian tube patent by the introduction of catgut are among them; it seems doubtful whether the procedure will survive. This book

may be cordially recommended to students, and to practitioners who need a simple and short practical synopsis of gynaecology.

Dr. JESSNER of Königsberg has issued a small book upon the diagnosis and treatment of gonorrhoea in women.⁷ The subject is discussed systematically and well in the space of ninety-four pages, and there is a useful index at the end. There are no illustrations. Those who enjoy reading German will find this an instructive little book.

Professor FOTHERGILL'S *Handbook for Midwives and Maternity Nurses* is well known and requires no introduction to the profession. In the fifth edition,⁸ which has just appeared, the chapter on the artificial feeding of infants has been brought up to date by Dr. H. T. Ashby. In other respects the book is similar to its predecessor, and forms a very lucid and short introduction to midwifery for the particular public to whom it is addressed.

Dr. PAUL DALCHÉ of the Hôtel-Dieu has summarized a great deal of the modern knowledge and modern speculation with regard to what he calls *Maladies de l'Ovulation*⁹ in a monograph of 175 pages. Those who are interested in the subject will find that his views are suggestive, although perhaps there is no information which may not be acquired equally well in English textbooks. As the title is not exactly self-explanatory, it may be said that the range of subject-matter includes such diverse topics as experimental parthenogenesis, sterility, amenorrhoea, dysmenorrhoea, and "ovaritis." It is always stimulating to read even a familiar subject in a foreign language, as the point of view is generally somewhat different, and, in this respect, we cordially commend this little volume.

THE BIRMINGHAM SCHOOL OF MEDICINE
(1825-1925).

ON December 5th, 1925, in anticipation of the celebration of the centenary of the Birmingham Medical School, we published an outline of its history, and in the following issue we reported the ceremonies; the guests received a special copy of the *Birmingham Medical Review*¹⁰ containing a fuller history, compiled under the editorship of Dr. K. D. Wilkinson, who truly observes that a somewhat stormy past has been succeeded by a prosperous present: he looks forward to a great future for the school, which has, we may note, in several ways recently shown its desire to move with the times. The account we published in December will absolve us from following Dr. Wilkinson and his collaborators through the history they have compiled; but we may mention that the book is well illustrated by portraits of teachers and alumni, and members of the British Medical Association will be interested to find of how many of these Birmingham doctors it is said in the course of the biographical details about them that he was "a great worker for the British Medical Association."

To those who wish to obtain a fuller view of the origin of the school, the account of William Sands Cox and his connexion with it, by Professor J. T. J. MORRISON, prepared at the request of the Medical Committee of Queen's Hospital, will prove most interesting. The book¹¹ is also a centenary volume, and in it are described the vicissitudes through which the institution passed until it developed into the full flower of a university in 1900; the financial sacrifices made by the lecturers and others whom Cox succeeded in interesting in his projects; and the munificence of the Rev. Dr. Warneford and the troubles brought about by his insistence on an exclusively

⁵ *Diagnose und Therapie der Gonorrhoe beim Weib.* Von Sanitätär Dr. S. Jessner. Leipzig: Curt Kabitzsch. 1925. (Post 8vo, pp. 94. M.3.)

⁶ *A Handbook for Midwives and Maternity Nurses.* By W. E. Fothergill, M.D. Fifth edition. Edinburgh: W. Green and Son, Ltd. 1925. (Demy 8vo, pp. xi + 278; 67 figures. 15s. net.)

⁷ *Maladies de l'Ovulation.* Par Paul Dalché. Paris: Vigot Frères. 1925. (Roy. 8vo, pp. 175. 12 fr.)

⁸ *The History of the Birmingham Medical School, 1825-1925.* Birmingham: Cornish Bros., Ltd. 1925. (Med. 8vo, pp. 96; illustrated. Paper cover, 2s. 6d.; cloth, 4s. 6d. net.)

⁹ *William Sands Cox and the Birmingham Medical School.* By J. T. J. Morrison, M.A. Can'tab., M.Sc. Birm., F.R.C.S. Eng. Birmingham: Cornish Bros., Ltd. 1926. (Med. 8vo, pp. x + 240; 24 plates. 5s. net.)

⁵ *Etude Clinique et Pathogénique des Troubles Sympathiques dans l'Hémiplégie.* Par Joseph Périssieux. Paris: Les Presses Universitaires de France. 1925. (Roy. 8vo, pp. 215. 15 fr.)

⁶ *A Handbook of Gynaecology.* By Bethel Solomons, M.D., F.R.C.P.I. Second edition. London: Baillière, Tindall and Cox. 1925. (Extra Post 8vo, pp. xiv + 303, 217 figures, 2 plates. 12s. net.)

Church of England complexion in a college situated in a centre of Nonconformity. From delicate hints and occasional anecdotes we obtain also an inkling of the jealousies and minor quarrels which from time to time delayed, but never stopped, the progress to university status. In the chapters on the Queen's Hospital it is noted that that institution holds a special place among the provincial hospitals of the country, in that its predominant purpose was the provision of clinical instruction for the medical students of Birmingham. The foundation of this hospital was of immense value in the development of the medical school. The subsequent progress of the school, after the decade in which its fortunes sank to their lowest ebb, was due partly to the new constitution prepared both for the college and the hospital by the Charity Commissioners in 1865, and partly to the foundation of the Mason College by the wealthy Josiah Mason. The era of Sands Cox ended in 1868, his intense conservatism having, as Professor Morrison points out, unfitted him for adaptation to the altered circumstances. But, as Professor Morrison points out in his final chapter, "The Last Phase," Sands Cox's relations with the Council and the professoriate remained more than friendly—even cordial, and his liberality to the college never varied. He died in December, 1875.

SHERRINGTON'S VERSE.

THAT a President of the Royal Society should have poetic imagination and write verse is not unknown, for a hundred years ago the President (1820-1829) Sir Humphry Davy set this example, and neurology would appear to be a factor of possible import, for Sir CHARLES SHERRINGTON, who has just put off the presidential robes, has published his long expected book of poems, *The Assaying of Brabantius and Other Verse*,¹² with a dedication to his contemporary neurologist and singer Henry Head. The "Assaying of Brabantius," which occupies almost half the volume, has a high moral and some fine lines. The eighteen shorter pieces, some of which had appeared in the *Oxford Magazine*, shed new lights on various aspects of life, grave and gay, and show a touch that charms, such as the concluding stanza of "Ifley," written in 1916—

Ere came the vesper bell to cease
the low sun, like a cloudy torch
trailing blood-crimson past the trees,
fired Ifley porch.

NOTES ON BOOKS.

DR. A. G. G. THOMPSON'S pamphlet entitled *Babies*¹³ deals with the care of a normal baby. It is clearly written, contains sound teaching, and several practical hints of value. It is questionable, however, whether, in a pamphlet intended for popular use, the addition of raw cream to the infant's feed should be advised, without insisting that the cream should be taken from tuberculin-tested cows. There are no diagrams or pictures. Very similar information and advice is given in a pamphlet *Our Babies*,¹⁴ by Dr. BUNDESEN, Commissioner of Health for the City of Chicago; it is set out in an entirely different manner. There is a brightly coloured picture of a bonny baby on the cover, and on every page are many little sketches and diagrams to attract the eye and impress the visual memory. The centre page shows in a diagrammatic way the solar spectrum extending between the sun and a naked baby exposed in the violet rays: a crude representation, but very convincing. Altogether the pamphlet is an excellent piece of health propaganda.

In his essay on the origin of dysentery¹⁵ Dr. HANNS GLEITSMANN comes to the conclusion that the chief factors in an outbreak of dysentery are a maximal surface warmth and a fall of the subsoil water. A combination of these two factors, he maintains, is indispensable for the development

of an epidemic. The essay is illustrated by numerous charts and tables of dysentery epidemics in Germany and foreign countries.

Mr. ST. GEORGE LANE FOX PITT'S work *The Purpose of Education*,¹⁶ of which we reviewed a cheap edition on November 7th, 1925 (p. 852), has now been revised and reprinted. The most important addition deals with the latest aspect of the currency question, certain popular fallacies being exposed.

In *Figs from Thistles*¹⁷ we have what the publishers very properly call "an incisive attack on modern democracy." Starting with the statement that the British are of all peoples the least fitted for pure or advanced democracy, and that it is this contention which he wishes to justify, Mr. WELBY makes a carefully reasoned plea for government by an *élite* of the nation. Throughout he commands our attention. How much or how little the reader may at the end find himself in agreement with the author depends on personal political bias, but that fact can in no way detract from our admiration for the trenchant manner in which the thesis is expounded. It is certainly a book to make the reader think, and it is a book to take up and read again.

¹² *The Assaying of Brabantius and Other Verse*. By St. George Lane Fox Pitt. Fifth issue, revised. Cambridge: The University Press. 1925. (Extra post 8vo, pp. xxix + 95. 4s. net.)
¹³ *Babies from Thistles*. By T. Earle Welby. London: A. M. Philpot, Ltd. 1925. (Cr. 8vo, pp. 168. 5s. net.)

PREPARATIONS AND APPLIANCES.

Enucleation of Tonsils.

THE instrument here illustrated has been designed primarily for use in enucleation of tonsils by the blunt guillotine by Dr. C. D. AGASSIZ (High Wood Hospital for Children, Brentwood), who describes it as follows:

The square-ended blade is fitted with a small piece of rubber sponge (1½ by 3¼ by 3¼ in. approximately, cut to the required shape, slit to receive the blade, and sewn on), and a small gauze bag made with a purse-string thread at the neck is slipped over the sponge at the time of operation and the thread pulled tight. The



other blade is covered with a piece of rubber tubing. The instrument is applied immediately after the enucleation of the tonsil—the sponge-covered blade to the tonsil bed and the other blade behind the angle of the jaw. A clear field for the removal of the second tonsil is then left, and when both are applied haemorrhage is prevented. Two instruments—right and left—are required for each operation. In emergency in case of secondary haemorrhage this instrument may also be useful.

The instrument can be obtained from Messrs. John Bell and Croyden, 50, Wigmore Street, London, W.1.

Ostelin.

The preparation "Ostelin" which we have received from Messrs. Glaxo is a highly concentrated preparation of the antirachitic factor which is present in cod-liver oil. The method of preparation is based on methods elaborated at Columbia University, New York. The antirachitic factor in cod-liver oil is known to be associated with the unsaponifiable fraction of the oil, and the methods used produce a preparation in which the antirachitic factor is in a two-thousandfold greater concentration than it is in crude cod-liver oil. For convenience of administration the active principle is sold in a glycerin solution, three drops of which form a single dose for a child. Experimental work with ostelin has shown that the quantity needed daily to prevent rickets in a rat is a few hundredths of a milligram. Clinical reports published by Messrs. Glaxo appear to show that three drops of ostelin three times a day were sufficient to produce a cure in cases of well marked rickets. The experimental and clinical results indicate that ostelin possesses the full antirachitic action of cod-liver oil. Ostelin should prove a valuable remedy for rachitic children who dislike the taste of cod-liver oil, or in whom the oil produces diarrhoea. The drug also will make possible a more intensive treatment of rickets than has hitherto been possible, since the equivalent of a large quantity of cod-liver oil can be administered daily without fear of digestive disturbance. Ostelin, as supplied for therapeutic use, is diluted so that three drops of the glycerin solution are equivalent to a teaspoonful of cod-liver oil. A bottle containing forty-five doses, which are the equivalent of about 6 ounces of cod-liver oil, is sold for 2s. 6d. The cost, therefore, of treatment with ostelin is only twopence a day.

¹² *The Assaying of Brabantius and Other Verse*. By C. S. Sherrington. Oxford University Press. 1925. (Post 8vo, pp. 67. 4s. 6d.)

¹³ *Babies*. By A. G. G. Thompson, M.A., M.D. Cantab., D.P.H. London: Humphrey Milford, Oxford University Press. 1925. (Cr. 8vo, pp. 32. 1s. net.)

¹⁴ *Our Babies*. By Herman N. Bundesen, M.D. Chicago: Department of Health. 1925. (Demy 8vo, pp. 68; illustrated.)

¹⁵ *Ueber Ruhrerkrankung*. Ein epidemiologischer Beitrag zum Ruhrproblem. Von Dr. Hanns Gleitsmann. Munich: J. F. Lehmann. 1925. (Demy 4to, pp. 32. 3s.)

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SATURDAY, FEBRUARY 6TH, 1926.

VITAMIN DEFICIENCY.

THE two papers read before a recent meeting of the Section of Comparative Medicine of the Royal Society of Medicine (of which a report appears at page 239) bring out very clearly two of the most important directions in which our knowledge of vitamins is advancing.

Professor Drummond showed that one vitamin—namely, the fat-soluble antirachitic factor called vitamin D—had already been synthesized from the chemically pure substance cholesterol, and that we were within measurable distance of isolating it in a chemically pure form. This is a step forward of great importance, because it means that our knowledge of the nature of this vitamin is already more advanced than our knowledge of such substances as bacterial toxins and antitoxins or even insulin. There is therefore no justification for continuing to regard vitamins as hypothetical substances of a particularly obscure nature. The most remarkable fact about the recent advances in the isolation of vitamins is that they have been found to be substances of extraordinary potency; in the case of vitamin D the daily dose necessary for a rat is less than 0.002 mg. Figures such as this call to mind the internal secretions, which are the only other substances necessary to the body which act in quantities of this order.

The acquisition of exact knowledge of this kind concerning vitamins has led to the institution of quantitative experiments concerning their action. The early experiments on vitamins were qualitative in nature, and directed to ascertaining the distribution of these substances in foodstuffs. As was natural, the tests undertaken to determine their presence were made as short as possible, and vitamin-free diets were evolved which produced acute diseases in suitable animals within a few weeks. The diseases thus produced, such as polyneuritis, keratomalacia, scurvy, and fulminating rickets, are rarely met with in clinical practice in this country, and hence the importance of vitamin supply in clinical medicine has been underrated. The idea has spread that so long as such diseases do not occur people are receiving an adequate vitamin supply, and all is well. Professor Plimmer's experiments shatter this comfortable belief. He studied the effect of partial vitamin deficiency, and extended his experiments over months instead of weeks. He found that partial vitamin deficiency did not produce any of the fulminating effects mentioned above, which are clinical curiosities; but that it did produce a series of effects which are among the commonest complaints of civilized man. The chief effect of partial deficiency of vitamin B was intestinal atony, which produced stasis and intestinal toxæmia. Furthermore, Professor Plimmer found that to maintain a number of animals in full health the bulk of their diet needed to be composed of substances fairly rich in vitamin B. For example, the amount of wholemeal bread needed to protect a

pigeon from partial deficiency of vitamin B was no less than 75 per cent. of the total diet. These experiments at once suggest that the ordinary diet in this country is very seriously deficient in vitamin B, for white bread is the basis of our diet, or at any rate of the diet of the great bulk of our fellow countrymen, and white bread is devoid of any vitamins whatever. Professor Plimmer himself pointed out the large specific differences that occurred in the vitamin needs of animals—for example, the rat needed only one-third as much vitamin B as did the fowl. For this reason care must be taken in applying results obtained on laboratory animals to man. We know, however, that complete deficiency in any one of four of the vitamins (A, B, C, and D) produces the same effects in man as in animals, and therefore we have no justification in assuming that man is a happy exception in the animal kingdom, and can live in full health on diets that produce definite disease in a wide range of laboratory animals.

The subject is, of course, of immense practical importance. Professor Plimmer's experiments suggest that a large proportion of the chronic disorders of the alimentary tract from which our urban population suffers can be attributed to the deficiency of vitamin B in our diet, which we have produced by abandoning wholemeal bread and substituting the vitamin-free white bread. If Professor Plimmer's conclusion is justified it is obvious that every possible endeavour should be made to induce our population to change its habits and once more eat wholemeal bread. This change would involve a number of serious economic consequences, for the transport and keeping of wholemeal flour presents certain difficulties, and farmers are largely dependent on the supply of wheat "offal" for feeding purposes. The obvious present need is for research on a large scale, with as wide a variety of animals as possible. The cost of such a research is probably beyond any of our institutions, but it would be negligible in comparison to the enormous interests involved.

BIOLOGICAL STANDARDS.

IN concluding the notice of the Annual Report of the Medical Research Council for the year 1924-25 published a fortnight ago (p. 150) we promised to deal with the question of biological standards in a separate article. This promise we now fulfil. The report refers to the passing into law of the Therapeutic Substances Act, 1925, as a notable event in the year, and one which is of great importance to the progress of medical science, to the daily practice of the medical profession, and to the safety of the public. The Council has long sought to encourage research work at the National Institute and elsewhere on the accurate standardization of therapeutic substances whose potency cannot be assessed by direct chemical means. As long ago as 1916 the Medical Research Committee addressed by request a memorandum to Mr. Asquith's Government, in which it gave reasons for its conviction that the absence of any control of the kind now secured was "discreditable to our national position in the world of science and a source of grave danger to the community." The primary object of the Therapeutic Substances Act is, of course, to protect both patients and doctors by fixing standards for the strength and purity of complex substances like diphtheria antitoxin or insulin, or complex chemical compounds like salvarsan.

It is satisfactory to reflect that much of the research

work carried out in this country on biological standards and the methods of biological assay has already borne fruit, and that the new Act will immediately become fully applicable to several important substances for which methods of assay have already been worked out and standard units accepted. For some years past the staff of the National Institute has been exercising functions on a voluntary basis or by special arrangements with other Government departments, some of which, under the new Act, may become a statutory duty. For example, the Standards Department of the Institute, under Dr. Dale's general supervision, has continued to test every batch of salvarsan for freedom from toxicity and for therapeutic potency. Dr. Hartley's work on diphtheria antitoxin also promises to be particularly useful in connexion with the requirements of the new Act. He has prepared a standard preparation of diphtheria antitoxin, and the regular issue of samples of this to manufacturers and institutions concerned with the testing of the serum in this country has already begun. This is as yet the only serum for which a standard and a method of assay have been accepted by international agreement under the auspices of the Health Committee of the League of Nations.

Under the auspices of the Health Committee of the League of Nations two international conferences have been held to discuss the possibility of providing stable standards of reference and agreed methods of biological assay for pituitary extracts, insulin, digitalis and other heart tonics, thyroid gland preparations, salvarsan and its analogues, male fern and other anthelmintics, suprarenal preparations and adrenaline, for ergot, and for preparations used for their vitamin content. The second of the two international conferences was held at Geneva early in September, when Great Britain, France, Germany, the United States, and five other nations were represented. Definite agreement was reached with regard to the first seven of the nine items above mentioned, and provision made where necessary for the preparation and preservation in some State institution of an international standard of reference.

Great Britain has already assumed the responsibility for insulin, and at the request of the international conference the National Institute accepted the duty of preparing and keeping the international standard of reference. A large supply of insulin was collected, and converted into the form of a dry, stable hydrochloride.¹ This material, after purification by repeated precipitation as a picrate and reconversion into the hydrochloride, was forwarded to the Insulin Committee of the University of Toronto for determination of its activity in terms of the current unit as defined by them. Simultaneous determinations were made in the National Institute and by three other laboratories in the United States of America and this country. The results from these various institutions varied only from 8.4 to 8.8 units per milligram of the dried preparation. The international conference therefore accepted the recommendation of the Toronto committee that this preparation, preserved at the National Institute, should be the international standard for insulin, and that one milligram thereof should be taken to contain eight units of insulin. Samples of this standard have already been supplied from the Institute to the responsible authorities in sixteen countries.

INCOME TAX: THE THREE YEARS' AVERAGE.

A good deal of prominence has recently been given in the general press to a decision by the House of Lords in the case of *Whelan v. Henning* against the contentions of the Board of Inland Revenue. Captain Henning was in possession of some shares in a foreign company the dividends on which were liable to assessment on the basis of the three years' average. In the year in question the shares produced no dividend, and he claimed that therefore there was no income assessable, and that the assessments made should be discharged. The unanimous opinion of all the judges who heard the case at its various stages—as well as of the local commissioners who first heard it—was that that view was correct, being the logical outcome of a fairly recent decision in the House of Lords in the somewhat similar case of *untaxed interest*. Captain Henning, therefore, is relieved from income tax in respect of his foreign dividends when the income is *nil*, and will also—unless, of course, some alteration be made in the statute law—be able when future dividends are received to include the *nil* in the three years' average, thus drawing some fiscal consolation for the temporary setback in his income from the shares.

The technicalities of the argument, with its wearying references to schedules, cases, and sections of the various Acts of Parliament, we are content to leave to others, but there are one or two points of a more general character which will repay attention here.

In the first place, it is a striking commentary on the extraordinary complexity of our income tax laws that a simple point of this kind can be brought to the courts to reverse in 1926 a practice that seems to have been unchallenged since the statutory basis of assessment was laid down in 1842. No doubt the prolonged persistence of an erroneous view is largely attributable to the heavy cost of litigation—apparently the Inland Revenue Department in this case pays the piper, or perhaps we should say that the country pays the piper though the department called the tune; but in either case it is strong confirmation of the contentions put forward by the legal and accountancy professions that the income tax laws urgently require some simplification.

The Lord Chancellor was careful to point out that the decision given did not deal with assessments in respect of business or professional profits, though, of course, he did not say that the decision could not be so applied. If it can the matter has a somewhat serious aspect for such taxpayers as may not be liable to a complete loss of profits, because trade fluctuations sometimes result in business losses, and to give effect to such losses twice over—one to discharge an average assessment and again as components of future averages—would tend to throw a greater burden on other classes of income-tax payers.

The *Whelan v. Henning* case may possibly prove to be another nail in the coffin of the three years' average system, which no doubt facilitates the preparation of Budget forecasts of revenue, but is very far from ideal in many respects. A basis which would render a man liable to pay tax on what he had recently received would in many ways be preferable to a system which constructs an artificial assessment when there is no such income out of which the tax can be paid. The latter possibility has been removed as regards income in the form of dividends from abroad

¹ In this connexion a paper by Dr. Dale and two of his collaborators published by us (*BRITISH MEDICAL JOURNAL*, 1925, vol. ii, p. 1102) may usefully be consulted.

or of interest at a heavy cost in legal expenses. We suggest that when the next Finance Bill is before the House of Commons all classes of income should receive equitable and identical treatment, and that a promise from the Chancellor of the Exchequer that a determined effort should be made to grapple with the task of simplifying the present legal chaos of Acts, schedules, leading cases, and the rest of the present cumbrous machinery, would provide some hope of better things to come—at any rate for the next generation of taxpayers.

EDINBURGH MEDICAL FACULTY BICENTENARY.

THE University of Edinburgh is arranging to celebrate 200 years of its existence in June, 1926. The details of the celebration have not yet been arranged, except as regards a resolution on the part of the Senatus and University Court that this should take place before the students leave for the long vacation. As is generally known, the Brethren of the Guild of Surgeons and Barbers, which had existed prior to 1505, in that year obtained a charter of incorporation from the town council of Edinburgh, which included the gift once in the year of "ane condampnit man efter he be deid to mak anatomie of," and the teaching of anatomy has continued in Edinburgh without interruption since that time. This teaching of anatomy also included surgical instruction. The Tounis College, which gradually developed into a university, was founded originally under a charter granted by James VI in 1583, but this instruction covered only the subjects of theology, philosophy, and the humanities. By the year 1670 the leading physicians of Edinburgh, including Sir Robert Sibbald, Sir Andrew Balfour, Sir Archibald Stevenson, Dr. Archibald Pitcairn, and Sir James Burnet, moved by the desire to reform medicine, set themselves to lay out a physic garden and to obtain a charter for the institution of a College of Physicians. The charter was granted in 1670, and the Royal College of Physicians, among its other activities, issued an *Edinburgh Pharmacopoeia* in 1699. By 1676 the physic garden had been prepared and a professor of botany had been appointed, and in 1713 James Crawford was nominated professor of chemistry and medicine. Sir Robert Sibbald, Archibald Pitcairn, and James Halket had already been appointed professors of medicine by the town council as early as 1685, but it does not appear that they instituted any regular course in this subject. Chiefly as the result of the activities of Pitcairn, the yearly demonstrations of anatomy by the Incorporation of Surgeons were greatly improved about the year 1702, and by 1705 Robert Eliot was chosen by the incorporation as "public dissector," and received from the town council a salary of £15 per annum. Eliot was thus the first "professor of anatomy" in the Tounis College and the earliest professor of this subject in Britain. In 1708, at his request, Thomas Drummond was conjoined with him in the post, receiving half the salary! Eliot was succeeded in 1717 by John M'Gill, but two years later he and Drummond resigned their posts in favour of Alexander Monro (primus). Monro was elected by the Edinburgh Town Council "Professor of Anatomy in this City and College," the yearly salary of £15 being continued to him, and his appointment in 1722 being confirmed for life. Monro was the first to give an eight months' course of instruction in anatomy, surgery, and physiology, and this formed the virtual beginning of the Edinburgh Medical School, so far as students from places outside the city were concerned. In the year 1720 the anatomy class included 57 students, and the number continued to rise till eighty years later it was being attended by over 400, drawn from all parts of the known world. In view of this it was deemed desirable to

add the teaching of other subjects required in medical practice, and in the year 1726 Andrew Plummer and John Innes were made professors of chemistry and medicine, Andrew Sinclair and John Rutherford professors of medicine and institutes of medicine, and Joseph Gibson professor of midwifery. It would seem, therefore, that a definite medical faculty was first constituted at Edinburgh in 1726. It appears that the town council regarded their college from the first as entitled by its charter to grant degrees, and there is evidence that the degree of M.D. was granted as early as 1705, David Cockburn having received the degree of M.D. from Edinburgh in that year. The privilege of licensing persons to practise medicine in Edinburgh was, however, jealously guarded by the Royal College of Physicians, and it appears at first to have been necessary for those who graduated at the Tounis College to apply to the Royal College of Physicians for licence to practise in the city. After the establishment of the medical faculty, however, in the Tounis College, which now began to be called the University of Edinburgh, it would appear from the records of the Royal College of Physicians that the Edinburgh graduates who intended to practise in Edinburgh often allowed several years to elapse between the date of obtaining their degree and their application to the College of Physicians for licence to practise. Although the beginning of the Edinburgh Medical School was gradual, a very definite step was taken in 1726, and it is therefore natural that the university should celebrate the bicentenary of the medical faculty in the present year.

PROTECTION OF X-RAY WORKERS.

WE have referred repeatedly to the important question of the protection of x-ray workers since the formation in 1920 of the X-Ray and Radium Protection Committee, under the chairmanship of Sir Humphry Rolleston. The National Physical Laboratory was represented on this committee, and gave the utmost possible support by advice and practical investigations; as the result of these experiments and the collaboration of distinguished radiologists, two reports were issued.¹ Dr. G. W. C. Kaye of the National Physical Laboratory opened the discussion on the protection of x-ray workers in the Physics Section of the International Congress last July,² and the foreign delegates were so deeply impressed that they arranged for copies of the proceedings to be circulated to each of the countries represented, with a view to establishing an international standard of safety. From the earliest days British manufacturers have most loyally supported the decisions of the Protection Committee, sometimes at very great inconvenience, certain designs of apparatus having to be scrapped and financial loss sustained. As a direct result of the weight of the protective material found to be necessary the British apparatus inevitably became heavier, less adaptable, and possibly less flexible, but the cost has relatively increased but little, and not more than is required to cover the expense of the additional protection found to be necessary with the use of higher voltage apparatus. Unfavourable comments on British apparatus have lately been made by a hospital committee, the allegation being that it is cumbersome in form, inadaptable, and costly as compared with the apparatus supplied by certain foreign firms. While France, America, and the Scandinavian countries, following the lead of Great Britain, have taken great care to ensure protection for the x-ray worker, this has not hitherto been the case in Germany, from which country the apparatus for the hospital in question was being ordered. There seems a possibility that the safety of the x-ray worker may be sacrificed on the altar of economy

¹ BRITISH MEDICAL JOURNAL, 1923, vol. i, p. 389.

² *Ibid.*, 1925, vol. ii, p. 72.

in some cases, and this is a danger to which hospital committees should be alive. It is perhaps not generally known that the Board of Trade has interested itself in this question of protection, and has now included certain diseases caused by exposure to x rays and radium in the schedule of dangerous occupations of the Workmen's Compensation Act, 1906. It seems likely also that insurance companies will soon require information about this question, and any public body will incur considerable risk in purchasing apparatus which does not in every particular comply with the requirements of the X-Ray and Radium Protection Committee."

STATISTICS OF CANCER IN DIFFERENT TRADES AND PROFESSIONS.

THE Medical Research Council has issued a special report (No. 99)¹ on the incidence of cancer in males engaged in different occupations. Hitherto the cancer death rates in relation to occupations have, except in a few instances, been considered without distributing the cases according to the part affected. The occurrence of cancer in special parts of the body associated with definite occupations (for example, cancer of the scrotum among chimney-sweeps) suggested that the examination of the incidence of cancer in different occupations, distributed in relation to the parts affected, might give further information as to the wider influence of substances already recognized as harmful, or might even disclose other injurious substances. The report is founded upon an offer of the Registrar-General to afford facilities of access to certain documents relating to cancer and sarcoma. The facts codified in the Registrar-General's office for three years (1910-12) included in the case of cancer, in addition to sex, age, and specific trade, the site of the disease. In this way the Council had access to 46,118 cards relating to male deaths from malignant disease, and on this material a survey of the relation of cancer (excluding sarcoma) to occupation was undertaken by Dr. Matthew Young and Mr. W. T. Russell of the National Institute for Medical Research, in collaboration with Dr. John Brownlee, director of statistics, Medical Research Council, and Dr. E. L. Collis, professor of preventive medicine in the University of Wales, the two latter being members of the Council's Statistical Committee. The Council points out in a preface that the best way of treating such material as was thus provided is still a matter of discussion among statisticians, and gives a warning to the reader that the investigation of cancer statistics is a difficult matter, upon which wide differences of opinion exist between competent statisticians. The appeal of the report is therefore limited, for it will mainly interest trade statisticians; for this reason we depart from our usual custom of analysing the report section by section, and give here only the paragraph in which the results of the investigations are summarized. "It must," it is said, "be acknowledged that, though confirmatory evidence has been obtained of some views already more or less generally accepted as to the close association of some types of cancer with exposure to particular risks incurred in certain forms of employment, for example, chimney-sweeps' cancer and mule-spinners' cancer, evidence in support of such a connexion between the nature of the employment and other forms of cancer, especially those localized internally, cannot be regarded as more than suggestive. In some occupations the excessive indulgence of habits like smoking and drinking, which the nature of the occupation permits or facilitates, appears to be the important predisposing factor and not anything inherent in the employment itself, while the incidence of syphilis in different occupational groups seems to have some association with that of lingual cancer.

In the data examined it is not uncommon to find, however, in occupations an excessive mortality from cancer in certain sites for which no apparent explanation can be found in the industrial risks. This emphasizes the fact that occupational risk is only one of several predisposing causes of cancer which are operative in different instances or under different circumstances, and supports the view that the discovery of any one specific factor is not likely to provide a solution of the complex problem of the origin of the disease."

MEDICAL MEN IN EARLY AERONAUTICS.

THE first social evening of this year took place at the Royal Society of Medicine on February 1st, with Sir StClair Thomson, the President, acting as host. In the course of the evening the Fellows and guests assembled in the Barnes Hall for a short lecture by Dr. F. J. Poynton on "The part taken by doctors in the early days of aeronautics." The President, in introducing the lecturer, said that it might be asked what a doctor had to do with flying, but there was nothing concerning human endeavour which did not interest the medical profession, because all human endeavour reacted upon the human body, which was the profession's charge. It was curious to think that in the lifetime of all those present there had been realized the dream of ages that man should fly—a dream which had found expression in the legend of Daedalus, who, with his son Icarus, made wings from feathers and wax and flew from Crete, Icarus falling into the sea. But apart from the medical aspects of aerostatics, medical men were interested in this as in other sciences for its own sake. It was true that the day had long since passed when a man could declare, with Bacon, that he took all knowledge to be his province. Medical men nowadays felt that it took all their energies to keep abreast of knowledge in things relating to their own profession, but at the same time they found other fields of science very engaging and did much work in them. It was noteworthy that William Gilbert, Luigi Galvani, and Thomas Young, who added so much to the knowledge of electricity, magnetism, and light, were all medical men. When Charles II founded the Royal Society, out of its 115 members the medical profession accounted for 25. Dr. Poynton, after a reference to the place of flying in fable, described the evolution of the balloon, and instanced the attractiveness which investigations along this line had had for some of the greatest intellects of the world—for example, Roger Bacon, Leonardo da Vinci, Swedenborg, and Joseph Priestley. He showed a number of old prints illustrating the famous exploits of Jacques Montgolfier and his brother in 1783 and subsequent years; it was said that Montgolfier purchased a French translation of Priestley's works, and thereby got his ideas for his balloon. Among the great Frenchmen of that day who were interested in aerostatics were Lavoisier the chemical philosopher, Marat the revolutionary, a man of no mean scientific attainments, and Pilatre de Rozier, who began as a medical student but turned to other branches of science, inventing a gas mask which was of great service to men working in the sewers of Paris, and presently made the first journey in a balloon across the French capital, perishing two years later in an attempt to make a similar journey across the Channel. The popular interest in this conquest of the air quickly spread to the United Kingdom, where the first person to ascend in a balloon was a Glasgow apothecary named James Tytler, a versatile man, who wrote a considerable part of the first editions of the *Encyclopædia Britannica*, but his Scottish caution forsook him when he married a lady who presently deserted him, and also when he became bitten with the balloon craze to such an extent that he was known as "Balloon Tytler." He succeeded in rising into

¹ Medical Research Council, Special Report Series, No. 99. An Investigation into the Statistics of Cancer in Different Trades and Professions. 1926. H.M. Stationery Office. Pp. 50. 1s. 6d. net.

the air, going up some hundred feet, but came down again "somewhat rapidly." Tytler eventually went to America, where he wrote a work on surgery in three volumes, as well as a book on the plague, in addition to editing a paper, and—a melancholy ending for one who had essayed flight—he was killed by falling into a clay pit. Dr. Poynton then described the deeds of Lunardi, the young Italian, who kept London agape for some time with his balloon ascents from Chelsea. The man who was entrusted with the task of filling Lunardi's balloon was none other than George Fordyce, F.R.S., physician to St. Thomas's Hospital and an excellent experimental chemist. Two other medical men who were greatly interested spectators on these occasions and who were also bitten by the craze were Dr. Jeffries of Boston, U.S.A., and John Sheldon, surgeon to the Westminster Infirmary and professor of anatomy at the Royal Academy. To honour Sheldon for his aeronautical exploits there was a triumphal procession in which he was the central figure. Among the many interesting prints the lecturer exhibited was a satirical cartoon of this period—the end of the eighteenth century—representing the Royal College of Physicians, then in Warwick Lane, being removed from the earth by a balloon and suspended in mid-air; the inscription stated that the College had remained three months in that position, and that the health of the country had never been better!

THE FOOD INVESTIGATION BOARD.

DURING the year 1924 the Food Investigation Board of the Department of Scientific and Industrial Research has been mainly concerned with inquiries and investigations, assisted by expert committees, into various problems connected with the freezing of beef, the use of cold and carbon dioxide in the preservation of fruit and in the preservation of eggs. The report for 1924¹ presents a summary of the work done in these various fields of research, and, in some instances, detailed and complicated accounts of the methods employed and the results of the investigations. Some of the work of the Board has already been noticed in our columns, notably the inquiries into "brown heart" and functional diseases of apples during cold storage, and some others of the investigations have already been published, either in the form of separate reports issued by H.M. Stationery Office, or in the *Proceedings* of the Royal Society, the *Biochemical Journal*, and other publications; but there is also much that is new in the report for 1924. The first section deals with the theory of freezing with a view to determining the changes that are liable to occur in freezing on a mass of colloid. Experiments were carried out with gelatin jelly, and led to the discovery that ice forms only on the external surface if the rate of freezing is slow enough, and only within the mass if the rate is high enough. With slow freezing the final state is a core of jelly, from which more than half the water is extracted to form a shell of ice. The practical conclusion is that in slow freezing of beef or mutton water separates out on the outer surfaces, and when the meat is thawed drains away, carrying with it a certain amount of nutritive material; but, when the freezing process is sufficiently rapid the separation of water is totally suppressed, and the thawed meat is in no respects different from fresh meat. In the freezing of eggs a still more curious result was obtained, for no change takes place in the frozen mass of the yolk if the temperature is not carried below -6°C .; but below that point the normal fluidity is lost, and a stiff pasty condition, which is permanent, results; although this change does not take place if the yolk is frozen very rapidly at very low temperatures and then thawed very rapidly. The experiments have an

important bearing on the preservation of eggs and the retention of their fertility for long periods. A full account of the investigation will be published in the next special report of the Food Investigation Board, now in the press. The preservation of fish was also the subject of inquiry during the year, but the experiments attempted at the Low Temperature Research Station at Cambridge failed, because there was no certainty as to the history and state of the material, purchased locally, before the experiment was commenced. The carrying out of experiments on fish preservation appears to have been practically impossible at an inland station, and a study of the problem can only be effected at a fishing port. Some very interesting researches were conducted on the preservation of fruit and vegetables. Various experiments for determining the course of respiratory activity throughout the life of apples are described in detail. Apples have, it seems, two life phases: that of growth, dependent on their existence on the tree; and that of senescence, when they have been gathered or dropped and lead an independent existence as isolated organs. In the former phase the respiratory activity decreases as growth increases; in the latter phase, on the other hand, respiratory activity increases rapidly soon after the apple has been gathered or drops, marking the transition from growth to senescence in what is termed a "climacteric" phenomenon. Interesting studies of this phenomenon in different kinds of apples and apples grown on different soils are detailed, especially in connexion with their storage in normal conditions, in cold storage, and in "gas" storage. The remaining sections deal with the chemistry of oils and fats, which is highly technical, and with engineering problems in refrigeration. The report generally is a fine record of scientific work, which is bound to have in time great importance in improving the methods and conditions under which food supplies are stored and preserved.

CONSTRUCTION AND MAINTENANCE OF HOSPITALS.

THE closing of the Bellahouston Red Cross Hospital, near Glasgow, after ten years of valuable work, has induced Sir George Beatson, who has been throughout connected with it, to review the methods adopted for the control of that hospital, and to discuss the application of the same principles to voluntary hospitals generally. The hospital was established in 1915, when material and labour were scarce. The simplest form of construction was therefore adopted—the bungalow type—each bungalow being connected by a long central corridor. The administrative and nursing quarters were erected in the grounds around the main building. This hospital of 1,200 beds was put up and equipped with the necessary annexes at a cost of £100,000. The Red Cross provided the hospital and equipment, paid all running expenses, and received a daily grant of 2s. 6d. for each patient to cover diet, drugs, and dressings. Applying these experiences Sir George Beatson considers that the one-story bungalow system based on the central corridor plan will probably be applied to hospitals in the future. After noting the great saving in staircases and lifts, he expresses the view that the regional distribution of auxiliary hospitals around central hospitals would be a great advantage. The financial arrangements of voluntary hospitals, he reminds us, were established to meet a condition of affairs that no longer exists; they should be modified to present-day requirements, but in such a manner as not to imperil the voluntary principle nor pave the way for "nationalization." The three points dwelt upon by Sir George Beatson are all of first-rate importance. The construction cost of the modern many-storied hospital is very high. The bungalow system is certainly cheap in first cost; but is it good and comfortable in running? We have heard of interminable passages and bitterly cold wards

¹ Report of the Food Investigation Board for the year 1924. London: H.M. Stationery Office, 1925. (Pp. vi+80; 6 plates, 41 figures. 3s. 6d. net.)

in wintry weather. Again, can the economical central kitchen provide hot meals to such widely spread wards? These are practical points that need elucidation. It may be possible to obtain records of experience from such a hospital as Bellahouston. The comment on the need for intercommunication between hospitals is timely, for it would undoubtedly be an improvement. The desirability of introducing the Red Cross system of finance into the voluntary hospitals is a more debatable proposition. At Bellahouston Government departments were responsible for all the patients, and failing the willing service of the Red Cross Society a Government hospital would have been established. Voluntary hospital patients are of many and various types, and that the hospital should be indemnified for all costs of maintenance and treatment in regard to patients for whom the State (whether through central or local authorities) is responsible is part of the policy of the British Medical Association. The payments received for such patients by the directors of the Bellahouston Hospital seem very low, even for such items as are stated to have been charged for.

RHEUMATIC INFECTION IN CHILDHOOD.

In a report to the Metropolitan Asylums Board on "Rheumatic infection in children" Dr. Gordon Pugh deals with the problem of the cardiac cripple. He quotes Dr. Askins's statement¹ at the last Annual Meeting of the British Medical Association that one-half of all cases of heart disease are of the rheumatic type. Dr. Askins said further that Dr. Carey Coombs had found in a prolonged investigation that two-thirds of the cases that came under his observation commenced between the ages of 5 and 15. Dr. Gordon Pugh shows that if these data are correct rheumatism in childhood is eventually responsible for one-twenty-fourth of all deaths—a figure far exceeding the contribution of all the commoner zymotic diseases. In the past insufficient attention has been paid to these matters by the health authorities; recently, however, there have been signs that public interest is being awakened. Dr. Pugh observes that as rheumatic fever has a great tendency to recur, and with each recurrence to add to the cardiac lesions, it eventually leads to the most marked cases of chronic carditis. Much must depend on the treatment the child receives in his first attack. Dr. Pugh holds that rest in bed is essential at least until the pulse rate is normal, but how long this should be continued afterwards is a matter for investigation. Sir Archibald Garrod believes that an organization which rendered it possible to give two or three months' rest in bed to all children with rheumatic fever would reduce very materially the severity and frequency of what was commonly spoken of as "heart disease" among the adults of the community. How to overcome the tendency to further attacks is, Dr. Pugh considers, a more debatable point. Whether the prevention of relapses depends on freeing the patient from the infection or on building up his resistance, treatment for a considerable period in hygienic surroundings appears to be indicated. Dealing with the question of accommodation, Dr. Pugh shows how difficult it has been to provide treatment of sufficient length either at children's hospitals or in general hospitals. Children at the guardians' hospitals have the advantage of a longer stay, and the opportunity of being transferred to one of the board's country hospitals or seaside homes. Dr. Pugh's report was prepared with a view to enabling the Metropolitan Asylums Board to arrive at a decision as to what further accommodation should be provided for cases of rheumatism in children. After consideration the board decided to adopt the suggestion contained in it to provide accommodation for sixty rheumatic

children at Queen Mary's Hospital for Children, Carshalton. A conference has since been held with the Minister of Health, and it is believed that his sanction will shortly be obtained. It will then become possible to make a careful study of the treatment of rheumatism on the most modern lines, and particularly by active immunization, which has already proved so successful in diphtheria and scarlet fever.

THE UNIVERSITIES AND PUBLIC HEALTH.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine held on January 22nd, with Dr. E. W. Goodall in the chair, Professor E. W. Hope read a paper entitled "The influence of the universities on the advancement of the public health." Professor Hope pointed out that in the pioneer work of early nineteenth century hygienists the universities had no direct share. Revelations at inquiries into the condition of the people, the fear of cholera, and perhaps the publications of the Registrar-General, excited the interest of educated men. The citizens of Liverpool appealed to Huxley for advice, and through his recommendation obtained a classical report by Burdon-Sanderson and Parkes—two great names in the history of preventive medicine. Sufficient interest had been excited by the beginning of the seventies of the last century to secure the establishment in several universities of diplomas in State medicine. The first to move was the University of Dublin, although certain aspects of preventive medicine had been dealt with in the Scottish universities many years earlier. Professor Hope described the later developments of university teaching, and emphasized the importance of universities, not only for the training of undergraduate and graduate students, but as centres to which all members of the community could look for guidance and special instruction. The paper was discussed by Sir George Buchanan, Sir William Macpherson, Dr. Major Greenwood, Dr. G. C. Trotter, and the chairman.

THE NEEDS OF MEDICAL MISSIONS.

NEARLY three thousand delegates, representing every home diocese of the Church of England and many dioceses overseas, headed in most cases by their bishops, assembled at Westminster last week at the summons of the Missionary Council of the Church Assembly, to consider foreign missionary policy. The conference, which was inaugurated by the Archbishop of York and presided over by the Bishop of Salisbury, considered reports on the situation in Africa, India, the Far East, and elsewhere. Resolutions were adopted pledging those present to a great move forward to meet the opportunities arising from the new political consciousness and the new educational and social demands now manifest in many lands. Efforts are to be made in each diocese with the object of making an additional annual provision of £250,000 for missions, for sending out 600 recruits, and for maintaining the level of the replenished missionary staff by engaging 180 recruits a year. An increased supply of men and women for medical missions is considered to be an urgent necessity. Fifteen additional doctors and fifteen nurses are asked for by the Church of England in China alone. It was stated that if the medical profession in Greater London were reduced to the same proportion of doctors to the population as the four hundred million Chinese, London and its suburbs would be left with fifteen doctors only. The contribution of the Church of England to China at present is thirty doctors, distributed over five or six medical schools and twenty hospitals. The report from India stated that in only two dioceses in India do the two chief missionary societies of the Church of England carry out any considerable medical work, and it was urged that fifty more men and women doctors in the missionary centres of India would be of great assistance. In East Africa ten more doctors

¹ Metropolitan Asylums Board. Report on "Rheumatic Infection in Children." By W. T. Gordon Pugh, M.D., B.S., Chief Medical Officer, Children's and Surgical Tuberculosis Services.

² BRITISH MEDICAL JOURNAL, October 31st, 1925, p. 751.

and sixteen nurses are wanted immediately to meet the situation. One of the largest of the African dioceses, Mombasa, needs a doctor to reopen a medical mission which has been closed for want of staff. In West Africa the diocese of Accra, occupying the British territory of the Gold Coast and the mandated territories beyond it, does no Anglican medical work at present, but its bishop is anxious to start a medical mission. In Nigeria there is one Anglican mission hospital, continually overcrowded with patients, but no doctor, the senior sister undertaking minor operations. The Bishop of Lagos is anxious to establish a central mission hospital with a leper settlement. West Africa in all needs at once five more doctors and six nurses. Before the conference closed an earnest appeal was made to young men at the universities. It was urged that a missionary career meant to a young medical man or woman, not a waste of professional education, but, on the contrary, an enlargement and variation of clinical experience, and the opportunity of training or beginning to train a medical school among a new people. In this connexion we may refer to a letter that has reached us from the Shantung Christian University, Tsinan, North China, stating that its hospital is in need of a young radiologist who would be prepared to go out upon a missionary footing. An excellent equipment has been got together, provided largely by the Wesleyan Methodist Missionary Society, one of the co-operating bodies in the university. Particulars of the terms of service may be had from Dr. Fletcher Moorshead, 22, Farnival Street, E.C.4.

SURGICAL SECTION AT THE NOTTINGHAM ANNUAL MEETING.

WE publish in the SUPPLEMENT for this week the provisional programme and the list of sectional officers for the ninety-fourth Annual Meeting of the British Medical Association to be held at Nottingham in the latter part of July. The scientific Sections this year number thirteen, and of these five will meet on all three days—Wednesday, Thursday, and Friday, July 21st, 22nd, and 23rd. At a meeting of the officers of the Section of Surgery held last week to discuss arrangements for the Annual Meeting the following suggestions were made. On the first day it is proposed that discussions shall be held on the surgery of brain tumours and on infections of the urinary tract; on the second day a discussion on carcinoma of the tongue, followed by short communications; and on the third day a combined meeting of the Anaesthetic and Surgical Sections to discuss abdominal anaesthesia, followed by a discussion, confined to the Surgical Section, on the merits of gastro-jejunostomy in the treatment of the affections of the stomach and duodenum. While certain arrangements are already being made for the opening of the five discussions, surgeons interested in any of these matters who would be willing to take part are invited to communicate with the honorary secretaries (Mr. W. F. Neil, F.R.C.S., 9, College Street, Nottingham, and Professor C. A. Pannett, F.R.C.S., 10, Marlborough Place, St. John's Wood, London, N.W.8) before the plans for the work of the Section are completed. In asking us to make this known the secretaries add that there may also be room for a few short communications from members of the Association.

WE understand that the Ministry of Health is about to appoint a committee to examine various questions in connexion with small-pox, alastrim, and vaccinia. A conference on the same subject, arranged by the Health Committee of the League of Nations, was held at the Hague early last month, when a number of conclusions were formulated concerning methods for continuing and intensifying research work into these subjects. The British committee now to be appointed will keep in communication with foreign observers.

Nota et Vetera.

THE MEMOIRS OF SIR WILLIAM HARDMAN.

SOME amusing sidelights are thrown on the hygienic habits and beliefs of an older generation in the second volume of *The Letters and Memoirs of Sir William Hardman, M.A. (Cantab.), F.R.G.S.*, now published by Cecil Palmer. The editor and annotator, Mr. Stewart M. Ellis, biographer of George Meredith, is an authority on the social and literary history of the nineteenth century, and his notes are as admirable as Hardman's high-spirited text. A young Georgian critic has lately referred to the present as "this startling and exciting time and age," but, like Mr. Cardan in Aldous Huxley's novel, many of us, who can remember in their undergraduate or student days the tail-end of a less ascetic epoch, will heave a sigh as they view the photographs of the plump, somewhat self-indulgent Hardman generation, and read of their profuse and well-wined entertainments.

"I had a very select dinner-party at the Club last night," writes Mr. Hardman in 1861 (vol. i). "Meredith, Dante Rossetti, and Dr. Liveing were my party, and I flatter myself they never sat down to a better selected meal in their lives. They were enthusiastic." The menu, given in full, comprised bearded oysters with brown bread and butter, salmon cutlets, fillets of beef *au beurre d'anchois*, lamb cutlets and *fricassée* of chicken with rich sauces, *choux-fleurs au gratin*, macaroni ditto, strawberry omelette, with chablis, amontillado, sparkling hock, chambertin, dry curaçao, and cigars *ad libitum*. "Not very wonderful," says the present, trying to put a good face on the matter, but it was exceptional, as the diarist himself admits. However, the menu of a dinner-party in his own house, one of two successive banquets in 1863, is even more succulent, and, says his editor, may be taken as typical of one of the dinner-parties of the period. Ten years earlier, by the by, the Hunterian banquet at the Royal College of Surgeons offered its guests a choice of eighty dishes!

The rich dieting of that past age claimed its victims, and early in 1864 we find the diarist writing: "I have been woefully seedy for some weeks. . . . I believe now that I have had a very narrow escape of typhoid fever," a disease presumably then attributed to excess. "My digestion has been very shaky for months, and at last the lining membrane of the stomach became utterly deranged, and of course liver and kidneys chimed in." Dr. Robert Liveing, the fellow feaster, who in his time succeeded to Sir Erasmus Wilson's practice, prescribed sulphuric acid, as though for diarrhoea, to be taken twice daily, and, says Hardman, "this diluted sulphuric acid has had an effect little short of magical on my whole system. I am a changed man." Thus he refers naively to a stock remedy for a common case.

Sir William Hardman died at the age of 62 in 1890. He was latterly a public man, a knight and member of Parliament, and recorder of Kingston in Surrey, as well as editor of the *Morning Post*. Many of his brilliant literary friends had died in early middle life, as Mr. Stewart Ellis has pointed out in his volume of essays *Mainly Victorian*, where the last phases and deaths are often shown to be due to unwise living, late hours, overfeeding, and alcohol in excess. It may be that Hardman's long and mostly unpaid labours kept him in health in a jovial epoch.

It is curious, however, that as a public man he seems to have been so unaware of the health activities of his time and day. Typhoid, we have noted, he attributes by implication to a disordered state of the digestive organs. To him it is not the well known endemic "London fever," due to polluted water, which raged till well on in the seventies of the past century. Of cholera he has nothing to say. Anaesthesia is known, but not antiseptics, much less asepsis. The work of the Board of Health is probably unheard of by him, for he mentions John Simon, "that well-known medico," as "the man who in some way or other seems to be responsible to Government for the health of Britishers." Simon, by the by, had not been very

well, and, "on the principle of 'physician, heal thyself,' " had resolved to spend two months in Greece, Turkey, and Egypt. The trip was to have been undertaken in the society of Thomas Woodbine Hinchliff, of 64, Lincoln's Inn Fields, author of *Over the Sea and Far Away*, and one of the founders of the Alpine Club. In his privately printed autobiography Sir John Simon mentions neither the trip, nor Hinchliff, nor William Hardman, though he was much in their circle, and was a friend of Rossetti, Thackeray, and the rest of that brilliant genial generation. That Simon knew Greece well is certain, for to the present writer in the eighties he spoke more than once of the grey Athenian sky and the beauty of Greece.

It was John Simon who, in the sixties, prophesied that in fifty years' time vaccination would be universal or quite a thing of the past. The prophecy had been fulfilled neither way when, in about 1912, the fifty years had run their course. In his earlier days the educated classes were almost fanatical vaccinists. Hardman describes a small-pox scare, when "everybody" was vaccinated over again. While the medical attendant of his family was vaccinating Hardman, the latter was rash enough to express sympathy with the views of Bishop Colenso, of Natal, on the Pentateuch. "A nervously vindictive extra prod or two of the vaccinating instrument" thereupon reminded him that his doctor was an Irvingite Saint, and that he trod on dangerous ground, and should in future find out the tenets of his surgeon before undergoing an operation. Mrs. Hardman attributed her earache to vaccination, and the "Colenso" pustule on his arm gave the diarist much trouble. At this time (May, 1863) the surgeon-major of the Royal Horse Guards (Blue) wrote to the *Times* recommending the use of *Sarracenia purpurea*, or pitcher plant, as an invaluable remedy. Mr. Logie had cured four cases of confluent small-pox with an infusion of this plant, which "seemed to arrest the development of the pustules, killing, as it were, the virus from within, thereby changing the character of the disease and doing away with the cause of pitting." The diarist is of opinion that this is decidedly worth making a note of. He had heard a vague rumour that the Indians used some root as a specific in small-pox, but had not so far comprehended the matter.

V. G. P.

Scotland.

CRICHTON ROYAL INSTITUTION, DUMFRIES.

THE eighty-sixth annual report of the Crichton Royal Institution, Dumfries, dealing with the year 1925, has just been issued. The number of patients treated in the institution during the year was 1,265. The numbers actually on the register at the close of the year were 450 males and 516 females, and of these 621 were private patients and 345 parochial patients. Among the private patients 216, or more than one-third of the total, were voluntary boarders who might obtain their discharge on giving three days' notice to the superintendent. During the year a good deal of work has been done for the extension of the institution, especially by the construction of a hall for the accommodation of the female staff, which, it is expected, will be completed at an early date, and of a new hospital wing, which makes provision for 100 extra beds, being divided into four units of twenty-five beds each. This wing is situated on rising ground, with a fine view south-westwards over the Nith valley to the Galloway hills, and in accordance with the most modern ideas of construction of mental hospitals it is only one story high. In the report by Dr. C. C. Easterbrook, physician-superintendent of the institution, it is pointed out that 212 voluntary patients were in residence at the beginning of the year and 216 on December 31st, while, during the year, 150 had been admitted, 126 had left, and 20 had died. The total of 362 voluntary patients under treatment during the year is the highest hitherto recorded. Of those admitted, 32 had already had mental hospital treatment and 118 had not previously been in a mental hospital. The voluntary patients had suffered

from the same kind of mental illness as the certificated patients, but mostly in lesser degree or in earlier stages, the patients having more insight into their condition and recognizing the need for mental hospital treatment. Among the certificated admissions, numbering 120, the majority were certified for the first time, although 24 (12 men and 12 women) had had one or more previous attacks of certified insanity, from which they had recovered. The mean age at admission was 45.4 years, the oldest being a woman of 86 and the youngest a boy of 13. Fully half were in the middle period of life, nearly a quarter below 30, and nearly a quarter above 60. There were 62 single persons, 48 married, and 10 widowed. The occupation of the patients had been of a professional nature in 12 cases, commercial in 11, industrial in 16, agricultural in 24, and domestic in 48; 9 were unemployed. With regard to the causes of insanity, apart from the usual predisposition of a nervous constitution, impairment of bodily health had been noticed in almost all the cases admitted. The stress which had precipitated the psychosis had been most frequently noted as general debility and exhaustion, anaemia, arterio-sclerosis and heart disease, catarrhal states of the respiratory or alimentary tract, especially as a sequel of influenza (10 per cent.). Biological stresses were also noted as of great importance, comprising the climacteric in 20 per cent., senility in 19 per cent., puberty and adolescence in 19 per cent., while 8 per cent. of the female cases began after the stresses connected with child-bearing. The forms of mental illness included melancholia (31 cases), confusional delirious insanity (26 cases), delusional insanity (18 cases), mania (12 cases), dementia (11 cases), epileptic insanity (11 cases), amentia (6 cases), dipsomania (3 cases), phobia (1 case), and general parietic insanity (1 case). Of the cases discharged during the year, which numbered 218 (105 male and 113 female), 126 had been voluntary admissions and 92 had been certificated. Of the voluntary patients admitted 61 left recovered, 58 improved, and 7 unimproved, the recovery rate being 40.6 per cent. of the number admitted. Of the certificated cases 54 recovered, 34 improved, and 4 unimproved, the recovery rate being 35.5 per cent. of the number admitted. The forms of mental illness in which recovery was principally achieved were confusional insanity, delusional insanity, mania, and melancholia, and as regards the time elapsing between onset and recovery in these cases, this had been less than six months in 52 per cent., from one-half to two years in 35 per cent., and more than two years in 13 per cent.; 81 patients had died during 1925, of whom 61 were certificated and 20 voluntary. Based on the average daily numbers, the death rate had been 8.3 per cent. The causes of death had been chiefly senility, exhaustion from mental disease, fatty and valvular heart disease, pneumonia, pulmonary tuberculosis, cerebral apoplexy, and epilepsy. The mean age at death had been 59.2 years.

Reference is made to various improvements and extensions made in the buildings and in the grounds of the institution, and to various agricultural operations which have been carried out under the auspices of the West of Scotland Agricultural College. It is mentioned that, in accordance with an arrangement now in force, the annual rate of board for rate-aided patients has been fixed at £48 6s. 5d. a head. During the year the sum of £1,195 had been expended in grants from the Crichton Charitable Fund in reduction of cost of board, and 54 patients had participated in the benefit thereby afforded.

GLASGOW SCHEME FOR PAYING HOSPITALS.

At a meeting of the Southern Medical Society of Glasgow, at the Victoria Hospital on January 21st, Mr. A. E. Maylard, F.R.C.S., delivered an address upon the relation of hospitals to the public and the profession. In recent years the large public hospitals and infirmaries had, he said, become most efficiently equipped, so much so that it was practically impossible for treatment of a character equal to that existing in the modern hospital to be obtained elsewhere. The private nursing home did not supply many of the needs of modern medicine and surgery. Two remedies were possible: one was to build hospitals for paying patients with an equipment equivalent to that of

the existing large hospitals, and the other to admit all classes of the community, both those who paid and those who did not, to the general hospitals and their annexes. Mr. Maylard believed that the latter presented the greater advantages, for the admission of paying patients to the general hospitals would benefit both classes by reason of the economy that could be effected. All patients would benefit from the various special departments, such as electric and light installations, and laboratories for biochemical, bacteriological, and pathological investigations. The increased pressure on beds could be met by the erection of auxiliary hospitals in outlying districts, where plenty of ground was available; they would consist of bungalow pavilions, and would receive convalescents from the hospitals in the city, whose treatment could be more advantageously carried out in the country, as had been already found in the case of children. Another means of relieving the additional pressure on the city institutions would be to encourage the erection of cottage hospitals in country towns. The advantages which would accrue to the public in carrying out these proposals would equally affect the medical profession.

In the large infirmaries of Scotland a step has already been taken in the direction suggested by Mr. Maylard. As mentioned on January 23rd (p. 164), a piece of ground has been presented by Mr. J. Macfarlane, LL.D., and Mr. G. W. Macfarlane to the Glasgow Royal Infirmary, for the erection of an auxiliary hospital at Canniesburn, and it is expected that a large sum of money will be shortly forthcoming for proceeding at once with the erection of the contemplated hospital. This will greatly relieve the pressure on the Glasgow Royal Infirmary. On January 30th (p. 218) mention was made of an initial step taken by the Victoria Infirmary of Glasgow in acquiring ground at Thorntonhall for an auxiliary hospital. The Edinburgh Royal Infirmary, as the result of a benefaction which has accumulated from a date some years before the war, has acquired several contiguous mansion-houses, situated on ground on the south side of the city. Part of this Astley-Ainslie Institute, sufficient to accommodate over fifty patients, is already in occupation, and it is expected that the administrative buildings and main portion of this auxiliary hospital will be completed in the course of the present year.

The question whether the general hospitals can be made available for all classes of the community by the establishment of paying wards is one which, although the practice has been in operation for years in the United States, has not yet been fully considered in this country.

The question of construction to which Mr. Maylard adverted is also discussed by Sir George Beatson, as mentioned at page 254. The one-story bungalow or pavilion hospital was generally adopted in the large hospitals of Germany prior to the war. In the case of the Rudolf Virchow Krankenhaus, which was completed in 1914 for 1,000 beds, the hospital was so laid out that the number of pavilions could be immediately duplicated on the outbreak of hostilities without any increase in the administrative buildings or general services, such as water supply, heating, and electricity. This conducted both to rapid extension and to economy.

Ireland.

MEDICAL REGISTRATION IN THE FREE STATE.

The Minister for Local Government, moving the second reading of the Medical Bill, 1926, said that its object was to continue in operation until August 21st next the Medical Act of 1925. The Free State Government had been under the impression that the existing arrangement under the Medical Acts would have been continued in force by the combined operation of the Constitution and of the Adaptation of Enactments Act, but a position arose on the other side which made it clear that the continuation of the *status quo* could not be counted upon in Ireland after the signing of the treaty. Accordingly, if the rights of the students qualifying in Ireland were not to be seriously jeopardized, it was necessary to introduce temporary legis-

lation providing for the *status quo* while the question was under review. Negotiations were going on between the parties interested—the medical profession, the medical schools, the General Medical Council, and the two Governments concerned. While he was not in a position to say that the matter had been finally settled, he would not be unduly optimistic in stating that a line had now been hit upon which would probably preserve the existing rights of students qualifying in the Irish Free State, without in any way derogating from the status of the Free State under the treaty. It was, he said, necessary, if the whole position of the medical profession in the Free State was not to return to chaos, that the Act should be continued. Sir James Craig, supporting the second reading, said that the medical profession was extremely anxious that a permanent bill should be brought in as early as possible, so as to do away with the uncertainty that existed and was depleting the medical schools. A certain amount of anxiety existed in the minds of students in their final year lest anything should be done to prevent the bill from being passed in time to enable them to get registered. He urged the Minister to endeavour to get the bill through at the earliest possible moment. The second reading was passed. It was arranged that the Committee stage should be taken on Wednesday, February 3rd, and that the Minister should move the suspension of standing orders to allow the remaining stages to be taken. It is expected that this will happen, but the result was not known officially when we went to press.

COMMITTEE ON WORKMEN'S COMPENSATION.

Dr. T. Hennessy, Irish Medical Secretary, giving evidence before the Departmental Committee on Workmen's Compensation in the Irish Free State, said that adequate treatment of minor injuries was essential in order that an injured person might be able to return to his employment. Many injuries, he said, were inadequately treated owing to the want of facilities in every district. A medical practitioner of ordinary skill could not be considered to have the necessary knowledge to treat certain injuries by massage and electricity. Where a certain recommended treatment was not accepted by a patient the matter should be referred to a medical referee, whose decision should be final. If the injured person unreasonably refused to undergo such treatment the compensation should be reduced. Witness advocated training for workmen permanently disabled. Use might be made of institutions set up by the Ministry of Pensions. No attempt should be made to dispense with the patient's own doctor. Disputes due to conflicting medical evidence should not be heard in open court, but should be submitted to a State medical referee, with a right of appeal to a board of medical referees. The State medical referee should have the supervision and control of all first-aid appliances and arrangements, and he should be available for consultation if required by the injured person's doctor. He should also have power to enforce treatment after consultation with the injured person's own doctor, and reduce benefit if treatment was refused. A medical assessor would not be necessary if this procedure were adopted, but should the present arrangements hold, whereby disputed cases were heard in open court, then the medical assessor should be summoned in all cases where medical evidence was to be taken. The judge should not have the option of saying whether or not the medical assessor should be present. Regarding the possibility of establishing a percentage scale of incapacity, the witness said that the difficulties were very great, but the adoption of such a scheme might be possible in such specific instances as the loss of an eye or total or partial loss of a limb. The experience of the Ministry of Pensions might be useful. He thought the best plan would be to postpone such a scheme for a time, because, were treatment and training obligatory, there would later on be more satisfactory data. He advocated payment of compensation from the fourth day, because the injured workman who was tempted to make the most of his condition in order to come within the fourteen days' rule would probably resume work much sooner. To pay compensation from the first day would be impracticable in view of the many trivial cases which lasted for one or two days. Payment of

compensation, no matter when commenced, should not be held as an admission of liability. At a subsequent session of the Departmental Committee Dr. Pugin Meldon, certifying surgeon for Dublin City, in giving evidence, suggested that there should be a probationary period for the medical examination of persons between the ages of 14 and 16, as it often happened that poor children who were badly housed and fed showed much improvement after being at work for some time. He inspected factories and examined all young people between 14 and 16. His duty was to satisfy himself that they were suitable for the work they were doing and the work they would have to do later on. At present he had no power to re-examine them. In his examination he had to consider that the work was suitable, and that they were not likely to be a source of danger or infection to other workers. Previously he had to examine in the case of all accidents, but now he only examined cases notified to him by the inspector of factories, and these were confined to poisoning cases. He suggested that the Act should be extended to any injury or disease, and not a particular disease specific to a particular employment. All big factories had now first-aid squads amongst their workers, and he thought that every factory, no matter how small, should have a first-aid case, and that some of the workers should be taught the principles of first aid. Injured workers should be notified of the time and place at which to present themselves for examination. At present they came without notice at very inconvenient times.

England and Wales.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

ON the eve of his departure for a tour in West Africa the Hon. W. G. A. Ormsby-Gore, Under Secretary for the Colonies, was entertained at luncheon, on January 20th, at the Exchange Station Hotel, Liverpool, by the Liverpool School of Tropical Medicine; Mr. J. A. Tinne, M.P., presided in the absence of Sir Francis Danson, chairman of the school. In the course of a speech Mr. Ormsby-Gore expressed the high admiration felt at the Colonial Office for the work done at the Liverpool School of Tropical Medicine, and said he would do everything in his power to further the importance and value of research. The health of West Africa had, he said, immensely improved by the aid of science and by the self-sacrificing zeal of men who had gone out there, but there was still plenty of room for men like Sir Alfred Jones. He congratulated the school and Professor Newstead on the research work carried out in connexion with the ravages of sleeping sickness. Some of the finest and most profitable areas had been depopulated and thrown out of agricultural production by the tsetse fly, while Uganda had lost at least one-tenth of its population in one year by its ravages. The foundations of success in the expansion of British trade and commerce with the tropics was, he said, linked up with the two fundamentals of health and agriculture.

THE NURSING SERVICE AND MENTAL HOSPITALS.

The Board of Control, after consideration of the report of the Departmental Committee on Nursing, together with the report of the conference of mental hospital authorities last April (*JOURNAL*, 1925, vol. i, pp. 807 and 854), has issued a circular letter (No. 677) to the medical superintendents and the visiting committees of each county and borough mental hospital in England and Wales. The following steps are suggested to improve the status of the mental nursing service. The nursing staffs should be graded on a uniform system, and the senior nursing posts be held by individuals who are certificated or registered in both general and mental nursing. The rank of senior probationer should be limited to those who have passed the preliminary examination. The Board considers it essential that in any case either the matron or assistant matron, the sister tutor, and the sister in charge of sick wards should be doubly trained. Encouragement should be given to members of the existing staffs who are certificated or registered in mental nursing only to com-

plete their training in general nursing, and so to qualify for the more important posts. This, it is suggested, could best be done by an arrangement with some general hospital, preferably within the area served by the mental hospital, and recognized as a training school. Entrants to the mental hospital nursing service who have undergone a full general hospital training previously should receive a higher initial salary than those who have not. It is recognized that the holders of the higher posts, and especially those for which double training is necessary, should be adequately remunerated, and the Board hopes that these posts will come to be regarded as prizes in the profession of nursing. Wherever possible separate nurses' homes or hostels should be provided at some distance from the patients' quarters, with reading rooms and adequate arrangements for indoor and outdoor recreations.

THE "BIRMINGHAM MEDICAL REVIEW."

The *Birmingham Medical Review*, which ceased publication in 1919, has now reappeared as the organ of the Birmingham Medical Institute; with it has been amalgamated the *Midland Medical Journal*, in which the reports of the Panel Committee meetings have appeared. It is hoped that the new journal will play an important part in bringing together the university medical school, the hospitals, medical societies, and those engaged in medical practice in the city and surrounding country. The editor is Dr. K. D. Wilkinson, assistant physician to the Birmingham General Hospital. The first number—January, 1926—contains the first of the two Ingleby lectures on auricular fibrillation, delivered by Dr. J. G. Emanuel in Birmingham last May, and a very interesting memoir by Dr. W. H. Wynn of Dr. William Withering, who practised in Staffordshire and Birmingham in the eighteenth century, and is renowned for the introduction of digitalis into medical treatment. Dr. A. V. Bernays contributes some amusing meditations of a general practitioner, and Mr. G. P. Mills describes the treatment of acute perforative peritonitis. The proceedings of the Midland Medical Society and reviews of books are also included. The journal is published by Cornish Bros., Ltd., 39, New Street, Birmingham. The annual subscription to members of the institute is 7s. 6d., and to non-members 13s. 6d., post free; single copies may be obtained for 1s. 6d. net.

Correspondence.

THE CONSTITUTION AND PRACTICE OF THE GENERAL MEDICAL COUNCIL.

SIR,—There is a widespread feeling that the General Medical Council requires a good deal of overhauling in the interests both of the medical profession and of the British public. It seems to some extent to have lost touch with the medical profession, and has somewhat shaken the confidence of the lay public. When anyone finds fault with the General Medical Council the reply which it all but invariably gives is that it is a body conditioned by the Privy Council. Are we to infer that it is a quantity so absolutely negligible that H.M. Privy Council will pay no attention to anything it may have to say? In the meantime it sits as a court of justice and dispenses its sentences. That many of the persons so sentenced deserve their fate goes without saying, but that is no reason why the accused should not have a right of appeal. Moreover, the present system tells specially hardly on poor practitioners in Scotland. They have to fee lawyers in London, and possibly even go to the expense of taking a number of witnesses from Scotland to London and keeping them there till the General Medical Council hears the case.

I myself am in a predicament. I wish to read a paper on miner's nystagmus at a meeting which will be attended by colliery managers, probably by colliery proprietors, and by the officials of the Miners' Union. The audience will be almost entirely composed of laymen. I hesitate to make this contribution, although naturally I believe it to be important, for it is within the range of the possible—be it said, I think, improbable, for the communication does not recommend any mode of treatment—that the General

Medical Council might swoop down upon me and declare that a paper read to a lay society was nothing less nor more than a tout for patients, and that my conduct was infamous in a professional sense. A good number of years ago I was, I believe, of considerable use to the mercantile marine (at any rate an association of ships' officers said I was, and expressed their indebtedness) by a publication which was made by me in the *Liverpool Journal of Commerce* on seamen's eyesight. That communication prevented some unnecessarily severe regulations being made by the Board of Trade—regulations which would have thrown a great number of first-rate seamen out of employment. My contribution originally took the form of two papers to the Royal Philosophical Society of Glasgow. I dare not intervene in this way again in an economic problem, because the General Medical Council has it in its option to say that such publications, appearing in lay journals, partake of the nature of an advertisement, and it might forthwith score my name off the *Register*, without my having any right of appeal to any tribunal. It is quite open to it to do so.

So far, briefly, for destructive criticism; I will now venture to say a few words of a constructive nature. I would change the membership of the General Medical Council, and I would change the methods of its election. I would also include on it a certain number of laymen, and I would alter entirely its present penal system. To take the last point first. The court before which an accused person is tried consists of all the members of the General Medical Council, about forty in number, none of whom are trained lawyers. The charge is framed by the solicitor to the General Medical Council. Certain points of law are referred by the General Medical Council to an assessor, and the accused man may or may not have, according to the depth of his purse, the assistance of a legal representative. He may or may not be able financially to bring witnesses from all over the country, and he may have to stay an indefinite time in London. I would alter the procedure to something like what takes place in maritime cases. When a ship's officer has had an accident of a serious nature the Board of Trade may consider it necessary to have an investigation. I suppose the underwriters of the ship may also think that necessary. If a maritime case occurs in England it is sent to the Admiralty Court, and it is then heard by a judge, who has associated with him two of the elder brethren of Trinity House. In Scotland maritime cases are heard by a judge, and he also has associated with him two nautical assessors. Now I think something similar might be introduced for these medical cases. Why should they not come before a judge, with two senior medical practitioners associated with him as assessors? If there were regular courts, such as exist for marine investigations, the penal work of the General Medical Council would become much better defined. In all innocence I may publish a statement, say, at a meeting of the Royal Philosophical Society of Glasgow on some physiological subject, and I may thereafter find myself judged guilty of infamous conduct. Another man may have a very close connexion with an advertising optician, who brings the man before the public and thereby helps to fill his consulting rooms, and yet the General Medical Council may not feel it incumbent upon it to take any action.

There is also one other great objection to the present arrangement, and it is that men of first-rate standing in the profession are not likely to leave their laboratories or important clinical work in hospitals, or important work as teachers, to spend time in London for penal cases. No doubt some very good men might be obtained from London itself, and perhaps from that district generally called the Home Counties. Men of that stamp might find it possible to give a few hours during the days that it was necessary to be in attendance at the General Medical Council, but no man actively and permanently engaged, either as a physician or as a surgeon, working in his laboratory, as also in his wards, is likely to join the General Medical Council and give up his work for an indefinite time.

Now as regards the composition of the General Medical Council a good deal must be said. I favour the introduction of a lay element. I also favour an age limit. Nobody should be a member of the General Medical Council after

the age of 65. Practitioners, after a certain time of life, although excellent in many ways, are apt to lose touch with the more recent developments in surgery and medicine. I think nothing can better show the advisability of a retiring age limit than the present condition of the General Medical Council. There are very few of the younger and hard-working investigators in its membership. Further, I should allow no man to sit for more than five or six years continuously on the General Medical Council. After that he should retire. I am aware that some practitioners are of opinion that, having served five years, a member should not be eligible again, but that, I think, would be a mistake. The five years' membership with a time of retirement would allow an unsuitable man to be permanently shelved, but would also keep the door open for a good man to return. But it is entirely wrong to have a body of elderly men, in some cases old men, sitting on indefinitely.

Probably the most important part of the work of the Council is to regulate the medical curriculum. The final cause of medical education is to produce well trained and capable practitioners, and with that object I would alter entirely the composition of the Council and give greater prominence to the clinicians. There are certain sciences which a medical student must study before he begins medical work. Amongst these are anatomy, biochemistry, biology, and physiology. I would have an anatomist elected to the General Medical Council by the votes of all teachers of anatomy whose courses of instruction are recognized for medical degrees in the British universities or by the other bodies whose diplomas qualify for registration. On the same principle I would have a biochemist, a biologist, and a physiologist elected. Perhaps in each case two would be required—namely, one elected by anatomists, biologists, biochemists, and physiologists in England, and the other by the same class of constituents in Scotland, Ireland, and Wales.

In the same way I would have three physicians appointed by the teachers of systematic and clinical medicine, at least one of them being elected by the physicians in Scotland, Ireland, and Wales. I would add three surgeons similarly elected, and three obstetricians. There should be at least three pathologists and three bacteriologists. There should be a representative of each of the more important specialties—for example, eye, throat and nose, ear, and insanity. There should be added a good representation of public health officers and a certain number elected by the general practitioners. The Crown representatives might continue as at present and be nominated by the Ministry of Health. Possibly these should always be laymen.

That ought to give a sound board for medical education. When penal cases occurred they should be referred to the tribunals already indicated, and the finding of the tribunals would be reported to the General Medical Council, who would remove or retain the name of anyone accused according to the finding of the tribunal.

The present system is cumbersome, and is particularly hard on registered practitioners who are at a distance from London. The General Medical Council would, of course, continue to sit in London.—I am, etc.,

Glasgow, Jan. 26th.

FREELAND FERGUS.

THE ULTRAMICROSCOPE IN CANCER RESEARCH.

SIR,—There are points of principle raised in the letter you published in your issue of January 16th (p. 119) from Sir G. T. Beatson, to which some reply may be of interest to your readers. There are other controversial points raised which are not within my province, and which, therefore, I pass over.

The title chosen by your correspondent is itself unfortunate, as it indicates some confusion of ideas. The ultramicroscope has not been used by Gye or by me in any of the work we have done, nor does it appear likely that it ever will be so used. The term is only applicable to an apparatus for rendering visible small particles that are beyond the resolution limits of any microscope objective, used with ordinary light. A dark-ground illuminator often makes objects visible that are ultramicroscopic; but that

is not its purpose; it is intended for the observation of bodies that are, at least in one dimension, resolvable by the observational system used. Whether a body is made visible or not depends mainly on the intensity of the light used, and an ultramicroscope is designed to do this regardless of the resolution that is obtainable.

Whether the range of filterable viruses is as extensive as your correspondent suggests is questionable. There are physical reasons for suggesting that there are none so small as to be beyond the power of a microscope illuminated with ultra-violet light of wave-length 200 μ , but this point it is impossible to follow within the limits of a letter. This method has been used in the publication already made by me, and the wave-lengths used are indicated in each case. The use of short ultra-violet rays is rendered difficult by the relative opacity of the culture or other medium in which the organisms are suspended, and this is the point on which further research is now proceeding. No suggestion has been made by me that x rays have been used in any way in this work. It is quite true that experiments are in progress in which such rays are being used, but their utilization for microscopical work is still far off, and may not be achieved within reasonable time. The references to such work by your correspondent are entirely misleading, and are due, I imagine, to careless reading of my published results. The same cause may be assigned to the reference to the work of Professor Baly of Liverpool on photo-synthesis. I am fully conscious of the possible changes that may occur to living bodies (and, of course, under certain conditions to non-living ones) as the result of using ultra-violet light in microscopy, and have drawn particular attention to this aspect of the work. It was this very point that made it necessary to provide apparatus in which the exposure was reduced to a minimum, and all the preliminary work was done in visible light to ensure that no changes were set up due to the radiations used. It was further stated that considerable time had been spent in the study of the changes occurring in bacteria as the result of exposure to ultra-violet light, and that publication of the results would be made later. It follows, therefore, that not only were such possible changes provided against, but that sufficient knowledge of such changes had been acquired to enable them to be recognized if, after all, they should take place. The concluding reference to Professor Bechhold's work again suggests that his paper has not been carefully read. In any case the purpose of his experiments is different from mine, so that the reference is irrelevant.—I am, etc.,

National Institute for Medical Research,
Hampstead, N.W.3, Jan. 27th.

J. E. BARNARD.

NOVASUROL AND OTHER DIURETICS IN CARDIAC OEDEMA.

SIR,—Like Dr. Howarth (January 30th, p. 186), I was much interested in Dr. C. G. Lambie's article in the *JOURNAL* of January 16th (p. 80) on the diuretic action of novasurol, as I have been making use of this substance largely during the past six months in cases of cardiac oedema and of ascites. If the drug is likely to come into general use, however, it is, I think, important to emphasize a point that Dr. Howarth refers to—namely, that profuse watery diarrhoea is very likely to follow its administration. I notice that Drs. Lambie and Haworth have both employed 0.5 c.cm. as the initial dose, while the proprietors (the Bayer Company) state that the diuretic dose is 1 to 2 c.cm. There is not the least doubt that 1 c.cm. as an initial dose is extremely inadvisable. In some cases in which I have administered this dose, after seeing Keith's work at Rochester, I found that the resultant diarrhoea was so extreme as to produce serious collapse. I therefore think it well to sound this note of warning, and to urge that the dose mentioned by Drs. Lambie and Howarth should never be exceeded till its effect on the individual patient has been determined. In children proportionally small doses should, of course, be employed.

I can confirm from my own experience everything that has already been stated regarding the diuretic action of this remedy.—I am, etc.,

Dublin, Jan. 30th.

T. GILLMAN MOORHEAD.

SPENCER'S "CAESAREAN SECTION."

SIR,—I am glad that the reviewer of my book has corrected those startling comparative figures which he gave. I also should like to make a correction. The "5.5 per thousand" on page 13 of my book should be "5.6 per thousand," being the equivalent of the "32 in 5,647" on the opposite page 12, where it is definitely stated that the figures refer to Caesarean section for contracted pelvis only. It would have been better to give the frequency for all indications, which was 6.5 per thousand—37 cases (with one maternal death) in 5,647 labours.

In stating that the cases were delivered "in the maternity" (the 'in' is not italicized in my book), I, of course, meant the whole maternity department, both indoor and outdoor; the same in the case of the Rotunda Hospital. In no other way can the frequency of the performance of Caesarean section by the staff of a hospital be ascertained than by including the outdoor maternity department, from which the indoor cases are largely derived.

The frequency at University College Hospital during the three years was: for contracted pelvis 5.6 per thousand labours, for all indications 6.5 per thousand labours; the frequency at the Rotunda Hospital for all indications during one year was 5.1 per thousand. Your reviewer must, I think, admit that there is a great difference between the frequency represented by these figures and by 88 per thousand. I take this opportunity of thanking him for his careful review of my book, and especially for his generous acknowledgement that he has profited by the teaching it contains.—I am, etc.,

London, W., Jan. 31st.

HERBERT R. SPENCER.

THE NEW OUTLOOK ON CANCER.

SIR,—In his instructive British Medical Association lecture, published in the *JOURNAL* of January 30th (p. 175), Dr. Cramer discusses the production of immunity to cancer by a previous malignant growth.

He adds, "It would be interesting to follow the history of patients who have been operated on successfully for, say, a carcinoma of the tongue or of the breast, so as to find out whether they have developed subsequently a cancer in some other organ." Some of them certainly do so. Last year I had under my care two such patients. Their histories are as follows: One had had both breasts removed for carcinoma with an interval of several years between the operations. Ten years after the last operation I saw her with a large carcinoma of the rectum, from which she died a few months later. The other had had a Wertheim's operation performed eight years previously by the late Dr. Walter Swayne, for carcinoma of the cervix. She came to me with a primary carcinoma of the rectum, which I removed by an abdomino-perineal resection.

I suppose that most of us have occasionally seen individuals suffering from carcinoma in more than one organ at the same time. I can recall several such cases—for example, breast and lip, carcinoma of stomach and rodent ulcer of face, etc. Such combinations are, however, so rare as to excite comment, in spite of the commonness of single cancers. It is not improbable, therefore, that one growth may produce a relative though not an absolute immunity to the development of carcinoma elsewhere.—I am, etc.,

HUBERT CHITTY, M.S., F.R.C.S.

Clifton, Bristol, Feb. 1st.

THE TERM "SCARLET FEVER."

SIR,—Sydenham has usually been credited with the first use of the term "scarlet fever" by his Latin rendering of it, "febris scarlatina." But Hirsch pointed out that it is probable that he was not the first to use the Latin words (*Handbook of Geographical and Historical Pathology*, vol. i, p. 172, footnote, English translation by Dr. Creighton).

Now, from the manner in which Sydenham writes of scarlet fever, and from the allusion he makes to it in the chapter on measles of the year 1674 (p. 217 in Greenhill's Latin edition), where he compares the peeling that follows certain cases of measles with that of scarlet fever, it seems

to me that he wrote his account of the disease, not because it was new either to himself or to any of his contemporaries, professional or lay, but because it was one of the intercurrent fevers which he had met with during a certain epidemic constitution, and that he was Latinizing a vulgar name.

It does not appear to have been noticed that Samuel Pepys wrote as follows in his diary under the date November 10th, 1664—that is, twelve years before Sydenham published his account: "My little girl Susan is fallen sick of the meazles, we fear, or, at least, of a scarlett feavour" (p. 286, vol. iv, of Wheatley's edition); from which it would appear that in those days the name "scarlett fever" was known to the laity, and that it referred to an indefinite affection which was less severe than measles. Pepys's reference to it bears out Sydenham's statement that scarlett fever was in his time hardly more than the name of a disease. Sibbald, it is true, writes in 1684 of scarlett fever as a disease of recent origin. But Willan, referring in 1808 to Cotton's account of it at St. Albans in 1748, speaks of the name scarlett fever as "an old appellation of a disease certainly not new" (quoted by Creighton, *History of Epidemics in Britain*, vol. ii, p. 698, note).

Can any of your readers tell me whether the name "scarlett fever" has been used by any British writer, lay or professional, before the time of Pepys and Sydenham?—I am, etc.,

London, N.W.3, Jan. 25th.

E. W. GOODALL.

** The earliest reference to the term "scarlett fever" in the *New English Dictionary* is dated "1676—James Cooke, *Marrow Chirurg.* vi, ii (1685), 214."

RECTAL ANAESTHESIA.

SIR,—I should like to add my testimony to the advantages of rectal anaesthesia in operations (*BRITISH MEDICAL JOURNAL*, December 26th, 1925, p. 1223) on the head and neck, or even any part of the body, when a surgeon is working by himself, as in the navy and mercantile marine. That the method is not sufficiently widely known is very evident, because I seldom meet a surgeon who is not delighted to learn the technique whenever one honours me with a visit, and there is practically always a case in hospital as a demonstration of its utility.

The mixture I use is one part olive oil, three parts ether, and the amount given by a catheter high up in an empty rectum is 3 eg. per kilogram of the body weight of the patient, or one fluid ounce per twenty pounds English scale.

The anaesthetic should be given about half an hour before the surgeon is to be ready for the patient and the rectum washed out through an anal speculum after the operation is over. The anaesthesia lasts from four to six hours, with no ill effects, and gives a surgeon working single-handed ample time to supervise every detail, such as boiling instruments and washing his hands without hurry, or anxiety from the anaesthetized patient.—I am, etc.,

H. E. S. STIVEN, M.D.,
Principal Medical Officer, Egyptian
Government Hospital, Port Said,
Egypt.

January 14th.

HAEMOCHROMOGEN TEST FOR BLOOD.

SIR,—I am afraid Dr. Dilling (January 30th, p. 219) has mistaken the object of our article on the above subject. As we stated, the subject was investigated by numerous observers about the same time as Dr. Dilling's book was published. These observers did not consider the haemochromogen crystal test better than the haemin test, and with some undoubted blood stains they failed to obtain a positive result. Dr. Dilling himself states that he failed with blood stains over six months old when using the methods then employed—a striking contrast to the results described by us.

Since this date Takayama has proposed a solution which he and workers in Germany consider a great improvement,

and which for the sake of description we have referred to as Takayama No. 2. We can find no mention of this in the English literature, but previous to this the production of haemochromogen crystals as a test for blood was referred to by Sutherland in 1907 in his well known book on the examination of blood stains.

Our article was intended to draw a comparison between the method advocated by Takayama and the haemin crystal test, as of course the test as previously described had been tried and found wanting. We have no hesitation in saying that we consider the haemochromogen crystal test, performed as we have described, to be better than the haemin test, and I have used it (in addition to the spectroscopic tests, etc.) in preference, in all stains that have been submitted to me for examination recently.

That pyridine alone will produce haemochromogen crystals has been known for a long time (Donagany, 1893). We had noticed that when not using grape sugar crystals were more difficult to obtain, and I think Dr. Dilling's explanation of its action is probably correct.

I shall be very interested to hear Dr. Dilling's results with this method.—I am, etc.,

DOUGLAS KERR.

Edinburgh, Jan. 31st.

OPERATIVE TREATMENT OF ACUTE PERFORATED ULCER OF THE STOMACH AND DUODENUM.

SIR,—In the interesting article by Mr. Arthur Evans in the *JOURNAL* of January 30th (p. 184) kindly reference is made to my critical attitude towards routine performance of gastro-enterostomy at the time of suture of a perforated ulcer. I should like it to be understood, however, that my objection is against the routine adoption of the measure, for I am well aware that when the surroundings and condition of the patient are good and the ulcer is a chronic one situated in the duodenum, or if rather much constriction has been caused by infolding an ulcer at the pylorus, the chances of recovery are increased if a gastro-enteric anastomosis can be done immediately.

Mr. Evans has put his views very moderately and wisely, and I find myself almost in agreement with his carefully guarded indications as laid down in the last paragraph of the article.—I am, etc.,

London, W.1, Feb. 1st.

V. ZACHARY COPE.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

The King's Speech.

PARLIAMENT was opened on February 2nd by the King in state. The Speech from the Throne announced that proposals would be made for effecting reduction in public expenditure. Ministers were considering proposals for improving housing in country districts and in the congested areas of towns, and bills would be submitted this session, if time permitted, to hasten the removal of the worst defects. The Government hoped to consolidate the main statutes relating to local government. If time permitted bills would be laid before Parliament dealing with national health insurance, unemployment insurance, the control of road vehicles, and the position and powers of boards of guardians.

The debate on the Address in reply to the Speech from the Throne occupied the rest of the week, among the topics discussed being unemployment. Details of the Government's proposals for public economies were promised at an early date.

The Medical Committee of the House of Commons agreed to meet on February 3rd to discuss business and afterwards to dine together. Arrangements are being made to invite other members of Parliament to a meeting at which the medical view regarding unregistered practitioners will be explained. Questions are expected in the House on this subject, and lay members of Parliament propose to present a private member's bill incorporating schemes for the State recognition of osteopaths. A bill dealing with the regulation of opticians may also be introduced. Matters affecting the East African Medical Services may also be raised by questions on the Colonial Office vote.

Obituary.

CHARLES PLUMLEY CHILDE, B.A., F.R.C.S.,
Consulting Surgeon, Royal Portsmouth Hospital; President of the
British Medical Association, 1923-24.

The death at Monte Carlo of Mr. C. P. Childe, on January 30th, from heart failure following pneumonia and influenza, has come as a great shock to all classes of society in Portsmouth. In professional circles, in civic life, and to very numerous friends and acquaintances, his death and the suddenness of his passing have excited a sense of loss to which it is difficult to give expression.

Charles Plumley Childe, the elder son of the Rev. G. F. Childe, M.A. Oxon., Professor of Mathematics at the South

African College, and Assistant Astronomer of the Royal Observatory, Cape-town, was born, bred, and educated in South Africa, coming later to Cambridge University and King's College Hospital for his medical training. At the University of the Cape of Good Hope he won the Maynard scholarship and a university exhibition, and graduated B.A. with honours in 1877. He then entered Magdalene College, Cambridge, with a scholarship, and while at King's College Hospital gained a Warneford scholarship. In 1883 he obtained the M.R.C.S. Eng. diploma, in 1885 the L.R.C.P. Lond., and in 1900 the M.R.C.P. Edin. Early in 1886, at the age of 28, he started general practice in Southsea, being joined a year or two later by an old friend, Dr. Lister Wright, as a partner. To a man like Mr. Childe, however, the art and practice of surgery, with its more exact methods, made a stronger appeal than the routine of general practice, and he soon gave up the latter to devote himself entirely to surgery. He took the F.R.C.S. Eng. diploma in 1892, was appointed assistant surgeon to the Royal Portsmouth Hospital, and rapidly established the reputation of being one of the most brilliant and successful surgeons in the South of England. An account of the splendid work which he did at the Royal Hospital will more properly be afforded by one of his surgical colleagues, but no reference to his life would be complete without mention of the skill, great ability, and untiring personal service which he freely expended in bringing that institution to its modern standard of efficiency. When, in accordance with the age regulations of the hospital, he retired in 1923, he was appointed senior honorary consulting surgeon and chairman of the Committee of Management. It would be difficult to speak in too high terms of the enormous debt of gratitude which the public of Portsmouth owe to Mr. Childe for his life's work at the Royal Portsmouth Hospital. The same energy and skill were, during the war, devoted to the 5th Southern General Hospital, of which, as lieutenant-colonel in the R.A.M.C.(T.), he was for some time in charge.

Apart from his operative work the subject which above all others keenly interested Mr. Childe was the reduction of the cancer mortality rate. His books on this subject, *The Control of a Scourge*, published in 1906, and *Cancer and the Public*, issued last year, are well known in this country and perhaps even better known in America. In the latter he is rightly regarded as one of the pioneer workers in this direction, and he was gratified a month ago to receive an invitation, as one of the foremost European authorities, from the American Society for the Control of Cancer, to attend an "International Meeting of Cancer Experts," to be held in the United States in September next. Mr. Childe endeavoured with all the energy of which he was capable to make the public realize that cancer, in very many of the sites in which it occurs, is curable if the patient will only consult the surgeon at a sufficiently

early stage in the onset of the disease. He did his utmost to get out of the public mind the fatalistic idea that a diagnosis of cancer was equivalent to a death warrant, and, when he became a member of the local health authority, was instrumental in securing the issue by the Portsmouth Health Department of an educational leaflet on the subject. Similar leaflets based on this have since been issued by many other health authorities in the country.

Mr. Childe was proud of his profession and always took the keenest part in forwarding its interests. He was a willing and able worker in connexion with all local medical societies, and he became particularly identified with the British Medical Association. He was president of the Southern Branch in 1912; chairman of the Portsmouth Division in 1914, having previously been honorary secretary and treasurer for three years, and clinical secretary since 1910. At the Annual Meeting at Portsmouth in 1899 he was secretary of the Section of Obstetrics and Gynaecology, and when the Association met again there in 1923 his colleagues did him the honour of electing him

President. He devoted himself heart and soul to the task of making the Annual Meeting a success; and in the following two years, as President and immediate Past-President, he was a regular attendant at the Council meetings in London. In July last he was elected a vice-president of the Association.

In addition to his work at the Portsmouth Royal Hospital, Mr. Childe was surgeon to the Hants and Isle of Wight School for the Blind, and had in former years held the offices of surgeon to the Home for Sick Children at Southsea, senior surgeon to the South Hants Medical and Surgical Home for Women, and anaesthetist to the Portsmouth and South Hants Eye and Ear Infirmary. His writings on cancer have already been mentioned. He was the author also of a small practical manual on *Surgical Nursing and Technique*, and during the past twenty years he contributed a number of papers, mostly dealing with abdominal operations, to the columns of the *BRITISH MEDICAL JOURNAL*.



Photo]

[Elliott and Fry, London.

Charles P. Childe

In 1912, at the urgent request of his medical colleagues, Mr. Childe consented to take a part in municipal affairs, and was returned a member of the Portsmouth Town Council by the electors of the Mile End ward of the town. As a member and, since 1919 as chairman, of the Health Committee his professional knowledge has proved of immense value to the borough. Both in committee work and in the council chamber he displayed the same mastery of the subject under discussion as was seen in his professional work. His judgement upon a subject was formed only after making himself thoroughly conversant with all the factors concerned; then, having made up his mind as to the course that he should take, he pursued it with unswerving directness. Though a facile and ready speaker, he was never prolix; he spoke straight to the point, and the orderly marshalling of his facts and the clear logical expression of his views seldom failed to carry conviction. To the very difficult problems in connexion with the housing question he gave much thought; he made himself acquainted with all its aspects, and both in committee and in the council worked his hardest to relieve the stress and hardship due to house shortage. Although he was not able, unfortunately, on all occasions to carry the council with him so far as he sometimes desired, there can be no doubt that the improvements in the housing conditions of Portsmouth to-day are mainly due to his efforts. For his presidential address to the British Medical Association two years ago he chose, appropriately, the subject of environment and health, which he handled with characteristic vigour and outspokenness. No one on the town council was listened to with more attention, and none more enjoyed the respect of his colleagues; had his ambition lain in that direction, it is no secret that he might have occupied the highest municipal honours which his fellow councillors could confer upon him, and it has been a matter of regret to many that he felt that his professional duties did not leave him the time necessary to undertake the duties of that office.

In person slight of build, Mr. Childe was a man of unbounded energy. He was a keen sportsman, and there were few important contests at Lord's, Twickenham, or Wimbledon at which he did not endeavour to be present. For some years past he had been an enthusiastic golfer, and his memory among medical golfers will be kept green by the Childe Challenge Cup, which he presented to the Association. C. P. Childe was essentially an all-round man. Whatever he undertook to do he put into it his whole heart, and if there was one outstanding characteristic of the man it was his thoroughness. A man of wide interests, of exceptional professional attainments, a great public servant, and a charming companion, the passing of "C. P." leaves a blank which can never be filled.

A. M. F.

We are indebted to Mr. A. Bosworth Wright, surgeon to the Royal Portsmouth Hospital, for the following tribute to his friend and colleague: By the death of C. P. Childe, Portsmouth has lost one of her most

useful and distinguished citizens, and the medical profession an outstanding personality. Childe had practised in Southsea for over thirty-five years, first as a general practitioner and later as a surgeon. He worked for, and passed, his Fellowship during the time he was in busy general practice—no small attainment. He was appointed to the assistant staff of the Royal Portsmouth Hospital in 1891, and at once began to modernize the hospital, and it was mainly on his initiative that a new theatre and wards were built. His masterful personality showed the way and lesser lights were content to follow, helping when they could. But it is not of Childe as a surgeon that I would write—great though he undoubtedly was—but rather as a man and a friend. He was not an easy man to understand, and those with a superficial knowledge rarely did him justice. He had a mind that saw

things so clearly that he was apt to be impatient with those who could not always see with him, but he was always fair and just. He was essentially a strong man, a man of few words; but under an iron reserve he could be very human and very kind. He admired courage, but fear irritated him. He was a happy warrior: he loved a fight. His seat on the town council was for an industrial ward, which Labour had marked for its own, and every three years he fought a fierce fight and won by ever-increasing majorities. His honesty, his fearlessness, and his power of clear exposition won for him a position of great influence on the council. Thoroughness was one of his outstanding characteristics; whatever he did he did well and saw it through; compromise was to him weakness. As a friend and colleague he was always loyal, resourceful, and stimulating, always accessible, always willing to help. He had a powerful and steady influence on the medical thought of the town in all times of

stress, and it is here that his loss will be most widely felt. To us, his friends who are left, our loss seems irreparable.

WILLIAM HISLOP MANSON, M.A., M.D., F.R.F.P.S.,
Surgeon to the Eye Infirmary, Glasgow.

Dr. W. HISLOP MANSON, while in the performance of his duties in the operating theatre of the Glasgow Eye Infirmary on January 28th, had a cardiac seizure and died almost instantaneously. His death, with such startling suddenness while he was apparently in the enjoyment of perfect health and at the early age of 43, has come as a great shock to his medical colleagues and to all who knew him.

He was educated at Glasgow High School and Glasgow University, and took the degree of M.A. in 1901 and graduated M.B., Ch.B. in 1906; four years later he received the degree of M.D. with commendation. He was admitted a Fellow of the Royal Faculty of Physicians and Surgeons in 1912. After graduation he held resident posts in the Royal Infirmary, the Glasgow Eye Infirmary, the Royal Maternity Hospital, and the Ruchill Fever Hospital. Being early attracted to ophthalmology he was appointed

to the staff of the Eye Infirmary in 1911. As an officer in the R.A.M.C.(T.) he was mobilized on the outbreak of war, and volunteered for foreign service, which took him to Gallipoli, Salonica, Egypt, and the Russian front; he suffered from several of the tropical illnesses incidental to service in the Levant. Soon after the armistice he was appointed visiting surgeon to the Eye Infirmary, and in 1920 was elected to the chair of ophthalmic medicine and surgery at the Anderson College of Medicine. At both these centres, by his practical methods and his enthusiasm as a teacher, he soon gathered round him a large class of students.

When the British Medical Association met in Glasgow in 1922 he took an active part in the work of the Annual Meeting, and acted as local honorary secretary of the Section of Ophthalmology.

He was a man who made many friends and few, if any, enemies. Possessed of a buoyant disposition and a genial and humorous manner, he was not readily perturbed. During a friendship that has existed for over twenty-five years the writer of this note has never seen him lose his temper. He was married soon after the outbreak of war, and leaves a widow and one son, to both of whom he was devoted.

CHARLES EDWARD ROBERTSON, M.D.,
Glasgow.

WE have to record with regret the death of Dr. Charles E. Robertson of Crosshill, Glasgow, who died on January 16th. Born in Ayrshire in 1850, he qualified as a teacher and taught for a number of years before taking up the study of medicine. He graduated M.B., C.M. at Glasgow University in 1888, and soon after settled in general practice in the south side of Glasgow, where he spent the rest of his life. He proceeded to the M.D. degree in 1898.

A man of varied attainments and many interests, he was early attracted by medical politics, and for many years was an outstanding figure in public medical life in Glasgow. He was a justice of the peace, a governor of the Victoria Infirmary, and a member of the Glasgow Burgh Insurance Committee from its inception. He was also an active supporter and office-bearer of the Southern Medical Club and the Southern Medical Society.

In the British Medical Association Dr. Robertson was, in turn, chairman of his Division (Glasgow Southern), president of the Glasgow and West of Scotland Branch, member of Council, and a representative for over twenty years. During his two periods of service upon the Central Council of the Association he was most regular in his attendance at the meetings in London. He never spared himself in the public service. Whatever cause he espoused, he advocated it strenuously and effectively; his pertinacity in controversy commanded the respect, even as his bonhomie earned him the regard, of his fellows. He is survived by his widow.

JOHN H. ALEXANDER, M.B., C.M.,
Late of Dundonald, Ayrshire.

MANY of our readers whose recollections of Glasgow University go back to the late seventies of last century will have shared our regret at the announcement last week of the death of Dr. John H. Alexander, which occurred at Colinton, near Edinburgh, on January 20th.

Owing to failing health Dr. Alexander had to relinquish practice some years ago, but in earlier life he had been associated with, and ultimately succeeded, his father, Dr. William Alexander, whose reputation as a singularly gifted and trusted physician extended far beyond the picturesque little village of Dundonald in Ayrshire where he resided. During a long life of active work Dr. Alexander, sen., had built up, what nowadays seems scarcely possible, a consulting practice from a rural centre, and it was under such auspices that his son began his medical work. But after a few hopeful years progressive impairment in health set in, and ultimately led to his retreat from practice.

It was not in his nature, however, to stand aside and look at life solely as a spectator, and for some years afterwards he reverted to an early interest in applied physics, and delivered several courses of lectures on electrical

engineering to the evening classes held in Kilmarnock Academy under the auspices of the local education authority. Ultimately even this proved more than his failing strength permitted him to undertake, and some twelve years ago he removed to Edinburgh, and then to Colinton, where he died.

Although much of his life was thus passed in retirement, his interest in the progress both of the medical and of the mechanical sciences remained active.

Almost by instinct he was an engineer, and a volume on *Model Engine Construction*, published by Whittaker and Co., went through two editions; while another on *Elementary Electrical Engineering* reached its fifth edition in 1925. He issued another volume on *Model Balloons and Flying Machines*, and constructed a model aeroplane which found a place in one of the Glasgow International Exhibitions in the early days when knowledge of heavier-than-air machines was still in its infancy. He also published a series of newspaper articles on mechanical inventions from before the Christian era till the present day, and, as an illustration of another aspect of his many interests, he wrote a volume of *Gleanings about Christ and Early Christianity*.

Patience and charitableness ran through his life like silver threads relieving the shadows of his physical weakness, and his life was a bright example of what may be accomplished amidst such limitations. He leaves a widow and two daughters, to whom deep sympathy will be extended.

Dr. WILLIAM PERCY HILLIAM of Wyke, near Bradford, died on January 14th. He was the eldest son of the late Captain Thomas Hilliam, and was born at Willesby Hall, Spalding, in 1859. From Malvern College he went to the University of Edinburgh, and continued his medical studies at St. Thomas's Hospital Medical School. He took the diploma of L.S.A. in 1893, and that of L.M.S.S.A. in 1907. After serving as assistant to a medical practitioner in Sheffield, he commenced practice at Wyke some thirty-five years ago. He was a member of the Bradford Division of the British Medical Association and of the Bradford Medico-Chirurgical Society, and a Fellow of the Royal Society of Medicine. Dr. Hilliam is survived by his widow and one son.

Dr. GEORG THIEME, founder of the *Deutsche medizinische Wochenschrift* and head of the publishing department, has recently died at the age of 65. He received the degree of doctor *honoris causa* from the Leipzig faculty of medicine on the occasion of the fiftieth anniversary of the journal in 1924.

The deaths of the following eminent foreign medical men are announced: Dr. H. Fehling, formerly professor of clinical gynaecology at the University of Strasbourg, at the age of 78; Dr. Edouard De Smet, honorary professor of Brussels University, aged 83; Dr. Georg Puppe, director of the Institute of Medical Jurisprudence and formerly dean of the medical faculty of Breslau, aged 58.

The Services.

DEATHS IN THE SERVICES.

Colonel Herbert Enslace Cree, Army Medical Staff (ret.), died suddenly of heart failure, while travelling on the Metropolitan railway, on January 25th, aged 66. He was born at Budock, Cornwall, on November 27th, 1859, was educated at the Middlesex Hospital, and took the L.S.A. in 1882 and the M.R.C.S. in 1883. Entering the army as surgeon on August 1st, 1885, he became lieutenant-colonel after twenty years' service, and was promoted to colonel in the long war promotion list of March 1st, 1915, retiring on December 26th, 1917. He served in the Chitral campaign of 1895, with the relief column, gaining the Indian frontier medal with a clasp; in China in 1900, when he was mentioned in dispatches in the *London Gazette* of May 14th, 1901, and received the medal, and in the recent great war.

Lieut.-Colonel Hazlett Allison, Madras Medical Service (ret.), died on November 15th, 1925, aged 74. He was born on April 30th, 1851, at Drumraha, Ireland, and was educated at Queen's College, Belfast, graduating as M.D. and M.Ch. in the Queen's University in 1873. Entering the I.M.S. on September 30th, 1883, he became surgeon lieutenant-colonel after twenty years' service, and retired on December 23rd, 1903.

Universities and Colleges.

UNIVERSITY OF LONDON.

DR. ANDREW BALFOUR, C.B., C.M.G., and Dr. M. E. Delafield have been appointed representatives at the Imperial Congress of the Royal Sanitary Institute to be held in London in July, 1926, to celebrate the jubilee of the institute.

The degree of D.Sc. in cytology has been conferred upon Mr. R. J. Ludford for a thesis entitled "Studies in normal and pathological cytology," and other papers.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary comitia of the Royal College of Physicians of London was held on Thursday, January 28th, when the President, Sir Humphry Rolleston, Bt., was in the chair.

The minutes of the Censors' Board were read and confirmed.

The late Queen Alexandra.

The address of condolence from the College to H.M. the King on the death of Queen Alexandra was read, together with the official reply received from the Home Office.

Membership.

The following were admitted to the Membership:

Douglas Kinchin Adams, M.D.Glasg., George Allison Allan, M.D.Glasg., John Ford Anderson, M.D.Aberd., George Vincent Ashcroft, M.D. Manch., Hugh Barber, M.D.Lond., L.R.C.P., Harry Beddingfield, D.S.O., M.B.Edin., John Anthony Birrell, M.D.Lond., L.R.C.P., Ernest Bulmer, M.D.Edin., Ernest William Henderson, M.D.Lond., L.R.C.P., Ryan Frost, M.B.Lond., Gwenvyn Hall, M.B., L.R.C.P.

Stanton, M.B.Melb., Alexander Jarvie Hood Stobo, M.B.Sydney, Selwyn Edward Tanner, M.D.Lond., L.R.C.P., John Thomas Patrick Tansey, M.B.Sydney, Norman Bruce Williamson, M.D.Edin., Claude Wilson, M.D.Edin.

Assistant Registrar.

The President consulted the College as to the desirability of appointing an Assistant Registrar, and Dr. R. O. Moon was nominated for appointment at the next meeting.

Licences.

Licences were granted to the following candidates, who had passed the required examinations and conformed to the by-laws and regulations:

P. W. A. Agnew, S. A. Antoun, N. A. Arnold, A. Ashworth, A. L. Banks, C. M. Barker, L. H. Belcher, R. J. I. Bell, S. B. Benton, F. Bernstein, M. Bomze, *Elsie Boyton, R. Broomhead, A. Byrne-Quinn, *Irene F. Callender, A. L. Canby, De L. Carey, S. Chazen, H. Childs, J. H. Chitty, J. H. Clapp, A. Clark, G. C. W. Clarke, H. N. Collier, *Violet H. Cumber, R. V. Cooke, W. F. Cooper, A. R. Cox, S. T. Davies, T. W. Davies, T. E. Davies, *Hilda C. Dean, A. E. de Fonseca, *May, W. de Livera, G. C. Dewes, H. V. Dicks, *Mary G. H. Dickson, *Margaret H. Duncan, G. H. Dymond, *Elaine E. H. Earengay, R. W. B. Ellis, D. C. McC. Ktles, J. Evans, B. Fink, C. W. Flemming, T. D. W. Fryer, S. W. Gabbe, S. P. Gawne, P. Gibbin, *Dorothy Godden, P. J. Gonsalves, A. P. Gorham, *Aenes H. Gray, D. P. Gray, *Margaret K. Green, W. H. Green, C. R. M. Greenfield, L. A. N. Greenway, B. J. Griffiths, A. A. M. Groot, A. Gross, F. P. Guilloyle, K. H. Hadley, R. N. Hall, C. W. Harrison, L. Hartston, H. G. Harvey, J. P. Heldwell, T. R. Hill, R. L. Holt, B. B. Hosford, *Mary H. McC. Huggett, N. C. Hypper, D. E. Iago-Jones, R. J. Isaac, G. L. C. Jones, T. Jones, J. Kahanas, J. A. Kerr, *Hilda M. King, R. H. Knight, P. H. Knowles, T. P. Lalonde, F. J. L. Lang, F. W. Law, D. F. Lawson, R. L. J. Le Clezio, *Margaret E. Ledger, *Anne T. Leigh, E. A. Lewis, R. A. V. Lewys-Lloyd, *Leonora M. K. Lines, T. M. Ling, *Edith M. Little, G. F. H. McCormick, G. L. M. McElligott, L. J. McGregor, *Evelyn T. D. MacLagan, A. J. McMillan, P. Malpas, *Ruth E. Mansfield, *Mary A. Marshall, Jorwerth O. Martin, S. R. Matthews, H. R. R. Mavor, W. Mayne, S. Mellins, R. H. Metcalfe, G. C. Milner, J. Mintzmann, F. E. Montague, P. Morton, M. Mundy, D. H. P. M. Q. Mytebreest, C. B. Nicholson, J. R. P. Norman, G. F. Oakden, E. J. O'Keefe, J. E. J. Palmer, C. H. Parker, G. E. G. Peirce, H. A. Pictou, H. P. Pieris, N. R. Pooler, W. G. Porter, D. C. Price, *Winifred E. Probert, D. M. Pryce, *Muriel A. Push, F. W. F. Purcell, *Nellie L. Pyman, J. H. Randall, *Marjorie D. Reddan, *Margaret G. P. Reed, H. G. St. M. Rees, J. L. Reeve, A. M. Rhydderch, O. Richardson, L. Roberts, *Victoria A. Roberts, D. J. L. Routh, *Audrey E. Russell, J. W. Schabert, *Gitta Schwefel, F. L. G. Selby, T. H. Seller, D. W. Seth-Smith, A. de M. Severne, W. D. Sheldrake, *Alice Sney, *Tait, *Thorpe, G. O. Tippet, R. S. Tooth, *Rose A. H. Traill, R. M. Walker, L. H. F. Walton, H. D. Weatherhead, *Janet Welch, *Violet M. Weston, E. A. White, J. E. B. Williams, J. H. Williams, H. Williamson, D. B. Wilson, *Jessie Wiltshire, *Ada R. Winter, J. Wiseman, *Joan Worsfold, *Dorothy E. Wright.

* Under the Medical Act, 1876.

Diplomas in Special Subjects.

Diplomas in the subjects indicated were granted jointly with the Royal College of Surgeons to the following:

D.P.H.—P. L. T. Bjorkgren, M. A. B. Brito-Mutunayagam, Elman, W. D. Forgrave, Janet M. Gillis, W. O. Pou, A. DIPLOMA IN TROPICAL MEDICINE AND O. F. Conoley, R. A. Mansell, C. H. H. Robertson. DIPLOMA IN PSYCHOLOGICAL MEDICINE.—N. A. Albiston, H. E. August, A. A. Bell, Eleanor M. Creek, J. H. Cuthbert, H. S. Forbes, T. R. Forsythe, E. F. Hewitt, R. M. Macfarlane, J. McGarvey, E. D. T. Roberts, F. C. M. Taylor. DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—Esmé V. Anderson, J. B. Baird, A. Bajaj, D. P. Billimoria, C. G. H. Blakemore, Victoria E. Brander, J. A. Browne, A. Caddy, H. R. Dive, R. R. Garden, P. N. Gokhale, G. McN. Hargreaves, K. R. Hill, A. MacLach, J. Marshall, J. N. Piplani, Portia K. Taylor, Doris Todd, S. T. Wong. DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY.—P. V. Cherian, J. M. Damany, W. J. McNally, N. C. Ramechandani.

Psycho-analysis.

Dr. Major Greenwood moved the following resolution:

The College, taking note of the fact that members of the medical profession have stated in the public press that the practice of certain methods of diagnosis and treatment generally known as "psycho-analysis" is open to grave objections, requests the President to appoint a committee to inquire into the truth of such statements, and to report what instructions, if any, it may to impose upon the use of these methods by Fellows, Members, and Licentiates of the College.

This was not carried.

Appoints.

On the nomination of Jollier, Dr. S. W. Wheaton, Dr. J. S. Fairbairn, and Dr. C. S. Martin were elected Councilors to take the place of Dr. W. S. Lazarus-Barlow, Sir John Broadbent, Dr. T. W. Eden, and Sir George Newman.

On the nomination of the Council, Sir Francis Champneys was reappointed a representative of the College on the Central Midwives Board for England and Wales.

Dr. Drewitt was reappointed representative of the College on the committee of management of the Chelsea Physic Garden for four years, and Sir Thomas Barlow a representative of the College on the executive committee of the Imperial Cancer Research Fund.

Dr. Arthur Shadwell was appointed a representative of the College on the Queen Victoria Jubilee Institute for Nurses.

The resignation of Mr. Bryan Farrer as junior standing counsel to the College was received. The President nominated Mr. Dighton Pollock for election. It was directed that a letter should be sent to Mr. Bryan Farrer thanking him for his services during a quarter of a century.

The resignation of Sir Dyce Duckworth as representative governor of the University of Liverpool was received. The Council expressed its high sense of the services he has rendered. Dr. Abram was appointed in his place.

Lecturers.

The President announced that he had appointed Dr. F. G. Crookshank to deliver the Bradshaw Lecture for 1926, and that the Council had appointed Mr. W. F. Dearden, M.R.C.S., L.R.C.P., to be Milroy Lecturer for 1927.

Licentiates and Diplomates in Special Branches.

The Registrar moved for the first time that by-law 160 be amended to read as follows:

A list of all Fellows and Members of the College, and a list of the new licentiates and diplomates in the special branches of medicine admitted during the preceding twelve months, with their places of residence, shall be submitted to the Censors' Board for England, Scotland, and Ireland.

Reports.

The following reports from the Committee of Management, dated December 23rd, 1925, were received and adopted:

The Committee of Management recommend that certain universities which were removed in the year 1918 from the list of recognized places of study, and graduates of which are admissible to the Final Examination of the Board, be now reinstated in the list, as follows:

Germany: University of Bonn, University of Breslau, University of Göttingen, University of Halle, University of Jena, University of Königsberg, University of Leipzig, University of Marburg, University of Münster, University of Rostock, University of Strassburg, University of Tübingen, University of Würzburg.

German universities.

The Committee of Management recommend that the following additional clauses be added in chapter I of the Regulations of the Examining Board in England, namely:

X. Any representation which a candidate may desire to make with regard to the conduct of his examination must be addressed to the secretary, and not, under any circumstances, to any of the examiners.

XI. The Committee of Management may refuse to admit to examination or to proceed with the examination of any candidate who infringes or is considered to infringe the regulations of the Board, or who is considered to be of such a character as to be prejudicial to the proper conduct of the examination.

In accordance with the conditions relating to special diplomas laid down by the Royal Colleges in April, 1920, the Committee of

THE late Sir Richard Douglas Powell, Bt., Physician in Ordinary to Queen Victoria, King Edward, and King George, who died on December 15th last, aged 83, left estate of the gross value of £43,679 with net personality £41,769. He directed his executors to burn or destroy all his case books and letters relating to his private patients.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the BRITISH MEDICAL JOURNAL are MUSEUM 9361, 9362, 9363, and 9364 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR of the BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), Articulate Westcent, London.

MEDICAL SECRETARY, Medicisera Westcent, London.

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

LEAD SALTS IN CANCER.

COLONEL G. F. ROWCROFT (Bangalore) writes: I have received several issues of the JOURNAL since that for November 28th, 1925, containing (p. 1040) Dr. G. C. Belcher's note on the use of lead for cancer, but so far no one has remarked on the dose he advocates, 1½ grains daily for a week, and then twice the amount, which he describes as "heroic doses." I can hardly imagine that 1½ grains would have much effect.

ENLARGED VEINS ON THE CHEST IN CHILDREN.

DR. J. LEWIS THOMAS (Newport, Mon.) writes: Can we depend upon the presence of enlarged veins in the infraclavicular region as an aid to diagnosis between cardiac disease and tuberculosis, when signs and symptoms, together with the radiograph, give uncertain testimony? The von Pirquet test, with repeated negative results in such cases, warrants a decision in favour of the former; and this has been supported by the history of patients during school age and adolescence. In the congeries of venules in the suprascapular regions we have a different and less definite picture.

"JOGRAJ."

DR. J. D. DHURV (London), with reference to the inquiry printed on December 26th, 1925 (p. 1252), writes to say that this preparation is used for chronic inflammatory swellings. He is not sure whether it contains iodine, but it contains some Indian herbs, and its chief constituent is a gum resin. The original formula can be found in *Sarangdhar Samhita*, a classical Sanskrit pharmaceutical book.

LETTERS, NOTES, ETC.

BURNS FOLLOWING THE USE OF INFLAMMABLE HAIR COMBS.

DR. T. STENNER EVANS (Fochriw, Glamorgan) writes: The letters published recently in the BRITISH MEDICAL JOURNAL on this subject prompt me to place on record an account of a similar case. Some months ago I was called to see a young woman whose scalp had been severely burnt. Her relations stated that she had been standing near a fire whilst rubbing into her hair an alcoholic lotion. She then fixed into her hair some celluloid combs, which almost immediately burst into flame. Her hair and scalp were severely damaged before the relatives could remove the combs. The scalp has now healed, but there remains a large adherent painful scar, in which nearly all the hair follicles are destroyed, and on which, consequently, very little hair is likely to grow. The increasing number of such accidents serves to accentuate the danger of wearing inflammable hair combs, and, in my view, the manufacture of such articles should be strictly prohibited.

TREATMENT OF VARICOSE VEINS.

DR. J. NISSEN DEACON (London), whose previous letter appeared on September 26th, 1925 (p. 583), writes further with reference to the Bagnolles treatment of varicose veins:—I have since had experience of the home treatment for women, which is as follows:

Having visited the spa in June or July, the patient waits until September or October, and then lies quietly and completely submerged in a bath almost full of water at 97° F., to which has been added 20 oz. of sodium bicarbonate and 4 oz. of alum. The bath is taken twice a week before breakfast and lasts for twenty minutes. For half an hour after the bath she lies flat, and breakfast in bed follows, the rest being continued for an hour or so afterwards. For the ten days following the termination of the menses 10 minims of a 1 in 1,000 solution of adrenaline are taken by the mouth before breakfast, lunch, and dinner (I have seen this cause indigestion, and believe oral administration to be useless). For the next ten days the patient takes phlebosine fem. (H. Carrion and Co., Paris), one tablet before lunch and dinner. This is a polyglandular product containing small amounts of thyroid and other extracts (personally, I prefer hormotone: Carnrick). During the menses baths and all medications cease. This course is continued for three months, alternating with a period of two months' cessation of treatment, so that by the time the patient is due to return to Bagnolles she will have completed two courses and two rest periods. During alternate months, and irrespective of "courses" and "rests," she must gently and centripetally massage her legs at night when in bed. Hot-water bottles must be put out of the bed when entering it. When sitting the leg should be supported by a low padded stool; special stools are sold in Bagnolles. In subhyrotic and vagotonic women I have seen definite improvement in the general condition follow this régime, although the veins may appear unaffected. This is probably due to stimulation of the sympathetic nervous system by the thyroid extract. The detail of such a "cure" doubtless impresses some patients, who feel better in consequence of knowing that something is being done. If the administration of thyroid is controlled, and withheld when necessary, the "cure" can do no harm, and almost becomes an occupation for leisured people!

POTASSIUM CHLORATE IN CANCEROUS ULCERATION.

DR. T. M. ALLISON (Newcastle-on-Tyne) writes: In carcinoma the pain appears to be due to one of two causes—pressure or ulceration. For the pain of pressure morphine alone seems to give relief; but for the pain and sepsis of ulceration, in any part of the body, may I suggest the use in large quantities of potassium chlorate? By large quantities I mean doses starting with 10 grains three times a day and going up to the limit of tolerance. I have seen no ill effects from 50 grains or more three times a day in milk (sweetened) or in chloroform water. In some cases the results are striking. I have seen a case of cancer of the cervix with vaginal ulceration clear up in a remarkable way, the patient dying later of peritonitis, but the fever, bleeding, and pain practically disappeared. In another case of inoperable cancer of the rectum, where the ulceration was verified *post mortem*, the patient was quite unconscious of anything but slight discomfort at times, and there was no septic absorption and no cachexia. If one can relieve pain and avoid sepsis, and convert death from distress into death from painless hæmorrhage—as in the latter case—it is a step, if only a small one, in the welfare of the patient.

THE DEATH OF JOHN KEATS.

MR. W. A. MAGGS (Northam, North Devon) writes: The delightfully written and lately published *Life of Keats*, by Amy Lowell, gives many details of the illness of this great poet. Keats, accompanied by his buoyant and devoted friend Severn, reached Rome on November 17th, 1820, and went into lodgings in the Piazza di Spagna. The following extract from the book mentioned may be interesting to your readers:

"... the landlady of the apartment, who had notified the police that a man with consumption was dying in her house. Long before the English doctors had found out that tuberculosis was a contagious disease the Italians were convinced of the fact, and by their law everything in the room occupied by a tuberculous patient, even to the very wallpaper, must, after his death, be burnt. Now both Severn and Dr. Clark thought it would cheer Keats up to move him from his bedroom to the sofa in the sitting room for a few hours. In the sitting room were his and Severn's few books, the hired piano, Severn's painting materials—in short, everything of value which the friends possessed. All these things would be destroyed if it came to the knowledge of the police that Keats had been carried into the room."

Keats died in these apartments on February 23rd, 1821, and the communication referred to was made a few weeks previously.

A DISCLAIMER.

DR. S. HARDY KINGSTON (Clifton, Bristol) writes to disclaim all responsibility for references in the public press to a meeting of the local Branch of the British Medical Association, in which his name occurs. The matter which appeared was published without any authority from him.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 51.

Purvis Oration

ON

THE SURGERY OF MALIGNANT DISEASE OF THE PHARYNX.

DELIVERED BEFORE THE WEST KENT MEDICO-CHIRURGICAL SOCIETY ON DECEMBER 11TH, 1925,

BY

WILFRED TROTTER, M.S.LOND., F.R.C.S.ENG.,
SURGEON, UNIVERSITY COLLEGE HOSPITAL.

(With Coloured Plate.)

WHATEVER may be our hopes about the discovery in the treatment of malignant disease of methods more specific and less harsh, surgical operation must be admitted to be the most useful and trustworthy means we now possess. The extension of the field to which it can be applied and the increase in the refinement with which it can be used are therefore among the most important duties of the surgeon. The development of the operative treatment of malignant disease in whatever department is not, however, a matter only concerned with surgical technique, but is equally dependent on pathological and clinical principles, and therefore has a general as well as a more special interest. It is for this reason that I have ventured to choose for my subject a branch of surgery which may at first sight seem to promise little but narrow technicalities, for I hope to show that it has some relations that concern us all in whatever branch of our art we may practise.

At this point I may perhaps be allowed to say a few words about my personal connexion with the subject, and in justification of the hope that my experience in it may have included some aspects that are not of common knowledge. In some Hunterian Lectures given in 1913 I laid down certain principles which had already proved useful in the treatment of malignant growths of the pharynx and tried to define the chief clinical generalizations that can be made about the disease in question. In the ensuing twelve years one's experience naturally has been largely added to. The steady increase of experience, while it has not perhaps made any changes in practice that amount to alterations of principle, has in this considerable lapse of years allowed of such an accumulation of changes in the technical detail of treatment that the lectures of 1913 no longer represent what is, in my judgement, the best we can do for the unfortunate sufferers from carcinoma of the pharynx. As my treatment of the subject on this second occasion of dealing with it is to be in the nature of a revision rather than a primary exposition, I shall hope to be able to keep in sight the aspects of more general interest that it possesses and to pass over its minor technicalities.

There are two further limitations I shall venture to set upon my handling of the material I have to put before you. First, I shall deal only with malignant disease of that part of the pharynx which is called by anatomists the laryngeal part. This includes the lower half of the length of the tube, and excludes matters like growths of the tonsil, which are more or less familiar to all, and growths of the naso-pharynx, which constitute a group having very different pathological relations. Limiting ourselves to the laryngeal pharynx we shall be concerned with two groups of cases—the growths about the upper opening of the larynx (epilaryngeal group), and the growths of the post-ericoid region (hypopharyngeal group). In both these groups we are concerned only with the squamous epithelioma. The second limitation I shall venture to set will be in the avoidance of statistical statements. Where experience is necessarily small—and the total number of the cases in question that I have ever seen, much less operated on and followed up, must probably be limited to a few hundreds—statements in figures are apt to possess more the air of authority than the substance of it, and to put more responsibility on the person who observes and classifies the facts than he may be competent or willing to

assume. These considerations are even stronger when the subject under inquiry is a changing and growing one, and as such I have always regarded the surgery of the pharynx. I shall therefore avoid numerical evidence in supposed confirmation of the conclusions I come to, and shall allow these to depend on a judgement that in the circumstances cannot perhaps be regarded as erring characteristically in the direction of haste.

THE GENERAL CHARACTERS OF MALIGNANT DISEASE OF THE PHARYNX.

It has commonly happened in the evolution of medicine that when a certain part of the body has come within surgical access, this mere fact has quickly reacted on the pathology and symptomatology of the part in an unexpectedly fertilizing way. This sequence, which we are all familiar with on the great scale in the cases of the abdomen, the chest, and the brain, has shown itself with precision in the minor example of the pharynx. As soon as it became evident that in the operation of lateral (trans-thyroid) pharyngotomy we have a means that gives easy and adequate access to the laryngo-pharynx and allows satisfactory treatment of a large number of the growths found there, it began also to be evident that our clinical and pathological knowledge of the early phases of malignant disease in this situation could and must be largely extended and clarified. We found that there are characteristic starting-points for the disease, that there are variations in type and progress, and that all these facts have a direct and practical bearing on operability and on post-operative prognosis. It is to the conclusions derived from such observations that I am particularly anxious to call your attention.

(a) *Frequency.*—Malignant disease of the laryngo-pharynx is not at all rare. In my opinion the disease is not very much less common here than it is in the mouth or oesophagus, so that our subject must take its place among the great primary groups of malignant disease the incidence of which is favoured by some local condition of normal life. Any attempt to make an exact statement of its frequency is quite useless, because even yet relatively few cases of growths in the cervical alimentary tract are submitted to exact diagnosis, and because the clinical record of cases is confused by the description of an indefinite number as "extrinsic carcinoma of the larynx." Whatever the exact figure may be, there can be no doubt at all that the disease is common enough frequently to escape diagnosis for many months. Its position in relation to diagnosis is like that of rectal carcinoma; it is common, its symptoms may well be those of much commoner trivial diseases, and to exclude it involves an examination that is rarely difficult is often a little troublesome. Some such comfortable diagnosis as that of "relaxed throat" is therefore apt to tempt our less conscientious moments.

(b) *Rate of Progress.*—Epithelioma in this region does not usually progress with great rapidity, and there is generally after the first appearance of definitely suspicious symptoms a period of several months during which the case is still operable. There is one very important factor which must always be allowed for in determining the apparent extent and progress of these growths, and that is the influence of sepsis. Sepsis in the pharynx and oesophagus is determined by the teeth, and, it must be added, not so much by their condition as by their presence. It is by the comparison of the appearances of epitheliomata occurring in those with teeth with the appearances of such growths occurring in the edentulous that one is able to estimate the influence of sepsis in exaggerating the apparent extent and gravity of the lesion. The two most important facts that experience has established in this regard are, first, that a growth that seems hopeless may become obviously operable within a few weeks of the clearance of the mouth, and secondly, that in patients already edentulous epitheliomata are apt to run an insidious and relatively symptomless course for several months.

(c) *Incidence according to Sex and Age.*—Epithelioma of the laryngo-pharynx shows perhaps the most remarkable example known in the pathology of malignant disease of the primary seat of the tumour being determined by the

sex of the patient. It is a familiar fact that the post-cricoid or hypopharyngeal carcinoma is practically limited to women, while growths around the upper laryngeal opening (epilaryngeal carcinoma) on the one hand, and of the cervical oesophagus on the other, although not wholly limited to men, show a strong preference for that sex. In addition to being almost exclusively a disease of women, the post-cricoid carcinoma is peculiar in appearing at a relatively early age. The age at which it appears may be estimated as at least ten years younger than that at which the epilaryngeal carcinomata of men begin to be common. My experience suggests that carcinoma beginning definitely on the posterior pharyngeal wall belongs to the post-cricoid group as regards sex and age incidence. This is a comparatively rare type; it arises on the posterior wall well above the cricoid region, and often is directly visible through the mouth. It is interesting from its incomprehensible association in sex incidence with the post-cricoid growth, and it has a certain technical interest in demanding for its treatment an operation of special design.

Malignant disease of the laryngo-pharynx, then, although including an indefinite number of minor variations, falls naturally into two broadly defined main groups that we name for convenience epilaryngeal and hypopharyngeal. The differences as to sex incidence between these two go with clinical and therapeutic peculiarities, so that the natural classification is also one of practical value (Figs. 1 and 2).

GROWTHS OF THE EPI-LARYNGEAL TYPE.

These growths occur on and immediately around the upper opening of the larynx. The great majority of them occur in the male sex, and of cases of malignant disease of the laryngo-pharynx in that sex the great majority are of this type. They occur in men who have reached or passed middle age. Four common starting-points can be made out by the study of early cases; these are: (1) the epiglottis; (2) the aryepiglottic fold, especially toward its arytenoid extremity; (3) the lateral pharyngeal wall outside and away from the arytenoid; and (4) the pyriform sinus. When these starting-points are known a little experience will enable one from the laryngoscopic examination to estimate with some precision with which type one has to deal in a given case. The decision is important and worth an effort to attain, as it has a direct bearing on treatment and prognosis.

It may be stated at once that growths starting at any of the three points first mentioned (the epiglottis, the fold, the lateral wall) lend themselves to satisfactory operative treatment. At early and even moderately advanced stages a cure or freedom from the disease for many years can be looked for with reasonable confidence, without great operative dangers, and with no permanent mutilation or disability. The case is different with growths that start in the pyriform sinus. In this case the situation of the growth makes it symptomless in the early stages, and also leads to early involvement of the lateral wall of the larynx on the one hand, and of the thyroid cartilage on the other. It often happens, therefore, that by the time diagnosis is possible even an extensive and mutilating operation is of little use (Fig. 3).

Diagnosis.

I do not propose to discuss the finer shades of diagnosis among these types. The uses of practical work will be met if we know, first, when to suspect malignant disease of

the laryngo-pharynx; secondly, how to make a reasonably probable diagnosis of its presence; and thirdly, how to estimate in a general way the gravity of the case and the prospects of treatment.

In middle-aged and elderly men any kind of abnormal sensation persistently felt in the same part of the throat should be regarded seriously. The sensation may be a tickling; it may be that of a crumb or larger body of food

lodged in the throat; it may be a discomfort in swallowing saliva alone while there is no difficulty at meals. There is usually no pain in these early stages, no trouble in swallowing food, no alteration of the voice, except perhaps to a very finely discriminating ear, and no affection of the general health. Occasionally enlarged glands—not necessarily carcinomatous—appear very early. For this reason palpation of the cervical glands is an art that should be cultivated very carefully, and one should not be content to regard the glands as normal in a given case unless the patient has been examined lying down and with all the muscles of the neck relaxed.

Laryngoscopic examination is, however, of course the essential method. It must be admitted that malignant disease of the pharynx is overlooked rather often in its early stages. I am convinced that this is due to no difficulty in the diagnostic problem itself, but rather to the modesty of medical men in tending to regard the laryngoscope as an instrument always and only for the expert. It is perfectly true that to get a good view of the interior of the larynx, and especially of the anterior part of the vocal cords, is sometimes very difficult. There is, however, no need for this in the cases we are discussing. All that is necessary is to get an adequate view of the upper opening of the larynx and to estimate the mobility of the arytenoids. This is easy, and in the majority of cases demands no more than that the mirror should be used with a good light, some gentleness and patience, and a general idea of what one may expect to see.

There are three appearances to be on the look-out for when a growth of the epilaryngeal region is suspected: (a) an ulcer with a raised edge, which may, of course, be seen only in part, but of which the merest glimpse definitely caught is diagnostic; (b) a collection of muco-pus which the patient cannot get rid of by swallowing; (c) a fixed arytenoid. A fixed arytenoid, if much ulcerating growth can be seen, generally indicates a late stage of disease; if little ulceration can be seen it points to the dreaded pyriform sinus type. A freely movable arytenoid, even when the growth seems of formidable size, is always a favourable sign. (Plate, Fig. 1.) The amount of fungation of a growth is not necessarily a measure of its gravity; sometimes the pharynx seems filled by an ugly sloughy mass which at operation proves to be semi-pedunculated and arising from a relatively localized epithelioma.

GROWTHS OF THE HYPOPHARYNGEAL TYPE.

These growths occur in the narrow tubular part of the pharynx behind the cricoid cartilage. They are practically limited to women, and include the great majority of epitheliomata of the pharynx in that sex. They appear in the adult and middle-aged, and are not uncommon in the fourth decade. A remarkable feature of my experience of these cases is that the history given by the patient often shows that there has been some difficulty in swallowing for many years, and that on this slight disability the serious dysphagia has gradually supervened. Difficulty and awkwardness in swallowing are common complaints in

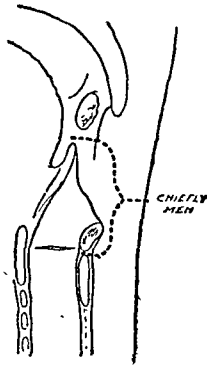


FIG. 1.—Distribution and sex incidence of epithelioma of laryngo-pharynx. The epilaryngeal group, the ordinary type occurring in men.

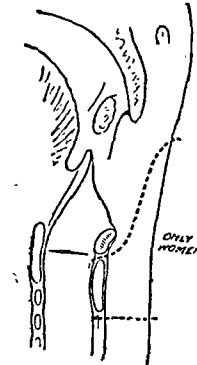


FIG. 2.—Distribution and sex incidence of epithelioma of laryngo-pharynx. The hypopharyngeal group, occurring only in women.

women.

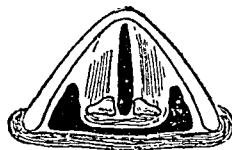


FIG. 3.—Diagram of section through pyriform sinus of pharynx to show its relation externally to the thyroid cartilage and internally to the lateral wall of the larynx.

women, and are doubtless often an expression of "nervousness." It is perhaps for this reason that in a good many cases of post-cricoid carcinoma the early stages of definite dysphagia are not always taken very seriously. This is especially to be regretted, as the condition is a very formidable one, so that satisfactory treatment is more than usually dependent on early diagnosis. Symptoms that must always be regarded with very grave suspicion are definite obstructive dysphagia even if regurgitation is only occasional and slight, frequent choking fits during meals, and chronic laryngitis with huskiness from leakage of food into the larynx. Signs to be made out by examining the neck are all late and of little value; they are forward displacement of the larynx, palpability of the primary growth, and enlarged glands.

Laryngoscopic examination, if we know what to look for, is of great value in spite of the fact that by it a definite diagnosis cannot always be made. Three stages in the laryngoscopic appearances can usually be made out; examination, of course, is directed to the retroarytenoid region, and is quite easy. (a) In the earliest stages there is no growth visible and no swelling, but there is more or less chronic laryngitis, and in the pharynx behind the arytenoids is visible a pool of frothy mucus or muco-pus which the patient cannot clear away by swallowing. (Plate, Fig. 2.) (b) Later there is added to this picture a purplish, glistening swelling of oedema over the arytenoids and in the interarytenoid region. (Plate, Fig. 3.) (c) Finally, on the anterior wall of the pharynx below the top of the arytenoids there appears the raised edge of an epitheliomatous ulcer. Only quite a small segment of the ulcer may be visible, and it may emerge from the pool of mucus only momentarily and at the height of a strong effort of phonation. (Plate, Fig. 4.) Once such an appearance has been made out clearly the diagnosis is settled. The fixation of an arytenoid is common, but is usually a late phenomenon.

In the presence of strong reason to suspect post-cricoid carcinoma a characteristic laryngoscopic picture should not be waited for, but a direct examination should be made with the bronchoscope under an anaesthetic. On no account, however, should the surgeon be tempted to decide the vertical extent of the growth by forcing the tube past it. In my experience the operability of a given case of post-cricoid carcinoma can be decided definitely only by an actual exploration, though a negative decision can often be made by clinical examination in advanced cases. When an operation is begun in doubt as to whether it can be carried through, the operability of the case is to be judged without the pharynx being opened. In these circumstances retreat is possible without any serious damage having been inflicted.

TREATMENT.

There is one method of general utility in the operative treatment of carcinoma of the laryngo-pharynx. This is the operation of lateral (trans-thyroid) pharyngotomy, which is the foundation on which all the different procedures, from the simplest to the most elaborate, must be built up. It is primarily a method of access, and depends on the anatomical fact that the laryngo-pharynx lies within the laryngeal skeleton. If the great cornu of the hyoid bone and the ala of the thyroid cartilage are removed, the wall of this part of the pharynx is disclosed unopened, and through it the situation and extent of a growth can be determined by palpation with some precision. It can now be decided if a radical procedure is possible, and what it should be (Fig. 4). These are the essential facts, and I do not propose to enter here into technical details. We must consider, however, the further general lines on which we may be called upon to proceed.

The cases I have had to deal with in an experience of nearly twenty years' work in this field have fallen into three broadly distinguishable classes.

A. Inoperable Cases.—This class, always and still deplorably large, comprises probably a good half of all the cases I have had to do with. Most are recognizable for what they are at a glance; some have been, and a few still are, after every effort of foresight, submitted to fruitless exploratory operations. Here we have this satisfaction that the preliminaries that are necessary in such formidable cases are the best palliative measures that can be devised, and in themselves give great relief and some prolongation of life. These preliminaries are tracheotomy (in such circumstances under local anaesthesia) and a complete clearance of the mouth; they are measures always worth considering, even when there can be no thought of radical operation. There can be no doubt that a large proportion of the inoperable cases I have seen were at some part of their course favourable in type and within the reach of cure.

B. Operable Cases of the More Serious Types.—These are cases in which a more or less formidable operation offers a reasonable prospect of freedom from the disease for a period that may extend to several or many years. In order, however, that the life thus saved or prolonged shall be tolerable, it is necessary to deal with the mutilation the extensive operation has entailed by more or less complicated plastic procedures to restore the functions of respiration, speech, and deglutition. (Plate, Fig. 5.) It is impossible to describe here in detail any of the plastic measures that may be necessary, but we may indicate that some such procedure must invariably be foreseen in operations for post-cricoid growths, for growths on the posterior pharyngeal wall, and for growths of the epilaryngeal group when any large resection of the party wall between pharynx and larynx has been made. These cases, therefore, demand from the surgeon a certain amount of special experience, a readiness on his part to evolve the design and the carrying out of the operation together, and to improvise necessary modifications during its actual course. Of the cases that come to professedly radical operation probably about half belong to this class. They involve difficult and dangerous procedures, and have an apparently endless capacity for disappointing at any moment the most plausible hopes. Nevertheless, and perhaps especially for this reason, the small proportion of really complete success they provide is quite enough to encourage the effort to increase it. A special difficulty of this

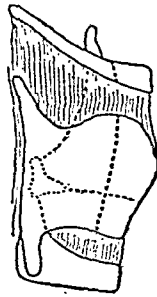


FIG. 4.—To illustrate the principle of the operation of lateral trans-thyroid pharyngotomy. The outline of the laryngeal skeleton is shown. The finely dotted lines indicate the relative positions of the aryepiglottic fold, the arytenoid cartilage, and the vocal cord. The thickly dotted lines show where the great cornu and the thyroid ala are divided in the operation. When these parts have been removed the laryngo-pharynx is accessible.

group is that, as many of the cases are advanced, extensive gland dissections often must be done to obtain access to the primary growth. Such procedures are, in my experience, best combined in one operation, and it is often possible, by making use of the sterno-mastoid muscle as a partition in the wound, to preserve the raw area left by the gland dissection from infection from the pharynx and to secure primary union in it.

C. Operable Cases of the More Favourable Types.—This class includes as its most important members those growths of the epilaryngeal group that I have already mentioned as the most favourable—namely, those of the epiglottis, aryepiglottic fold, and lateral wall. These may amount to about half of all the operable cases. The epithelioma that occurs in the three sites mentioned is not of a very malignant form; even in the fairly advanced stages in which it is still so often first seen by the surgeon it is frequently not beyond cure; the situation is anatomically such that large excisions of the pharyngeal wall are possible without the need for plastic measures; the tendency to gland infection is not very strong, and is inclined to be limited to one side of the neck. For these reasons cases of this class can be approached by the surgeon with every reasonable confidence that decidedly satisfactory results will be obtained. There is probably none of the major types of malignant disease in general in which surgical treatment—with some allowance for the special local difficulties—is on the whole more satisfactory than it is in this far from uncommon group of epilaryngeal growths. This favourable estimate implies, of course, not

merely that there is a reasonable expectation of cure or prolonged freedom from the disease in all fairly early cases, but also that such results are to be obtained without the infliction of any serious mutilation or even disability. The tumour is to be dealt with by the operation of lateral pharyngotomy in its simplest form, and as in these circumstances it is reduced to a straightforward and almost formal procedure I shall venture to mention the chief points in the routine to the use of which, after innumerable variations, I have more or less definitively settled.

Lateral Pharyngotomy in the Early Epilaryngeal Case.

Preliminary Preparation.—As one confidently expects to be able to close the pharynx so that leakage into the neck cannot occur—if at all—for several days, I do not now insist on a preliminary clearance of the mouth in these cases. Thus the patient is saved a good deal of extra distress and about three weeks' delay.

Anæsthetic.—Chloroform first through the mouth, later through the tracheotomy tube, is always used. To keep down the total amount used—a most important point—cocaine solution (10 per cent.) is injected into the trachea before this is opened and applied to the interior of the pharynx in plugs as soon as the lumen is exposed. Small hypodermic injections of morphine (1/6 to 1/8 gr.), given during the operation, are also a help in reducing the dose of chloroform.

Tracheotomy.—This is always necessary. The immemorial procedure is modified in three important ways. The thyroid isthmus is never drawn aside, but if met with is freely incised or excised; the trachea is not merely incised but a disc one-third of an inch in diameter is taken out of its anterior wall. Thus the patient should be able to breathe freely through the tracheotomy wound before the tube is inserted. This is the only certain way of preventing dangerous emergencies or even fatalities when the tube is accidentally dislodged or deliberately changed. Finally, St. Clair Thomson's form of Durham's tube in its largest size is always used and is indispensable. The tube will be necessary for about a week; it is removed as soon as the patient can breathe easily through the larynx while the tube is stopped. It is a small and obvious point that the tube, when it is to be discarded, should be taken out in the morning. Healing of a tracheotomy wound is usually quicker when a disc has been removed than when the trachea has been incised, for there is much less likely to be necrosis of the rings.

Gland Operation.—Only unilateral gland infection has to be provided against. When glands are palpably involved the usual complete unilateral dissection is done with removal of the jugular vein and ligature and division of the external carotid close to the bifurcation, but with preservation of the sterno-mastoid. The anterior edge of this muscle is then stitched to the prevertebral fascia behind the pharynx and the gland wound behind it drained by a separate puncture. If the glands are not obviously involved a rather limited gland dissection is done in the anterior triangle and the sterno-mastoid stitched over the vessels as mentioned above.

The Pharyngotomy.—A vertical incision is made over the middle of the lateral aspect of the larynx down to the cartilages and the infrahyoid muscles and constrictors are

turned forwards and backwards so that the great cornu of the hyoid and the thyroid ala are completely exposed. The structures on the deep surfaces of these are separated from them with a raspator, and then the great cornu is removed to its joint, as well as the posterior two-thirds or more of the ala. The lax pharyngeal wall is now exposed, and the situation and extent of the growth are easily made out through it. The wound is carefully protected from the contact of pharyngeal mucus, and the pharynx is incised in such a way that this incision will serve in part for the isolation of the tumour. The removal of the latter with an adequate margin is then completed. The gap left is carefully closed by stitches, and in the same procedure the incision in the pharyngeal wall is stitched up. The constrictors and infrahyoid muscles are brought together closely over the line of suture in the pharynx. The neck wound is left widely open. It is filled with sterile boric powder and plugged over an apron of green protective. It should be the object and expectation of the surgeon to avoid altogether infection of the neck wound from the pharynx, both during the operation and after. A small rubber catheter is left in the pharynx and brought out through the mouth for feeding. It is left in for about five days and then passed for individual feeds.

In about a month healing should be complete, swallowing normal, and speech rapidly recovering its usual strength. This estimate applies only to favourable cases; there are, of course, many variations in the length of convalescence, and the patient may need skilled nursing and surgical care for some weeks more.

SOME FINAL CONSIDERATIONS.

When we turn to consider in general the results of the surgery of malignant disease of the laryngo-pharynx, it is but fair to remind ourselves in the first place of what the results of the disease are without sur-

gery. There is no more dreadful form of malignant disease, and we are to remember that the favourable easy types left untreated are spared nothing in the end. Again, we may well remind ourselves that the treatment we can use is no surgery of mutilation, but looks to leave the patient capable of leading a normal unmarked life. Such considerations may allow us to regard with a certain indulgence the large gaps between what we should like to do and what we can do in this department.

At the present time two conclusions seem to me to be fairly definite. In the first place we have technical methods which seem soundly established and capable of progressive refinement and extension. In the second place we can say that, in cases carefully but not very rigorously selected as favourable, we can look for satisfactory results as to the disease, secured by drastic but not very dangerous operations which leave no serious disability.

One of the accompaniments of progress in the surgery of any kind of malignant disease seems always to have been the disclosure of the extent to which late recurrences are possible. In my experience the surgery of the pharynx has followed this rule. I have, for example, comparatively recently seen two cases in which after seven years of complete freedom there has been a return or fresh outbreak of the disease. To my mind such events are not wholly discouraging, for they show how our efforts are helped by the natural resistive powers of the body, and even to put the case on the humblest level, health for seven years is no inconsiderable gift.

DESCRIPTION OF COLOURED PLATE.

FIG. 1.—Epithelioma of lateral wall: redrawn from a sketch of the At first sight the growth seemed to have and the case appeared to be unfavourable, however, freely movable, and this suggested act have begun on the lateral wall. At the case, and a satisfactory local excision to the arytenoid. The case illustrates the to growths of the lateral wall by their

FIGS. 2, 3, AND 4.—Laryngoscopic appearances of post-cricoid carcinoma. These drawings are not intended to reproduce individual cases but to give a generalized idea of the three stages referred to in the text. In Fig. 2 the only abnormality is the pool of frothy mucus behind the arytenoids that indicates obstruction of the hypopharynx. In Fig. 3 oedema of the arytenoid region has appeared. In Fig. 4 the upper edge of an epitheliomatous ulcer is visible. In strong phonation this would show more extensively.

FIG. 5.—To illustrate the type of plastic procedure necessary in connexion with the more extensive operations. Drawing made some weeks after primary operation for a large growth. The excision involved removal of a large part of the pharynx and larynx, and, of course, of the party wall between them. Repair of the defect has been prepared for by the implantation of a large folded flap of skin presenting epithelial surfaces to the pharynx and larynx. At the second operation this flap will be used to re-form the upper laryngeal opening and the wall between larynx and pharynx, and the wound will be completely closed.



FIG. 1.



FIG. 2.



FIG. 3



FIG. 4.

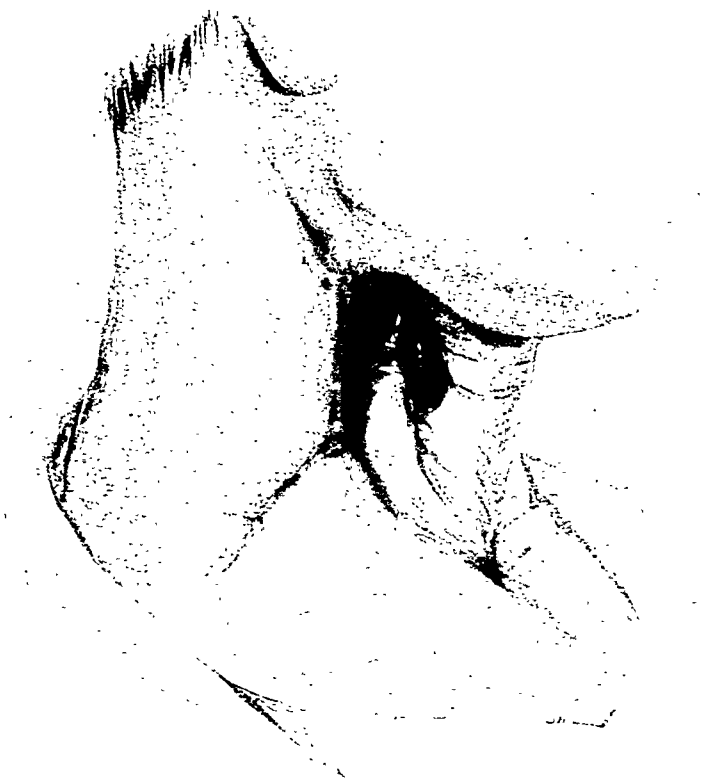


FIG. 5.

A Lecture ON THE DEVELOPMENT OF VAGINAL OPERATIONS FOR GENITAL PROLAPSE.

GIVEN TO GRADUATES AT ST. MARY'S HOSPITAL, MANCHESTER,

BY
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VAGINAL surgery is now uniformly successful in cases of genital prolapse, and recurrence is rare, even when pregnancy and labour follow and severely test the efficiency of the treatment. What exactly is meant by the term "genital prolapse"? Judging from the published writings, the private correspondence, and the conversation of medical men, it includes four conditions, which occur alone or in combination.

CLASSIFICATION OF CASES.

1. *Cystocele*, in which the anterior vaginal wall with the urethra and part of the bladder bulges in the vulvar cleft, the uterus remaining in its usual position.
2. *True prolapse*, in which the anterior vaginal wall, urethra, and bladder descend first, followed next by the cervix, and last by the posterior vaginal wall.
3. *Long cervix with loose uterus*, in which the cervix emerges first at the vaginal orifice, followed by the vaginal walls, inverted from above downwards, round the descending uterus.
4. *Rectocele*, in which the posterior vaginal wall and the anterior rectal wall descend together and bulge in the vulvar cleft.

The three combinations are (a) rectocele and cystocele; (b) rectocele and true prolapse; and (c) rectocele and long cervix. Nearly all the cases that are sent to hospital as examples of genital prolapse fall into one or other of these seven categories—four conditions and three combinations of them. It may be taken for granted that in nearly all these cases the perineum is defective, and has either been torn or has been stretched by the descending structures. The operations used are combinations of anterior colporrhaphy and amputation of the cervix; followed by perineorrhaphy unless there is rectocele, when colpo-perineorrhaphy is done. Our present object is to trace the origin and development of these operations. We must remember that the great majority of methods and technical devices have blossomed for a time, only to fade away into the limbo of oblivion. They have been divergences from the direct line of evolution. Our predecessors and we ourselves have proved all things and have held fast, for the most part, only that which is good. Thus we can omit reference to the greater part of the work that has been done and most of what has been written, because they have led nowhere, and their main use has been to show how things should not be done.

ANTERIOR COLPORRHAPHY.

Marshall Hall¹ of London thought out an operation for prolapse which was done for him by a surgeon named Hemming in the year 1831. A large portion of the anterior vaginal wall was cut away, making a wound one and a half inches wide extending between the cervix and the vaginal outlet. The first suture was put in at the cervical end of the wound, the next below it, and so on. Thus the prolapsed organs went up into the pelvis as the wound was closed from side to side. This was very like a modern anterior colporrhaphy, and an independent observer reported a couple of years later that the patient was cured. But the operation was lost for a time, as Hemming's followers seem to have been afraid of injuring the bladder. They made their wounds lateral instead of anterior, and some were content to "scarify" or "denude" the surface instead of removing the whole thickness of the vaginal wall. In 1844 Kilian made a wound which was anterior and triangular, with its base towards the cervix. In 1866 Marion Sims² excised an oval portion of the vaginal wall, cutting through its whole thickness. But it is not clear

that he continued to do this, and both Sims and Emmet modified the operation without improving it. Savage in 1858, Aveling in 1866, and Morton in 1869 seem to have used rather half-hearted methods. But Gaillard Thomas³ certainly realized the importance of cutting through the whole thickness of the vaginal wall, for about the year 1872 he began separating it from the bladder by means of an instrument like a glove-stretcher introduced through a small incision. From this time onwards anterior colporrhaphy was a recognized operation mentioned in most books.

AMPUTATION OF THE CERVIX.

Removal of the cervix for genital prolapse was performed by Huguier⁴ in 1848. He did a high operation, using the scalpel, though he is said to have condescended to the écraseur in some of his later cases. Goupi⁵ removed a smaller portion of the cervix by means of the écraseur. In 1856 Sims² was amputating the cervix in some of his cases, and he much improved technique by closing the wound with sutures instead of leaving it to granulate. The well known method associated with the name of Schroeder subsequently came into general use, and innumerable modifications have been described.

PERINEORRHAPHY AND COLPO-PERINEORRHAPHY.

The distress of women who had been torn right through the rectum must have called for surgical treatment from a very early date. The operation was successful in the hands of Guillemeau, a pupil of Paré, and from his day onwards cases were recorded from time to time. Dieffenbach⁶ published his work in Berlin in 1829, and Roux followed in Paris in 1834. The name of Baker Brown may be mentioned, as he read a paper on the subject in London in 1851. From that time on perineorrhaphy for complete tears has been improved by surgeons too numerous for citation.

Perineal operations for prolapse also had another origin, for in certain communities it was usual to protect the virginity of the unmarried girls by rawing the inner surfaces of the labia majora so that, as healing occurred, they united in the middle line. Thus a barrier was placed across the vulva which was ultimately divided as a part of the ceremony of marriage.

This idea was taken up by Fricke⁷ in Germany in 1832, and by uniting the labia majora he bridged the vulva with the object of supporting the prolapsed uterus. This operation on the vulva was called episiorrhaphy, and it had a very considerable vogue. But from the labia majora the surgeons gradually worked back to the perineum and up into the vagina; and they dropped episiorrhaphy as they developed perineorrhaphy and posterior colporrhaphy. Simon's⁸ "kolporrhaphia posterior" was done in 1867, and Emmet⁹ was removing an oval portion of the posterior vaginal wall at one sitting and repairing the perineum at another; but by 1880 he had begun to combine the two operations in one—colpo-perineorrhaphy.

Between 1874 and 1881 Hegar¹⁰ modified the operation until it closely approached its modern form. He removed a triangle of posterior vaginal wall whose apex was near the cervix in the posterior vaginal fornix, while its base curved along the margin of the perineum. He worked from above downwards, sometimes in stages, traction being aided by the use of the knife. The wound was closed by a combination of deep and superficial sutures. Bischoff of Basle, Martin of Berlin, Pozzi of Paris, and many others modified this operation. The common error seems to have been the belief that it would cure uterine prolapse. Garrigues was one of the first to recognize that its use is for rectocele.

RESULTS.

There are many indications that for a long time the ultimate results of vaginal surgery for prolapse were not brilliant. Some writers definitely say so. Walter Whitehead¹¹ of Manchester, for example, wrote a good paper in 1871. He was aware of the distinction between true prolapse and long cervix. He recorded fifteen cases which he had treated, using anterior and posterior colporrhaphy and amputation of the cervix; but he expressed himself as very far from pleased at the results. Routh was using

similar operations, and Emmet's work in 1880 was of the same character. But no one gave definite teaching as to how to cure prolapse. The multitudes of variations and modifications that were introduced show that in general results were not good. Indeed, the opinion that up to 1899 there was no satisfactory surgical treatment for prolapse is upheld by Dr. R. H. Paramore.¹² There is no more thorough student of the literature of prolapse than this author, whom I thank for much information and many references. Another indication of the partial failure of vaginal operations is the great popularity which was gained, in spite of their inefficiency, by various abdominal suspension operations.

But, though the results of plastic vaginal surgery were not uniformly good, still most surgeons could say that many of their cases were successful, and certain operators secured permanent cure in nearly every case. Donald,¹³ for example, began operating in Manchester in 1888, and has always been so successful with a wide anterior colporrhaphy, amputation of the cervix, and a very efficient posterior colporrhaphy, that he has never thought it desirable to use any abdominal suspension or other method. My own personal experience dates from 1895, and the results were good from the first. But when amputation of the cervix was omitted recurrence was occasionally noted, and some cases failed to stand the test of pregnancy and labour. I have never used suspension or other methods, nor have I seen them employed in the Manchester Royal Infirmary or St. Mary's Hospital.

RATIONALE OF VAGINAL OPERATIONS.

Why did plastic vaginal operations succeed in some hands and in some cases while they still failed to satisfy the majority of surgeons? The objects of narrowing the vagina, shortening the uterus, and restoring the integrity of the perineum were generally attained. Why did the prolapse so frequently recur? Such questions disturbed our minds for long, and they were only answered in the light of new information gained by surgical experience and anatomical research as to the normal supports of the pelvic viscera. The rationale of prolapse and its treatment was only explained when it was realized that the uterus, vagina, and bladder are not so much suspended from above or propped up from below as they are attached by their sides, where they receive their blood supply, and held in their normal position by the subperitoneal tissue which intervenes between the organs and the more fixed lateral structures in the pelvic floor. This had been described by various anatomists, including Elliot Smith, Cameron, and Derry, when I¹⁴ brought the subject before the Royal Society of Medicine in 1907; but some little time elapsed before this teaching was generally accepted. But with this information we can see how vaginal operations work, for the removal of a wide portion of the vaginal wall exposes the lateral tissue or paracolpos. When the wound is sutured, unstriated muscle and connective tissue that formerly lay far apart at the sides of the vagina are brought together in the mid-plane of the pelvis. This lengthens the course of the structures and so tightens them up, thus restoring efficiency to the attachments of the vagina and bladder. Again, high amputation of the cervix exposes the parametrium and allows its right and left portions to be brought together in the middle line in front of the stump of the cervix. In other words, anterior colporrhaphy works not so much by narrowing the vagina as by exposing the paracolpos; and amputation of the cervix works not so much by shortening the uterus as by freely exposing the parametrium. In this light it is clear that those of us who gained success when these operations were still empirical must have operated in such a manner as to secure good union of lateral tissues in the mid-plane of the pelvis.

Consequent Changes in Technique.

How could these operations be simplified and standardized so as to place uniform success within the grasp of any competent surgeon? At the Edinburgh Obstetrical Society in 1907¹⁵ I advocated the extension of the anterior colporrhaphy wound far into the lateral fornices with the object of securing better exposure of the paracolpos than is given by the ordinary colporrhaphy wound, together with

exposure of the under surface of the parametrium. This modification was followed by improvement in my own results; but I soon realized the importance of high amputation of the cervix to secure efficient exposure of the parametrium. In 1910 I saw the way to a great simplification, and began to excise a large portion of the anterior vaginal wall together with the cervix in one piece. The incision begins half an inch above the urethral orifice, passes wide of the cervix on either side, and ends behind it. This leaves a quadrilateral wound narrow below, wide above, with the stump of the cervix near its posterior angle. The bladder, freely separated from the cervix, is well out of the way. The parametrium is much better exposed than is the case when the amputation and the colporrhaphy are done one after the other. Beginning in the mid-line behind, the vaginal wall is sutured to the cut edge of the cervical canal until the stump of the cervix is surrounded and covered in. The rest of the wound is closed from side to side by interrupted sutures which take a good bite of the paracolpos together with the edge of the vaginal wall. As this is done the cervix passes upwards and backwards, and the uterus is left in antversion. This combination of anterior colporrhaphy and amputation of the cervix in a single operation was published in 1913¹⁶ and in 1915. It has proved during the last fifteen years to be simple, safe, and efficient.¹⁷ It is generally followed by perineorrhaphy, colpo-perineorrhaphy being used whenever rectocele is present. Dr. Lacey's¹⁸ inquiry into ultimate results was published after the Birmingham congress had discussed them in 1921. He found that 97 per cent. of my cases in 1914-15-16 were permanently cured. Thirty children had been born to twenty-four of the patients. One of them who had had three children required further operative treatment; this patient's cervix was not removed at the first operation, or the result might have been better.

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THE OPERATIVE TREATMENT OF HERNIA IN INFANTS AND YOUNG CHILDREN.*

BY

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THE remarks which follow deal with a consecutive series of operations for inguinal hernia in infants and young children. Most of these were performed in the out-patient department of the Belfast Hospital for Sick Children, and a comparison is made of the results of these operations and those performed in the wards and in private practice during the same period.

When the British Medical Association held its Annual Meeting in Belfast in 1909 the late Mr. J. H. Nicoll of Glasgow advocated the treatment of hernia in children by operation in the out-patient department. The late Mr. Robert Campbell of Belfast, who was at that time a recognized authority on the surgical affections of children,

*Read at a meeting of the Ulster Branch of the British Medical Association, January 21st, 1926.

and especially interested in hernia, had already done pioneer work in this direction, and had advocated early operation in an address read before the Ulster Medical Society in 1903. Mr. Campbell, about the time of the meeting referred to, had begun to perform these operations in the out-patient department, and had so infected his colleagues with his enthusiasm that it soon became the established custom in Belfast. This gave rise at first to some criticism among the governors of the Children's Hospital, but all objections were finally overcome, and a well equipped out-patient theatre was soon provided for these and similar operations by an enlightened and appreciative board of management. I have in my possession a paper in manuscript written by Mr. Campbell and duly presented at a meeting of the Ulster Medical Society during the session 1905-6, in which he gives an account of 305 operations for the radical cure of hernia in children, with no deaths and only two cases of suppuration. Mr. Campbell's subsequent records have not been published, but I understand that the total of these operations reached something in the neighbourhood of 1,500, with only one death.

My own earlier work in this direction began about the year 1909 and was carried on for many years entirely in the out-patient department without a single death. Notes suitable for statistical purposes, however, were taken in the last 300 cases only, and include those operated on in the wards and in private practice, as well as those operated on in the out-patient department. The present article, then, concerns a consecutive series of 300 children in which the radical cure of inguinal hernia was carried out. The notes, which are very brief, record the age and sex of the patient, the side affected, the general characters of the hernial sac, its contents, if any, and whether or not it communicated with the tunica vaginalis testis, together with any other items of special interest. The total number of separate operations was 326.

Sex.—There was a large preponderance of boys (265 males to 35 females).

Side Affected.—The hernia was confined to the right side in 186 cases, to the left in 78, and was present on both sides in 36.

Characters of the Sac.—The sac varied in type from a pear-shaped, flat, opaque structure, with a well defined rounded lower border lying high up in the cord, and difficult to imagine as ever having had any connexion with the tunica vaginalis, to a thin membrane, often of great tenuity, descending to the scrotum, where it was closely applied to, but not firmly adherent to, the tunica vaginalis, and from which it could be separated by gauze dissection, assisted, perhaps, by a few touches of the knife. (See Figs. 2, 3, and 4.) In some of the cases little white polypoid projections were found on the inner surface of the sac near the neck, and various thickenings were occasionally found in the walls, the nature of which was not determined.

Relation of the Sac to the Tunica Vaginalis Testis.—Counting a double hernia as two, 298 male hernial sacs were investigated, and in 22 only was there a communication with the tunica vaginalis testis—that is, in a little over 7 per cent. In three of the cases of double hernia the sac was continuous with the tunica vaginalis on one side, and in each case the right. In a fourth case the sac was continuous with the tunica vaginalis on both sides.

There does not seem to be much point in retaining the term "infantile" as applied to inguinal hernia. The

varieties of infantile hernia, as described in textbooks, depend on the presence of a large tunica vaginalis and the various ways in which it may be invaginated by the descent of a hernia. More important, from an anatomical point of view, is whether or not the hernial sac is continuous with the tunica vaginalis testis.

It might be instructive to digress for a moment to consider what is known as encysted hydrocele of the cord. This condition is, I believe, nothing more or less than a pear-shaped hernial sac that has become obliterated at its upper end and whose fundus has become distended with fluid. (See Figs. 2b, 3c, and 4d.) If these cases are carefully dissected, it will be found that the lower end is rounded and quite easily separated from the surrounding structures. I have not seen an encysted hydrocele of the cord that could be said to resemble a dilatation of the central part of an otherwise obliterated tube reaching from the internal ring to the tunica vaginalis. The upper end terminates in a band or cord which looks like the neck of a hernial sac, and the lower border is always well defined and shows no prolongation resembling the remains of an obliterated tube. Further, in a certain proportion of cases this sac descends as far as the testis and invests the tunica vaginalis, giving rise to a condition closely resembling an ordinary hydrocele. (See Fig. 4d.) In such cases, by

careful dissection the sac may be separated from the tunica vaginalis, leaving the latter intact. An encysted hydrocele may be present on one side and a hernia on the other. The sacs are similar, except that one contains fluid while the other contains abdominal contents.

Strangulation.—There were two cases of strangulation in this series. One of these occurred in a boy, aged 6 weeks. He had been vomiting for a week, finally bringing up foul-smelling stuff. The sac contained small intestine, which was dark in colour, but viable. After carefully freeing the neck of the sac it was possible

to reduce the bowel without incising the hernial ring.

Contents of the Sac.—Only very rarely was operation undertaken while the hernia was "down." The invariable practice was to reduce the hernia, if possible, and keep it reduced, thus avoiding one of the most annoying accidents that may happen. If a hernia comes down and escapes through a rent in the sac during the operation the difficulties of the latter are much increased, especially if the child is straining. The opening in the abdominal wall is very small, and, the guide into it being torn, it may be impossible to return the prolapsed bowel. In one case in which the appendix and caecum were adherent to the sac I found, after separating the adhesions, that it was impossible, without damaging the bowel or slitting up the hernial ring, to effect reduction. The difficulty was got over by opening the abdomen through a McBurney's incision and gently drawing the caecum through the hernial opening from within. The appendix was removed, and the operation completed in the usual way. I have seen the appendix alone in the sac, and have found no difficulty in removing it as it lay, pulling it down just sufficiently to enable the stump to be satisfactorily dealt with. In a few cases omentum was found, and in one adhesions had to be divided before reduction could be effected. The Fallopian tube was present in several cases, and in one or two the ovary presented. The most usual viscus, however, was the small intestine.

In two cases a small diverticulum of the bladder was found adherent to the sac and might easily have been tied off with it. Fortunately the condition was recognized and

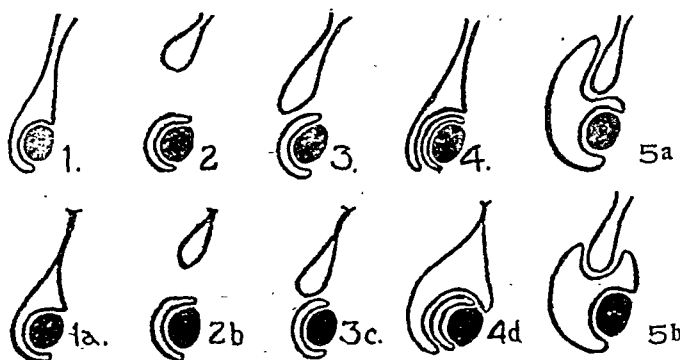


FIG. 1.—Unusual form of congenital hernial sac, communicating with tunica vaginalis testis (7 per cent. of cases in present series).

FIG. 1a.—Congenital hydrocele in which the hernial sac may become obliterated at its upper end, and distended with fluid.

FIGS. 2, 3, AND 4.—Various degrees of extent of the usual type of hernial sac (93 per cent. of cases in present series).

FIGS. 2b, 3c, AND 4d.—Showing how a hernial sac may become obliterated at its neck, and distended with fluid to form an "encysted hydrocele of the cord."

FIGS. 5a AND 5b show two types of "infantile" hernia.

the bladder wall was not included in the ligature. In addition to these there were a few cases in which, on pulling down the sac so as to make sure of ligaturing the neck high up the bladder was dragged upon. The muscular wall of the latter was recognized and carefully separated from the sac before the ligature was applied.

The Operation Performed.

The operation carried out in these children is of the simplest type. An incision about an inch long is made over the upper end of the sac, the cord is isolated, and the index finger of the left hand is passed under it so as to spread out the component parts. With light touches of a sharp knife the successive coverings are divided longitudinally and reflected till the sac is reached. The latter can then be separated by blunt dissection with gauze and forceps until the neck is freed as high up as possible, taking great care to avoid injury to the delicate vas. The neck of the sac is then transfixed with a small round needle, tied off with fine catgut, and allowed to retract. In some of the earlier cases the sac was invaginated and brought out through a separate opening in the external oblique, fixed to the aponeurosis, and the projecting portion cut off, but this method was soon abandoned in favour of the more simple procedure. In female children it is impossible in most cases to separate the round ligament from the sac, and this structure is therefore included in the ligature occluding the neck of the sac. In all cases, male and female, it is a wise precaution, just before ligaturing the neck, to open the sac, so as to exclude the possibility of the presence of abdominal contents. The inguinal canal is not interfered with in any way, and only in a very few cases of this series were sutures placed in the pillars of the external ring. After tying any bleeding vessels—and it is surprising how seldom it is necessary to ligature a single branch—the skin wound is closed with a subcuticular silkworm-gut suture, the ends of which are tied over a pad of gauze, which is left in position until the wound is quite dry. The suture is then cut about an eighth of an inch from the point where it enters the skin at either end of the wound, and a collodion dressing applied. At the end of a week the dressing is stripped off and one end of the suture is grasped with forceps and pulled upon so as to remove the stitch. Another collodion dressing may then be applied, but, as a rule, all that is necessary is a little dusting powder. Cases operated on in the out-patient department are taken home as soon as they have recovered from the anaesthetic, and are brought back for inspection in two or three days' time, when further instructions as to attendance are given.

The operation may take a few minutes only to perform, but, if the sac is very thin and extends down towards the tunica vaginalis, careful dissection requires a somewhat longer time. The test of clean, accurate work is the absence of swelling of the testicle on the affected side after the lapse of a few days. Much handling of the cord invariably leads to swelling of the testicle, which may take ten days or longer to subside.

Preparation of the Patient.—In the out-patient department a leaflet is given to the mother or other responsible person, containing directions as to an aperient, bathing of the patient on the morning of the operation, and feeding, but these instructions are frequently neglected, and a dirty child who vomits solid food and defaecates on the operation table is often the result. The preparation of the skin by soap and water, ether, and an antiseptic (mercury biniodide, iodine, or picric acid in spirit) is carried out while the child is being anaesthetized. In the early days the operation was often performed without the services of an assistant. Without elaborate preparations and with the simplest technique the results have amply justified early operation, and particularly the surgery of the out-patient department.

Anaesthetic.—As to the anaesthetic, we used in the early days to give chloroform, but this has now been abandoned in favour of open or warm ether. More elaborate preparations are carried out in the wards, where the child is given glucose for several days, and a small dose of atropine just before operation.

While in the out-patient department I had hand-towels

made with a slit, about three inches in length, in the centre. One of these diminutive abdominal towels is clipped to the skin so that the slit exposes the operation area. This effects a considerable saving in towels; and has proved quite satisfactory.

Statistics.

I have notes of 184 children operated on for inguinal hernia in the out-patient department. The total number of operations was 209. This is accounted for by the fact that 32 of the patients had a double hernia, and in only 7 of these were both sides dealt with at the same time. In 25 patients, therefore, two separate operations, with an interval of several weeks between them, were carried out, as this was considered safer in out-patient work. The ages of these children were as follows:

Under 3 months ...	...	...	...	...	77
Between 3 months and 1 year ...	...	...	...	...	48
Between 1 and 2 years ...	...	...	...	...	31
Between 2 and 12 years ...	...	...	...	...	28

Some degree of sepsis took place in 5 cases—that is, just under 2.4 per cent. Sepsis was understood to mean anything from a stitch abscess to opening up of the wound. There were no deaths, though in one case, a child 1 month old, tracheotomy was performed for laryngeal spasm. One case was a strangulated hernia. Most of the others were reducible.

The private cases and those treated in the wards number 116. Four had double herniae, and of these 3 had both sides dealt with at the same operation. This gives a total of 117 separate operations. The ages of the children were as follows:

Under 3 months ...	...	...	...	...	7
Between 3 months and 1 year ...	...	...	...	...	18
Between 1 and 2 years ...	...	...	...	...	14
Between 2 and 12 years ...	...	...	...	...	77

Some degree of sepsis occurred in 3 cases—that is, just under 2.6 per cent. There were no deaths.

It will be seen that most of the very young children were operated on in the out-patient department—125 under 1 year, as compared with 36 in the wards and in private practice. Young children are easily carried to and fro, and are better with their mothers. These two series taken together give a grand total of 326 separate operations, with 8 cases showing some degree of sepsis (2.4 per cent.) and no deaths. There were 3 cases of recurrence, of which one was in a child operated on in the out-patient department.

These statistics prove conclusively that operations for hernia in infants and young children are as safely conducted in the out-patient department as in the wards; in fact, from the figures quoted, the balance, if anything, is slightly in favour of the out-patient department.

Two great advantages are gained by operating in the out-patient department:

1. The child, if being nursed by its mother, does not suffer the inconvenience and risk of being weaned. It would be impossible in this district to have the mother in the vicinity so as to be able to attend at the hospital at stated times to nurse her child.

2. The range of usefulness of the hospital is enormously increased, the beds which would otherwise be occupied by cases of hernia being available for other patients. This is a great advantage in a small children's hospital like ours.

Conclusion.

I hope that the effect of this contribution will not be to leave the impression that the operation of herniotomy in a child should be considered a trivial affair, devoid of difficulty and danger. Nothing could be further from the truth. The more experienced the surgeon, the more he realizes that the difficulties may be very great indeed, especially with a very thin sac in a straining child. One sees occasionally, alas! a sac torn to shreds and a vas irreparably damaged by clumsy surgery. The operation is, indeed, one that demands careful and delicate manipulation, each structure being recognized as it is exposed. Given these conditions, there is no more satisfactory operation in the whole range of surgery.

I am indebted to Dr. R. H. Hunter for the accompanying drawings.

CONSTIPATION AND ITS MANAGEMENT IN INFANCY AND CHILDHOOD.*

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We must ask ourselves first, What are the common causes of constipation in infancy and childhood? I would enumerate them as:

1. An inability on the part of the mother or nurse to establish a regular habit of evacuation of the bowel.
2. Atonicity of the bowel as part of a general debility most commonly found in the "chronic dyspeptic" or "nervous exhaustion" child.
3. Fear of the act of defaecation because of anal fissure.
4. Insufficient or wrong food.
5. Interference with the passage of the intestinal contents due to stoppage in the alimentary tract.
6. Faulty reaction of the older child of school age to school regime.

By far the commonest cause is the inability of the mother or nurse to establish regular bowel habits. To be entirely successful the proper training of the child should commence almost from birth. The infant should be placed on a soap-dish or held out several times daily so that a firm association is established between both the feel of the vessel and the attitude with the movement of the bowels. This simple fact is universally acknowledged and practised with success by the good nursery nurse or mother. Only a proportion of the population, however, are able to maintain the care of the infant with the machine-like regularity necessary for its success. Some small domestic upset prevents the morning or evening care, and the habit acquired by weeks of patience is quickly lost. The busy, ignorant, or careless mother, who waits until the napkin is soiled and then changes it, as though she had performed her whole duty towards the child, is indeed far wrong. Were she to sacrifice more time to establishing the reflex habit she would save herself much of the tiresome duty of cleansing napkins. In addition, bouts of diarrhoea and constipation would become increasingly rare and purges unnecessary.

In the management of the older child so much depends on how he has been trained in his infancy. If, in the first place, proper habits have been established, he knows nothing else, and approaches the vessel filled with self-confidence in his ability to empty the bowel. If, however, his infancy has been filled with periods when he was constipated or had diarrhoea with much purging and utter failure on many occasions to get the bowels to move, the vessel is approached in a timid fashion. The child doubts his ability to perform the act, and, in fact, has failed before it has been attempted.

To correct this is no easy matter. The child should be placed on the vessel twice daily, always at the same time. It should be made quite plain to him by those in charge what he is placed there for, and he should not be allowed to get up until it is apparent that he has made a real effort. The attitude of the mother or nurse towards him is of vital importance. His failures should not assume undue importance—in fact, no apparent notice should be taken of them, and he should on no account be allowed to see that his failure upsets anyone. On the other hand, his successes should always be praised extravagantly. Encouragement and optimism should invade the nursery especially at this time, so as to establish the child's self-confidence.

There is a type of child, very commonly seen both in private practice and in the out-patient department of hospitals, who might be termed the "chronic dyspeptic." The tongue is always dirty, gastric upsets are common, constipation is obstinate. Inquiry into the life of this child elicits these facts: He is up early in the morning, and is on the go, never resting throughout the day. He is bright and forward, and his company is sought after, with the result that his bedtime is later than the average child. He is over-tired, and sleeps unduly soundly. This

child takes life too seriously. He has no time to eat his meals properly, but rushes off to accomplish the maximum. His stomach, filled at breakfast, fails to empty before dinner, and the food taken at dinner is often present in his stomach at tea-time. In later life he becomes the chronic dyspeptic of the nervous type or the neurasthenic. There is no wonder that, leading this hurried life, little attention is given to emptying the bowel. Physically this child is thin, nervous, under weight, and easily tires, and may be termed the "nervous exhaustion" child.

To treat such a case the whole child and his environment must be carefully considered. The entire regime of his life must be altered. His day must be shortened, rest encouraged, his overanxiety towards his work checked. His meals must be served with machine-like regularity and punctuality, and a complete rest or relaxation secured after each. Thus the pylorus will open and the food is allowed to pass on. Often this is only made possible by sending him away for a complete change to other surroundings. A mixture containing 3 or 4 grains of powdered rhubarb and 10 grains of sodium bicarbonate given at bedtime and first thing in the morning over a period will be found most useful to clean the tongue and improve the child's bowel habits. I would add, however, that to concentrate on the constipation to the exclusion of the general condition of the child is merely to court failure.

It is not uncommon to be told that an older infant or toddler screams whenever placed on the vessel, and that it is only by means of purges that the bowels can be made to move. To the observant mother or nurse it is clear that the vessel is associated in the child's mind with pain. In an effort to pass a formed constipated motion there has been a tear in the anal mucous membrane, and the observant nurse will have noted a smear of bright blood adhering to the surface of the stool. At each subsequent defaecation there is pain, and the anal sphincter may be in a state of spasm as a result. The child's confidence in his ability to pass a motion without pain must be restored as quickly as possible. Some liquid paraffin preparation should be given so that the motion is kept quite soft. A preparation of the galls and opium ointment (B.P.), diluted with an equal part of vaseline, should be smeared about the anus, and a little actually passed into it, both before and after passing the motion. Rapid healing then, as a rule, takes place.

Insufficient or wrong food may be a cause of constipation. Often in the breast-fed infant the first symptoms that the milk is failing is that weight is not gained and that there is obstinate constipation. In warm weather, when the child is perspiring, this may merely mean that more fluid is required, and drinks of water will quickly set this right.

The protein or curd of milk produces an alkaline stool. The fat or cream splits down into fatty acids, which produce an acid stool. In excess these acids may excoriate the bowel, causing diarrhoea. In smaller quantities they form soaps, producing a dry, pale, crumbly stool. The sugars or starches of the diet ferment into acids as well. The proportion of protein in breast-milk is small in relation to the sugar, with the result that the breast-fed infant's stool is acid. The artificially fed baby, on the other hand, tends to be slightly constipated, as judged by breast-fed standards, and to pass an alkaline stool. It is thus seen that a nice balance must be attained between the constipating alkaline protein and the diarrhoea-producing fat and sugar. It can be readily seen that a slight increase in the sugar content of the artificial feed will tend to correct a minor degree of constipation. On the other hand, a too creamy mixture first produces the pale, crumbly, constipated soap stool, later to give rise to the thin, acid, offensive diarrhoeal stool. In the older child this same nice balance must be maintained, but in addition the food should be such that it cannot be absorbed completely. Coarse foods must be given which will form a residue, stimulating the bowels to peristaltic action. Rusks, crisp toast, or coarse brown bread (instead of white bread-and-butter), and green vegetables containing plenty of cellulose should be insisted upon. Fruit, raw or cooked, should be given with at least one meal each day. A little molasses, honey, or malt, by its tendency to fermentation, aids peristalsis.

* A lecture given at the Hospital for Sick Children, Great Ormond Street.

Newborn infants may suffer from some form of congenital stenosis or atresia of the alimentary tract, with consequent constipation. The commonest of these is congenital pyloric stenosis, in which the constipation is a cardinal symptom of the condition. Congenital duodenal stenosis or atresia is a much rarer condition. Stenosis of the rectum or sigmoid portion of the bowel, known as Hirschsprung's disease, is also uncommon. In the two former conditions operative intervention is demanded, but in the latter the careful dieting and management of the child yields excellent results.

Some children who have reached the school age and acquired the utmost regularity of bowel movement then seem to develop obstinate constipation. This is much rarer in the school boy than in the school girl. Sometimes these irregular habits may be traced to the child neglecting the opportunity she is given to empty the bowel. Occasionally it is because there is no opportunity given at school—either there is no time allotted for such purpose or there is insufficient lavatory accommodation. She misses the maternal care and urge to good bowel habits. Such cases can only be set right by the school authorities themselves.

Medicinal Treatment.

Beyond a very few preparations, and on few occasions, no drugs or medicines should have to be used. If they do have to be given it should be for a short time only. The following will be found to aid the regaining of good habits. In the infant one of the liquid paraffin preparations, such as plain liquid paraffin or senprolin emulsion, Angier's emulsion, petrolagar, or virolax, may be given in teaspoon doses night and morning. In older infants, if this is not enough, and especially during the teething period, an occasional grey powder given at bedtime (one grain at 6 months, two grains at 18 months, and three grains at 3 years); in the morning one or two teaspoonfuls of milk of magnesia should be given. For those elder children, in whom liquid paraffin will not control constipation, the rhubarb and soda mixture will be found a great help.

To take a long or general view of constipation in children is the only view which, in my opinion, leads to success.

A HISTORICAL SURVEY OF PERORAL ENDOSCOPY

FROM ITS ORIGIN TO THE PRESENT DAY.*

BY

IRWIN MOORE, M.B., C.M.EDIN.

THE first successful attempts to obtain direct vision of the oesophagus and bronchi were made by laryngologists, thus establishing their claim to include these regions in the domain of their specialty. Little of favour and encouragement was bestowed on early endoscopic attempts, hence progress was but slow, and the interest taken in it was only of an academic nature. The present proud position occupied by the method is largely due to such pioneers as Gustav Killian, who has been styled the "Father of Bronchoscopy," Chevalier Jackson, and others. It is no exaggeration to assert that there has been no greater development in the history of medicine and surgery than that of peroral bronchoscopy, for it has opened to view the whole length of the oesophagus, the cavity of the stomach, and the bronchial ramifications.

As recently as 1903 Jonathan Wright of New York spoke of the removal of foreign bodies from the bronchi as a species of legerdemain, when he learned of two cases at Freiburg in which foreign bodies in the bronchi had been successfully removed by the mouth. One of the patients was a child aged 6; the procedure was carried out under chloroform, and Wright says that it seemed to the inexperienced laryngologist little short of miraculous. A comparison of this with the present position of peroral endoscopy shows what enormous strides have been made.

The statistics of foreign bodies accidentally aspirated into the respiratory passages, and the consequent mortality at different periods, are very instructive. The mortality in the pre-laryngoscopic period was 52 per cent.; the laryngoscopic period reduced the mortality to 30 per cent. In the early days of bronchoscopy—1897 to 1908—the death rate was down to 13.1 per cent., while in the period 1909-10 this was further reduced to 9.5 per cent. By 1913 the death rate from this cause had fallen, according to Killian, to 8 to 9 per cent., while Chevalier Jackson gave, for various surgeons in the United States, a mortality of between 5.3 and 1.7 per cent., the latter figure having been achieved by himself in 182 consecutive cases of bronchoscopy for foreign bodies. In many cases recorded the foreign body has been either vomited or evacuated per rectum. In the large clinics, of 210 cases of foreign bodies in the oesophagus, 12 were evacuated, and all the remainder were removed by oesophagoscopy. Of 206 cases of oesophagoscopy for foreign bodies, in Jackson's hands, only 8 defied his efforts, and 4 of these died, one from advanced nephritis, while the oesophagus of the other three had been severely lacerated before he saw them.

The mortality in these cases in this country is considerably higher than the figures just given, since a number of cases are treated by such old methods as the bougie and probang before coming to the laryngologist. The profession has not yet fully appreciated the value of endoscopy in diagnosing diseased conditions of the gullet which have hitherto been unrecognized.

A large number of laryngologists have borne a share in bringing the method to its present efficiency, besides those outstanding men whose names are mentioned in this article.

It is nearly 120 years since Philip Bozzini of Frankfort designed an apparatus, the "light conductor," for looking into the dark cavities of the body. It was a convex vase-shaped stand, and its lamp-holder, of tin, was covered with leather, its upper third being uncovered brass. A candle inside one half of the lamp-holder gave the light, the other half having an opening in its posterior wall for the observer's eye. The candle light was reflected into the examining tube. At a later stage a concave mirror was fixed inside the lamp-holder. It was specially designed to view the urethra and rectum. The Medical Faculty of Vienna, asked by the Government to report on this, condemned it, stigmatizing it as a toy.

Eighteen years later John D. Fisher of Boston devised and used an endoscope consisting of lens and mirror, again illuminated by a candle. It had a concave mirror, three tubes, and two looking-glasses, and there was a mechanism for keeping the flame opposite the lens. Cylindrical tubes were united at right angles, forming an elbow-joint. A lens magnified the object to be viewed. The designer himself suggested that his instrument was "easily susceptible of improvement."

Ségalas (Paris, 1826) developed Bozzini's apparatus, constructing a urethro-cystic speculum for optical examination of the bladder and urethra. A polished cylindrical tube was open at its extremities for introduction into the urinary passages, and its length and size could be varied as required. Desormeaux, overlooking the work of Bozzini and Fisher, credited Ségalas with having originated the idea of an instrument for projecting light into deep cavities.

Bombolozini, an Italian, in 1827 devised a speculum for exploring the stomach, bladder, uterus, and rectum. Guillon spoke of this apparatus as a kind of camera obscura. There seems to be no record of any practical work having been done with this instrument.

John Avery, who was a surgeon at Charing Cross Hospital from 1843 to 1855, produced an apparatus with a frontal reflecting mirror to intensify the candle-light used, with a laryngeal mirror which was fixed to a speculum. He tried to view the vocal cords with it. At Avery's death the *Lancet* stated that he had been able by means of the apparatus to examine the ear, urethra, bladder, oesophagus, and larynx as probably no other surgeon had before him.

Desormeaux (Paris, 1853) produced an apparatus lighted by a gas-oxygen lamp, somewhat similar to Fisher's. In this the light was collected by a condenser, and fell upon

* Abstract of a paper communicated to the Section of Laryngology, Otology, and Rhinology of the Annual Meeting of the British Medical Association at Bath (July, 1925). The full text will be published, with illustrations, in the *Journal of Laryngology and Otology*.

a reflector which had an opening for the eye in the centre. Desormeaux was an indefatigable worker at endoscopy, and his work for thirteen years made it impossible for the profession to ignore what he did. He raised the use of the endoscope to a method; hence it is fair to regard him as the founder of endoscopy.

Horace Green (New York) in the following year proved the tolerance of the larynx to the passage of foreign bodies and instruments, and he passed a solution of silver nitrate through a gum-elastic catheter into tuberculous cavities via either bronchus. In his paper in 1860 on "The difficulty and advantage of catheterization of the air passages in diseases of the chest" he related 106 cases so treated, and he employed the method also in bronchitis and asthma. John Hughes Bennett (Edinburgh), in 1857, confirmed Green's work.

Sir Philip Crampton, a Dublin surgeon, who died in 1858, and was a great authority on lithotomy, also assisted in the development of endoscopy, but published no account of his work in this domain.

After Desormeaux's work little practical progress seems to have been made until Richard Cruise of Dublin, realizing in 1865 that the illumination in Desormeaux's apparatus was not adequate, designed a brighter light which enabled him to get a view of the uterus, and in the year following he published a paper entitled "The endoscope as an aid in the diagnosis and treatment of disease"; in this he showed that the utility of the instrument was not confined to the diagnosis and treatment of diseases of the urethra, but was valuable in any part of the body into which a straight tube could be introduced, such as the bladder, the uterus, and the rectum, as well as the auditory meatus, nasal fossae, pharynx, larynx, and, he hoped, also the oesophagus and stomach. This contribution of Cruise was the first definite mention in the literature of the possibility of endoscopic examination of the air and food passages; and it is of interest to note that the present-day endoscope, as represented by the models of Kirstein and Brünig, were identical in principle with the designs of these earlier pioneers.

John Brunton described, in 1865, "A new otoscope or aural endoscope," which he had designed four years earlier. It is extensively used even at the present day.

Stoerk and Semeleder of Vienna made, in 1866, the first attempt to examine the gullet by an instrument; this consisted of a pair of forceps having spoon-shaped blades, and a laryngeal mirror attached. After introduction of the instrument the laryngeal mirror was placed in the ordinary position. Only negative results, however, emanated from this experiment.

Julius Brück, a dental surgeon of Breslau, was the first to take advantage of the introduction of the galvanocautery in 1756 by Middlethorp as a source of light for examining cavities of the body such as the bladder and intestine.

John Aylwin Bevan published, in 1868, a description of various instruments which he had designed for examining the pharynx, larynx, and posterior nares, which instruments could be fitted to a lamp, and he also devised a tube for inspecting the gullet. Morell Mackenzie said that Bevan's work was obviously the result of work in the laboratory rather than in hospital wards, and that the instruments were of no practical value.

Kussmaul (Freiburg) in 1868 reported to the scientific faculty of his city the successful examinations he had made of the oesophagus, both normal and diseased, and to him has been attributed the first oesophagoscopy worthy of the name. He passed a straight rigid tube into the oesophagus with the aid of a Desormeaux urethroscope for providing the illumination. Kussmaul, by this means, is reported to have diagnosed a carcinoma of the thoracic oesophagus, and to have approached the cardia. His pupil, Müller, continued these experiments, and showed that a rigid tube 15 mm. in diameter could be safely introduced into the oesophagus of the normal adult. As Kussmaul did not publish his work, and had it not been for Killian, that work might have passed into oblivion.

Waldenburg (Berlin) designed an oesophagoscope in 1868 consisting of a gum-elastic tube 8 cm. long to which a laryngeal mirror was attached. He employed this

apparatus in a case of pharyngeal pouch, and was able to observe its walls and contents. Later he had an instrument constructed of metal instead of gum-elastic. There were two tubes arranged telescopically, each of them being 6 cm. in length, one playing on the other by means of a slot.

Trouve (Paris) attempted, in 1873, to improve the illumination by means of a "polyscope," a tube with a window fitted with an optical arrangement of prisms and lenses. Ledentu and Raynaud also used this instrument for oesophagoscopy, and with it they were able to diagnose a cicatricial stricture of the oesophagus near the cardia, while at about the same date Collin demonstrated endoscopically the function of a bull's stomach.

Edison of New Jersey, U.S.A., by inventing the incandescent lamp in 1878, advanced endoscopy still further, enabling Mikulicz, Kirstein, and others to improve the method of lighting at a later date and to introduce an examining tube.

O'Dwyer (New York) invented and perfected in 1880 intubation of the larynx, and later a large tube for facilitating the expulsion of foreign bodies from the lungs.

Morell Mackenzie designed, in 1880, a skeleton oesophageal tube, one which could be opened and closed. It consisted of handle, stem, and skeleton tube, the handle being connected with the stem by a movable knuckle joint. At the top of the skeleton tube was a slot into which was fitted a laryngeal mirror. The skeleton tube could be opened after it was inserted, the rings brought into the horizontal position, and the gullet expanded.

Stoerk, in 1881, renewed his oesophageal experiments, and described an instrument which was really an addition to that of Waldenburg. It was provided with a pilot or director consisting of a piece of elastic tubing, terminating in a small bag, which projected beyond the end of the oesophagoscope. When the bag had been inflated the instrument was passed into the gullet, when the air was allowed to escape and the pilot was withdrawn. But this and the Waldenburg instrument were designed for indirect examination, and so were failures.

Mikulicz of Vienna, in 1881, with the help of Leiter, designed an optical apparatus illuminated by an interior electric lamp of platinum wire, with a cooling arrangement, and to this were attached straight rigid tubes. By its aid Mikulicz was able to carry out important anatomical, physiological, and pathological investigations on the oesophagus, and these form the basis of our knowledge to-day. He also designed a gastroscope, attempting to examine with it the stomach of normal persons. But he was said never to have reached the cardia.

Stoerk, in 1887, made use of a long rigid tube, which he passed with the patient's neck in the extended position, thus doing direct oesophagoscopy. In the same year an improvement was made in the illuminating portion of the instrument by the Leiter-Nietz oesophagoscope. This had an internal lamp and a system of prisms.

Von Hacker (Vienna), in 1889, brought oesophagoscopy to such a pitch of perfection that it became of practical use, and his efforts deserve almost as much credit as did those of Mikulicz himself.

Gottstein of Breslau, in 1891, designed and used endoscopic tubes with an extra tube inserted in their walls, to produce suction. He also advanced oesophagoscopy under cocaine anaesthesia.

Von Hacker, in 1894, made inspections into the tracheo-bronchial region for diagnostic purposes.

Rosenheim (Berlin), in 1895, began to study the subject and used this instrument, and recorded having removed many foreign bodies from the oesophagus.

During the following years further improvements in the problem of illumination were introduced by Kirstein, Caspar, Leiter, Guisez, Brünig, Einhorn, Schreiber, Gluckmann, and Chevalier Jackson.

It now remained for Kirstein and Killian really to arouse the interest of laryngologists in peroral endoscopy, and from that time great strides were made on the subject.

Kirstein (Berlin), in 1895, saw the interior of the larynx without a mirror for the first time, using first a flat spatula and later a tubular one. With the flat spatula the necessary light was obtained from a forehead lamp attached

to a vulcanite head-band. The electric lamp was enclosed in a cylindrical box containing a plano-convex lens, through which the light was cast on to a mirror which was fixed at an angle of 45 degrees, with a central perforation for the observer's vision. Later, Kirstein used this lamp attached to his spatula, and it was known as "Kirstein's auto-scope"; with this it was possible to inspect the deep pharynx and larynx directly.

From 1896 onwards tracheoscopy and bronchoscopy can be said to have passed its introductory stage and to have become one of the accepted and established proceedings of surgical practice.

Killian of Freiburg, in 1896, began to devote himself closely to endoscopy, and soon adapted the oesophagoscope to the systematic examination and treatment of the trachea and bronchi. In 1897 he designed a tube spatula which made it easier to reach and inspect the interior of the larynx; also oesophagoscopic and bronchoscopic tubes of different calibres and lengths, and a short split laryngeal spatula to help the easier introduction of the tubes. He also contrived an extension of his bronchoscope for introduction while *in situ*, consisting of a section of tube of smaller calibre passed into the first tube. He showed that the air passages could be explored far beyond the bifurcation of the trachea, and that it was possible to straighten out the bronchi with rigid tubes. He also introduced the dorsal posture of the patient for endoscopic work, and he showed that the lower limit or orifice of the hypopharynx was represented by a definite sphincter at the lower level of the cricoid cartilage, and corresponding to the commencement of the oesophagus. Killian's demonstrations of bronchoscopy caused a profound impression, and was a stimulus to laryngologists in all parts of the world.

Mikulicz (Vienna) and Gottstein (Breslau), in 1896, reported successful cases of tracheoscopy; and Einhorn of New York, in 1897, issued the first publication in America on the subject of oesophagoscopy; while Georg Kelling of Dresden devised, in 1897, a segmented oesophagoscope which could be straightened when desired.

Coolidge of Boston, in 1899, removed a broken tracheal cannula from the right bronchus by lower bronchoscopy.

Gordon King of New Orleans, in 1899, described oesophagoscopy and its application to two cases, and an account of two foreign bodies impacted in the oesophagus.

Chiari (Vienna), in 1899, employed and demonstrated upper tracheo-bronchoscopy.

Schrötter (Vienna), in the same year, removed a lead seal from the second division of the right bronchus in a boy patient aged 12.

Killian, in 1900, cut in half, by means of a galvanocautery snare, a vulcanite dental plate without any metal part, which was impacted in the oesophagus near the cardia, at a distance of 35 cm. from the mouth, and it was removed by him in two portions.

Von Hacker recorded, in 1900, removing a number of foreign bodies from the gullet, and devised several instruments for oesophagoscopy; and von Mikulicz, a year later, published a similar record; while both Schrötter (Vienna) and Pieniazek (Cracow) reported work done on lower bronchoscopy. Einhorn of New York first designed the distal lighting principle, and a stylet or mandrin to assist the introduction of the tube.

Killian, in 1902, wrote a paper on "Direct endoscopy of the upper air passages and oesophagus," and read it at the Manchester meeting of the British Medical Association in that year, emphasizing the fact that now the oesophagus could be systematically searched from above downwards.

Glucksman (Berlin), in 1903, demonstrated an oesophagoscope which he had devised for distal lighting.

Fletcher Ingals (Chicago), in 1904, following the idea of Einhorn and Glucksman, employed a distal light on a separate carrier in a Killian tube.

Von Eichen, who was Killian's chief assistant, wrote, in 1904, his well known article on endoscopy. It covered all the work on the subject which had been done to date.

Brüning, who was also an assistant to Killian, was notable for the mechanical improvements he made in Killian's endoscopic methods, and for his pioneer work in the teaching of the specialty.

Coolidge, in 1906, published a paper on "Foreign bodies

in the trachea and bronchoscopy," reporting a collection of forty-nine foreign bodies which had been removed from the lungs, the mortality having been 8 per cent. Three of the four fatal cases in the list were in a serious condition at the time of the operation.

Chevalier Jackson, professor of bronchoscopy, etc., in Pennsylvania University, in 1904 combined the distal lighting principle and the stylet of Einhorn with the Killian tube, by means of an auxiliary tube in the wall of the main tube. At a later stage he dispensed with the stylet. In 1905 he designed a bronchoscope with two auxiliary tubes—one for the light carrier and the other for the suction tube—and in the following year a gastroscope; a year later still he published a book on *Tracheo-bronchoscopy, Oesophagoscopy, and Gastroscopy*, and subsequently included it in his later work, *Peroral Endoscopy and Laryngeal Surgery*. He is responsible for a prolific literature on these subjects.

Kahler (Vienna) removed, in 1902, a tooth-plate which was impacted in the oesophagus, and in 1904 he removed a piece of bone from the bronchus. In 1909 he designed, with Leiter, a panlectroscope, rendering easy the introduction of operating instruments.

Guisez (Paris), a name foremost in France in this work, reported in 1903 having removed a nail from a bronchus, and in 1905 he introduced a head-lamp consisting of three small bull's-eyes arranged in a circle. In 1908 he commenced to use radium for gullet cancer.

It was not long before British laryngologists began to adopt Killian's methods. Waggett, in 1903, was the first in this country to begin the study of endoscopy, and to employ Killian's tubes, with headlight; and the same year he diagnosed a malignant growth in the oesophagus. In 1924 he removed a tooth-plate, 1½ in. long and ¾ in. broad, from the right bronchus, by inferior bronchoscopy.

D. R. Paterson of Cardiff seriously took up endoscopic work in 1904, and in that year he removed a stay-eyeclet from the trachea of a child of 8 by Killian's tracheoscope, and later recorded other cases. In 1905 he designed and introduced his laryngeal forceps for the direct removal of laryngeal papillomata. In that year he removed a tooth-plate having four teeth and two hooks attached from a female aged 36, at the level of the suprasternal notch. In 1906 he contributed the first paper in this country on direct examination of the oesophagus and upper air passages. He also introduced a modification of Brüning's tubes to facilitate the easier passage of the tube through the larynx.

Mosher (Boston) began to use oesophageal tubes in 1904, and later designed a special oral oesophagoscope.

A. Coolidge, in 1904, published a paper on "The extraction of foreign bodies from the bronchi," and gave an account of the removals of foreign bodies he had carried out.

Exner of Düsseldorf was the first to employ, in 1904, the rays of radium salts and radium emanation for malignant disease of the gullet, and palliative results were claimed.

E. D. D. Davis first began, in 1905, to practise oesophagoscopy and bronchoscopy, with Waggett, employing Killian's tubes and Kirstein's headlight. In 1908 Davis recorded his first case of extraction, that of a farthing, from the oesophagus of a child aged 9 months. In 1914 he published a paper entitled "The importance of a very thorough examination in cases of foreign bodies alleged to have been swallowed or inhaled"; it was to show the dangers of delay in such cases.

Thomas Claytor (Washington) wrote a paper in 1906 on "Foreign bodies in the bronchi"; and Jefferson Faulder, in the same year, contributed one on "Bronchoscopy" and one on "Direct oesophagoscopy."

William Hill started this work in 1907, and in the following year removed his first foreign body. In 1909 he designed an improved direct-vision pharyngo-laryngoscope, with a lateral slot to facilitate operation. In the same year he started radium work for malignant disease of the gullet, and was the first in this country so to apply it. He has published a valuable series of contributions on the subject, and in 1912 he designed an improved radium apparatus for gullet cancer, having an adjustable collar to prevent displacement of the radium.

Herbert Tilley, in 1907, took up the methodical study of endoscopy, and the same year he removed a shawl-pin

2½ in. long from the left bronchus of a woman aged 23. He has also published a paper on direct bronchoscopy, one on direct examination of the larynx, and a report of numerous foreign bodies which he had extracted.

W. C. Howarth studied bronchoscopy and oesophagoscopy in 1907, and in 1912 he published the translation and amplification of Brüning's textbook, and in the year following he contributed a paper on "Some difficult foreign bodies in the air passages."

Irwin Moore commenced the practice of oesophagoscopy and bronchoscopy in 1908, and his work has been chiefly confined to the diagnosis and treatment of diseases of the gullet. In 1910 he designed a "universal" foreign body forceps, and cutting shears for dividing dental plates which had become impacted in the oesophagus. In 1916 he published a paper on the removal of foreign bodies from the oesophagus and bronchi, and described instruments which he had designed. He also published a plea for the abolition of the coin-catcher. In 1919 he published some statistics of end-results of pins accidentally inhaled into the lungs. In 1921 he designed tubes to allow proximal and distal lighting to be interchanged without disturbance of the tube *in situ*.

Thomas Halstead (Syracuse, N.Y.) published, in 1908, a paper on his personal experiences in the use of the bronchoscope, oesophagoscope, and gastroscope, with cases; Brown Kelly (Glasgow) and Ingersole (Cleveland) did likewise. While Gay French, in 1909, related the removal of foreign bodies from the oesophagus by Brüning's direct instrument.

Souttar and Theodore Thompson, in 1909, published a paper on "The gastroscope and its uses," describing a new form of apparatus they had designed.

Sir William Milligan, the pioneer of endoscopy in Manchester, started the work early in 1909, the year in which he first removed a foreign body from the oesophagus, and in 1920 he contributed a paper on "Some practical points in the removal of foreign bodies impacted in the food and air passages," exhibiting, when he read the paper, fifty foreign bodies which he had successfully removed.

Sir StClair Thomson (with whom Irwin Moore worked) successfully removed, in 1910, a tooth-plate which had become impacted in the oesophagus, and had remained at the bifurcation of the trachea two and a half years. In the same year Sir StClair removed a shawl-pin from the lungs after twenty-seven hours of impaction. In 1917 he removed a tooth from a secondary left bronchus, by means of tracheotomy and lower bronchoscopy, after he had made two attempts at removal by peroral bronchoscopy.

Killian, in 1911, published a history of bronchoscopy and oesophagoscopy: in that year also he brought in suspension laryngoscopy, and he described the process in London in 1913.

Claoué (Bordeaux), in 1912, following Killian's example, divided a vulcanite denture which had become impacted in the oesophagus 24 cm. from the aortic arch, by means of a galvano-cautery knife.

Glucksmann (Berlin) contributed a paper in 1912 on "The newer methods of extraction of foreign bodies from the air and food passages."

Thomas Guthrie, the pioneer of endoscopy in Liverpool, published, in the same year, a paper on twelve cases of removal of foreign bodies.

Logan Turner and J. S. Fraser (Edinburgh) published a paper, in 1913, on "The direct method of examination of the lungs, trachea, bronchi, and oesophagus, with illustrative cases." They also reported seven cases in which they removed papillomata from below the vocal cords by the direct method.

H. L. Lynah (New York) published, in 1915, two papers on these subjects, and in 1921 two further papers on the radiographical aspect of the question.

Somerville Hastings was the first to cut in half a vulcanite denture which had been impacted at the level of the aortic arch; it was so securely fixed that it could not be moved by forceps. He employed Irwin Moore's denture shears. In 1914 he successfully removed a half-sovereign from the right bronchus, and in 1918 he recorded having removed a piece of mutton bone through a tear or rent in the posterior wall of the oesophagus, which had been produced by a bougie that had been passed down the gullet

prior to the patient's admission to hospital. The patient recovered.

Gay French, in 1917, also divided and removed a denture in a similar way to Somerville Hastings, and complete recovery ensued.

Ellen J. Patterson (Pittsburgh) has made valuable additions to the literature of endoscopy.

In 1920 the oldest medical school in the United States, that of Pennsylvania, established the first chair and professorship for the teaching of bronchoscopy and oesophagoscopy, and Chevalier Jackson, in whose honour this was done, was made professor. Many veterinary schools have also taken up the teaching of endoscopy for application to animals. In the five years that the professorship has been in operation 400 students have taken the course.

Gabriel Tucker (Philadelphia), in 1923, was appointed associate professor on the subject at the Pennsylvania University, and in the following year he wrote a thesis on "Cicatrical stenosis of the oesophagus, with particular reference to treatment by continuous string retrograde bouginage with the author's bougie." In the same year he published an article on fifty cases of foreign bodies, and he has designed valuable bronchoscopic forceps.

Louis H. Clerf (Philadelphia) has also contributed articles on foreign bodies impacted in the food and air passages.

W. F. Manges (Philadelphia) published, in 1923, a paper on "The mechanism of physical signs, with special reference to foreign bodies in the bronchi," and in the following year one on "Atelectasis as a Röntgen sign of foreign body in the air passages." To him the profession is indebted for bringing to high perfection the x-ray diagnosis of non-opaque foreign bodies in the lungs.

Scott Ridout (Portsmouth) contributed a paper in 1923 on the subject and recorded five cases of removal of foreign bodies.

Crow (Brighton), in 1924, recorded his successful removal of part of a safety-pin by peroral bronchoscopy from a child.

Souttar, in 1924, published a paper on "A method of intubating the oesophagus for malignant strictures," in which he described a simple, close-spiral flexible wire intubation tube. The advantages were that food did not tend to cling to it, it did not cause ulceration, and it was retained without difficulty; sometimes it had been worn for a year. In 1925 he read a paper on "Cancer of the oesophagus."

T. McCrae (Philadelphia) delivered the Lumleian Lectures before the Royal College of Physicians, London, on "The clinical features of foreign bodies in the trachea and bronchi."

Harrison (Newcastle-on-Tyne), in 1925, removed a bead from the left superior lobe bronchus of a child aged 2½ years.

Frank Wilson (Newcastle-on-Tyne) devised, in the same year, an ingenious method of detecting non-opaque foreign bodies in the oesophagus by giving the patient small pledgets of cotton-wool soaked in barium or bismuth paste to swallow, followed by a radiogram, when the shadow is seen to be the shape of an inverted cone.

Endobronchial Therapy.

Endobronchial therapy was assured when, in 1907, Nowotony of Cracow discovered that adrenaline when applied bronchoscopically favourably influenced a case of bronchial asthma. He obtained a "lasting result" in seven out of eight cases so treated.

Ephraim (Breslau) confirmed Nowotony's observations, and worked at other endobronchial treatments in 1910. In this country Syme (Glasgow) has ably carried on Ephraim's work, and has been able to produce some striking results. The bronchoscopic method of applying medicaments will control haemorrhage from the trachea, also pain arising from growth there, and from wounds caused by foreign bodies.

W. F. Moore and R. M. Lukens (Jefferson College, Philadelphia) recorded, in conjunction with E. H. Funk, in 1923, their results from the use of autogenous vaccines prepared from secretions which were obtained bronchoscopically, along with the instillation of adrenaline, cocaine,

and normal saline into the bronchi. In the next year they also published an analysis of cases of pulmonary abscesses, including those which were complicated with bronchitis.

Ewart Martin (Edinburgh), in 1924, published his experiences of bronchoscopy in relation to lung diseases, and gave results of treatment, some cases having extended over one and a half years.

Howarth, in 1925, published, in association with Cassidy, a case of abscess of the lung and bronchiectasis treated by bronchoscopic aspiration and lavage.

Owing to successive researches and inventions, these methods have now become much simplified, and are part of the usual routine of the laryngologist. Success in this country has been largely associated with becoming accustomed to using the largest endoscopic tubes which can be safely employed in each case. Endobronchial therapy now offers a wide and expanding field for further research work.

THE ETIOLOGY OF DIVERTICULA OF THE INTESTINE.

BY

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IN the interesting paper on intestinal diverticula, published in the *BRITISH MEDICAL JOURNAL* of January 23rd (p. 130), a prediverticular state of local inflammation of the colon is described which, it is suggested, is responsible for the formation of the diverticula.

The etiology of diverticula has for a long time been of special interest to me, and of the various theories put forward to account for them none have seemed very convincing. I have for some years believed and taught that inflammation is a probable factor in producing the condition, at any rate in some of the cases in which the colon is affected, and I therefore particularly welcome the paper as supplying confirmatory evidence. My reasons for believing diverticula of the colon to be due to an inflammatory cause were two in number:

1. The most common seat of diverticulosis is one at which evidence of chronic inflammation in the shape of peritoneal adhesions is very often found—that is, the lower end of the sigmoid flexure. Clinically also patients are frequently seen in whom the sigmoid is hard and tender, suggesting that a mild degree of inflammation is present. The obvious criticism will perhaps be made that if these signs of inflammation have anything to do with the liability of this part of the colon to form diverticula, diverticula should be still more common in the caecal appendix, where inflammation is far more frequent than anywhere else in the gut. The answer to this is that the appendix is prevented from being a common seat of diverticulosis by the greater relative thickness of its muscular covering, and also by the fact that its lumen is rarely distended sufficiently to stretch its walls, and therefore the final factor in the production of diverticula—internal pressure—is wanting.

2. The second reason was the outcome of an investigation which I made some years ago of a number of specimens of gut removed either by operation or after death from cases of diverticulitis, by which I hoped to be able to trace some definite causal relationship between the fat of the appendices epiploicae and the occurrence of diverticula. I discovered nothing that seemed to me at that time sufficiently convincing for publication, but my suspicions were aroused by the fact that in several of these specimens I found in the wall of the gut, extending for a distance of some inches from the inflamed diverticula, localized patches of inflammation, some of which were evidently of long standing, in the bases of attachment of the appendices epiploicae, whereas in places where the muscle fibres were in direct contact with the peritoneum and had no fatty covering there were no signs of inflammatory change.

It seemed to me probable that these inflammatory patches might be accounted for by a lack of free lymphatic drainage at the points where the intestinal muscle was coated with a thick layer of fat, and that there might thus be a twofold cause which determined the onset of diverticulosis—

first, an abnormally heavy deposit of fat in the appendices epiploicae; and secondly, an inflammatory process in the deepest portion of the fat, which in the course of time so weakened the muscle that it eventually gave way to the pressure exerted by the intestinal contents and allowed herniation of the mucous membrane to occur.

But whatever part inflammation may play in the production of the diverticula it must, I think, be assumed that the intestinal fat is in some way primarily responsible, for not only do the diverticula invariably occur at points where the intestinal wall is normally covered by fat and never where it is covered by peritoneum alone, but also an abnormal degree of adiposity is an accompaniment of diverticulosis to which nearly every writer on the subject has drawn attention, and in fact might almost be said to be a *sine qua non*. My experience has been limited to cases in which inflammation of the diverticula has occurred; of seventeen cases at Guy's Hospital of which I have notes, only two were in people not unusually stout, and both of these had passed through a period of obesity before the symptoms of diverticulitis manifested themselves. Therefore no theory of etiology can be held to be satisfactory which does not make the fat the starting-point in the process of which the herniation of the mucosa is the final outcome.

Three possible explanations occur to me, each of which I think is reasonable in that a parallel can be found for it in pathological processes occurring elsewhere in the body. They are as follows:

1. The subperitoneal fat weakens the intestinal wall by inducing a simple atrophy of the muscle from pressure.

2. The fat invades and separates the muscle fibres, and so produces weak spots. In this case the natural line of invasion would be along the vessels which penetrate the muscular coat, so that these would be the most likely points for herniae to occur.

3. The fat becomes infected, probably by the intestinal contents, and the muscle in contact with it is weakened by an inflammatory process.

In the light of the x-ray evidence now added to the reasons which I have given above there would seem to be good grounds for believing that this last alternative is the true explanation of most of the diverticula occurring in the colon, though some in the colon and perhaps most of those in the small intestine, where infection of the fat is less likely to happen, may be ascribed to one or other of the non-inflammatory causes I have suggested.

FISH AS THE SOURCE OF CERTAIN COCCIDIA RECENTLY DESCRIBED AS INTESTINAL PARASITES OF MAN.

BY

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For some time the attention of the authors has been devoted to the study of protozoal parasites in the organs of fish, which, since they are a common item in the human dietary, were readily obtained from various retail fish shops in London. While the present communication is to be regarded as a preliminary note on this subject, there have been made already certain observations which appear to prove conclusively that three recently described coccidia, up till now presumed to be true intestinal parasites of man, are merely parasites of fish passed unaltered through the human alimentary tract.

Wenyon (1916) discovered a coccidian belonging to the genus *Eimeria* in human faeces, but, rightly doubting that it was not a true parasite of man, refrained from creating a new species until something more was known of its habitat and life-cycle. Dobell (1919), however, named it *Eimeria wenyoni*. It will be seen later that this organism is morphologically identical with *Eimeria clupearum* Thélohan, 1894.

In 1919 Dobell found and described another coccidian oöcyst in human faeces on which he bestowed the name *Eimeria oxyspora*. There is little doubt that this is really *Eimeria sardinae* Thélohan, 1890. In any event an oöcyst morphologically similar to *E. oxyspora* Dobell, 1919, is extremely common in the testes of herrings and of sprats.

Still more recently Snijders (1921) published an account of a coccidian oöcyst in human faeces, which Dobell (1921), having received a mounted specimen from Dr. Snijders, considered was different from *E. oxyspora*, and accordingly created a new species *E. snijdersi*. Regarding this latter species the authors (1922) have pointed out that it was probably not a true species, but was merely *E. oxyspora* distorted by the technique involved in its examination, which view is considerably strengthened by the present findings. In any case it cannot possibly be regarded now as a true parasite of man. Snijders presented two possibilities to explain the occurrence of this organism—namely, "contamination of the stool after its depository," or "the cysts might have been ingested with food or water and passed unaltered (or only slightly altered) through the alimentary canal," but nevertheless Dobell, in full knowledge of these remarks and on the evidence afforded by the re-examination of material on which various attempts at fixation and staining had been made, stated as follows: "It seems probable that the parasite is one which belongs to man himself. It is, however, somewhat remarkable that all species of *Eimeria* hitherto found in human stools are not only very rare, but apparently cause infections which are peculiarly transitory. Their cysts have suddenly appeared in the stools and then promptly vanished—never to return."

These three so-called human species—*E. wenyoni*, *E. oxyspora*, and *E. snijdersi*—have been accepted by medical men and have been incorporated in the medical textbooks on the authority of Dobell, who, unfortunately, had obviously overlooked the fact that over thirty years ago Thélohan (1890 and 1894) had described identical organisms in fish. It has been a gradually increasing custom among certain systematic zoologists to adopt towards medical men, who, after all, originally opened up the field for research in human protozoology, an attitude of superiority, and to deal with their work—work often carried out under most adverse conditions both as regards previous knowledge and difficulties of technique—in a manner decidedly caustic and unnecessarily crushing. Such destructive criticism is not encouraging for research, in which, in the nature of things, mistakes are bound to occur, as is well illustrated by the unfortunate errors in question.

Description of the Oöcysts in Fish obtained in the London Market.

Since there was a certain amount of evidence that the *Eimeria* found in man might possibly have been swallowed in the food, and since the article of diet most likely to contain these organisms was fish (vide Broughton-Alcock and Thomson (1919), who found *E. oxyspora* in the faeces of a patient whose diet, previous to the examination, was chiefly fish), a search was made of the organs of fish purchased at shops all over London. Eventually two species of coccidia were found in enormous numbers in the liver and testes of herrings (*Clupea harengus*) and in the liver of mackerel (*Scomber scomber*). Sprats (that is, young herrings) were also found to be heavily parasitized.

(a) *Eimeria sardinae* Thélohan, 1890.

In the testes of sprats, a dainty usually cooked and eaten entire, the oöcysts of *E. sardinae* were found in enormous numbers. They were also present in the "soft roes" of adult herrings, but were usually much scarcer. Their elastic oöcyst walls react easily to pressure, and thus their

apparent diameter is increased by the pressure of the coverslip. In specimens where the cysts were floating in a depth of fluid more or less uninfluenced by pressure the diameter was between 33μ and 40μ , but sizes varied for the above reasons up to 58μ . The sporocysts have the following dimensions— 25μ to 35μ long, by 7μ to 9μ broad (see Fig. 1). The oöcysts, sporocysts, and sporozoites are in every respect comparable to those of *E. oxyspora*.

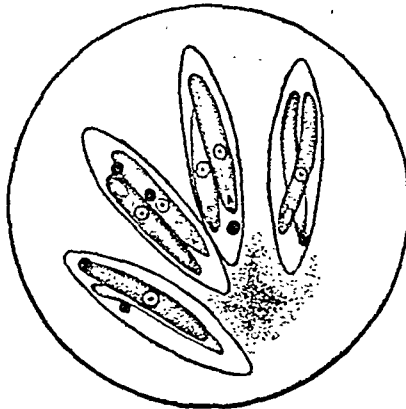


FIG. 1.—Oöcysts of *Eimeria sardinae* from testes of herring and sprats. ($\times 900$ approx.)

The sporocysts were fusiform or whetstone-shaped. Further, the sporozoites have a spherical vesicular nucleus centrally placed, a clear vacuole-like area at one end (not the nucleus as indicated by Dobell) and crystalloid bodies.

This coccidian of fish is therefore identical with *E. oxyspora*, and with a little manipulation forms can be produced comparable to *E. snijdersi*. It is not a parasite of man, and can only be regarded as adventitiously passing through the human intestine. Feeding experiments are at present in progress. It is probably identical with *E. sardinae* Thélohan, 1890. This author did not figure the oöcysts, but he described them as spherical, with a diameter of 50μ , containing four fusiform sporocysts, which radiated from a granular mass of oöcystic residuum at one side of the cyst wall. He gave no measurements for the sporocysts nor the sporozoites, but his description is sufficiently clear to allow of its identification.

(b) *Eimeria clupearum* Thélohan, 1894.

This was encountered in about 100 per cent. of the livers of herrings, and was also present in the same organ of sprats and mackerel. The oöcysts are fully matured in the liver, in this respect being similar to *E. sardinae* in the testes, and varied in size between 18μ and 33μ . When suspended in fluid without pressure from the coverslip, they were mostly about 18μ to 20μ in diameter, but varied from 18μ to 33μ . They are spherical, and contain four oval sporocysts with blunt, rounded ends, measuring approximately 10μ by 7μ . In each sporocyst are two sporozoites. *E. clupearum* is identical with *Eimeria wenyoni* Dobell, 1919 (see Fig. 2).

SUMMARY AND CONCLUSIONS.

1. All the fish examined were from the London food supply.
2. Oöcysts of *Eimeria sardinae* Thélohan, 1890, are very common and often occur in enormous numbers in the testes of sprats and of adult herrings. Morphologically this is identical with *Eimeria oxyspora* Dobell, 1919.
3. Oöcysts of *Eimeria clupearum* Thélohan, 1894, occurred in the livers of herrings, sprats, and mackerel. These are identical with *Eimeria wenyoni* Dobell, 1919.
4. *Eimeria snijdersi* Dobell, 1921, is regarded as a degenerate or altered form of *Eimeria sardinae*.
5. *Eimeria oxyspora* Dobell, 1919, and *Eimeria snijdersi* Dobell, 1921, become synonyms of *Eimeria sardinae* Thélohan, 1890. *Eimeria wenyoni* Dobell, 1919, becomes a synonym of *Eimeria clupearum* Thélohan, 1894.
6. These coccidia are not true parasites of man, but are ingested in the food and pass unchanged through the intestine.



FIG. 2.—Oöcysts of *Eimeria clupearum* from liver of herring, sprats, and mackerel. ($\times 900$.)

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Memoranda : MEDICAL, SURGICAL, OBSTETRICAL.

THE RELATION OF OBESITY TO DIABETES MELLITUS, AND SO-CALLED LIPOGENIC DIABETES.

A good deal has been written on the Continent in the past about "lipogenic diabetes"—that is to say, diabetes mellitus depending on or induced by obesity or a tendency to obesity. Everyone is, indeed, familiar with the common cases of mild diabetes in somewhat elderly fat individuals (especially Hebrews) in which the prognosis is usually good and in which the urine often becomes free from sugar under simple dietetic treatment. Such cases seem to favour the view that diabetes mellitus may sometimes be of lipogenic origin. The true explanation, of course, may be merely that two metabolic disorders, obesity and diabetes mellitus, often tend to occur in the same individuals and to run in the same families. In some cases the diabetes mellitus is apparently grave enough to prevent the occurrence of obesity, which would otherwise be present—that is to say, it prevents a constitutional (possibly familial) tendency to obesity from manifesting itself. The tendency to obesity in such cases remains latent because grave diabetes is present. It is in this way that one can explain the occasional occurrence of obesity in grave cases of diabetes mellitus when the latter is successfully kept under by insulin treatment. The insulin prevents the waste due to the chief metabolic defect, and enables the patient to become abnormally fat on a diet of relatively low calorie value. Such cases are, I think, examples of a latent constitutional tendency to obesity kept in check by grave diabetes mellitus, but becoming manifest when the diabetes mellitus is, so to speak, suppressed by insulin therapy, which may be, indeed, of use in the treatment of non-diabetic emaciated patients of certain kinds; in the diabetic class to which I refer, however, the insulin actually, by its successful employment, produces obesity (which is hardly desired), though a diet of relatively low calorie value is maintained.

London, W.

F. PARKES WEBER, M.D., F.R.C.P.

HYPERGLYCAEMIA AS A CAUSE OF PRURITUS. VULVAE.

IN view of the section on skin complications in Professor Nixon's illuminating lecture on insulin treatment of diabetes, reported in the *BRITISH MEDICAL JOURNAL* of January 16th, the following case may be of interest.

An unmarried woman, aged 56, was admitted complaining of irritation and stinging pains about the vulva, so severe as frequently to prevent sleep. The condition had been present for four years, and she had been subjected to the usual forms of treatment, including high frequency. Locally there was slight thickening and darkening of the integuments, probably due to prolonged irritation and to the application of various remedies. Glycosuria had never been observed in the patient or her relatives, but she stated that she was still living on a diet prescribed for rheumatism three years before admission. This contained very little meat and no sugar, and was not such as to tend to cause hyperglycaemia.

On admission the urine was sugar-free, but the blood sugar was 0.18 per cent. The patient was given ordinary full diet for two days, when the blood sugar rose to 0.19 per cent., the urine remaining clear. The diet was now reduced to one containing 18 grams of carbohydrate and yielding 400 calories a day. When the blood sugar had dropped to 0.08 per cent. the diet was gradually increased till the patient was receiving 12.5 calories per lb. of body weight. The blood sugar was now 0.115 per cent., and the pruritus had entirely disappeared. When the diet, and consequently the blood sugar, were increased beyond these limits there was a return of the symptoms, and as the patient found the mixed diet giving 12.5 calories per lb. weight sufficient for her needs, and more generous than that on which she had been subsisting previous to admission, she was dismissed after sixteen days, free from symptoms. When last heard from she was keeping to the prescribed diet and had remained free from irritation and also from rheumatism.

There can be little doubt that in this case the slight hyperglycaemia, though not manifest as glycosuria, was the cause of the pruritus.

My thanks are due to Dr. Alice J. McLaren, gynaecological surgeon, for permission to publish this note.

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VAGINAL CALCULUS.

I SHOULD like to record another case of vaginal calculus. I removed a calculus from the vagina of a child aged 10, a paraplegic, and an inmate of Yaffon Hall Institution for Mental Deficients, in January, 1918. It was the size of a large walnut, and was removed without difficulty. There was no vesico-vaginal fistula, and the suggestion made by the late Professor Shattock, to whom I sent the specimen, was that it was caused by the constant trickle of urine into the vagina, owing to incontinence and the patient lying in the dorsal position.

The specimen, I believe, is now in St. Thomas's Hospital museum.

Wrighton.

HUBERT C. BRISTOWE, M.D.Lond.

CONGENITAL HYDRONEPHROSIS IN A NEWLY BORN INFANT.

NUMEROUS cases of congenital hydronephrosis have been described, but most of them were in advanced stages of dilatation and the primary etiological factors could not be easily deduced. A short account is given here of congenital hydronephrosis in a stillborn infant in which the dilatation is not very great and the causative factor can be demonstrated; it has, therefore, been thought to be of sufficient interest to warrant its publication.

The large intestine, in this child, passed from the right iliac fossa upwards, backwards, and to the left to the splenic flexure. The part representing the ascending colon was, as is usual, very short, and there was a typical infantile caecum and a long appendix; it was, however, situated much lower than usual and lay in the iliac fossa. The first part of the oblique portion of the gut had not acquired its usual relation to the duodenum, but crossed the lower pole of the kidney, to which it was firmly bound by strong fibrous tissue. This part of the gut was a narrow cord-like tube with an extremely narrow lumen; it was, further, bent upon itself almost at right angles. The remainder of the colon, beyond this constriction, was greatly dilated and filled with meconium. On dissection, the ureter was found to pass downwards over the anterior surface of the lower pole of the kidney and to be compressed between it and the cord-like portion of the gut. Above this point, the pelvo-ureteric junction, the ureteral pelvis was greatly dilated, forming a hydronephrosis of the pelvic type, and there can be little doubt that this condition was due to the compression of the ureter by the gut.

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PULMONARY EMBOLISM FOLLOWING OPERATION FOR CATARACT.

I HAVE just reread Dr. Wynne Parry's interesting account (*BRITISH MEDICAL JOURNAL*, October 10th, 1925, p. 649) dealing with the above condition. What would appear to be an almost identical case occurred a few days ago at the County Hospital, Lincoln.

A married woman, aged 75, was admitted for cataract extraction on January 8th, 1926. She had had a preliminary iridectomy some months ago. The left lens was extracted bloodlessly and without difficulty on January 11th. The anaesthesia was produced by cocaine and adrenaline. A very small conjunctival flap was made. The operation was followed by practically no reaction in the eye, and the wound healed perfectly. A certain amount of debris was left in the anterior chamber.

Owing to there being a heavy rush of emergency work in the ward (a general one) the patient remained in bed for five days instead of the usual three. On the sixth day after operation, while completing her dressing, and while sitting at the edge of the bed, she suddenly became very pale, and complained of pain in the chest and difficulty in breathing. She collapsed on to the bed, with respirations becoming slow, irregular, and laboured. Respirations ceased in two minutes, the patient dying in extreme cyanosis.

I think this case also lends further support to Mr. Lockhart-Mummery's recent statement that the fatal clot forms, not at the site of the operation, but in all probability in the great veins of the lower abdomen, and that this condition is brought about by stagnation. *Post-mortem* examination was refused.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.

The Subcutaneous Tuberculin Test.

A CLINICAL meeting of the South Wales and Monmouthshire Branch was held at the Swansea General Hospital on January 27th, Dr. R. J. COULTER being in the chair.

Dr. A. CLARKE BEGG read a paper on the value of the subcutaneous tuberculin test in the early diagnosis of pulmonary tuberculosis, and said this was particularly helpful in cases when no definite physical signs were present. The test should not be employed if the patient's temperature was above 99° F., if haemoptysis had occurred recently, nor in the presence of serious renal or cardiac disease. The danger of causing extension of the disease if used with these precautions was practically non-existent. Positive results had, however, been obtained in syphilis, leprosy, actinomycosis, and possibly in hydatid cyst. The technique was as follows: rest in bed was enforced for forty-eight hours, with four-hourly temperature readings, and an injection was then given of 0.001 c.cm. of old tuberculin. If the temperature rose within twenty-four to thirty-six hours to over 100° F. the reaction was positive. If this did not occur an injection of 0.002 c.cm. was given forty-eight hours after the first, and in the absence of a reaction a dose of 0.005 c.cm. was given after the lapse of another forty-eight hours. If reaction did not occur the result was taken as negative. If at any stage the reaction was uncertain the previous test was repeated. Reaction should be judged, not only by a rise of temperature, but by the occurrence of general malaise, local inflammation, and the presence of focal signs of the disease.

The Venous Pulse.

Dr. G. ARBOUR STEPHENS, in a paper on the pulse, with special reference to the production of the venous pulse, said that it was with great difficulty that the majority of medical practitioners gave up the idea that the arteries distended when the pulse wave was at its height. Most of them had the impression that a pulse wave was analogous to the passage of a rabbit along the inside of a cobra. What really happened was that the arteries filled with blood constituted "cords" ready to transmit impulses conveyed to them by the jerk of the heart's beat, as occurred when piano strings were struck by the hammers. Because the piano strings were taut the vibrations were rapid and the waves of simple construction, but when jerks were conveyed to a cord held loosely the waves travelled more slowly and were more complicated. When the end of a long cord, like that used for marking a tennis court, was fixed to the ground by a peg, pulled, and let go suddenly, waves were formed and transmitted along the whole length of the cord while it was falling to the ground. When fallen, the cord retained the shape of the waves, which in form were those considered typical of a sphygmographic tracing. If instead of the marking cord a rubber tube was filled with sand, and allowed to fall after being pulled, the waves were very much simpler in shape. It was important to note that the "sphygmographic" waves obtained on the cord depended for their shape on the vigour of the pull and the suddenness of the "let go," while one observed that the form of the waves changed from the free end to the fixed. The thickness of the cord represented the pressure in an artery, and the jerk and "let go" of the cord comprised the conveyance of amplitude and velocity to the pulse wave. In the rubber tube filled with sand the "pressure" was high and the waves were simple, while in the different sized cords varying in consistency (or "pressure") the curves became more and more complex. By the above method one obtained the waves retained *in situ*, whereas in the case of those taken by a sphygmograph the picture was merely an indirect one, though on comparison there was a close resemblance. After Dr. Stephens had made his cord experiments he saw a reference to work by Dr. Crighton Bramwell, wherein he described tracings obtained in tubes

which had been waved by a mechanically driven projector. Dr. Stephens thought that his own results were complementary to those obtained by Dr. Bramwell, whose excellent summary was applicable to the speaker's results. This method of propagation of waves along arteries or "cords" had an important bearing on the venous pulse. No pulse was due to the distension of blood vessels by the impelled blood, and consequently there was no distension of the jugular vein; what happened when there was a venous pulse was that waves were transmitted along the jugular. The question was how those waves were propagated. Even if the auricle, when contracting, drove the venous blood backwards, it was now known that there was no intermittent distension of the vessel even if the tricuspid valve leaked entirely: what propagated the wave, or, in other words, what gave the jerk which caused a wave to travel along the jugular vein? When considering the beat of the heart one had to view the cardiac apparatus as a whole and remember that the pericardium and its contents must be considered. In 1915 Dr. Stephens had discovered that there was a negative pressure in the pericardial cavity, whereby a suction action held the fluid under control during health. In heart disease this negative pressure and suction action got less and less, with the result that the fluid was less under control, and during each beat of the heart moved freely, the free movement conveying a jerk which started a wave or venous pulse. The venous pulse, however, was not always present in those cases where it was expected, and the explanation for this was of an anatomical nature. As was known, the pericardium at its reflection surrounded the aorta and pulmonary vein, but only partly embraced the vena cava; this partial embrace, however, varied, and when there was a full embrace the pericardial fluid, under diminished suction action, swung up to the vena cava and communicated the jerk necessary to produce the so-called "venous pulse."

Mr. C. L. ISAAC showed a case and gave notes of six consecutive cases without mortality of Dobson's operation in tuberculosis of the abdominal glands.

Several other interesting clinical cases were exhibited by the staff of the hospital.

ULSTER BRANCH.

The winter meeting of the Ulster Branch of the British Medical Association was held in the Medical Institute, Belfast, on January 21st; the President, Dr. D. P. GAUSSEN (Dunmurry), occupied the chair.

Dr. FOSTER COATES showed a patient with acromegaly. He pointed out that the patient was very anaemic, which was secondary. The x-ray examination showed some thickening about the sella turcica, and the optic discs were normal; there was a diminution of sugar tolerance but no glycosuria. He gave a full description of the anatomical and physiological peculiarities of the pituitary body with its divisions and the difficulty of differentiating its function.

Dr. W. CALWELL asked if any investigations had been made by lumbar puncture in these cases, as the pituitary fluid normally flowed into the meningeal cavity. Dr. BOYD CAMPBELL suggested that the pituitary affection was tuberculous, as the patient had scars in his neck due to removal of glands. Dr. J. S. DARLING also spoke.

Professor ANDREW FULLERTON read a short paper on operative treatment of hernia in infants and young children, based on his results in the out-patient department of Queen Street Hospital for Sick Children, with a comparison with operations in the wards and in private practice. The paper is printed in full this week at page 274.

Dr. E. C. THOMPSON (Omagh) congratulated Professor Fullerton and remarked on the great advance in this operation. Dr. J. S. DARLING (Lurgan) said that he now constantly operated on these cases: he used friar's balsam instead of collodion and found it equally good. The CHAIRMAN said that a large number of these infantile cases of hernia disappeared spontaneously or with the help of some old-fashioned aids. Professor Fullerton, in reply, said that many patients in whom the hernia had disappeared showed a hernia on effort in later life.

Mr. P. T. CANNIBIE and Dr. J. SLYTH read a paper on the surgical treatment of exophthalmic goitre. Mr.

Crymble gave a description of the anatomy of the thyroid gland: the superior thyroid artery supplied the supporting structure, the inferior artery the secreting tissue. A mid-thyroid vein was apt to be torn in dislocating the gland, and so was of importance. Great difficulty was experienced in avoiding injury to the recurrent laryngeal nerve, and so a pad of gland was left on either side of the trachea which protected the nerve, and at the same time the parathyroid glands. The legitimacy of the operation was based on the claim of the surgeons that they obtained better results. X-ray treatment had been advised between the operation of removal of the gland and tying the arteries, but if it failed adhesions were left which increased the difficulty of subsequent removal. It was difficult also to fix the exact dose: excess might cause burns and myxoedema. There was a difference of opinion as to whether the pathological condition was an excessive secretion, a "hyperthyroidism," or an excessive demand, resulting in a "dysthyroidism." The three types were: (1) Graves's disease with a uniform enlargement, (2) a toxic adenoma with little exophthalmos and nodules in the gland, and (3) a secondary affection, starting with an ordinary goitre, and later showing symptoms of intoxication. The safety of the operation was steadily improving: Crile had reduced his mortality to 1 per cent., Mr. Crymble had had fifteen cases with no deaths. The operation itself varied with the operator: some left the back layer over the nerve, some the apex, and some tied the vessels beforehand.

Dr. SMYTH said that the mortality depended much on the previous care and examination of the patient; if the basal metabolic rate was going up there was danger, but if it had been brought down by iodine and rest the risk was much less; this might take a couple of weeks to four months. The methods adopted were general hygienic quiet, no worry or excitement, and the exhibition of iodine, 15 minims of Lugol's solution thrice daily. If there was auricular fibrillation digitalis was given, and if a sedative was needed morphine might be used. Many cases required that the operation should be done in two stages: in the first the arteries were tied. After the operation there was always some hyperthyroidism, and iodine should be successful in combating it. If the iodine was vomited Dr. Smyth used colloidal iodine intravenously, and gr. 1/240 of Nativelle's digitalin subcutaneously. The chief danger was in the first twelve hours.

Professor FULLERTON described a case of cure after removal of septic tonsils. Professor LINDSAY asked for directions when to operate, what was the later history after operation, and the natural history of untouched cases. Dr. McKISACK said that his experience did not warrant universal operation. Mr. CRYMBLE, in reply, said that even ligaturing might give rise to a reaction, that there was a danger in postponing, and that three-fourths of cases always showed some stigmata although cured.

Reports of Societies.

PAIN IN THE RIGHT ILIAC FOSSA.

At a meeting of the Medical Society of London on February 8th a discussion was held on pain in the right iliac fossa; Sir HOLBURN WARING, president of the society, was in the chair.

Mr. H. W. CARSON, opening the discussion, said that there were many conditions besides chronic appendicitis which might cause right iliac fossa pain. One of the common causes of such pain in which a wrongful diagnosis of appendicitis might be given was muscular strain, particularly in young girls keen on games, such as netball and lacrosse, and in middle-aged men who were beginning to put on weight and in whom the pain was due to a commencing inguinal hernia. A frequent cause of right iliac fossa pain was trouble in the urinary tract; a stone in the ureter was perhaps the most likely to be overlooked. Another cause was tuberculous glands in the mesentery, and yet another, tumours of the colon. Stricture in the

left colon, as a result of back pressure, might produce right iliac pain, and this should always be borne in mind in a case of such pain with distended caecum in a constipated patient over 50. Women of spare build and with the characteristic carriage due to skeletal defects often complained of constant dragging pain in the right iliac fossa, which was relieved by recumbency. These patients had constipation, poor appetite, loss of energy, and sometimes nervous irritability, the abdominal wall was poor, and the kidneys prolapsed. He suggested that the pain in some of these postural cases might be due to the dragging effect exercised by a mobile colon upon a highly vascularized membrane in its vicinity, or that another thicker membrane obstructed the lumen of the ascending colon when the patient was erect. The operation of releasing these bands and fixing the ascending colon had not met with the success it should have done if this had been the cause of the trouble, but the removal of the appendix had been attended with even less success. With regard to chronic appendicitis, the idea must be dismissed from the mind that this could be diagnosed from right iliac fossa pain alone; the true symptom was appendicitis dyspepsia. Radiologists were not quite agreed as to the x-ray indications of chronic appendicitis. If the appendix was not visible after the barium meal the question arose whether the lumen was so obstructed that the barium could not enter; if it was seen, the question was whether the peristaltic action was abolished. Tenderness over a visible appendix was of no definite import whatever, because between the appendix and the leaded glove was the eleventh nerve entering the sheath of the rectus. In Mr. Carson's opinion, pain confined to the right iliac fossa should not be considered as due to appendicitis, especially in the absence of previous severe attacks, until the most painstaking investigation had disproved other possibilities.

Dr. A. F. HUNST thought that the explanation of numerous mistakes in diagnosis was want of care; a thorough investigation of the whole alimentary canal ought to prevent the vast majority. Quite apart from the mistake of removing an appendix not diseased, it was not at all uncommon for chronic appendicitis to be associated with disease in some other part of the abdomen. In 40 per cent. of cases of chronic appendicitis confirmed by operation achlorhydria was present, which meant that gastric digestion did not occur, so that there was a pre-disposition to intestinal infection and a variety of complications. Appendicitis was very frequently associated with chronic cholecystitis, and with gastric and duodenal ulcer. A not uncommon condition, found in many who had been to the East, and in some who had not been abroad at all, was amoebic infection of the caecum, associated with pain on the right side owing to chronic hepatitis. The greatest help to the diagnostician was afforded by x rays, with which it was possible to see the appendix in 100 per cent. of normal people and in 80 per cent. of people with chronic appendicitis, but a proper technique must be used. The radiograph by itself was of no use, there must be screen examination. He demonstrated how by careful palpation under the screen appendicular tenderness could be localized. In many cases in which, after removal of the appendix, right iliac fossa pain persisted the trouble was said to be due to adhesions, but he was doubtful whether adhesions in this part ever gave rise to symptoms, and still more doubtful whether ileal kinks and stasis had any importance. A pelvic caecum, again, was not a pathological condition; it was often seen in normal individuals. In all suspected cases inflation of the colon should be performed, combined with x-ray examination, and unless one or both of these were definitely positive a diagnosis of appendicitis should not be made. Cases of tuberculous infiltration limited to the end of the ileum often simulated appendicitis, but on examination with x rays the ileum would be found to be the tender point, with sometimes part of the caecum, and the appendix free from tenderness.

Dr. T. WATTS EDEN said that the conditions in which the gynaecologist was interested and which caused pain in the iliac fossa might, of course, produce such pain on either side, not necessarily the right side. But in chronic

salpingitis the appendix was involved in at least 50 per cent. of the cases, and was removed by the gynaecologist in quite half the cases in which he had to operate. The involvement of the appendix appeared to be secondary, and might be slight, taking the form of thin bands of adhesion between the inflamed tube and the appendix. The conditions under which one met with acute salpingitis were two: septic infection following childbirth or abortion, and gonorrhoea. In the first case the circumstances in which the acute abdominal symptoms occurred drew attention to the possibility of the Fallopian tube being infected, and there was little risk of the diagnosis going wrong, but this was not so with gonorrhoea. It might be said that it did not matter, because there must be an operation in both conditions. But the fact was that these acute gonorrhoeal tubes showed a very great capacity for recovery; his practice was not to attack an acutely infected tube at once, but to give it a chance to settle down. Hence diagnosis was important. It happened occasionally that a tube became acutely infected from an acute appendicitis. The classical instance of this was recorded by Sir (then Mr.) John Bland-Sutton twenty years ago, when, in a case in which he had removed both tube and appendix, he demonstrated a fistulous connexion between the two. There were other conditions of the tube which might lead to somewhat similar symptoms; one of these was torsion of the pedicle of the tube; a tube which was dilated and not adherent was capable of twisting just like an ovarian cyst. With regard to the ovary as a cause of pain, he had kept this until last because he thought it least important. There was a good deal of loose talk about ovarian pain, and the pain was sometimes attributed to ovarian neuralgia or congestion. Apart from the fact that the ovaries were generally more or less involved when the tubes were infected and inflamed, the conditions which caused pain in the right ovary were practically limited to two different kinds of haemorrhages—one from the ovary in ovarian pregnancy, and the other into the corpus luteum, generally associated with a diseased or cystic condition of that body. In conclusion he described a case of a woman, aged 24, who suffered from severe pain in the right side which she attributed to a fall six months previously. No cause could be found, but, the pain persisting, an operation was done, and a sewing needle was discovered transixed in the right ovary. It appeared that at the age of 14 she had swallowed a needle, which no doubt had lodged in the pelvic cavity, and as a result of the fall had been jerked into the ovary. If there was nothing new under the sun, there was always room for some novelty in the sheltered recesses of the abdomen.

The PRESIDENT agreed with Dr. Hurst as to the unsatisfactory character of the results of operation for bringing up the caecum from the pelvic cavity and fixing it at a higher level. His experience of these operations was that the great majority of patients were not appreciably benefited. With regard to tuberculous disease of the lower part of the ileum, on more than one occasion when appendicitis had been diagnosed he had found that the appendix was to no material extent diseased, but there was a tuberculous condition of the adjacent portion of the bowel. Mr. J. E. H. ROBERTS agreed with what had been said as to the uselessness of fixation operations of mobile organs. He also recalled that shortly after Sir John Bland-Sutton's discovery he himself had come upon an acute inflamed appendix adherent to the right Fallopian tube, which was also inflamed. Dr. GORDON GOODHART thought that persistent pain after the removal of the appendix, or indeed after any chronic abdominal trouble, might be due to spasm of the colon. Mr. T. H. OPENSHAW considered that adhesions of the omentum to the scar, or to a commencing hernia, were the most frequent cause of pain after operations on the appendix.

Mr. CARSON, in reply, said that adhesions of the omentum to the scar were often found when the abdomen was opened again, but whether these gave rise to pain he was not sure. On the general question of fixation operations, he declared that it was very much better to free organs which were abnormally fixed than to fix organs which were abnormally free.

DIPHTHERIA AND SCARLET FEVER.

At a meeting of the Medical Officers of Schools Association on February 5th Dr. R. A. O'BRIEN gave an address on diphtheria and scarlet fever.

Dr. O'Brien drew attention to the rarity of these two diseases in preparatory and public schools. The percentage of boys at various schools who had before the end of their school career suffered from diphtheria varied from 4 to 9; for scarlet fever the figures were 1 to 3. Most of these attacks had occurred before entry at preparatory schools. The possibility of these two diseases, however, was constantly present in the mind of the school medical officer; and it was chiefly in connexion with diagnosis that modern methods could help most. (The Schick test was described, and a number of medical student volunteers showed various Schick and Dick reactions to the meeting.) The Schick test result in the great majority of ordinary schoolboys could be read with ease twenty-four hours after the test. If there was any doubt, a daily record of size and colour for several days enabled a decision to be made. The perplexing pseudo-and-positive reactions were rare, and could generally be read with certainty at ten to fourteen days after the test. In rare cases the speaker had had to take blood and titrate it for antitoxin. When a suspicious sore throat was seen the Schick test, if negative, indicated clearly in the ordinary case that the disease was not diphtheria, for all patients with typical attacks of diphtheria gave positive reactions. Swabbing and overnight culture diagnosis might lead to error. Even if the bacilli from a "slightly suspicious" throat were virulent, one could not be certain, unless the Schick reaction were positive, that the patient was suffering from diphtheria. In doubtful cases it was possible to compromise by performing the Schick test and swabbing, and, if desired, giving antitoxin five to six hours later, when it would not interfere with the development of the Schick reaction.

In the control of school epidemics the first reliance should be placed on the Schick test. The ordinary procedure was to swab all contacts and segregate the positive reactors. The speaker had seen a Schick-negative carrier with very large numbers of virulent bacilli in his throat isolated in a small room with Schick-positive, and therefore susceptible, children—a highly dangerous position. If antitoxin was given to all contacts the epidemic was stayed, but cases might again occur in three weeks when the passive immunity had faded. The application of the Schick test enabled one to gain a confident control of the situation in twenty-four to forty-eight hours. The susceptible positive reactors were watched carefully for any slight symptoms, while among the negative Schick reactors was sought the carrier responsible for the outbreak. Diphtheria had been practically abolished from among the staffs of several large infectious hospitals, such as those under Dr. Harries at Birmingham, Dr. Kinloch at Aberdeen, and Dr. Benson of Edinburgh. It appeared that in the staffs of the London fever hospitals there had occurred from 100 to 200 cases of diphtheria each year until Schick testing and active immunization had begun to be applied a few years ago. Within the next year or two the disease would probably have been abolished from the Metropolitan Asylums Board's ward staffs. It was hoped that the "diphtheria prophylactic and indicating mixture" prepared recently by Glenny in guinea-pigs would enable one to control satisfactorily the testing and immunizing of human beings. Dr. E. R. Harries had made a number of observations which showed that the mixtures already prepared indicated approximately the same level of immunity as the Schick test, and at the same time, when given intradermally in a dose of 0.2 c.cm., acted as immunizing agents. It was likely that in the near future the process of immunization would consist in a periodical repeated intradermal injection until the Schick reaction produced by it was negative; this would shorten and simplify the procedure considerably.

Scarlet Fever.

At present "swab diagnosis" did not help, for it was not possible to identify with certainty the scarlet fever streptococcus, short of producing skin lesions with its toxin neutralizable by specific antitoxin; this was a troublesome

procedure. The Dick test generally resembled the Schick test, but conclusions must be drawn with great caution, for though the great majority of early cases of scarlet fever gave positive reactions, all did not do so. Nearly all gave a positive Schultz-Charlton test, showing local blanching when 0.2 c.cm. of diluted scarlet fever antitoxin was injected intradermally into an early scarlet fever rash. If an early "doubtful scarlet fever patient" gave a negative Dick reaction and a negative Schultz-Charlton reaction, the disease was almost certainly not scarlet fever. Convalescent scarlet fever patients developed antitoxin in their blood during convalescence; if, therefore, the blood of the suspected patient ten days after defervescence showed no blanching when injected into other scarlet fever patients, the diagnosis of "not scarlet fever" was justified. If desired, passive immunity could be produced by giving 10 c.cm. or less of a reasonably good scarlet fever antitoxin; thus, if desired, all contacts could be protected. Treatment with scarlet fever antitoxin was apparently successful. If given early in adequate dosage to patients with "hypertoxic" scarlet fever, the antitoxin cut short the disease. Concentrated serum promised to have the same effect in smaller doses. It was apparently possible to immunize positive Dick reactors and make them negative within a few weeks. How high and how lasting the immunity it was not yet possible to state, for the work in England was yet too new, but it was fairly clear that active immunization was practicable.

ARTIFICIAL PNEUMOTHORAX IN PHTHISIS.

At a meeting of the Brighton and Sussex Medico-Chirurgical Society on February 4th, with Mr. H. J. WALKER, the President, in the chair, Dr. DONALD HALL read a paper on the treatment of pulmonary tuberculosis by artificial pneumothorax.

Dr. Hall said that during the past six years he had established an efficient collapse in fifteen patients. Difficulty was found in obtaining material, for in hospital practice patients were now under the care of tuberculosis officers and came rarely to the out-patient department, while in private practice most cases were in sanatoriums or under the care of specialists. In this country artificial pneumothorax had not yet received the recognition which it deserved, for while applicable only to some 5 per cent. of patients it offered to them hope denied by any other methods. The apparatus he used was Vere Pearson and Lillingston's, which, although rather cumbersome in size, was simple and easy to use and easy to keep clean. For the initial puncture he preferred Riviere's trocar and cannula. In the selection of cases not only the extent but also the activity of the disease in the "healthy" lung must be considered. In acute cases especially care must be taken not to produce too high pressures, which would embarrass the sound lung; the optimum pressure was the minimum which kept up collapse. There had been a tendency of late to suggest that partial collapse might be preferable to complete. Of this he had had no personal experience; in his three cases in which collapse was incomplete but yet therapeutically adequate it had been impossible to obtain complete collapse of the lung owing to pleural adhesions, and up to the present he had always aimed at bringing about complete collapse. The decisive test of this was the absence of respiratory movement on the fluorescent screen. In four patients, otherwise suitable, pleural adhesions had balked him completely. He had met with one instance of pulmonary embolism in a patient who was having her last refill prior to leaving hospital for her home in the country. About a minute after withdrawing the needle conjugate deviation of the head and eyes occurred, and the patient had an epileptiform fit. She recovered, but with permanent hemiplegia, and the treatment was discontinued. Presumably the needle had perforated an adhesion containing pulmonary tissue, for the lung was well collapsed at the time. Lantern slides were shown of various stages of pulmonary collapse, with and without pleuritic effusion, and temperature charts of two acutely febrile patients both of whom had been restored to active life. Two patients were shown: in one the treatment had been completed and the lung allowed to expand, the last refill having been given seven-

teen months ago; the other patient was acutely febrile, but had done well in the second year of treatment.

Dr. NEVILLE COX said that pneumothorax treatment was constantly in the mind of those who, as tuberculosis officers, were handling large numbers of cases of phthisis. The difficulty was in defining the suitable cases. Definite evidence of breaking-down lung, as shown by elastic fibres in the sputum, was one indication. On the one hand, collapse treatment should not be started without adequate trial of other methods, and, on the other hand, deferring the treatment too long might lessen the chance of success. There was scope for much caution also during the conduct of the treatment, in deciding the intervals for refills, the pleural pressures suitable to the individual case, and in particular in guiding the patient safely through the common period of "pleural reaction," when it might be advisable to avoid refills for the time being. Stopping the treatment and allowing the lung to re-expand provided another difficult problem; there were probably many cases in which it was best to continue the refills indefinitely. No sensational figures of successful results were to be expected, but in view of the otherwise hopeless outlook of most of these patients, even a small percentage of permanently good results justified the treatment; in a large number of other patients added years of useful life, relief from unpleasant symptoms, and lessened infectivity followed pneumothorax treatment. Dr. Cox thought that there were still a large number of patients dying annually in this country who might have been helped by its timely adoption. As a contrast between the policy of *laissez-faire* and of active intervention in advanced phthisis, he instanced a remarkable case published in Gravesen's book on the surgical treatment of pulmonary tuberculosis.

Mr. M. FITZMAURICE-KELLY advocated the division of the adhesions by extrapleural thoracoplasty in those cases in which adhesions prevented the production of an artificial pneumothorax.

RICKETS.

At the annual meeting of the Devon and Exeter Medico-Chirurgical Society on January 21st, the retiring president, Dr. E. J. TOYE, in the chair, Dr. C. MILLER read a paper on rickets.

Dr. Miller began by saying that rickets afforded an example of intelligent empiricism, in that a satisfactory remedy had been discovered before the etiology and pathology of the morbid process had been established. Another interesting point was that the same remedy had a prophylactic, as well as a curative, action. Rickets had already become a sociological, rather than a medical, responsibility, but it was the duty of the medical practitioner to play his part in influencing public bodies with regard to better provision of houses and of food. Dr. Miller then gave a comprehensive account of the distribution, incidence, and pathology of the disease, emphasizing the importance of the slack hypotonic condition of the muscles as one of its earliest symptoms. Rickets was not solely a disease of ossification; it should be described rather as a fault in the metabolism of calcium and phosphorus, the effects of which were widespread in the body and not limited to infancy. The nervous instability of the rickety child was often continued into adult life. Dr. Miller described the historical study of the disease since Glisson's monograph in 1650, and Pommer's pathological study published in 1885. Rickets was probably non-existent in ancient times, or at the most was very infrequent and sporadic. The lecturer concluded with an account of the modern treatment by sunlight, improvement of environment, and the use of fats.

The CHAIRMAN raised the question of the incidence of rickets in breast-fed children, which appeared in his experience to be equal to that noted in those reared on artificial foods. It was rarely that they met with severe cases in the rural districts, but in the treatment of all types of cases he had obtained excellent results from the ultra-violet rays, although, unfortunately, the deformities still persisted at the end of treatment. He was a great believer in instructing the public in the elements of vitamin therapy and its special importance to infant life.

Mr. A. L. CANDLER quoted from a paper read by Sir J. Bland-Sutton, where it was mentioned that the earliest primitive life was domiciled in surface water; humanity was still primitive enough to need light. He discussed the cod-liver oil value in the treatment of rickets, and raised the question as to the source of the vitamins in the oil. He suggested that the more primitive organisms of the ocean were the probable manufacturers of the vitamins.

Dr. COHEN had found ultra-violet rays beneficial in the treatment of coeliac disease. He also alluded to experiments on rats living in a cage spread with sawdust which had been previously treated with ultra-violet rays; although the rats were kept in the dark rickets did not occur amongst them.

Drs. R. V. SOLLY, PEREIRA GRAY, A. HIPWELL, FOULKES, and Mr. WATLAND SMITH also contributed to the discussion.

Dr. MILLER in his reply stated that medical research had shown that lack of breast-feeding was not a factor in the causation of rickets provided that artificial feeding was carefully chosen as regards the composition of the food. He also mentioned the advantages of certain patent infant foods over others, but hoped for the day when they would be unnecessary. At the moment it could be claimed that they were microbe-free, which could not be said for the "white sewage" so often placed on the market as milk. It was just possible that breast-fed children could acquire rickets if sunlight was deficient. Experiments had shown that mother rats kept under the most favourable conditions as regards exercise, sunlight, and feeding became antirachitic, and were capable of passing on this protection to the children of the third generation. These properties were not, however, found, so far as was known, in human milk, although they might be expected to occur rather in the countries of the East than in Northern Europe. As regards the pathology of coeliac disease they were still in the dark. The prominent feature was the inability to digest fats, and various organisms had been claimed as the specific causal agents, notably the Flexner bacillus. Artificial feeding undoubtedly predisposed to the disease, and most of the cases had occurred amongst artificially fed children, but beyond this information was scanty. Generally speaking they should advocate natural food, sensible clothing—and not too much of it—with a maximum of outdoor life, and aim at getting back to nature.

VAGINAL BACTERIOLOGY.

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland on January 8th, the President, Professor J. W. BIGGER, in the chair, Dr. MARY M. MERRICK read a paper on the bacteriological findings in vaginal discharges, based on a joint investigation with Dr. DOROTHY H. DOUGLAS in the Coombe Hospital, Dublin.

Dr. Merrick said that the standard classification of Heuslin had been adopted in studying the vaginal flora in these cases. There was reason to believe that the vaginal lactic acid bacilli were not specific micro-organisms, but involution forms of *B. coli*. The importance of the lactic acid bacilli in maintaining the normal acid reaction of vaginal secretion was discussed. Vaginal discharge, when not due to such common causes as erosion, laceration, gonorrhoea, and post-gonorrhoeal catarrh, was possibly due to psychogenic impulses passing from the brain to the glands of the cervix; hence this type of discharge was frequently associated with mental disturbances and emotions. Deep x-ray therapy was used with success in cases due to hypo-ovarian conditions. While bacteriological examination was helpful in tracing the source and cause of a persistent vaginal discharge, there were many difficulties and fallacies to be remembered. A simple Gram-stained preparation had given more information than cultures, which had produced growths of staphylococci with discouraging regularity. Several cases were described, with the bacteriological findings, diagnosis, treatment, and results.

The PRESIDENT said that he had examined for gonococci a very large number of films prepared in a female venereal dispensary, and had been struck by the large number of bacteria he had found; the number of other Gram-negative diplococci was much larger than the number of gonococci,

and these were never found in pus cells. He doubted whether freedom from disease was indicated by the vaginal discharge being acid; he believed that the acidity was due to the vagina being healthy, but if the reaction at birth was acid it was apparently kept acid by some organisms. A vaginal discharge might be due to a great many different organisms, but yet in some cases it was only due to one organism. He had recently seen a specimen of vaginal discharge which had only appeared to contain Gram-negative bacilli; in such cases as this there was apparently only a single infection. He referred to the presence of spirochaetes in the vaginal discharge, and said that he thought these were fairly common in the external genitals in both sexes. To discover the presence of pneumococci in the vagina was not at all easy; the only method was to isolate the organism in pure culture.

Dr. J. LAIT asked if it was possible to diagnose hypo-ovarian conditions from the exogenous discharge. Pregnancy was a hypo-ovarian condition, and in pregnancy one would expect to find diminished glycogen, yet an increased acid reaction was found in pregnancy.

Dr. D. J. CANNON referred to cases in which the gonococcus was not present, and there was laceration of the cervix; he said that, as a rule, these cases were very puzzling, as it was difficult to know where the infection came from. If this discharge was examined, a few micro-organisms were found, and he believed that the infection was caused by the micro-organisms in the vagina getting the upper hand, and causing a discharge. In cases of chronic vaginal discharge it was always difficult to diagnose gonorrhoea, unless the patient gave a definite history. Backward displacement of the uterus could, in his opinion, cause so-called non-infective leucorrhoea. If there was a pathological discharge from the cervix, and backward displacement of the uterus, operative correction of the displacement would not stop the discharge.

Dr. R. H. MICKS remarked that it would be interesting to find out how often (if ever) pneumococci were found in the normal vagina, and if pneumococci were present in any vaginal discharges. Dr. W. D. O'KELLY thought that the possibility of the conversion of Gram-negative into Gram-positive bacilli could not be admitted.

HYOSPADIAS.

At a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland on January 22nd, the President, Dr. C. M. WEST, in the chair, reported a case of hyospadias.

Dr. West said that the specimen exhibited consisted of the contents of the sac of an inguinal hernia which had been sent to the anatomical department in Trinity College by Mr. Seton Pringle. An unmarried woman, aged 38, was admitted to hospital for inguinal hernia. She had considerable growth of hair on the face, and the masculine type of breasts, pubic hair, and limbs. She had never menstruated, but had had some bleeding from the external genitals once, about two years ago. Dr. West showed lantern slides of the external genitalia, which consisted of a small penis and a large canal behind it, about the length of an index finger. The canal had the appearance of a vagina, and was guarded by two folds which resembled labia minora. The sac of the hernia contained a fairly large, tortuous, and pyriform body, the epididymis, and a very small spherical structure which appeared to be the testis; there was a large and normal-looking vas deferens, and no evidence of any ovarian tissue. Dr. West suggested that the patient was really a male, in whom the lips of the urethral groove had failed to fuse, thus giving rise to the folds which resembled the labia minora, and that the lower part of the embryonic urogenital sinus had formed the vagina-like canal.

Dr. W. A. TAYLOR drew attention to the large quantity of male genital tissue found in the hernial sac, and asked if the vas went up normally into the inguinal canal.

The PRESIDENT, replying, said that there was no connexion between the vas and the epididymis. The patient had once had a discharge from the neighbourhood of the external genitals, two years before, but that was the only sign of menstruation.

Reviews.

ALLERGIC DISEASES, INCLUDING ASTHMA.

DR. W. STORM VAN LEEUWEN, Director of the Pharmacotherapeutic Institute at Leyden, has brought out a work valuable for its independence and for its basis of much observation and thought—*Allergic Diseases: Diagnosis and Treatment of Bronchial Asthma, Hay Fever, and other Allergic Diseases*.¹ His references cover a wide field of recent writers, especially American workers, but there is not any notice of John Bostock, who described hay fever in 1819, or of Hyde Salter, whose conceptions must be considered quite modern. Stimulated by a visit in 1919 to the clinic of Dr. Chandler Walker of Boston and by his results with skin tests as a guide to specific treatment, the author fully investigated this diagnostic method, but has arrived at very different, indeed rather revolutionary, conclusions. Thus he finds that in the majority of asthmatic patients the real causal agent cannot be found; that skin tests give multiple positive results in the same patient in a large number of cases; 37 per cent. of his patients reacted to more than ten extracts, 14.5 per cent. to from five to nine extracts, and 26 per cent. to from two to five extracts; nearly all asthmatics, he says, show positive results with horse dandruff, whereas normal persons hardly ever do. He therefore thinks that the real value of skin tests is to enable an allergic patient to be recognized, and that they cannot be relied on to indicate the specific agent or allergen. Sensitization to animal proteins is regarded as rare in asthma, and it is asserted that the nature and chemical composition of very active extracts made from protein substances, such as meat, white of egg, and dandruff, is unknown, and that in some extracts of this kind no trace of protein can be found. The question of whether or not allergic diseases are due to anaphylaxis and the distinction drawn between these two conditions are discussed with impartiality. One of the main factors in the etiology of allergic diseases is considered to be increased permeability or vulnerability of the skin and mucous membranes, which allows allergens to pass in; 50 per cent. of the author's asthmatic patients had eczema of the face in childhood, 30 per cent. had previously suffered from bronchitis, and of the remaining 20 per cent. some had passed through a disease, such as typhoid or a gastric ulcer, during which the intestinal wall is more permeable. The responsible agent may be toxic and an irritant, so that it may set up inflammation at the start, or it may be a pure allergen—that is, active after sensitization only. The author believes that allergic diseases are largely due to inhalation of the products of fungi and yeasts in the air, and urges the well known influence of places and the absence of asthma in the pure air of high altitudes as arguments in favour of this view. The therapeutic use of pure air chambers has given very good results, and patients can have such chambers built on to their bedrooms so as to employ the treatment at home. As regards the treatment of allergic disease the author argues that, as the real cause is rarely ascertainable, the treatment must usually be non-specific, and that some supposedly specific forms of treatment are not really of that nature. Among the various non-specific methods tuberculin is described as having proved successful in his hands, about half his three hundred patients being completely, or almost completely, cured. Written in good English and well argued, this monograph deserves consideration.

Many remarkable examples of hypersensitiveness are described by Dr. W. W. DUKE in his book *Allergy: Asthma, Hay Fever, Urticaria, and Allied Manifestations of Reaction*.² He uses the term "allergy" in a very broad sense; he begins with a description of experimental anaphylaxis, serum sickness, and bacterial allergy, and goes

on to discuss sensitiveness to various animal and vegetable products. Pollen receives a very detailed botanical treatment, and these pages of the book are illustrated with excellent photographs of the plants and the seeds. We begin to wonder whither we are being led in the ninth chapter, on primary causes of reaction other than pollen, for the author discusses the question of one human being becoming sensitive to another, and people becoming sensitive even to themselves. But it must be admitted that, though some of the cases cited sound most unusual, the painstaking and elaborate investigations undertaken seem to justify the diagnosis in most cases, though the cautious reader may be sceptical about others. The second part of the book treats of reactions caused specifically by physical agents, such as light, heat, cold, mechanical irritation, freezing, and burns. The author speaks also of reactions brought about indirectly by the effect of mental or physical effort. Reactions caused by physical agents, he maintains, fall into two distinct classes: first, those in which the reaction is confined to the area directly exposed to the physical agent; and secondly, those in which the reaction is widespread and affects not only areas directly exposed but distant tissues as well. The former type he speaks of as "contact reactions," and the latter as "reflex-like reactions." A series of striking photographs accompany the descriptions of the idiosyncrasies he designates as "urticaria solaris," "urticaria hiemalis," and "urticaria demographica." This is dealt with entirely from the clinical point of view. There is, of course, a theoretical side to this question of allergy, which is one of the most intricate problems immunologists have had to face. Dr. Duke does not exhaust the reader by trying to lead him through fields of speculation. Since this is essentially a practical book, he very wisely contents himself with quotations from standard textbooks on chemical pathology and immunology when theoretical explanations or enlargements are necessary.

MALIGNANT DISEASE OF THE TESTICLE.

THE honour conferred on Mr. HAROLD R. DEW for his essay on *Malignant Disease of the Testicle*³ by the award of the Jacksonian prize in 1923 was well merited, for it is a welcome addition to the literature of the subject. The condition is extremely rare, and there has been a good deal of confusion, and what many of the surgical textbooks have to say about it is out of date or even erroneous. The curious and complex nature of testicular tumours has long interested pathologists and surgeons, and Mr. Dew has brought together all the recent knowledge. Although he has based his work on the study of forty hitherto unreported cases, he has delved widely into the literature, and acknowledges a debt to the French observers for much of the knowledge which exists on the pathology, the clinical aspects, and the treatment of these neoplasms. The book is uncommonly well illustrated, containing five coloured plates and a number of sketches, photographs, and microphotographs, the majority from original specimens. After dealing with the anatomy and development, the writer discusses the morbid anatomy and histology from an historical point of view to show how the confusion in classification has arisen. His own classification is based mostly on the histogenetic aspect; three main groups are recognized—the teratomata, the carcinomata (seminomata), which are almost equally common, and the sarcomata, which comprise only 1 to 2 per cent. of malignant testicular growths. Many carcinomata, he considers, have been wrongly classified as sarcomata; they arise in the seminal epithelium. Compared with the teratomata they are less malignant and metastasize later. Tumours of each group obey the laws of their respective classes as regards malignancy, metastases, and recurrence. With regard to the etiology, the author considers trauma has a definite causal relationship; that the incidence of malignancy in an ectopic testis has been exaggerated; and that there seems to be no relation between inflammatory processes and tumour formation.

¹ *Allergic Diseases. Diagnosis and Treatment of Bronchial Asthma, Hay Fever, and other Allergic Diseases.* By W. Storm van Leeuwen, M.D. London: J. B. Lippincott Company. 1925. (Med. 8vo, pp. ix+142; 4 figures. 18s. net.)

² *Allergy: Asthma, Hay Fever, Urticaria, and Allied Manifestations of Reaction.* By William W. Duke, Ph.D., M.D. London: H. Kimpton. 1925. (Med. 8vo, pp. 332; 75 figures. 25s. net.)

³ *Malignant Disease of the Testicle. Its Pathology, Diagnosis, and Treatment.* By Harold R. Dew, M.B., B.S., M.D., F.R.C.S. Eng., F.A.C.S. London: H. K. Lewis and Co., Ltd. 1925. (Roy. 8vo, pp. 168; 52 figures, 5 coloured plates. 21s. net.)

Teratomata tend to occur early, between 20 and 30, and the carcinomata a decade later. The clinical types are classified under three headings: (1) cases in which the disease is confined to the scrotum; (2) advanced cases with extension; (3) neoplastic changes in an abnormally placed testis. In all doubtful cases of testicular enlargement early exploratory incision should be regarded as the indispensable and final means of diagnosis.

In discussing treatment a strong plea is made for early radical operation. The results from simple orchidectomy are so bad that the radical operation, although a severe one, ought to be performed, provided there are no contraindications. Early exploratory incision, followed by removal of the glandular area of drainage, offer the most hopeful results.

Mr. Harold Dew is to be highly complimented on the way in which he has presented his subject. It is from such superficial organs as the testis that the problem of malignancy can best be studied, and although we are as yet far from discovering the factors of its causation this book shows the tenacity with which the subject is being pursued. From its rarity, its complicated cellular composition, its extreme malignancy, and the difficulty of treatment, the testis more than any organ merits this attention. If we may make one criticism, it would be that Mr. Dew had not made a comparative study and included in his work malignant disease of the testis which occurs in the horse and other lower animals.

STUDIES IN NORMAL PSYCHOLOGY.

IN a volume entitled *Behaviorism*¹ Dr. JOHN B. WATSON gives a further exposition of his psychological doctrines which have been the subject of so much controversy. The book consists of a series of twelve lectures and covers much the same ground as the author's textbook of 1919, though it is written in a more popular style. It also includes an account of his latest work on the congenital and acquired responses of children ranging in age from a few months to 7 years. These researches are of considerable interest and importance, and should be taken into account in any future discussions on the nature of the emotions and instincts. Dr. Watson is a clear and courageous writer, and he is evidently intent on arriving at the facts about human nature. He has certainly something of value to teach, though we feel that his views would carry more weight if they were expressed with more restraint and in a manner less reminiscent of political propaganda.

Mr. J. L. BERNARD, Professor of Sociology, University of Minnesota, in a scholarly book on *Instinct: A Study in Social Psychology*² arrives by a different route at conclusions similar to those of Dr. Watson as to the paramount influence of environment in the determination of human behaviour and in the formation of character. In his opinion the biologist and psychologist have laid far too much stress upon the instinctive factors in conduct. His investigations lead him to the view that the environment increasingly dominates both the content and the direction of habit formation. He considers, therefore, that it is from the standpoint of the content and the organization of the psycho-social environment that the study of the control of the growth of human character should be approached, the instincts being regarded primarily as the original—not necessarily the immediate or the only—starting-points in the process. The future control of the human race, he holds, lies, not through selective breeding of the higher social qualities—although selective breeding of those traits which can be so bred is of the greatest importance—but through their transmission by social contact and control. Much of the book is taken up with critical discussions on the various theories and conceptions of instinct.

Miss HELGA ENG is responsible for interesting *Experimental Investigations into the Emotional Life of the Child*,

compared with that of the Adult.³ The apparatus selected for carrying out these researches was the plethysmograph, as the method had proved in former experiments to be the best adapted for the purpose. Special interest is attached to Miss Eng's observations on the "spontaneous curves" occurring during the course of her experiments. Other investigators have noted these curves, but appear to have seen in them merely disturbing factors in the experiment, rather than a profitable field of investigation. Actually they were due to spontaneous psychical activities occurring independently of any stimulus arranged by the experimenter. Thus evidences of emotional disturbance, either pleasurable or the opposite, were found to result from such factors as thoughts of ski-ing, anticipated birthday presents, castor oil, a bad dream, or a dead brother; or were perhaps due to the contemplation of a blouse or a depressing shadow. Such data afford some insight into the influence of underlying emotional factors upon the reaction of an individual to the daily tasks of life. In concluding her book the writer says that while Mosso came to the conclusion that the psyche in all circumstances appears to be the slave of matter, for her part she finds the strongest reasons to reverse that view, and to say that there is nothing to which matter is more subservient than mind.

FRENCH VIEWS ON PULMONARY TUBERCULOSIS.

THE second edition⁴ of Dr. LÉON BERNARD's book on pulmonary tuberculosis is not only larger than the first, which was sold out in three years, but is in many respects altered and improved. Fresh chapters have been added, recent acquisitions to our knowledge inserted, and a clearer conception worked out of several points that were previously ill defined. Though the author is essentially a product of the French school, he does not carry his ideas to the degree of exclusivism that is so annoying in some of his compatriots. It is true that he has been rebuked by the Americans for neglecting to take notice of their work, but, as he states in his preface, he did not set out to write a treatise, but rather to make a contribution of his own opinions, founded on the investigations of himself and of his pupils. In this he has been successful.

It is in this type of work that the French show themselves to advantage. The clear-cut ideas, the dogmatic assertions, and the lucid style render their books eminently readable, and suitable for the practitioners for whom they are intended. No one with a knowledge of scientific literature would go to the French if what he desired was a general review and critical discussion of the present position of an obscure subject. He would be disappointed. All that he would find would be a summary of the French point of view. It is for this reason—their neglect of the work of other nations—that the French are so far behind their English and American contemporaries in their systematic treatises and monographs. But in a book such as Léon Bernard's this failing is of no importance. We think, in fact, that he has chosen the right method for productions of this type in limiting himself to the exposition of ideas rather than to their discussion.

For English readers the most interesting chapter will undoubtedly be that devoted to the social prevention of tuberculosis, in which he not only describes the various methods of combating the disease, but brings evidence of their success. It is pleasing to find an authority on tuberculosis who is not a fanatic, who does not pin all his faith to the dispensary, to the sanatorium, or to the village scheme of settlement. Each of these methods is of value, and the author brings out clearly that all are required and that all are useful, provided the integration between them is perfected. We have no hesitation in recommending this volume to tuberculosis officers in particular, and to general practitioners who still doubt the value of present methods of prophylaxis.

¹ *Behaviorism*. By John B. Watson. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1925. (Med. 8vo, pp. 251, 23 figures. 12s. 6d. net.)
² *Instinct: A Study in Social Psychology*. By J. L. Bernard. London: George Allen and Unwin, Ltd. 1925. (Demy 8vo, pp. ix + 550. 15s. net.)

³ *Experimental Investigations into the Emotional Life of the Child, compared with that of the Adult*. By Helga Eng. Translated by George Oxford Medical Publications. London: Humphrey, London: University Press. 1925. (Roy. 8vo, pp. vi + 243.)

⁴ *La Tuberculose Pulmonaire*. Par Léon Bernard, Professeur à la Faculté de Médecine de Paris. Deuxième édition, entièrement refondue Paris: Masson et Cie. 1925. (Med. 8vo, pp. 400, 13 figures. 22 fr.)

SCIENCE, RELIGION, AND REALITY.

THE object of the book *Science, Religion, and Reality*,^{*} edited by Mr. JOSEPH NEEDHAM, is to make clear what are the present relations between science and Christianity. The book is not directly apologetic in its tone; it is neither a defence nor a criticism of Christianity. It does not attempt to patch up past quarrels, or secure reconciliation by compromise, but simply records the opinions of nine well known scientists and philosophers, each of whom writes about his own particular subject. The book is therefore intended to be a mirror of contemporary scientific thought about religion.

Two medical men have contributed to this discussion—Dr. Charles Singer and Dr. William Brown. Dr. Singer, as was to be expected, has written on the historical relations of religion and science; he has carried his review down to the period which he terms the reign of law, a period ushered in by the extraordinary wealth of scientific discovery with which the seventeenth century opened; a wealth crowned by the work of Newton. The record of the relations between science and religion in the nineteenth century has been left to Dr. Antonio Aliotta, Professor of Philosophy in the University of Naples. Dr. William Brown, Wilde Reader in Mental Philosophy at Oxford, has written an article about religion and psychology which will interest many medical readers because of his skilful analysis of the relation which suggestion, faith, and mysticism bear to the everyday working of the mind. Mr. Joseph Needham, the editor of the book, has written from the point of view of a physiologist on the subject of mechanistic biology and the religious consciousness. Every biochemist and biophysicist must, he thinks, be a thorough-going mechanist, but this attitude need not be incompatible with religious convictions. One of the most readable and also most provocative contributions is that by the distinguished astronomer, Professor Arthur Eddington of Cambridge, who has written on the domain of physical science. He makes a delightful beginning in his comparison between the point of view of the learned physicist and that of the man in the street. Another interesting portion of Dr. Eddington's article is that in which he writes of the relation between Einstein's theory of relativity and religious doctrines. The scientific conception of the universe which the modern physicist has built up seems likely to modify religious doctrines even more than the biologists did with their theories of evolution in the last century. We must mention also Dr. Malinowski's essay on magic science and religion, which has, of course, special interest for the anthropologist. In his concluding article Dr. Inge does not attempt to harmonize the widely different views expressed by the other writers, but comments on what he considers to be the main ideas of his collaborators.

ANNALS OF MEDICAL HISTORY.

THE winter or last number of volume vii of the *Annals of Medical History*⁹ opens with a carefully documented account, by Major E. E. Hume, of the life and work, particularly on the theory of the etiology of cholera, typhoid fever, and other intestinal diseases, of Max von Pettenkofer (1818-1901), whose rugged features appear on the cover. Though his logic was not always of the best, he had the courage of his convictions, as proved by his swallowing in 1892 a culture of the cholera bacillus; in addition there is for the first time a complete list of his 228 publications. A fine portrait of Sir Dominic Corrigan forms the frontispiece, and Dr. R. T. Williamson describes the life and work of that famous Dublin physician, who took the M.D. Edin. in 1825. In addition to his well known descriptions of aortic reflux and chronic interstitial pneumonia, he wrote "On aortitis, as one of the causes of angina pectoris," which even Sir Clifford Allbutt, who had independently and on broader lines contended for the

aortic origin of angina, had not any knowledge of until some six months after the delivery of his well known lecture on the subject in 1907. Dr. Stephen D'Irsay writes on the life and works of Gilles de Corbeil or Aegidius Corboliensis, born about the middle of the twelfth century, who was educated at Salerno when at the zenith of its reputation and carried its teaching to Paris, where he was archiater or physician-in-ordinary to King Philip Augustus, and wrote textbooks which, though not original, maintained for three hundred years the Salernitan tradition. The influence on medical progress of the work of Carl Rokitansky (1804-1878), the founder of the so-called Austrian medico-anatomical school which made Vienna the centre of medical learning, is sketched by Dr. F. R. Menne, who regards him as probably the greatest single balancing force in medical science of the nineteenth century. The medical wisdom of Mark Twain, who for years bore the burden of chronic bronchial colds and rheumatism and died in his seventy-fourth year from angina pectoris, is analysed by Dr. L. J. Bragman. The second and concluding part of Frances Long Taylor's life of her father, Crawford Williamson Long, who in 1842 initiated surgical anaesthesia by ether, is an interesting addition to the history of the subject. Dr. W. G. Aitchison Robertson contributes an article on "The powder of sympathy," which has been stated to have come from the East, but might almost have been evolved from the inner consciousness of one of the witches in *Macbeth*, to judge from its horrible constituents; it, however, was advocated for the cure of wounds, not only by Sir Kenelm Digby, but by Nathaniel Highmore, the anatomist. Dr. F. H. Garrison renders from the original German into graceful English verse the only poem in praise of ophthalmologists that he has found in the numerous efforts in praise of our profession which he has patiently perused.

NOTES ON BOOKS.

The Art of Vicarious Prescribing.

AT some period in the development of the art of medicine there must have existed adventurous spirits who experimented in the mixing of drugs to form a prescription. Nowadays the young practitioner is saved much trouble in that he can always have at hand a book of other people's formulae. Thus, Dr. ESPINE WARD sets forth his *Favourite Prescriptions*,¹⁰ culled from various standard textbooks, some with modifications that he has found of value. Dr. Ward disarms criticism by prefixing to his book the cynical little motto: "For many patients hope is the best medicine." The book is divided into three sections: dosage tables, hints for treatment of poisoning, and prescriptions. The prescriptions are arranged under an alphabetical list of diseases, which in one direction is so complete as to contain an aphrodisiac, while in the other direction it fails to include syphilis, except on the preventive side in the matter of a prophylactic ointment.

A work of more solid value is the eleventh edition of *The Book of Prescriptions*¹¹ by Messrs. E. W. LUCAS and H. B. STEVENS. The first edition was published in 1856. Drugs are described in alphabetical order, with notes on their pharmacology and therapeutics. At the end of the description of the more important drugs prescriptions are given, with a statement of the diseases for which each is appropriate. An index of diseases and remedies completes the volume, which should be of value to both practitioners and students.

*Principal Drugs and their Uses*¹² is a little handbook intended to convey information to nurses. Each page consists of three columns: the name of the drug, its nature, and its use. The contents of the second column are not highly illuminating; nor are they based on any definite scheme of illustration. The nature of acetyl-salicylic acid is that it is "prepared from salicylic acid"; the nature of aspirin is that it is "the trade name of a synthetic compound"; the nature of beeswax is that it is "a secretion of the bee." Under the heading "Uses" also the information seems defective. Thus of thyroid gland it is said, "prescribed in obesity, goitre, and psoriasis."

¹⁰ *Favourite Prescriptions*. By Espine Ward, M.D. Belfast. London: J. and A. Churchill. 1925. (Fcap. 8vo, pp. 95. 5s. net.)

¹¹ *The Book of Prescriptions*. By E. W. Lucas, C.B.E., and H. B. Stevens, O.B.E. Eleventh edition. London: J. and A. Churchill. 1925. (Fcap. 8vo, pp. ix + 381. 10s. 6d. net.)

¹² *Principal Drugs and their Uses*. By a Pharmacist. Pocket Guide Series. London: Faber and Gwyer, Ltd. (The Scientific Press.) 1925. (Cr. 15mo, pp. 106. 1s. 6d. net.)

^{*} *Science, Religion, and Reality*. Edited by Joseph Needham. London: The Sheldon Press. 1925. (Demy. 8vo, pp. 395. 12s. 6d. net.)

⁹ *Annals of Medical History*. Vol. VII. No. 4, December, 1925. Edited by Francis R. Packard, M.D., New York: Paul B. Hoeber, Inc.; London: Hailstone, Tindall and Cox. 1925. (8½ x 12½, pp. 319-450; illustrated. Subscription in Great Britain, 42 2s. per volume of four numbers.)

British Medical Journal.

SATURDAY, FEBRUARY 13TH, 1926.

EPIDEMIC DISEASES OF THE NERVOUS SYSTEM.

THE four infective diseases of the central nervous system—poliomyelitis, polioencephalitis, cerebro-spinal fever, and encephalitis lethargica—when considered from the epidemiological point of view, are found to show certain very characteristic differences. The seasonal behaviour of these infective diseases is distinctive, and year after year each maintains its traditional habit. Cerebro-spinal fever shows preference for the winter and spring months of the year. Acute poliomyelitis and polioencephalitis remain essentially diseases of late summer and autumn. On the other hand, encephalitis lethargica is commonest usually in the first quarter of the year, though it happened that in 1924 the heaviest incidence took place in the second and not the first quarter. This seasonal distribution holds good for all countries in northern latitudes, but south of the equator conditions are reversed, and in Australia poliomyelitis is a disease of the first half of the year and encephalitis lethargica of the third and fourth quarters. Knowledge gained from a consideration of the seasonal behaviour of these diseases may at times have important clinical value, as Dr. A. K. Chalmers, the medical officer of health for Glasgow, pointed out recently in the Watsonian Lectures delivered before the Royal Faculty of Physicians and Surgeons of that city. When encephalitis lethargica occurred in the spring of 1918 there was a disposition in some quarters to regard polioencephalitis as a clinical variant of that disease rather than of poliomyelitis, but the seasonal distribution, corresponding as it does with the latter, tended to clear up the doubt. Dr. Chalmers has shown also that in Scotland the epidemic diseases of the central nervous system differ in age and sex distribution in a remarkable fashion. It need hardly be mentioned also that they differ radically in their sequelae.

It is usually assumed that all these diseases are spread by contact from case to case or by the agency of a healthy "carrier." This has, of course, been clearly established for cerebro-spinal fever, and it has been shown that the "carrier rate" among troops increased according to the dangerous degree of overcrowding in barracks. With encephalitis lethargica, however, case-to-case infection can rarely be traced, and the solitary instance which occurred during 1923 may be mentioned only as a curiosity. In a family at Eastbourne three brothers and a sister, all of school-going age, were attacked, one after the other, with encephalitis lethargica in July, 1923. The sharp outbreaks of encephalitis which occurred in Glasgow in 1923 and 1924 followed a very capricious distribution, as is shown by the map of Glasgow in which the distribution of this disease during these epidemics is plotted. Dr. Chalmers noted that few cases had more than a topographical association, but on one occasion two cases arose in different households in one tenement within a week of each other. The one- and two-apartment population, where pressure on house-room is greatest, had an almost similar attack rate—41 and 44 respectively per 100,000; among the population dwelling in three and four rooms it fell to 34 and 19, and only 13 cases occurred in institutions. In view of such facts as these the ordinary carrier theory, though

convenient as a working hypothesis, needs critical consideration from time to time. Dr. Chalmers remarks that such experience as we have of plague in this country might have been used to illustrate the same theory, had we not known of the part played by the rat and its parasite.

On the connexion between sporadic cases of cerebro-spinal fever and epidemic prevalence the medical officer of health for Glasgow has some interesting comments to make. No doubt the sporadic case is the slender thread which links one outbreak with another, but there is good reason to believe that this sporadic case eludes detection during the non-epidemic period. An analysis of the records of deaths from other forms of meningitis in Scotland during the years which preceded the epidemic of 1906 seems to reveal a steady transference of deaths from "meningitis" to tuberculous meningitis, and then to cerebro-spinal fever. As highly suggestive of the possibility that in the pre-epidemic period cases of cerebro-spinal fever were being notified as tuberculous meningitis, it may be mentioned that there is no other evidence to prove that any form of tuberculosis was increasing in these years. It would appear, therefore, that the sporadic case keeps up the association between epidemics, under the guise of meningitis arising from other causes, and then at intervals takes on the more obvious features which are recognized as an epidemic.

Reflections such as these open up the question of the need for a more widespread notification of diseases of the nervous system. Many observers hold that the present phase of cerebro-spinal fever has much in common with the period which formed a prelude to the explosive outbreaks on the Continent during last century. Whether this be so or not, there is much to be said for the additional notification of those other forms of meningitis which experience has shown may in reality be unrecognized cases of cerebro-spinal fever.

VARIOLA RESEARCH.

IN to-day's issue (p. 299) we publish notes of a conference held last month under the Health Committee of the League of Nations regarding questions connected with small-pox, mild and severe in type, and with vaccinia. The conference arrived at conclusions of the highest importance in respect of intensive international research into every problem relating to variolous disease and its control. Perusal of the draft scheme of investigation submitted by the president of the conference, Professor Ricardo Jorge, indicates how all-embracing are the questions propounded for consideration. At the same time the circumstances are peculiarly suitable for the inquiry, both from the executive and the scientific point of view. The increasing prevalence in recent years of a much modified variety of small-pox in various parts of the world, interspersed with occasional outbreaks of the classical or severe type of the infection, gives a wide interest to the subject, at the same time that the Health Organization of the League makes practicable an investigation on the completest scale, bringing under review every relevant fact belonging to every individual country. Furthermore, advances in the sciences relating to the causes and control of infectious disease, by immunization and otherwise, have been so rapid in recent years that the application of newer knowledge to questions of prevention and control should be of the utmost advantage in reaching conclusions and making recommendations.

The draft scheme submitted by Professor Jorge is in two parts, epidemiological and experimental, but is

so inclusive and far-reaching that the conference, doubtless in view of the time involved, has selected three lines for first consideration. These are briefly (1) to pursue the study of mild small-pox (for which the name "alastrim" has been needlessly adopted in the report) as fully as possible, both clinically and epidemiologically; (2) to form conclusions from inquiry at vaccine institutes as to the essential matters over which Government control should be exercised, and to compare recently proposed tests for measuring the potency of vaccine lymph; and (3) to give close attention to the affection of the nervous system reported to have followed vaccination in some countries. On this last subject it is advised that various Governments be asked to collect information from their public health authorities. The commission will report on all the data thus obtained, while technical investigations are being carried out by experts.

As anticipated in our last issue (p. 256), the announcement is now made that in this country the Minister of Health, acting in conjunction with the Medical Research Council, has appointed a strong committee to share in the inquiry. The committee's terms of reference are "to inquire and report from time to time (1) on matters relating to the preparation, testing, and standardization of vaccine lymph; (2) on the practical methods which are available in the light of modern knowledge to diminish or remove any risks which may result from vaccination; (3) on the methods of vaccination which are most appropriate to give protection against risk of small-pox infection in epidemic and non-epidemic periods; and to co-ordinate the work of investigation on these questions in this country and abroad, having regard to corresponding work undertaken by international health organizations." The chairman of the committee is Sir Humphry Rolleston, Bt., Regius Professor of Physics at Cambridge and President of the Royal College of Physicians of London. The other members are Dr. F. R. Blaxall, bacteriologist to the vaccine department of the Ministry of Health; Dr. G. F. Buchan, medical officer of health for Willesden; Dr. A. E. Cope, teacher in vaccination under the Ministry and honorary secretary of the Association of Public Vaccinators; Dr. Mervyn H. Gordon, F.R.S., consulting bacteriologist to St. Bartholomew's Hospital; Dr. J. C. G. Ledingham, F.R.S., professor of bacteriology in the University of London and chief bacteriologist at the Lister Institute; and Dr. J. R. Perdrau, pathologist to the Lambeth Hospital. The secretary is Dr. J. R. Hutchinson, a medical officer of the Ministry of Health, Whitehall, S.W.1, to whom all communications relating to the work of the Vaccination Committee should be addressed.

The results of the committee's labours will be awaited with keen interest by all who are concerned with the prevalence and prevention of variolous disease, both in this country and abroad.

MEDICAL PARASITOLOGY.

THE enhanced position given to the subject of medical parasitology is one of the most suggestive of several notable changes effected by the General Medical Council in the revision of the curriculum for the Diploma in Public Health. This is due recognition of the fact that several very prevalent and fatal diseases, more especially of tropical countries, have been shown in recent years to be caused by protozoal and helminth parasites, and that the elucidation of their life-histories has provided the hygienist with the means of eradicating these diseases. These investiga-

tions were carried out in very adverse circumstances, often far from sources of scientific literature, with meagre equipment and long before the highly elaborate technique considered necessary to-day had been evolved. It is inspiring to think that many of the pioneers were men of our own country and profession. These early workers deliberately, as well as of necessity, focused their attention upon the pathogenic parasites of man. The instinct of genius undoubtedly guided their untrained steps, for it is remarkable how many pitfalls were avoided and how many were the successes gained in a field so unsuspectedly full of difficulties and complications. The parasitologist of to-day must be acquainted with the morphology of the pathogenic and commensal organisms in man. He must also know and be ever on the lookout for contaminations with free-living forms and for congeners in other hosts. Particularly must he keep in mind the parasites of those hosts which serve as human food, for these allied forms may passively traverse the human intestine to appear in the faeces, not as living parasites or commensals of man, but merely as inert foreign bodies. Disaster awaits the microscopist who fails to realize adequately that the bulk of human excrement has entered the body as food. Lately Sandground (1923) showed that *Oxyuris incognita*—a worm reputed to have infested hundreds of American recruits during the late war—is merely a nematode infesting food vegetables. In our present issue (p. 282) Drs. J. G. Thomson and A. Robertson of the London School of Hygiene and Tropical Medicine show that a number of recently described coccidia in man are merely known species passing through the intestine after a meal of herrings or sprats. Since their paper was put into type for the press we have learnt that one of these species—namely, *Eimeria oxyphora* Dobell, 1919—occurs in tinned sardines from Portugal and in the soft roes of herring tinned in Norway. These organisms have remained quite distinct and readily recognizable, although they must have been subjected to a high temperature in the process of manufacture. It is evident that special skill and experience is needed to-day to assess aright the medical significance of parasitological findings. The tendency in America has been to hand over these studies to the specializing professional zoologist. In this country, however, authoritative opinion appears to favour the view that a previous medical training is as desirable for the medical parasitologist as for the bacteriologist. After all, the medical student nowadays acquires probably as broad a training in microscopical technique and interpretation as the young zoologist; and if medical parasitology is to take its place beside bacteriology as a distinct and essential branch of the profession, it is a wise policy to encourage medical men and women with an aptitude for zoological investigations to train for this work. In no other way can it be assured that the future association of the parasitologist, the clinician, and the hygienist will be one of real and mutual understanding.

DIPHTHERIA AND SCARLET FEVER.

THE diagnosis of diphtheria by bacteriological examination of throat swabs carries with it four serious risks. There is the usual but unwise delay in the administration of antitoxin while awaiting the result of the examination; in patients with "positive" swabs the bacilli are not always biologically diphtheria bacilli or virulent; the admission to hospital of such people with a diagnosis of diphtheria entails the risk of their contracting diphtheria in the ward; and there is also the possibility of segregating carriers of virulent bacilli in close contact with susceptible subjects who happen to have bacilli resembling the true diphtheria bacillus in their throats. We have at various times called attention to the

deficiencies of the ordinary practice of "swab diagnosis" in diphtheria, and Dr. R. A. O'Brien emphasized these points in a discussion before the Medical Officers of Schools Association which is reported at page 287 this week. In the course of his remarks Dr. O'Brien emphasized the value of the Schick test in preventing those undesirable results of uncontrolled swabbing, and argued with some force against the measures usually employed in a school for controlling an epidemic of diphtheria. Indiscriminate swabbing may result in incarcerating in the sanatorium "positive swab" children who happen to have innocent bacilli resembling the Klebs-Loeffler bacillus in their throats, in close contact with carriers of true and virulent diphtheria organisms. Such carriers are Schick-negative and immune to diphtheria, but the "swab-positive" child with bacilli merely resembling the true diphtheria bacillus may be Schick-positive, and therefore susceptible to bacilli spread by his neighbour, the virulent carrier. The administration of antitoxin to all the contacts cuts short the epidemic, and may be completely and finally successful; but it sometimes fails. Unless the cause of the epidemic is eliminated, the disease may recur in a few weeks when the immunity conferred by the diphtheria antitoxin has faded. The Schick test, according to Dr. O'Brien and his colleagues, enables firm control of the situation to be gained in twenty-four to forty-eight hours. Those who give a positive reaction are kept under careful observation, while from the throats of the negative reactors swabs are taken, if necessary on several occasions, until the medical officer is certain that no carrier of virulent organisms is at liberty to restart an epidemic. If active immunization is decided on, the "diphtheria simultaneous prophylactic and indicating mixture" (DPIM) recently described by Glenn¹, when perfected, may control the testing and immunization more satisfactorily than in the past and possibly shorten the whole process. Dr. O'Brien reported that Dr. E. R. Harries had made a small number of observations which suggested that by the intradermal injection of the prophylactic indicating mixture an approximation to the Schick test reaction was obtained, while immunizing effects were also produced. Immunization by the present methods was successful, and diphtheria was being rapidly abolished from among the staffs of fever hospitals.² The school medical officer is also concerned with scarlet fever; here the Dick and Schultz-Charlton tests give considerable help in diagnosis. Dr. O'Brien remarks that if a patient with a "suspicious" throat and early rash gives negative Dick and Schultz-Charlton reactions the disease is almost certainly not scarlet fever. Antitoxic serum can be used for passive immunization of contacts or for the treatment of toxic cases. Many favourable results of treatment with antitoxin have now been reported, and evidence encouraging the belief that this serum is highly efficient therapeutically continues to accumulate from American³ and English sources.

PUBLIC HEALTH IN PALESTINE.

STEADY efforts in preventive medicine during the last few years in Palestine are now bearing fruit, and in the annual report for 1924 of the Department of Health special attention is drawn to the progress made in controlling malaria and trachoma, and to the valuable support that is being given by the inhabitants. Municipalities are co-operating with growing readiness in the financial upkeep and administration of the local hospitals, improvements are being made in housing conditions, and the various trades are now conducted on more hygienic lines than hitherto. The inhabitants both of towns and of villages are also giving

active assistance in antimalarial drainage schemes and in developing and improving the water supplies. Main drainage schemes, however, appear to be much less popular, though house drainage has improved. The municipalities, for the most part, have shown little appreciation of the need for improving existing conditions. This defect in the Oriental mind was illustrated in the note on public health in China in our issue of January 9th (p. 62), and appears to be very resistant to treatment. Measles was the most serious of the infectious diseases, and caused a rise in the death rate. Typhoid fever, typhus, and dysentery were limited to the Jewish population, which seems to be specially prone to infection. Tuberculosis is a grave problem, particularly in Nablus, and the incidence is high among the Jews and the Bedouin prisoners. There was less malaria in Palestine than in any previous year, the percentage incidence among dispensary patients being 3.87 in 1924, as compared with 4.9 in 1923 and 7.2 in 1922. We indicated in some detail on April 25th, 1925 (p. 795), the lines on which the malarial control in Palestine was being conducted, with special reference to the Haifa Malaria Research Unit. During the last six years co-operation has been close between the Government Department of Health, the Antimalarial Advisory Commission, the Malaria Research Unit, and the Malaria Survey Section lent by the Rockefeller Foundation. Besides drainage schemes and survey work, control of mosquito breeding in cisterns and wells and elsewhere has now been established in all municipal areas, together with notification, followed by treatment of cases of malaria. The importance of continued activity was illustrated by an alarming spread of infection in Haifa in 1923, when the antimalarial measures were temporarily relaxed. Acute conjunctivitis increased in 1924, and twelve Government ophthalmic clinics are being organized, of which four—at Nablus, Ramleh, Gaza, and Beersheba—are already in existence. All these clinics will be supervised by the varden of the British Ophthalmic Hospital of the Order of St. John of Jerusalem; they are situated in neighbourhoods where other facilities for eye treatment are absent or inadequate. More than 60 per cent. of Palestine school children show evidence of trachoma, and the chief preventive work in this disease is mainly carried on in the schools, where 50,000 children are under medical observation. In the town schools the daily treatment of infected children by the school nurse or medical orderly is found to bring about cure in some 30 per cent. of the cases. In the village schools, where the treatment has to be left to the teachers, the results have been less good. In a note on the public health work in Palestine during 1922 we referred (1923, vol. ii, p. 1270) to the existence then of eleven Government hospitals; the number was reduced to seven in 1924, and at the beginning of 1925 there were only four hospitals, with 155 beds, a further reduction being in progress. Many hospitals originally taken over by the Government were municipal hospitals before the war, and these are now being returned to municipal control subject to a certain degree of Government supervision and the maintenance of efficient treatment. During the year under review local hospital committees were formed at Gaza, Nablus, Jaffa, and Beersheba to provide and administer such services as maintenance, feeding, and laundry work. The system has so far worked well and arrangements have been made to extend it to Acre. Voluntary hospitals are doing almost the whole of the general hospital work for the civil communities of Palestine, and have been of great service to the Government in providing treatment for sick officials. In 1924 they admitted more than 23,000 patients, while the Government and municipal hospitals dealt only with 1,012 ordinary paying patients and 4,500 Government employees, infectious cases, and paupers. The Government controls the construction of all new hospitals to ensure that modern

¹ Jour

² Rep

year 1924, p. 82.

³ Blake and Trask, *Boston Med. and Surg. Journ.*, 1925, vol. 133, pp. 659-665.

⁴ Birmingham, for the

standards are attained. In 1922, as we mentioned, difficulty was caused by medical practitioners preferring to reside in the towns, thus leaving country districts very scantily supplied; this difficulty remains acute, though the number of licences to practise has increased rapidly. In 1920 the total number licensed was 133, in 1922 it was 306, and in 1924, 481. More Arab doctors will enter Palestine when the Arab University of Damascus improves its standards of training and examination and receives recognition. At present most students obtain their training in the excellent medical schools of the American and French Universities in Beirut. The benefit of the new medical school of the Hebrew University in Jerusalem, mentioned in our issue of March 7th, 1925 (p. 471), will soon be felt by Jewish colonists, the medical service for whom is at present inadequate. There is a great demand for midwifery training, and the Princess Mary Maternity Section of the Government hospital in Jerusalem has a long waiting list of students. Other training centres are provided by the Hadassah Medical Organization, which also administers a large number of infant welfare centres. The New Zealand Plunket Society has one infant welfare centre in Tel Aviv and one in Haifa, and the number of these centres under other voluntary organizations is rapidly increasing. Although most schools in Palestine fall far short of modern standards, yet the departments of health, education, and public works are co-operating actively in improving them. Since 1920 the number of school children inspected by Government medical officers has increased from 10,000 to nearly 20,000, notwithstanding a considerable reduction in the number of these officers.

SHORT-SIGHTED CHILDREN.

SOME little while ago the Council of British Ophthalmologists appointed a committee of eleven members to investigate the methods employed in various parts of the British Isles for the education of children suffering from defective vision due to myopia and other causes (excluding the blind). That committee has now completed its task, and its report,¹ commendably brief and to the point, has been adopted by the council. The committee's findings and recommendations are thus issued in the form of a pronouncement by the Council of British Ophthalmologists. The children under consideration are not those who are or may be expected to be technically blind—that is, those “unable to do work for which sight is essential”; these should be educated in schools for the blind; but they are those who suffer from progressive myopia, defective vision due to such causes as corneal opacities, and congenital anomalies. Special classes for these children exist. The Board of Education calls them “schools for the partially blind,” a term that the council thinks very undesirable, since it gives offence to parents and may leave a stigma detrimental to the child in after-life. The council prefers the term “myope class,” the name used by Mr. Bishop Harman, who initiated these classes in London in 1908. It concludes that the best interests of the children are served if such classes are held in association with elementary schools, for by this system contact is fostered between the defective-sighted and normal children. Individual teaching is necessary, so the classes must be small. Myope classes have been charged with “limiting the high scholastic attainment” of some children. The report faces this question, and frankly agrees that the charge is true, but it adds, “it has been found undesirable to encourage these children to follow a higher education, with the prospect of a sedentary occupation, thus incurring grave risks of serious breakdown later in life.” An investigation was made

into the provision for these children. There are now in London forty-one myope classes, providing for 915 children. In the provinces generally “with a few notable exceptions the provision for the education of the affected children is seriously inadequate.” In conclusion, the council strongly endorses the recommendation of the Departmental Committee on the Causes and Prevention of Blindness, “that further provision should be made by the education authorities for the education in myope classes or by similar methods for children with serious defects of vision requiring such facilities, and that steps should be taken to discover these cases at such an early age as will allow of preventive measures being adopted.” It adds the following recommendations of its own: (1) Children with defective sight should be examined periodically by an ophthalmic surgeon, who should prescribe the necessary treatment and educational regime. (2) In all large centres of population special classes should be established for children with such defective sight as renders them unsuitable for ordinary school education. These classes should be associated with the ordinary elementary schools, and limited to a nominal roll of twenty children in each. (3) In country districts where there are not sufficient children to form a “myope class,” instruction should be given to teachers and parents on the education and management of children with defective sight. Parents and local care committees should receive advice as to the choice of occupation for the children on leaving school. References are given to pamphlets issued by the London County Council and to papers by Mr. Bishop Harman.

THE ROGERS PRIZE.

At a time when the present Poor Law system is threatened with extinction, memories of past conflicts are revived by the announcement recently by the Society of Apothecaries of London that a prize of £150 is to be awarded for an essay on the treatment of the sick poor, in accordance with the terms of the bequest of Dr. Joseph Rogers, who died in 1889 after a strenuous life devoted to the abolition of the abuses which had hitherto disgraced Poor Law administration. Dr. Rogers, who was born in 1820, is chiefly renowned for the part he played in transforming the whole system of medical relief by founding in 1868 the Poor Law Medical Officers' Association, which united the Metropolitan Poor Law Medical Officers' Association with the Poor Law Medical Reform Association, created some twelve years before by Mr. Richard Griffin, a surgeon of Weymouth, who, with the active co-operation of the Earl of Shaftesbury, had initiated the medical reform of the Poor Law. Dr. Rogers, after playing a prominent part in securing urgently needed improvements in the sanitation of cemeteries and in abolishing the window tax, began his campaign for Poor Law reform in London in 1856, when he was appointed surgeon to the Strand Workhouse Infirmary at a salary of £50 a year; this pittance included the supply of all medicines. The institution, though licensed for 400 inmates, contained usually about 600; there was no skilled nursing, and the sick, the aged, children, and women in labour were crowded together. In 1861 Dr. Rogers persuaded a committee of the House of Commons to authorize the provision of drugs by the guardians, and, after taking an active part in the exposure of a gross case of mismanagement at another London infirmary, he accepted the invitation of Mr. Ernest Hart to make an extended inquiry into the condition of metropolitan infirmaries. From that time in his reform work Dr. Rogers co-operated closely with Mr. Hart, and prepared numerous editorial articles for the *BRITISH MEDICAL JOURNAL*, of which Mr. Hart had become editor. At many annual meetings of Poor Law medical officers, held under the auspices of the British Medical Association, Dr. Rogers recounted the steady

¹ Council of British Ophthalmologists. Report on the methods adopted in various parts of the British Isles for the education of children suffering from defective vision due to myopia and other causes (excluding the blind). London: Pullman, Thayer Street. Price 6d.

improvement that was being achieved, and his incessant efforts and untiring fight against ignorance and prejudice won for him deservedly the title of the "Hercules of work-house reform" given to him in his obituary notice in our columns (*JOURNAL*, 1889, vol. i, p. 864). At his death he left the sum of £500 in trust to accumulate until a prize of £150 could be provided for an essay on "The treatment of the sick poor in this country, and the preservation of the health of the poor in this country, or either of such subjects." The trustees are the President of the Royal College of Physicians of London and the Master of the Society of Apothecaries, who are empowered to withhold the award if no essay merits a prize. Essays must be typewritten and not previously published; they must reach Mr. Bingham Watson, clerk to the trustees, Apothecaries' Hall, Blackfriars, by May 1st, and be signed with a motto or pseudonym.

THE TUBERCULOUS DIATHESIS.

THE International Union against Tuberculosis held its fourth conference at Lausanne in August, 1924, and the Swiss National Association has recently issued a full report¹ of the opening papers and subsequent discussions on the various aspects of the tuberculosis problem chosen for the attention of this meeting. Professor Calmette opened the pathological discussion on the question of whether there exist saprophytic varieties of Koch's organism which can become virulent tubercle bacilli. The clinical question was the much debated relationship between pregnancy and tuberculosis, opened by Professor Forssner; while Sir Robert Philip, as the opener in the sociological discussion, described the effects of the antituberculosis campaign on the diminution of mortality from tuberculosis. Professor Sahli gave the first of the two public lectures on the resistance of the body to the tubercle bacillus. The most interesting paper in this published volume is, however, the second of the public lectures—that by Professor Léon Bernard on the prophylaxis of tuberculosis in the child. Its importance is no less obvious than its interest, for it represents the summing-up of the evidence accumulating of recent years in France that the tuberculous diathesis, so firmly established as a tradition in English textbooks, does not exist. The whole problem of tuberculosis is admittedly in large part bound up with the disease as it exists in childhood, and if it can be established that the child becomes infected simply as a result of contagion without the complications introduced by any consideration of inherited susceptibility, then the prevention of tuberculosis comes into line with the prevention of any other infectious disease, which it is far from doing at the present day in the minds of the public. Professor Bernard attacks the diathesis theory from several points of view. In the first place, he shows that the average weight of babies born of tuberculous mothers, excepting those in the last stages of advanced disease, is no lower than the general average. Further, the development of such infants, protected from infection, follows a perfectly normal course, and in one investigation 62 per cent. of infants born of tuberculous mothers followed a normal weight curve—a percentage comparing very favourably with any group of infants born of healthy parents. Malformations and congenital stigmata are no commoner among the offspring of tuberculous parents, and provided they are kept away from the chances of massive infection these children, supposed to be predisposed, are no more apt to contract tuberculosis than any other children. The chances of massive infection are most obvious for young babies in the family, and Debré found that out of 124 small children suffering from tuberculosis 95 had caught the disease from an infected mother, 20 from

the father, 3 from more distant relatives, and 6 from non-related persons. The chances of inhaling the tubercle bacillus in modern civilized society are always represented as high; but laboratory experiments as well as clinical observations went to show that while some sort of immunity may be developed as the result of irregularly repeated small doses of bacilli it required either a single massive dose, somewhat rare as a cause, or repeated regular moderate doses, to produce the disease; it is the repeated dose in the family circle which is responsible for most tuberculous infection. Further arguments against the diathesis theory were those bound up with certain prophylactic measures. Under the scheme introduced in France in 1903 by Grancher, healthy children from the age of 3 to 13 can be removed from tuberculous parents and boarded out under supervision in certain country districts. Of the 2,500 children already dealt with in this manner there have been only 7 cases of tuberculosis—2 fatal and 5 cured. Such figures, Professor Bernard went on to say, were remarkable when compared with the chances of tuberculous infection and death from the disease among children left in prolonged contact with infected parents; they were calculated to be 60 and 40 per cent. respectively. As the contagion may be contracted in the first few months of life, this preventive work has been extended within recent years, and as a result of close co-operation between ante-natal clinics and tuberculosis dispensaries babies can be taken away at birth from their mothers if the latter are actively tuberculous. Among nearly 300 infants thus saved from an almost certain infection there were only nine deaths from all causes. In face of these results it is not surprising that Professor Bernard refers to the word "predisposition" as being devoid of meaning when used in connexion with these children. It is true that they are under medical supervision, but the possibility of their inhaling the bacillus from chance sources is no smaller than that of any other section of the population. Despite the diathesis they are supposed to possess they contract tuberculosis with even less frequency than the general population. It is somewhat unfortunate, in view of the importance of Professor Bernard's paper, that it is not presented in English as well as French in this volume, where the opening papers in the three discussions mentioned above have been thus treated.

CONTAMINATION OF APPLES BY ARSENIC.

At a meeting of the Society of Public Analysts on February 3rd Dr. H. E. Cox, M.Sc., read a paper on the presence of arsenic in apples. Attention was drawn to the matter by the occurrence of two cases of illness attributed to the spraying of apples with lead arsenate. He stated that only five out of thirty-nine samples of Jonathan, King David, and Newtown apples were found to be free from arsenic, and eleven contained more than the statutory limit. The contamination is mainly, but not entirely, confined to the skin, arsenic having been found in the flesh of the fruit to the extent of about 3 per cent. of that on the peel. It appears that rain does not remove all the arsenic. Washing under the tap, and even scrubbing, was found to leave appreciable amounts of arsenic on the fruit, presumably owing to combination of the arsenic with the proteins of the skin. We referred on December 5th, 1925 (p. 1077), to the possibility of illness resulting from such contamination, and on December 26th (p. 1238) to a circular issued by the Ministry of Health urging local authorities to examine samples of apples likely to be so affected, and to withdraw from sale any consignments that appear to be injurious. The new and important point emerges now that the arsenic penetrates the skin, and that thus a certain amount is retained by the fruit even after active scrubbing.

¹ Quatrième Conférence de l'Union Internationale contre la Tuberculose. Lausanne: Édition La Concorde. Pp. 441.

SCOTTISH HOSPITAL SERVICES.

We publish in the SUPPLEMENT (at page 54) a full account of the report issued this week by the Hospital Services (Scotland) Committee. This Committee was appointed by the Scottish Board of Health to inquire into the inadequacy of the present hospital and ancillary services in Scotland, and to make recommendations for the development and maintenance of those services to meet the needs of the community. In the course of its inquiry the committee made a survey of all the hospitals—voluntary, local authority, and Poor Law—except those dealing with mental conditions, which have been inquired into by another committee. Among the principal subjects dealt with in the present report are the growth of hospitals in Scotland during the past seventy-five years; the existing shortage of beds in various types of hospital, and the number of additional beds needed to meet present requirements; matters relating to convalescent homes, Poor Law hospitals, and local authority hospital services; the need of hospital accommodation for persons of moderate means; the present financial state of the voluntary hospitals of Scotland; and the future of hospital services generally, with particular regard to the maintenance of the voluntary system. The report is signed by the chairman (Lord Mackenzie) and all the members of the committee with the exception of Mr. Joseph Waugh. The committee found a shortage of hospital facilities which it considers can be overcome without any revolutionary change in the hospital system. It recommends a Treasury grant of £900,000 to assist voluntary hospitals to provide 3,000 additional beds, the removal of the Poor Law stigma by the transfer of hospital treatment of the poor from the parish councils to the public health authorities, the institution of paying wings in hospitals, and the appointment of a Hospitals Commission for Scotland. Mr. Waugh, in a minority report, holds that the reform aimed at should be the placing of the duty of providing and maintaining general hospitals upon the health authorities of the country, assisted by State funds. The majority report, though it applies to conditions in Scotland alone, deserves careful study by all concerned in the hospital problem at large.

The next social evening of the Royal Society of Medicine will be held at 1, Wimpole Street, W.1, on Monday, March 1st. At 8.30 p.m. the President, Sir StClair Thomson, will receive the guests, and at 9.30 Dr. Gustavo Monod (Paris and Vichy) will give a short address entitled "From Cagliostro to Coué; or, Imagination as a method of treatment." The library will be open, and various objects of interest will be exhibited.

The Royal Sanitary Institute, in celebration of its jubilee, will hold an Imperial Congress in London from July 5th to 10th, 1926, under the presidency of the Right Hon. Neville Chamberlain, Minister of Health. The Lord Mayor and Corporation of London are granting the use of the Guildhall for the opening meeting. The congress will be divided into sections for discussions and the reading of papers on health and sanitary science. The Ministry of Health, the Scottish Office, the Ministry of Home Affairs for Northern Ireland, and the Ministry of Local Government, Irish Free State, are prepared to consider applications from local authorities to sanction the reasonable expenses of delegates attending the congress.

The prize lecture arranged by the Christie Hospital, Manchester, will be given by Dr. Archibald Leitch, on mule-spinner's cancer, in the Anatomy Theatre of the University at 4.30 p.m. on Friday, February 19th.

Nova et Vetera.

GRIMBALD THE PHYSICIAN.

IN a recent contribution to these columns (BRITISH MEDICAL JOURNAL, September 26th, 1925) I gave a transcript of a charter witnessed by Grimbald, and a reference to other charters which will be found in the appendix to Sir Norman Moore's FitzPatrick Lectures. Two grants by Henry I to Bath Abbey, one of them dated 1109, were also witnessed by Grimbald, and a charter to Salop Abbey of about 1122. Through the generosity of Mr. F. M. Stenton, Professor of Modern History at University College, Reading, I am now enabled to give a transcript of a very interesting and important charter relating to the daughter, Emma, and the wife, Atselina, of Grimbald. The original is in the Public Record Office (Ancient Deeds, Series A, No. 14898). The charter runs as follows:

Stephanus Rex Angliæ Archiepiscopis Episcopis Abbatibus Comitibus Justiciariis Baronibus Vicecomitibus Ministris et omnibus fidelibus suis totius Angliæ salutem. Sciatis quia coram me et concessu meo quietum clamavit et in manum meum reddidit Emma filia Grimbaldi Medici totam terram quae fuit patris sui tam eam unde saisita erat tam eam quae de jure suo erat unde saisita non erat. Et Ego coram illa et concessu ejus dedi et concessi eam totam Waltero Martello in feododum et hereditatem sibi et heredibus suis post eum. Et ipsa ei pepigit quod eam ei ad posse suum ubique warrantabit. Et de terris illis unde ipsa saisita non est quas Walterus clamavit ipsa eum jubavit ad posse suum ad eam dirationandam ad castamentum Walteri et affidavit ipsa se et heredes suos in manu Willelmi Martelli se sine dolo tenere. Et pro hoc concessu dedit ipse Walterus ipsi Emme coram me I annulum aureum. Et Johannes Martellus cujus ipsa hoc fecit consilio affidavit se ex sua parte hoc sine dolo tenere. Et Atselina uxor ipsius Grimbaldi terram suam quam tenet in pace tenebit dum vixerit de ipso Waltero et postea terra illa reddabit in dominium ipsius Walteri. Quare volo et firmiter præcipio quod bene et in pace et libere et quiete teneat in omnibus rebus et locis cum soca et saca et toll et team et infangenetheof et omnibus libertatibus ad eam pertinentibus cum quibus Grimbaldus unquam liberius tenuit vel aliquis ante eum. Testibus. G. Comite de Metellento. et R. Comite Legrecestrie. et W. Martello. et A. de Ver. et R. de Ver. et H. Bigot. et G. de Magnavilla. et E. filio Johannis. apud Wirecestriam.

The gist of all this is that Stephen informs all and sundry that Emma has quit claimed and rendered into his hand all her father's lands, both those in seisin and those which were his by right and not in seisin; and he in her presence and with her consent gave it all to Walter Martell in fee and to his heirs after him. And she has agreed that she will warrant it to be his everywhere. I am rather at sea over the next clause about those lands whereof she is not in seisin which Walter is going to claim, but I think the meaning is that she has made these over to him also and has sworn by proxy (William Martell) that she is free from guile in the matter. (For more detail about the "affidatio in manu" see Round's *Geoffrey de Mandeville*, p. 384.) And for this concession Walter gave Emma one gold ring. And John Martell, on whose advice she has done this, vouched to the absence of any guile on his part. And Atselina, wife of Grimbald, shall hold her land while she lives in peace of the same Walter, and after her death it shall return into the demesne of the said Walter. Because I wish and firmly declare that he shall hold it in peace freely and quietly in all things and places with soc and sac and toll and team and infangenetheof and all liberties pertaining with which Grimbald formerly held it and others before him. This charter passed at Worcester and is dated by Mr. Stenton 1135-1140.

With regard to the first witness, a reference to Vol. 10 of the publications of the Pipe Roll Society helps us, for the identical man is found witnessing a charter of date 1137-1138 which is there printed, and which is a confirmation by Stephen to Roger, son of Miles of Gloucester, and to Cicely his wife, of all the lands which her father Payn FitzJohn had inherited or acquired together with her own marriage portion. Both Dr. Round and Mr. Stenton identify this G. Earl of Metellent with Gualerannus Comes de Metellenti, or Waleran, Count of Meulan. Round states that the Count of Meulan was not in England between March, 1136, and December, 1137. He returned from Normandy with Stephen in December, 1137, but was back in Normandy from May, 1138, till towards the end

of that year. Stephen was at Gloucester in May, 1138, and the house of Gloucester revolted against him in 1139.

Reverting to Emma's charter, the rest of the witnesses are easily identified. R. de Legrecestre is Rannulf Earl of Chester; W. Martell must be William Martell, who is found in constant attendance on Stephen; of the two Vers, A. is Alberic or Aubrey de Vere, who was killed in 1141, and R. must be Robert de Vere, the son of Bernard de Vere, and not the younger brother, as has often been supposed, of Aubrey. From Aubrey descended the Earls of Oxford. H. Bigot is Hugh Bigot, afterwards Earl of Norfolk; while G. de Magnavilla is Geoffrey de Mandeville, who, it should be noted, attests here as a plain baron, not as Earl of Essex, to which honour he was advanced by Stephen in 1140. The last witness is Eustace FitzJohn, brother of Payn FitzJohn; from Round's *Geoffrey de Mandeville* we learn that Eustace FitzJohn deserted Stephen's cause in 1138. It will be seen that it is possible to date this charter approximately within a very short time. Henry I died towards the end of the year 1135; the Count of Meulan was out of England from March, 1136, to December, 1137, and he returned to Normandy in May, 1138. Stephen was at Shrewsbury in 1138 when Miles of Gloucester is a witness to a charter which passed there. Miles revolted in 1139 and burnt Worcester, Stephen arriving shortly after the sack of the city. Geoffrey de Mandeville attests as a baron and not as Earl of Essex, and therefore we are limited to the first five months of 1138 as the only time when the King and the witnesses could have been at Worcester.

Grimbald must have been dead at the time.* Considering the frequency with which he attests royal charters and the rarity with which medical men as a rule are found acting in this capacity, there can be no reasonable doubt that Grimbald was a Court physician, and most likely physician to Henry I. Now, at this date, the Royal physicians were priest-physicians (so far as I know there were no M.D.s then); but here we have Grimbald a married man with a wife and daughter; it is therefore most unlikely that he can have been a priest. It is possible that he may have been a secular priest; but he can hardly have been a regular one.

Soc is the power or liberty to administer justice; sac was a liberty of the lords of manors to hold pleas in causes of trespass arising among their tenants and of imposing fines for the same; toll is the duty on imports; team, the right of compelling a person in whose hands stolen or lost property is found to vouch to warranty—that is, to name the person from whom the goods were received; infangenetheof implies the jurisdiction over a thief caught within the limit of the estate to which the right belonged.

I like to imagine that Walter Martell with his one gold ring married Emma, the daughter of Grimbald and Atselina, and so took over the possession of Grimbald's lands with all the customs, sac and soc, toll and team, etc. Let us hope that, if such were the case, he got a good bargain. There was at any rate no Board of Agriculture to interfere with him, or to order a return of the number of bees which he kept! Whether Grimbald had any other children I cannot say; one would suppose not; but it is of interest to note that a Robert Grimbald was a justice of England in the next reign, when he founded an abbey in Leicestershire. His charter of foundation does not offer any evidence to show that he was connected in any way with our physician.

I can give no details about Walter Martell; but the Pipe Rolls of Henry II's reign abound with references to other

members of the Martell family: Osbert, who witnessed a charter of Stephen to Westminster Abbey, occurring in Beds and Bucks; William in Surrey and in Lincolnshire; and Gilbert witnessing a deed of 1193.

R. R. JAMES, F.R.C.S.

SMALL-POX, ALASTRIM, AND VACCINIA.

CONFERENCE AT THE HAGUE.

A CONFERENCE made up of members of a Commission of members of the Health Committee of the League of Nations, with the addition of experts, met at the Hague from January 4th to 7th, to examine several questions in connexion with small-pox, alastrim, and vaccinia. This conference was attended by Professor Ricardo Jorge, President, Professor Madsen, Sir George Buchanan, Dr. Carrière, and Dr. Jitta, members of the Commission, with the following experts: Drs. Mervyn H. Gordon and Blaxall (England), Professor Gins (Germany), Professor Soberheim (Switzerland), Dr. Levaditi (Pasteur Institute, Paris), Drs. Terburgh and Van B. Bastiaanse (Holland), and by Drs. Norman White and Olsen, representing the Secretariat of the Health Section of the League. As a result of its deliberations, the conference formulated a series of conclusions concerning the methods which should be adopted for continuing and intensifying the research work into these subjects from a general and from an international point of view.

The subjects in question had recently been considered in their general aspects by the Health Committee and by the Permanent Committee of the Office International d'Hygiène publique at a plenary session in Paris.

As a result of this discussion the following draft scheme, prepared by the President of the Conference, Professor Ricardo Jorge, was adopted as the basis of the discussions at the conference.

1. Epidemiological Part.

(a) Collect data on alastrim or alastrim-small-pox, and generally on recent epidemic appearances of small-pox which have been characterized by extreme mildness (*variola minor*).

(b) Determine as far as possible whether these manifestations confer on the disease a character which is specific from the point of view of nosography or whether they only reveal the habitual and well known characteristics of a classic small-pox (*variola vera*).

(c) Inquire whether alastrim outbreaks originate in previous cases of ordinary small-pox and if they terminate on occasion in epidemics of normal form and severity. In other words, are the two entities interchangeable—alastrim evolving into small-pox or small-pox into alastrim? Or, on the contrary, do they keep a reciprocal independence in their spread and in their evolution?

(d) Conclude whether the habitual methods of prophylaxis against small-pox (isolation, disinfection, vaccination) should be applied with the same vigour to alastrim-small-pox.

(e) Put together the facts about epizootic diseases of the nature of variola (cow-pox, clavelée, or sheep small-pox, avian small-pox, etc.) and compare their noso-epidemiological characteristics in their relation with small-pox.

Inquire specially whether appearance of these epizootics can be connected with human small-pox. In other words, whether these zoo-variolas only spread where small-pox is prevalent, and whether they disappear or become rare in regions where small-pox has ceased to be prevalent.

2. Experimental Part.

(f) Take up the study of biological tests of variola, controlling their technique and their diagnostic value. Determine the significance of those cellular inclusions called "corpuscles de Guarnieri," "de Prowazek," etc.

(g) Submit to comparative experiment on animals the viruses of small-pox of different origins, alastrim, cow-pox, and other zoo-variolas, with the object of determining the characteristics of the lesions produced by these different infections and their immunizing action. Deduce from these researches conclusions on the specificity of these different forms.

Make a special investigation to see if alastrim and variola immunize one against the other, and how they behave from the point of view of immunity in regard to vaccinia.

Determine from observation and experimentation the duration of immunity produced by variola, alastrim, and vaccinia, in the case of direct and also of crossed infections.

(h) Deal with the question of the identity of the viruses of

* Grimbald was certainly alive in 1130, and probably in 1132 also. Stubbs, in the *Constitutional History of England*, vol. i, p. 340, mentions the fact that Henry I was inclined to remit the Danegeld: "partly under the advice of his physician Grimbald and partly under the impression made by a strange dream, he vowed, it was said, in 1132 to forego the tax for seven years." A footnote gives the story of Henry's nightmare; very vivid it reads in the Latin of John of Worcester, but it is too long to add here. Grimbald, as a landowner, would have disliked the Danegeld as much as we all dislike paying our income tax at the present day. This hated tax of two shillings on the hide occurs for the first time in A.D. 991; it was the tribute paid to the Danes to keep them quiet in the eastern shires, in which for the most part they had settled. Under the rule of the Danish King Canute the Danes became merged in the Anglo-Saxon race; yet the Danegeld remained in force and William the Conqueror trebled the rate—that is, six shillings on the hide—and it was not until 1163 that the Danegeld finally disappeared from the Pipe Rolls, and then it was succeeded by a tax, which under the name of *donum* or *auxilium* and probably levied on a new computation of hidage must have been a mere reproduction of the old tax."

variola and vaccinia, and with the production of vaccinia by the inoculation of small-pox on bovine animals.

Ascertain whether alastrim lymph can be utilized as a preventive measure against variola, replacing the Jennerian vaccine. Make similar attempts in the case of sheep-pox in order to ascertain whether "ovination" is possible.

(i) Propose a process of measuring the virulence of lymph, by means of which it will be possible to establish vaccinal standards. Determine practical rules for the control of vaccine lymph.

(j) Study the spontaneous variations in the activity of cow-pox in the course of its passage through calves and, when it is humanized, in passage from arm to arm; study the proceedings which can be adopted to increase virulence which is attenuated. Set out the effects and possible dangers of exaltation of virulence.

(k) Study the tissues of election in the case of the viruses of variolas and vaccinia, and give an opinion on the use of vaccines which are termed "purified vaccines," notably of neuro-vaccine.

(l) Make inquiries and researches on the morbid conditions which may follow vaccination in man.

(m) Examine the serological reactions of man and animals which follow variola infections, and particularly the neutralization of the viruses by serums *in vitro*. Undertake research on the serum of animals convalescent from zoe-variolas with the object of obtaining a therapeutic serum applicable to the human case.

This draft scheme is discussed in a leading article on variola research at page 293, where reference is made also to the appointment this week by the Minister of Health of a Committee on Vaccination.

Scotland.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

At the meeting of the Board held on February 4th it was intimated that the following members had been appointed for a period of five years from February 1st, 1926: Miss Alice Helen Turnbull, Miss Kate Leslie Scott, and Miss Mary Elizabeth Cairns (appointed by the Scottish Board of Health); Sir Archibald Buchan-Hepburn, Bt. (Association of County Councils of Scotland); Bailie Mrs. Ella Morrison Millar (Convention of Royal Burghs); Miss Margaret Macpherson White (Queen Victoria Jubilee Institute for Nurses, Scottish Branch); Dr. Archibald Kerr Chalmers (Society of Medical Officers of Health of Scotland); Professor B. P. Watson, M.D. (University Courts of the Universities of Edinburgh and St. Andrews); Professor John M. Munro Kerr, M.D. (University Courts of the Universities of Glasgow and Aberdeen); Dr. James Haig Ferguson (Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow); Dr. R. C. Buist and Dr. James B. Miller (Scottish Committee of the British Medical Association). The meeting unanimously reappointed Dr. James Haig Ferguson as chairman, and Sir Archibald Buchan-Hepburn as deputy-chairman, for the ensuing year. The meeting appointed committees for penal, finance, and examination purposes, and approved the lists of examiners and recognized institutions, with the teachers attached thereto, for the training of midwifery nurses, and gave instructions for the citing of certain penal cases.

TESTIMONIAL TO DUNDEE RADIOLOGIST.

A meeting was held on January 26th in the City Chambers, Dundee, at which Lord Provost High presided, for the purpose of arranging for the presentation of a testimonial from the public of Dundee to Dr. George A. Pirie. Dr. William E. Foggie said that the medical profession had taken up the case of Dr. Pirie, who had done pioneer work in the department of radiology for many years, and had suffered severe physical injuries because of the absence of protective measures in the early days of work in this department. Mr. D. A. Anderson explained that the trustees of the Carnegie Fund had been approached with a view to putting the claims of Dr. Pirie before them on account of his continual self-sacrifice, which had really amounted to a whole lifetime of heroism. The Carnegie trustees had intimated that they were pre-

pared to consider the project favourably, but that they thought it wise to find out in the first place what the city of Dundee was prepared to do.

ROYAL DISPENSARY AND VACCINE INSTITUTION, EDINBURGH.

The Royal Dispensary and Vaccine Institution, West Richmond Street, Edinburgh, which was founded by Dr. Andrew Duncan in 1776, has entered upon the 150th year of its existence. Lord Provost Sir William Sleigh presided on January 30th at the annual meeting of the dispensary, and referred to the very valuable contribution which its services had made to the social needs of the city over its long period of existence. It was satisfactory to find that the opportunities for obtaining free medical services and treatment had been largely utilized by the poor of the district in which the dispensary was situated. During the past year over 2,000 cases had been treated and over 1,000 had been visited in their own homes by students attending the dispensary. A child welfare clinic which had recently been established was doing important work, and a total of 1,654 cases during the year was reported. The financial position was satisfactory. The total funds available were £8,406, with a surplus of revenue over expenditure of £64.

PROPOSED EXTENSION OF DUNFERMLINE HOSPITAL.

At the annual meeting of the Dunfermline and West Fife Hospital subscribers held on January 25th, Provost D. A. Fraser presiding, it was agreed to call a special meeting of the citizens of Dunfermline to open an appeal for funds amounting to between £30,000 and £40,000, to enable the managers of the hospital to extend the institution. It was stated that this extension had become essential for carrying out the work now required of the institution in a satisfactory manner, and it was believed that the scheme would have the full support of the citizens of the town and district.

EDINBURGH MATERNITY HOSPITAL.

The directors of the Edinburgh Royal Maternity and Simpson Memorial Hospital have received intimation from the Queen's private secretary that Her Majesty has accepted the suggestion from the board and has pleasure in becoming Patroness of that institution. Former patronesses of the hospital were Queen Victoria and Queen Alexandra.

Ireland.

MEDICAL REGISTRATION IN THE FREE STATE.

The standing orders having been suspended, the Medical Bill, 1926, which has for its object to continue in operation until August 21st next the Medical Act, 1925, has passed through all its remaining stages in the Dail and will be presented in due course to the Senate.

DANGER OF SMALL-POX.

The General Council of the Royal Academy of Medicine in Ireland has adopted the following resolution:

That in view of the outbreak of small-pox in certain parts of England, following on the decline of vaccination in that country, the President and Council of the Royal Academy of Medicine in Ireland, having had their attention drawn to the decline of vaccination in this country, deem it their duty to urge the necessity for vaccination of all young children and of immediate revaccination in the case of adults who are likely to come in contact with cases of small-pox.

Ireland has been free of small-pox for about two score years. Ten years ago a sailor was found with a very mild form of small-pox in Dublin, and was isolated at once. He had only three of the diseased spots, but in the few hours that he was in contact with the general public he had infected one other person. Since that time no case has arisen, but the history of small-pox in Ireland teaches that the country seems to be more subject to the virulent type with high mortality than to the milder form. Dr. Day, the medical superintendent of the Cork Street Fever Hospital, has stated that he does not like to think of what would happen in Dublin should the disease make

its way theré from England. He related instances in his experience of the almost unbelievable insidiousness of the infection, showing that no one was safe. In the last serious epidemic in Dublin an invalid lady living in the county got small-pox in a bad form. He succeeded in tracing its origin to almost momentary contact with a girl by a young dressmaker who was employed in the shop where the family of the lady had their clothes made. Dr. Day said that one of the greatest dangers of small-pox was the difficulty of its diagnosis, and the younger generation of medical men had, for the most part, never seen a case of the disease. Every hour that the person who had contracted it remained open to contact with others sent the disease further through the general community. As far as he had learned, the present epidemic in England was of a mild type, but it was a fact that, without any apparent reason, the virulent and deadly form often appeared in the middle of an epidemic of the less dangerous type. No parent, he said, would neglect the vaccination of his children if he once saw the shocking sufferings of a child with small-pox, and visualized the effects of the disease, even should life be saved. Before vaccination was made compulsory the country was full of people who lost their eyesight as the result of small-pox in childhood. With so many unvaccinated children there was nothing to prevent that horrible state of affairs from arising again should the disease find its way into any of the ports. He regarded the neglect of vaccination of children as arising from sheer carelessness. Should a case appear in Dublin there would, he added, be a stampede to the doctors to secure the protection of vaccination, the only preventive. Another Dublin practitioner expressed surprise that the Government authorities were not insisting on the observance of the law of vaccination. He pointed out that by stringent regulations the Minister for Agriculture had kept out foot-and-mouth disease, which ravaged the cattle population of England; but the more serious threat to the health and lives of the people would appear to excite little official activity. While there is no occasion for a scare, the opinion of medical men is that nothing should be left undone to prevent the spread of the disease in Ireland.

India.

INDIAN SANITARY REPORT.

THE annual report of the Public Health Commissioner with the Government of India for 1923, which has been recently published, is divided into eight chapters, dealing with the European army, the native army, the general population, jails, vaccination, medical institutions, sanitary works, and medical research. The death rate of the European army in 1923 was 3.75 per 1,000, the lowest on record with the one exception of 3.26 in 1913; the sick rate was actually the lowest, the disease with the greatest reduction being influenza. In the native army the death rate (5.88) and the sick rate (20.63) both show a great improvement over the rates of the past ten years; the former is somewhat higher, the latter fractionally lower, than the rates of the quinquennium 1910-14, which were 4.39 and 20.7 respectively. The report states: "It is difficult to resist the conclusion that this marked improvement in the health statistics of the Indian army is due to the introduction of the station hospital system in 1918, and to its growing efficiency." While all, or almost all, who have served in Indian regiments under the old system, when the medical officer was a regimental officer, will feel a sentimental regret for the passing of the system they knew, with its traditions of over a century, it is satisfactory to hear that the change has been justified by results. In the general population the death rate was 25.00, against 24.02 in 1922 and a quinquennial mean of 36.85; the birth rate was 35.06, as compared to 31.85 in the former year. It is probable that registration in India is now fairly accurate as regards the actual number of deaths, though it will be long before the same can be said of the different causes of death. Plague is more accurately recorded than any other cause of death, and in 1923 was more widely spread than

in the previous year, causing 229,149 deaths, as compared to 77,615 in 1922. Even so, the figures are small compared to those of some previous years. Plague has now been epidemic in India for thirty years—since 1896, just a generation—and seems likely to persist permanently as an endemic disease. The only provinces which did not show an increase in 1923 are Bengal, Assam, and Burma. The jail population in 1923 was slightly lower than in 1922. Both death and sick rates were lower than in the previous year. The vital statistics of jails are the only ones concerning the civil population which are absolutely trustworthy. Vaccinations increased from 9,345,106 to 9,834,460; all provinces showing a rise except the small North-West Frontier and Ajmir-Merwara provinces. Medical institutions, hospitals, and dispensaries of all classes increased in number from 3,535 to 3,634, and their patients from 36,875,222 to 38,059,386; surgical operations rose from 1,150,628 to 1,194,664. These figures give some idea of the scale of medical work in India. There are now seven research laboratories: two in the Punjab, the Central Research Institute and the Pasteur Institute, both at Kasauli; two in Madras; and one each in Bombay, Assam, and Burma.

PUBLIC HEALTH IN BURMA.

Active steps are being taken to lower the high infantile mortality rate in Burma, the chief causes of which are stated in the annual report for 1924 of the Public Health Administration as being unskilled midwifery, improper feeding of infants, and insanitary housing. The Burma branch of the Indian Red Cross Society is giving financial assistance to the numerous infant welfare societies which have been formed, and several of these societies are in receipt of Government grants. Baby weeks similar to those in England were inaugurated originally by Lady Reading, and have been held with great success in many Burmese towns. In the year under review the province was visited by an exceptionally virulent epidemic of cholera, the deaths from which were 8,083, as against 1,488 in 1923. In some cases this outbreak was shown to be water-borne as a result of careless disposal of excreta and soiled linen, and in others it was food-borne. A widespread infection in the Kyaukse district was quickly controlled by the prompt disinfection of the wells with permanganate solution, isolating the sick, and cremating corpses and their effects soon after death; the early notification of cholera cases by the village headmen was a prominent factor in the rapid success of the campaign and the limitation of the spread of disease. Preventive inoculation with anticholera vaccine has been extensively practised, and of the 38,368 persons thus treated only 131 were reported to have contracted the disease; of these 87 were in one district, and there was clear evidence that delay in treatment or the existence of massive infection was the cause of failure. The number of deaths registered as due to plague in 1924 totalled 5,491, as against 7,606 in 1923. In this disease prophylactic inoculation is finding favour, especially in the towns, and it is undoubtedly the cause of the lessened mortality. The report describes the special endeavour now being made to solve the problem of beri-beri, though so far there has been little success. The details of the 95 fatal cases reported in 1924 suggests that Indians are not only more susceptible, but succumb more easily to the disease than do the Burmese. Investigation of an outbreak of epidemic dropsy showed that rice was the staple food of the sufferers, and had been obtained from supplies which had deteriorated from long storage and infestation by weevils. Goitre appears to be particularly prevalent in those hill areas of Burma where maize and millet are the staple foods. In some of these districts successful results have been obtained by the administration of iodine to school children. An antimalarial survey of Akyab town revealed that of 2,756 children under 10 years of age 483 had enlarged spleens, extending down to the umbilicus in the majority of cases, and this enlargement was most marked in children aged 4 to 6. The survey also indicated that malaria was less prevalent in the central parts of the town as compared with the outlying districts where breeding grounds were present, including pools in the upper reaches of the smaller creeks, tanks, excavations, and paddy-fields. Inspection of

15,874 school children showed that only 492 were unprotected against small-pox. There was, however, a considerable increase recorded in the percentage of children with defective eyes, enlarged tonsils, and adenoids, due to the more stringent examinations now being made. Increased attention is now given in Burma to general hygiene. A hygiene publicity officer has been appointed to provide instruction on general sanitation, maternity, and child welfare by means of leaflets and lectures. We referred on February 21st, 1925 (p. 383), to the laying of the foundation stone of the Hygiene Institute in Rangoon by the Governor of Burma. The building and equipping operations have made good progress under the direction of Major Jolly, C.I.E., and Dr. G. Mackey, late assistant director of the Central Research Institute at Kasauli.

BLIND RELIEF ASSOCIATION OF BOMBAY.

In 1920 Mr. C. G. Henderson, I.C.S., when resident in Bombay started an association for work amongst the natives for the relief and prevention of blindness. Eye affections are particularly prevalent in India, since the heat, the atmosphere, and the brilliant sunlight throw a great strain upon the eyes. The crowded villages and sometimes the lack of effective sanitation accounts for the spread of contagious eye diseases, and cataract and trachoma take a heavy toll of sight. Since its inception the work of the Blind Relief Association of Bombay has increased greatly. Mr. Henderson has ceased to be its president as he has returned to England, and he has been succeeded by Mr. R. G. Gordon, I.C.S., the present collector of the district. There is an eye surgeon, whose services have been lent and paid for by the Government; he has charge of the eye work in the civil hospital, and trains field workers, who travel regularly through the villages in the surrounding area. He himself visits these villages, selecting the patients who need to go into hospital for surgical treatment. In 1920 the operations performed numbered 465; in 1924 they reached 1,248. The cases treated in the civil hospital and the dispensaries (movable tents) have increased from 7,821 to 14,248 in the same period. The association received a sum of 11,590 rupees during 1924, mainly from native subscribers. The money is used largely in the extension of the field work, which is obviously of the greatest value in the prevention and treatment of eye diseases.

Correspondence.

THE STATISTICAL STUDY OF CANCER.

SIR,—In a lecture, printed in your issue of January 30th (p. 175), Dr. Cramer refers, briefly and inaccurately, to a statistical investigation for which Dr. Methorst, Professor Niccforo, and I are mainly responsible. It is not, I admit, very easy to make sense of Dr. Cramer's remarks. He actually says that the conclusion, derived from experimental study, that if a primary cancer has been induced in one organ a primary cancer cannot develop in another organ, "would also explain another very curious fact which seems to have been overlooked by statisticians." Grammar would seem to require the other "very curious fact" to be statistical data of the subsequent pathological histories of persons known to have been affected by cancer of one primary site, given in far greater detail than any existing system of death certification supplies. But what Dr. Cramer appears to mean is that (a) the League of Nations Subcommittee only investigated the statistics of England and Wales and Holland and (b) was not aware that the gross mortality rates from cancer were approximately the same in the two countries. Addiction to statistical methods may, of course, imply some lack of intelligence in the addict, but we are not quite so dull as Dr. Cramer supposes. One of the reasons for including Italy in our study was that, of the countries with well organized statistics, Italy enjoys the lowest gross mortality from cancer although her rate for uterine cancer is higher than that of Holland.

I should not, however, have troubled you with this letter merely for the sake of pointing out a misstatement. But,

as you remarked in your editorial of January 23rd, the statisticians' report is so concise that some suggestive results may easily be overlooked.

Although not, perhaps, strictly deducible from the experimental results of Dr. Murray, the suggestion does arise from them whether the circumstances which favour the development of cancer of one site do, other things equal, tend to hinder the development of cancer of another site. In the report of the statisticians the point was not discussed, because for various reasons data could not be provided by all three countries, but in Tables Va and Vb the results of an analysis of English data are provided. The material consisted of the rates of mortality from (1) cancer of the breast, (2) cancer of the uterus, (3) all other forms of cancer, (4) all causes of death other than cancer, for married women and widows, aged 45 to 64 years, in each of seventy-four English county boroughs. The experience covered the decennium 1911-20. The final result was that there was no sensible correlation (0.0751 ± 0.078) between the rates of mortality from cancer of the breast and cancer of the uterus in married women when the rates of mortality from other forms of cancer and from causes other than cancer, as well as the percentages of married women, were made constant by the method of partial correlation. In other words, when we had stabilized as well as we could the general (non-cancerous) mortality—which is some measure of general environment—the mortality from all other forms of cancer, and the civil state (to reduce the known influence of fertility), the two rates of mortality behaved as independent variables. It may be remarked, too, that while the rate of mortality from cancer of all forms other than cancer of the uterus and breast (keeping rates for cancer of the breast and cancer of the uterus and percentage married constant) was highly correlated with the rate of mortality from non-cancerous causes (0.4275 ± 0.071), the rate for cancer of the uterus was not correlated significantly (0.0985 ± 0.078), and that for cancer of the breast was negatively correlated (-0.2917 ± 0.075), with the rate of non-cancerous mortality.

So far as these results go, they suggest that at least the rates of mortality from cancer of the breast and uterus vary independently one of another. It is necessary to make so elaborate an analysis because the mere fact that the gross correlations of cancer of both sites with cancer of all other sites are large and positive might be a mere expression of the fact that when diagnosis is good at one site it is good at other sites.

At present, then, we have no statistical evidence that the causes which favour the development of one form of cancer hinder the development of another form, and Dr. Cramer's dictum that "The more frequent development of cancer in the intestinal tract among Dutch women protects them against the development of cancer in the breast" is just as helpful as the statement that the reason why so few people die of encephalitis lethargica is because so many people die of cancer.—I am, etc.,

Loughton, Feb. 3rd.

MAJOR GREENWOOD.

THE ACTION OF PITUITARY EXTRACT ADMINISTERED BY THE ALIMENTARY CANAL.

SIR,—Dr. Knaus (February 6th, p. 235) writes: "Clinical observations of this kind are by the nature of things extremely difficult to interpret, as they lack the necessary controls." All clinicians will agree with this statement, and therefore a very large number of observations must be recorded before any conclusion can be drawn.

Diabetes insipidus is a sufficiently rare disease to make it unlikely that the experience of one individual will suffice, and therefore many single observations may assist. Although more than half a dozen cases of diabetes insipidus have come under my care since it was known that pituitary extract controlled the diuresis, all except one were treated by injections, since I assumed that the administration of pituitary extract by the mouth would prove useless.

Quite recently I have had under my care in hospital a typical case of the disease in a woman who experienced great discomfort after hypodermic injections of pituitary extract. I decided to try administration by the mouth,

which proved quite useless; even when the dried gland corresponding to 2 grams of the fresh gland were administered daily in the form of pills triply coated with salol. Unfortunately I have no proof of the potency of the dried gland, but only that it was from a reputable firm.

Date.	Pituitary Extract or Gland.	Urine Passed.	Date.	Pituitary Extract or Gland.	Urine Passed.
1925. Jan. 1	—	c.cm. 93	1925. Jan. 19	0.1 gm. triple coated salol pill	c.cm. 102
" 2	—	176	" 20	" " "	232
" 3	—	108	" 21	0.1 gm. stearic acid coated pill	300
" 4	—	148	" 22	" " "	210
" 5	—	169	" 23	0.6 gm. stearic acid coated pill	270
" 6	0.5 c.cm. injected	168	" 24	0.6 gm. salol coated pill	210
" 7	1 c.cm. injected	52	" 25	" " "	136
" 8	" "	62	" 26	1 gm. triple coated salol pill	90
" 9	" "	64	" 27	" " "	148
" 10	0.1 gm. salol coated pill	95	" 28	2 gm. triple coated salol pill	128
" 11	" " "	168	" 29	" " "	138
" 12	" " "	216	" 30	" " "	102
" 13	" " "	150	" 31	" " "	184
" 14	1 c.cm. injected	92	Feb. 1	" " "	158
" 15	" "	72	" 2	" " "	148
" 16	" "	72	" 3	1 c.cm. pituitary extract	40
" 17	" "	94	" 4	Two 0.5 c.cm. pitui- tary extract	95
" 18	" "	62			

—I am, etc.,

London, W.1, Feb. 6th.

O. LEXTON.

DYSENTERY IN MESOPOTAMIA.

SIR,—On January 30th (p. 202), in commenting upon the recently issued Report on the Health of the Army for the year 1923, the subject of the relative incidence of the amoebic and bacillary types of dysentery in different localities is mentioned. You refer to the report as showing that nearly all the cases (of dysentery) occurring in Iraq were amoebic, whereas in Egypt only 35 out of 64 cases were of that type; and you remark that this bears out much of what has been previously recorded in connexion with the geographical distribution of amoebic and bacillary dysentery.

I am unable to agree with the latter statement, my experience during nearly five years of bacteriological work in Iraq during the war being entirely the reverse. In 1916, at the request of the Medical Advisory Committee then in Iraq, Mr. C. L. Boulenger and I undertook an investigation on the etiology of Mesopotamian dysentery in order to settle this point. I have not the exact figures by me, but the report on this work subsequently issued showed that, of roughly 250 consecutive acute cases, 51 per cent. were proved bacillary by isolation of the bacillus from the stools, whereas 26 per cent. only were amoebic. The report ventured the opinion that, had it been possible to get all these cases sufficiently early, the former group would have been even larger, many of the undiagnosed 23 per cent. undoubtedly belonging to it. The unavoidable delay which sometimes occurred before examination of the stools would tend to favour a relatively high amoebic figure, whereas the bacillary agent is not so readily demonstrated as the severity of the inflammatory process wanes.

Colonels Wenyon and Ledingham, members of this committee, found that these figures agreed with what they were led to expect from their own observations and from their experiences in the Eastern Mediterranean. In a report on Iraq, issued before the above investigation was completed, these two observers stated:

"... already it would appear that the bacillary form is probably the more frequent, as indeed has recently been found to be the case in the Eastern Mediterranean and Egypt, where extensive series of cases have been thoroughly worked out."

Subsequent to the issue of our report during the next three years I examined many thousands of stools from dysentery patients in the same area, and in all of these the amoebic percentage was fairly constant at the figure stated. At one time, indeed, it rose alarmingly, but that was due to the idiosyncrasy of an officer working in my laboratory who never could master the differences between *E. histolytica* and the non-pathogenic amoebae. To him even the macrophage was a frequent stumbling-block. If the Report on the Health of the Army for the year 1923 is correctly quoted by you a great change must have come over the etiology of Mesopotamian dysentery.—I am, etc.,

KNOWLES BONEY, M.D., M.R.C.P.,

Major R.A.M.C. (ret.).

Llandudno, Jan. 31st.

** The figures on which the statement as to the number of cases of amoebic dysentery in Iraq, Turkey, and Egypt respectively is founded will be found in page 7 of the report. They are as follows:

	Total.	Amoebic.	Bacillary.
Iraq ...	207	181	?
Turkey ...	112	1	61
Egypt ...	64	35	29

"ARCHIVES OF DISEASE IN CHILDHOOD."

SIR,—The article in your issue of January 30th (p. 209) announcing the appearance of the *Archives of Disease in Childhood* was very welcome, both because British pediatrics is to be represented by a journal of its own and because of the enterprise of its producers and the British Medical Association in co-operating in the work of its publication.

Would that those responsible for selecting a title had also had the enterprise to break away from an out-of-date definition of their subject. "Archives" denotes the place where the records of the past are stored, and is, therefore, a suitable receptacle for the term "Disease of Childhood."

The title required is one which does not suggest that "disease" is the sun round which their system of study revolves. Surely nowadays the centre-point and primary objective is the study of normal development and the detection of the earliest evidence of its disturbance, with a view to the maintenance of the physiological, whereas that of "Disease in Childhood" represents rather the failure to attain that objective. True, the study of the causes of disease and their elimination is the chief part of the primary objective, but the title should be based on what the subject is out to succeed in doing, and not on what it fails to do.

It is quite clear that there is an influential body of opinion which dislikes "pediatrics," probably because of its being "made in U.S.A.," but it is equally clear that it is too late to refuse a term that has been accorded general acceptance elsewhere and is slowly making its way here, in spite of our prejudice against any new thing, and for the very reason that it does not suggest the diagnosis and treatment of disease as the chief reason for the existence of this branch of medicine.

Doubtless English terms have their attraction, and I notice that in your *Epitome of Current Medical Literature* the only really English title is that of "Diseases of Children." Why is it in these days of infant welfare clinics and the examination and observation of well children with the idea of keeping them "well" that the archaic term "diseases of children" is retained?—I am, etc.,

London, W.1, Feb. 3rd.

JOHN S. FAIRBAIN.

** Meanwhile disease in childhood may be expected to continue to prevail. The promoters of the new periodical deliberately decided to make it clinical, though not excluding, of course, the discussion of the detection of the earliest evidence of disturbance of health. No doubt when preventive medicine has extinguished disease in childhood the *Archives* also will become extinct.

OPERATIVE TREATMENT OF PERFORATED GASTRIC AND DUODENAL ULCER.

SIR,—Mr. Arthur J. Evans (BRITISH MEDICAL JOURNAL, January 30th, p. 184), in an article on operative treatment of acute perforated ulcer of the stomach and duodenum, states that perforation is often "seasonal." As the following figures show, this is not borne out in a

series of 387 cases of this condition admitted to the Glasgow Royal Infirmary during the years 1913-24:

January	...	39	July	...	38
February	...	31	August	...	36
March	...	31	September	...	24
April	...	38	October	...	31
May	...	28	November	...	28
June	...	30	December	...	33

Mr. Evans publishes a series of 64 cases, and from this makes certain deductions—for example, that gastro-enterostomy should be performed at the same time as closure of the perforation. Of course, he makes certain reservations—for instance, that gastro-enterostomy should only be done by surgeons who are used to gastric surgery. In my series gastro-enterostomy was performed by such surgeons, yet the death rate is very much higher than where gastro-enterostomy has not been done. Instead of gastro-enterostomy I have been performing a modified pyloroplasty, the details of which will appear in a paper on these cases. This operation occupies only a very few minutes, and I cannot see where gastro-enterostomy has an immediate advantage over it. In Mr. Evans's last paragraph he states that gastro-enterostomy is to be done "if the patient's condition will allow it"—that is to say, the more desperate cases are to be denied this beneficial operation. If it is such a boon in the less severe, why not do it in the more severe? Because it is too great a tax on the patient's strength? But Mr. Evans assures us that the combined operation "does not entail any increased risk." Does gastro-enterostomy prevent the risk of another perforation? No. In one of my series where gastro-enterostomy had been performed perforation took place at the pylorus, whilst another had a perforation distal to the anastomosis.

On the question of drainage Mr. Evans and I are at one. My usual method is to drain the pelvis by means of a Keith's tube for a few days. If much gastric or duodenal contents have escaped, I put another tube into the right kidney pouch. None of my cases has developed a residual or subphrenic abscess. In this I have been extremely fortunate.

Mr. Evans gives the mortality rate of his last 12 cases in which the combined operation was performed. It is 8 per cent. If I take my last 10 cases where simple suture was performed the mortality rate is *nil*. (One of these had been perforated seventy-two hours and another twenty-two hours before operation.) But if I take all my cases the mortality rate is 20 per cent.; so that I think it is rather fallacious to argue from a small number of cases and state that the mortality rate is so-and-so. The correct mortality rate can only be found by examining a large number of cases, and it will be found to be much larger than one would wish.

Mr. Evans cannot compare his results obtained by simple suture with those of the combined operation, as he practically admits that the former operation was only performed (latterly, at all events) in cases deemed to be too ill to stand the combined operations. In his first seven cases, would the performing of gastro-enterostomy have saved the two who died? I think not.—I am, etc.,

Glasgow, Feb. 1st.

JOHN DUNBAR, M.B., Ch.B.

ETYMOLOGY OF "ORTHOPAEDICS."

SIR,—In your issue of January 30th, in an interesting article on manipulative surgery (p. 204), when speaking of orthopaedic surgery you say—"originally concerned mainly with deformities and diseases of bones and joints in children—whence the name, now rather out of date; but adults have benefited," etc. (The italics are mine.) I venture to submit that it is your etymology which is out of date—indeed, which is incorrect.

Surely "orthopaedic" is derived from *ὀρθός*, straight, right, true; and *παίδευω*, to educate, to train. The science of orthopaedics is to "train aright" structures which are distorted, or deformed, or defective. Of course, *παίδευω* is derived from the same root as *παῖς*, *παῖδος*, a child; but to "train aright" or to "straighten something which is amiss" is not, and never has been, confined to children;

and to my mind to limit the meaning of orthopaedic thus is—well, also childish. According to your etymology orthopaedic means "straight child," whereas I contend it means "to train straight" (what is defective). Surely this is more scientifically accurate, and can never be "out of date."—I am, etc.,

W. B. MACKAY, M.D., etc.

Berwick-upon-Tweed, Jan. 31st.

** The etymology of "orthopaedics" is a question which keeps cropping up at irregular intervals. The *New English Dictionary* gives under "orthopaedics" a reference to orthopaedy, a word which is now, we believe, obsolete in English, though current in French. It makes no reference to *παίδευω*, giving *παῖδιον*, a child, *παῖδα*, rearing of children. "Orthopaedics" it defines as "relating to or concerned with the cure of deformities in children, or of bodily deformities in general." The *Concise Oxford Dictionary* gives "orthopaedy, the curing of deformities in children or others," from *παῖδα*, the rearing of children, from *παίδευω*, train, from *παῖς*, a child. Littré's *Dictionary* (sixth edition) gives the derivation as from *παῖς*, but the definition does not distinctly limit the application of orthopaedic methods to children.

INDIVIDUAL OVERDOSE OF ULTRA-VIOLET RAYS.

SIR,—In recent literature on ultra-violet light little mention has been made of a train of symptoms, the same in all cases, which occurs in certain individuals exposed to what is otherwise a normal dose, without marked erythema.

After a general irradiation there is marked lack of that feeling of general well-being, and the usual exhilaration is replaced by a feeling of depression. Following a latent period of two to four hours after exposure, headache, a feeling of chilliness, pain in the back, conjunctival irritation, nausea with occasionally vomiting, distaste for food, and general depression ensue. Diarrhoea is an occasional concomitant. The next day brings general lassitude with vague depression, which gradually passes off. There is no evidence of dietetic errors. The condition appears to occur in one out of twenty-five patients treated. It has been met with at all ages, in women more often than men, and chiefly in dark or red haired persons. No reaction has been observed in any blonde. The normal dose cannot be reached by gradation, and the patient appears always intolerant of what is, otherwise, the usual dose. These patients cannot tolerate their own maximum dose indefinitely, and after some time additional sensitization appears to occur and the symptoms mentioned are exhibited, necessitating a further reduction of the time of exposure.

The phenomena were first observed when using carbon arc lamps with cored carbons, and were attributed to the heat generated. The same effects have since been observed with tungsten arc and mercury vapour lamps with their proportionate shorter doses.

There is a curious resemblance between these symptoms and those met with in some cases after the x-ray treatment of carcinoma by large doses. Some cases of breast cancer and secondary epitheliomatous glandular deposits have exhibited almost identical symptoms. In addition, a local area which had been exposed to x rays appears to react more readily and more markedly when exposed to ultra-violet light than a previously untreated area. It is agreed that the ultra-violet spectrum approaches the x-ray spectrum, and in diseases of the skin very similar results are obtained by both forms of therapy, the x rays appearing to be the more powerful measure.

From the observations made in this type of case, now that artificial sunlight treatment is being used in all classes of case and by all manner of persons, one wonders whether ultra-violet irradiation is so innocuous as is generally supposed and whether indiscriminate, prolonged, and sometimes unskilled administration may not be followed by untoward results as in the early history of x rays.—I am, etc.,

Royal Infirmary, Sunderland Jan. 27th. PAIGE ARNOLD, M.B.

A FORTUNATE ESCAPE FROM SYMPATHETIC OPHTHALMIA.

SIR,—With reference to Dr. Lawson L. Steele's interesting memorandum on "A fortunate escape from sympathetic ophthalmia" in the *JOURNAL* of January 30th (p. 187) one feels that this title may strike a somewhat too optimistic note. The great majority of experience goes to show that sympathetic ophthalmitis is a calamity that may ensue at any time up to twenty years or even longer after the original perforating injury was sustained. The ability of the eye to make a good recovery from the initial wound depends on the amount of trauma suffered by the ciliary body. Where the wound does not involve the ciliary region the prognosis would be hopeful, even good, if the lips of the wound are free from uveal tissue. Any wound that involves the ciliary region (except perhaps in young children) is so liable to entail a sympathetic ophthalmitis that excision of the eye is almost a necessity. This case seems to bear out the above principles, for Dr. Steele mentions a corneal wound with its perforating extremity towards the centre of the cornea, and so one implies that the ciliary region was not implicated. The recovery of the eye to a vision of 6/12 is so good as to make certain that the ciliary body escaped actual damage. Dr. Lawson Steele's concluding epigram is only too true if the ciliary body itself is wounded.—I am, etc.,

GEORFREY B. LOWE, D.O.Oxon.

St. Leonards-on-Sea, Jan. 30th.

XEROPHTHALMIA.

SIR,—Mr. J. S. Arkle's remarks on xerophthalmia, reported in the *JOURNAL* of November 21st, 1925 (p. 952), are of interest. In Trinidad this conjunctival condition is common amongst the native population, and particularly so among the East Indian community and those suffering from advanced ankylostome infection. The condition seems to start in the region of the internal canthus and gradually spreads until the whole of the bulbar conjunctiva becomes dry and crimped and appears like thin smoked parchment. Corneal ulceration ending in keratomalacia finally ends the clinical picture.

If treatment is started in the very early stage the result is promising, but in the advanced stage where the conjunctiva is darkened the result in my experience is disheartening. The condition was present in cases of advanced anaemia and emaciation resulting from ankylostomiasis. Treatment consisted in applying drops of castor oil to the conjunctiva three or four times daily, followed by anthelmintics of thymol or carbon tetrachloride; later, cod-liver oil and vitamin food, including metagen gr. v. The results on the whole were not encouraging.—I am, etc.,

H. E. KING FREYTS, F.R.C.S.Ed.

Weymouth, Feb. 7th.

FINAL NURSING EXAMINATION.

SIR,—When the syllabus of subjects for examination was first introduced by the General Nursing Council in 1922 a protest was made by the honorary staff of the Staffordshire General Infirmary in regard to the scope of that syllabus. This protest was disregarded at the meeting then held. Following the general approval of the scheme, however, the members of the staff responsible for lectures have diligently attempted to follow that syllabus in spirit and letter, with careful attention to that sentence in the preface which states, "The examination shall be of a simple and practical character."

In the Final State Examination papers are set on medicine and surgery apart from medical and surgical nursing. The papers for February 2nd, 1926, contained the following questions:

Describe the early symptoms of a case of typhoid.

What are the symptoms of gastric ulcer? From what other abdominal conditions has it to be diagnosed? Give points of distinction.

What is meant by retroversion? What symptoms does this cause, and how is it treated?

I may observe in regard to the third question, that retroversion and displacements of the uterus receive no mention in the syllabus.

I protest that such questions are unwarranted, that symptoms and differential diagnosis should not enter into

an examination on nursing. The matter is a serious one for small provincial hospitals. Candidates for nursing training are scarce, and the general standard of education among them is not high; they will disappear altogether if such an academic examination be insisted on. My experience is that many practical and useful trained nurses will be excluded from registration. The public and the medical profession require women well trained in practical nursing and the management of patients, not encyclopaedias of medicine and surgery.—I am, etc.,

E. J. BRADLEY,

Honorary Surgeon, Staffordshire General Infirmary.

Stafford, Feb. 6th.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

DR. R. D. GILLESPIE, resident medical officer of the Cassel Hospital for Functional Nervous Disorders, Panshurst, has been appointed to the Pinsent-Darwin Studentship in Mental Pathology at a stipend of £200 a year for three years. Dr. Gillespie was educated at the University of Glasgow, where he graduated M.B., Ch.B. in 1920 and M.D. with honours in 1924.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

FOURTEEN entrance scholarships and exhibitions are available for award to students entering University College, London, in October, 1926. Three of them are tenable in any of the five College Faculties (Arts, Laws, Science, Engineering, and Medical Sciences) or in the School of Architecture. Two of them are tenable in the Faculty of Arts only, one in the Faculty of Science, one in the Faculty of Engineering, one in the Faculty of Laws, three in the Faculty of Medical Sciences, two in the School of Architecture, and one in the School of Librarianship. Most of the scholarships and exhibitions are of the value of £40 a year for three years, but the value of any scholarship or exhibition may be increased by the grant of a supplementary bursary if the circumstances of the scholar or exhibitor make such a grant necessary. Particulars of all these scholarships and exhibitions may be obtained from the Secretary, University College, Gower Street, W.C.1.

LONDON SCHOOL OF MEDICINE FOR WOMEN.

At a special meeting of the council held on February 4th Lady Barrett, C.B.E., M.D., M.S., was elected to the honorary office of Dean of the London (Royal Free Hospital) School of Medicine for Women.

UNIVERSITY OF BIRMINGHAM.

DR. WILLIAM H. WYNN, F.R.C.P., physician to the Birmingham General Hospital, has been appointed joint professor of medicine.

NATIONAL UNIVERSITY OF IRELAND.

THE Senate at its meeting on February 5th had under consideration the reports of the examiners upon the results of the pre-registration examination in physics and chemistry, December, 1925, and the M.B., B.Ch., B.A.O. degrees examination, January, 1926, and awarded passes, honours, etc., in connexion therewith.

The following appointments were made:—*University College, Dublin*: Lectureship in gynaecology, Reginald J. White, F.R.C.S.I.; lectureship in obstetrics, James J. O'Kelly, B.A., M.B., B.Ch., B.A.O. *University College, Cork*: Professorship of obstetrics and gynaecology, John J. Kearney, M.D., D.P.H.

The Services.

TERRITORIAL DECORATION.

THE KING has conferred the Territorial Decoration upon the following officers of the R.A.M.C., T.A., under the terms of the Royal Warrant of October 13th, 1920: Lieut.-Colonel William Archibald, Major Oskar Teichman, D.S.O., J.C.

DEATHS IN THE SERVICES.

Inspector-General Thomas Browne, R.N. (ret.), died at Weymouth on January 29th, aged 84. He was born in 1841, and educated at Queen's College, Belfast, where he graduated as M.D. with first class honours and gold medal in 1862, also taking the L.R.C.S.Ed. in the same year. Entering the navy as assistant surgeon in January, 1863, he reached the rank of Deputy Inspector-General in December, 1895, and of Inspector-General in July, 1899, retiring two months later. He served in the Naval Mental Hospital at Yarmouth from July, 1880, till February, 1894, for the greater part of the time in charge, and on his promotion to Deputy Inspector-General a petition was sent to the Admiralty asking that he might be allowed to retain charge of that hospital after promotion. As Deputy Inspector-General he served in charge of the Royal Naval Hospital at Bermuda from 1894 to 1897, and as second in command of the Royal Naval Hospital, Plymouth, from 1897 to 1899. He was a keen golfer, and is said to have been the introducer of the term "Colonel" Bogey for the par score. In 1871 he married Miss Agnes Robertson Dall, daughter of James Dall, J.P., of North Berwick, and leaves a widow, a son, and five daughters.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

HAVING completed the debate on the Address on Monday, the House of Commons spent the rest of this week considering Supplementary Estimates, and also topics brought forward by private members. A debate on Tuesday evening, February 9th, concerning unregistered medical practitioners was talked out after the Minister of Health had declared that he could not propose either the recognition of osteopaths and other unqualified practitioners or prohibition of practice by them. A lay member, Mr. Storry Deans, remarked that public confidence in the General Medical Council would be increased if it included laymen, and that this change could be achieved under the present law. This remark was understood to have been made at the direct suggestion of the Minister of Health. Although Mr. Chamberlain did not take it up in his reply, Professor T. Sinclair, as the only member of the General Medical Council in the House of Commons, said he believed his colleagues would have no objection to the Council being reinforced by lay members. In putting down his motion on unqualified practice Dr. Graham Little did not act for, or in consultation with, the Medical Committee of the House of Commons.

National Insurance.

It is hoped that the report of the Royal Commission on National Health Insurance will be available about the end of this month.

Colonial Medical Service.

On February 8th Mr. Amery informed Mr. Ramsden that he hoped shortly to be able to make a definite announcement regarding the appointment of a medical adviser in the Colonial Office.

Parliamentary Medical Committee.

At the first meeting of the Parliamentary Medical Committee for the session, on February 3rd, Dr. Fremantle was re-elected chairman of the group and Dr. Graham Little secretary. In accordance with a decision taken before the recess, the Committee arranged to hold an open meeting for Peers and members of Parliament in about a month's time at which the medical view would be expounded concerning the relations of the public, the medical profession, and the General Medical Council. The meeting also considered the Colonial Medical Services, and discussed criminal justice in its application to the effects of encephalitis lethargica. On this latter question action by the Committee was contemplated. A further subject of discussion was the proposed bill for the registration of opticians. The Committee arranged that at its next meeting it should discuss the Coroners Bill, the Births and Deaths Registration Bill, which the Government hopes to introduce in a new form, and a pamphlet on the imperial aspect of social hygiene, which has been distributed to members by the British Social Hygiene Council.

Unqualified Medical Practice.

On February 9th the question of unqualified medical practitioners was raised by Dr. Graham Little. He called attention to the spread of unqualified practice in medicine and surgery by osteopaths, chiropractors, and other irregular practitioners, and moved that an authoritative inquiry, with the object of making recommendations to Parliament for dealing with the whole position of irregular practice in medicine and surgery, was urgently necessary. Dr. Little said that the spread of unqualified medical practice must be admitted. The reasons were many, but the most important was the length of the medical curriculum. It was not true, as was sometimes represented, that British medicine was a system of knowledge confined to the British Islands and the British Empire; it was part of international medicine. It had one distinction—namely, that its students were taught with the interests of the patient always in view. An important quality of international medicine was that any discovery made by one individual was immediately made known to the rest of the world. The note of unqualified practice was the secrecy of the methods employed, and the absence of opportunities for clinical study.

Osteopaths were most in the public eye at the present time, and in many respects differed from the other groups of unqualified medical practitioners. They claimed to be as fully trained in medicine and surgery as were the ordinary students in our medical schools. But nine-tenths of their training was

received in the United States. Their system was based on a formula or theory propounded fifty years ago by an obscure medical practitioner in one of the small towns in the Western States of America. That theory had been examined and had been rejected by international medicine, and nowhere more thoroughly than in the United States. The British medical profession was not a close trade union which refused to admit any outsiders. Applicants from approved foreign colleges were allowed to sit for an examination set by the licensing authorities in this country without preliminary tests. Osteopaths were not allowed to hold commissions in the medical services of the United States naval and military forces. Osteopaths held that the treatment for ills was the manipulation of the bony structure of the body, and the theory that all disease arose in the spine, and might be helped by manipulating the spine, was the basis of osteopathy.

The five great scourges of the modern world (Dr. Little continued) were tubercle, syphilis, malaria, cancer, and insanity. Three out of five of those diseases were regarded by all the world, except, perhaps, the osteopaths, as being due to bacterial effects. The germs which caused these diseases could be seen under the microscope. In the case of cancer modern work pointed to a bacteriological form, direct or indirect, and a very large number of cases of insanity were unquestionably due to bacterial effects. In cases of tuberculosis the damage was greatly increased by the manipulation of tuberculous joints. No one could have held, as he had for nearly thirty years, the position of a hospital physician without being saddened by the cases that one saw of the terrible neglect of the poor through unqualified medical treatment. In this remark he referred to the dispensing chemist, the optician who pretended to be an oculist, and the quack dentist who fitted new plates upon septic stumps. With the exception of England, Germany, and five of the Australian States, practically all the countries of the civilized world penalized unqualified practice. For that reason he asked for an inquiry.

Mr. Hilton Young, who seconded, said the resolution was not aimed against any particular theory of the practice of medicine. They were entitled to say that a man should not carry his goods and sell them to the public under something like a Government guarantee unless he had taken the trouble properly to qualify himself.

Mr. Atkinson moved an amendment to provide that the object of the inquiry should be to secure the recognition and registration of manipulative practitioners having approved qualifications. The committee of inquiry could settle what the necessary qualifications should be. In America there were seven colleges under the American Osteopathic Association. The standard set there was high. There were hospitals and sanatoriums working in America under the same supervision, and their work was done efficiently and well. Progress had not been made in this country because of the opposition of the medical profession. They were all familiar with the notorious case of Dr. Axham, who was hounded out of his profession because he administered chloroform for a most able manipulator. Osteopathy was a branch of knowledge which did not form part of the medical curriculum. The ideal way would be for the medical profession in this country to bring it within the medical curriculum, and then persons who showed special skill in that branch could specialize.

Mr. Basil Peto, in seconding the amendment, said that what the mover of the motion wanted was, not to set up an impartial committee to inquire into a question of public interest, but to have an inquisition into these irregular practitioners, which would be able to pronounce a sort of anathema against the whole of them, including Sir H. Barker. Dr. Graham Little, interposing, said that his words would not bear that meaning. Mr. Peto said Dr. Little had referred to the penalties imposed in other countries. What the House was interested in was that humanity should have the advantage of every fresh discovery in the art of healing.

Mr. Storry Deans said a good deal of the public unrest about this question had been caused because the public had lost faith in the General Medical Council. The General Medical Council had become something very like the executive of a trade union, and it had acted in the trade union interests of its members instead of acting solely in the interests of the public. He suggested that the Minister of Health should use his influence or his power to place the General Medical Council in the position which it was intended to occupy—that was to say, it should consist mainly of medical men, but it should also contain a lay element, representing especially the interests of the public. This could be done under the existing Act.

Dr. Drummond Shiels thought an inquiry such as Dr. Little desired was not necessary at the present time. At the same time some observation required to be kept on unqualified practice. He objected still more to the terms of the amendment. While the medical profession had derived advantages from contributions of outsiders there was a limit to the extent to which unorthodox practice should be permitted, and that

limit was the safety of the public. The bulk of the medical profession would be prepared to admit that Sir Herbert Barker had performed considerable services, and that he was a man of no mean skill. But he was exceptional. Bone-setting formed a small part of medicine and surgery, and a general diploma was quite impossible in a case like that. The medical profession did not object to osteopathy being practised, but they said that before any man should get a qualification to practise medicine or surgery on any system he ought to have a definite minimum of fundamental medical knowledge. The present medical curriculum gave the minimum that was necessary for the practice of any system of medicine. That minimum they believed the osteopathic colleges did not give at present. The mover of the amendment had recited a number of cures which had been effected by osteopaths. In any system of medicine they could get a list of wonderful cures. He also could bring a list of cases where the results of treatment by osteopaths had been disastrous, both in this country and America. He agreed that doctors also made mistakes. Nowadays everyone had a smattering of health knowledge and a certain amount of technical knowledge. The remarkable fact was, not that the General Medical Council had been so much criticized, but that, on the whole, it had emerged from this criticism so successfully. The Council had suffered from lack of publicity as to its doings. The Council gave a much fairer and more careful trial in its penal cases than the public knew. It was no pleasure to the members of the Council to strike any man off the *Medical Register*, and it was only done in the public interest, because the Council was a body set up to look at the profession from that point of view.

Mr. Bromley expressed the fear that notwithstanding its innocuous appearance the resolution implied a heresy hunt. He opposed it because of the possible danger that the lay mind might be overridden by the Latin jargon of the medical profession.

The Minister of Health (Mr. Neville Chamberlain) did not think the dangers of unqualified practice could be denied. There was the positive danger of actual harm being done by too violent treatment, or by the administration of harmful drugs. Indirect harm might also be done by inducing a patient to seek unqualified assistance, and consequently postponing application to a man who really could cure him until the disease had gone too far. Mr. Chamberlain asked whether Dr. Little desired total prohibition of irregular practitioners. The public was, however, growing more educated and more fitted to discriminate between the trained and the ignorant man. His view was that they did not wish to cut themselves off from being able to profit from the skill of any man, provided it was understood that they consulted him at their own risk. He would not advise the House to accept Dr. Little's motion as it stood on the paper, nor the amendment of Mr. Atkinson. That amendment suggested the recognition and registration of osteopaths, which would be taken by the public as a guarantee of some kind, though it would not be. Mr. Atkinson had asked the House to support the recognition of osteopaths having approved qualifications. He had not said what these qualifications should be, but had talked instead about skill. How could a nation lay down rules for the testing of skill? They would have to fall back on diplomas given by American colleges, diplomas into the value of which they could not examine, and colleges over whose qualifications they had no control. That was not practicable.

Mr. Peto said his friends wished to set up an osteopathic college in this country and not to have importations from America.

Mr. Chamberlain, continuing, said that manipulative surgery was already taught in the curriculum of the General Medical Council, and any medical man could specialize in it. Some of the most celebrated had done so. He was glad to hear from Mr. Peto that the osteopaths did not desire the recognition of American colleges. He knew nothing to prevent the osteopaths setting up their own colleges and giving their own diplomas. That, he thought, was the only way for them to achieve recognition. They would then be forced to do what had been done in America. Their curriculum would gradually have to approach to the normal, and the more near that approach the easier it might be to set up a register. He thought he had indicated a direction in which progress could be made. He did not think it was necessary to prohibit, and he did not think public opinion would be in favour of prohibiting, unqualified practice. But the proposals of the amendment seemed impossible to defend, and on the whole he thought the House would do best to leave things to develop in their own normal fashion.

Professor T. Sinclair said he was the only member of the House who was also a member of the General Medical Council. That Council did not proceed against osteopaths. It could not consider their registration, as it had no means of inspecting their schools, which were in America. He held that it was in

the public interest that they should ascertain what persons were entitled to practise surgery in view of the danger of unqualified manipulative surgery in cases unsuited for rough handling. A demand had been made that night that the General Medical Council should be reinforced by lay members. Speaking for himself, he did not object to this, nor did he believe his colleagues on the Council objected. Machinery existed already for making the change. The Privy Council could use its powers of nomination to place lay representatives on the Council, and the universities could also send lay representatives. The reasons why they had not lay representatives were that three-fourths of the work of the Council dealt with medical education and registration, and people could not be got to take a sustained interest in the regulations for the curriculum and examinations unless they were medical men.

The motion was talked out, neither it nor the amendment being put to the House.

Encephalitis Lethargica.

Replying to Mr. Ammon, the Home Secretary, Sir William Joynson-Hicks, said his attention had been called to the case of a youth suffering from the after-effects of encephalitis lethargica when the lad was in prison on remand, having been charged at Lambeth Police Court with stealing a shilling. He had asked the Medical Commissioner of Prisons to attend at the court and give the magistrate a full account of the examination made by the prison doctors. The lad was released on probation, and his future welfare was receiving careful attention. Courts had wide powers of dealing with persons who were certifiable under the Mental Deficiency Act, but persons whose morale had been affected by encephalitis lethargica might not be certifiable either under that Act or under the Lunacy Acts. The problem raised by these cases was receiving the attention of the Minister of Health in consultation with the Home Office.

In a further reply to Mr. Ammon, the Home Secretary said he had obtained a special report concerning the prisoner certified on medical authority to be suffering from brain trouble, who was at the Old Bailey, on January 19th, sentenced to twelve months' hard labour. Sir William declared that, on the information before him, he had no grounds for believing that the sentence passed on this man was other than appropriate. Mr. Ammon asked whether the Home Secretary noted the wish expressed by the Recorder in passing sentence that Parliament would give the judges power to send certain offenders who were not insane to places, other than prisons, where they could receive more expert treatment. Sir William Joynson-Hicks said he would give this suggestion most careful consideration. He realized there was a difficulty in this class of case. This particular prisoner was in good physical and mental health, and showed no sign of organic disease.

Mr. Chamberlain told Mr. Trevelyan Thomson that he could not give particulars of the vaccinal condition of persons suffering from encephalitis lethargica during any recent period.

Mental Deficiency.

Mr. Erskine asked the Minister of Health whether, in view of the increasing numbers of mentally deficient persons in the country, he would set up a committee to inquire into and report on the best means of dealing with the problem, whether by sterilization or otherwise. Mr. Chamberlain replied that the incidence of mental defect was being investigated by an expert committee of representatives of the Board of Education, the Board of Control, and others. He would carefully consider Mr. Erskine's suggestion, but was not in a position to give any undertaking.

The Minister for Education (Lord Eustace Percy) said he had asked the Leyton education authority to postpone its scheme for providing a special school for mentally deficient children. Postponement was until the Minister had before him the revised estimates of local authorities for the coming year. At the present moment he was not, in general, giving final approval to new schemes for the building of schools for defective children.

Bills.

Dr. Fremantle proposes, with the concurrence of the Ministry of Health, to introduce a Midwives and Maternity Homes Bill, to amend the Midwives Acts, 1902 and 1918, and to provide for the registration of maternity homes and for purposes connected therewith.

In view of the pressure of other business the Minister of Health is not prepared to consider the introduction of a bill to prevent unqualified persons from practising as optical specialists.

A bill to amend the Blind Persons Act, 1920, has been presented by Mr. Lee, and received a first reading.

The Home Secretary, in an answer to Mr. Robinson, said the Government did not propose to proceed with the Factories Bill during the present session, but intended that it should pass during the present Parliament. Mr. Betlington (Parliamentary Secretary to the Ministry of Labour) said that until agreement for the regulation of hours of labour the British Government could not decide whether it would introduce a bill ratifying the Washington Convention for the eight hours day.

The Minister of Health informed Mr. Campbell that he hoped a Smoke Abatement Bill would be introduced in the House of Lords at an early date.

Small-pox in County Durham.—On February 8th the adjournment of the House was moved to discuss the condition of miners in county Durham, who, being involved in a trade dispute, had been refused unemployment benefit and poor relief. Mr. Batey said an epidemic of small-pox had broken out in Durham, but it did not occur until the men became impoverished. Now there were 700 cases of small-pox in the district. He complained of the action of the Ministers of Mines, Health, and Labour in refusing relief and benefit. Mr. Lawson said that in the immediate neighbourhood of Consett, where unemployment was general, small-pox resulting from the stinting of food and clothing had got out of the hands of the local authorities and threatened not only Durham but the country. He heard last week that the ordinary disease, as they had known it for a few months, had gone, and that now the most dreadful type was breaking out. Mr. Neville Chamberlain (Minister of Health) said there was not a shadow of evidence that the spread of small-pox was connected with the refusal of the guardians to give relief. On the other hand, it was well known that a large proportion of the people in this district were unprotected by vaccination, and, further, that there was insufficient isolation hospital accommodation in the district. There was one further circumstance, which he need not mention then, to which they might probably attribute the spread of small-pox. He had been bound to refuse a further loan to the local board of guardians after they had exhausted their financial resources, because, under the Merthyr Tydfil judgement, it was illegal for the guardians to give relief to these men. The Prime Minister said he was anxious for a satisfactory settlement of the industrial dispute, and he had every hope that it would be settled.

Miner's Phthisis.—Colonel Lane-Fox (Secretary, Mines Department) told Mr. D. Grenfell that an inquiry had been completed into the incidence of miner's phthisis among men engaged in rock-boring with compressed-air machines in coal mines. The inquiry supported the view that in certain rare conditions dry rock-drilling might be dangerous. As a result, preventive measures had been suggested, and the mines inspectors were dealing with the question of their adoption. Medical inquiry was also proceeding to ascertain whether the disease had, in fact, been caused in the places where dangerous conditions had been found. On February 9th Mr. C. Edwards asked the Secretary for Mines if he was aware of the number of men in mines suffering from the effects of stone-dust, that medical men were certifying the disease, and that these cases were rapidly increasing. Colonel Lane-Fox replied that it was in rare and exceptional cases of dry drilling in siliceous rock that men were exposed to danger. He had no evidence that the number of men affected was increasing.

Birth Control.—In the House of Commons, on February 9th, Mr. Thurtle asked leave to present a bill to authorize local authorities to incur expenditure, when deemed expedient, in conveying knowledge of birth-control methods to married women who desired it. He said the fall of the birth rate became more and more marked in the upper and middle classes, while among the poorer people it was almost stationary. In Westminster the birth rate was 11.2 per 1,000, in Shoreditch 25 per 1,000, and in Chelsea 14.3 per 1,000. In districts where overcrowding was rampant and poverty acute there was a very high birth rate. The bill would throw no charge on the national exchequer, and was merely permissive. The nation was expending money in broadcasting information about sanitation, personal hygiene, diet, tuberculosis, and venereal disease, and there was not a phase in that work which was not rendered more difficult by the fact that in the poorest districts women were having larger families than were good, either for themselves or for the State. The Rev. J. Barr, the Labour member for Motherwell, opposed the introduction of the bill. Leave to bring in the bill was refused by 167 votes to 81.

Staff of the Ministry of Health.—Answering Mr. Briant, Mr. Neville Chamberlain said all posts in the Ministry of Health were open to both sexes with the exception of certain higher posts on the outdoor insurance staff, where at present there were separate establishments for men and women, with higher posts for each. This organization would shortly be reviewed.

Spectacles for Insured Persons.—Mr. Chamberlain stated, in reply to Mr. Rhys Davies, that he had not received any general representations with regard to excessive charges made by opticians for examinations and supply of glasses to insured persons as additional benefits under Section 75 of the National Health Insurance Act. The schemes that became operative in July last following the second valuations enabled an approved society to restrict the cost to its own funds in respect of appliances to such charges as were reasonable. The general question of the power of the Central Department to supervise the provision of this and other additional benefits in the nature of treatment had received the consideration of the Royal Commission on National Health Insurance.

Nursing Homes.—On February 8th Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, replying to Mr. G. Hurst, who asked if he intended this session to appoint a committee to inquire into the desirability of legislation with regard to the registration of nursing homes, said that in accordance with the undertaking given by the Parliamentary Under Secretary for Health for Scotland, on June 19th last, steps were being taken for the appointment of a select committee to inquire into this question.

The Fighting Services and Special Appeal Tribunals.—Mr. Bridgeman, First Lord of the Admiralty, replying, on February 8th, to Sir B. Falle, said that in the opinion of the three fighting services the cost of a special appeal tribunal for men invalided

from service would not be justified generally in view of the full medical records available and the stringent medical examination on entry and the fact that there was a right of appeal to the Board of Admiralty. He was, however, considering whether an exception to the general rule might not be possible in certain specific cases.

Driving Licences.—On February 8th the Minister of Transport (Colonel Ashley) stated that he had the general question of the issue of driving licences to persons suffering from physical disabilities under consideration in connexion with the bill for the better regulation of road vehicles, which was referred to in the King's Speech.

Notes in Brief.

The Minister of Health is compiling, and will circulate, statistics giving the number of hospitals provided or aided by local authorities in England and Wales, and the number of maternity, tuberculosis, infectious diseases, and other hospitals.

A complaint regarding Croydon Corporation sewage farm at Mitcham Common is being investigated by the Ministry of Health.

For the guidance of sanitary authorities a revised code of model by-laws regulating the conditions of hop-pickers has been prepared by the Minister of Health, who is conferring with the Minister of Agriculture concerning them.

The Secretary for War regrets that it will not be possible to suspend for as long as six months the order for ejection of the occupants of dwelling-houses at St. Helens contiguous to a Government poison-gas factory.

In 1924 insurance companies doing workmen's compensation business in Great Britain received £5,532,459 in premiums and paid £2,903,159 under policies, the latter sum including legal and medical expenses in connexion with claims.

Less than 1 per cent. of recruits to the Royal Air Force were discharged within twelve months of acceptance for physical or mental disability.

Earl Winterton states that the expenditure out of Indian revenue for medical services was £2,081,896 in 1921-22, £2,055,681 in 1922-23, and £2,163,274 in 1923-24. In the same years the expenditure on public health was £1,042,535, £754,424, and £792,779 respectively.

It is estimated that during the five months ending January 31st about 8,600 cows have been slaughtered under the Tuberculosis Order of 1925.

The original estimates for 1925-26 for public health, unemployment insurance, and housing amounted to £32,417,000, representing a cost per head of the population of 14s. 8½d.

The Home Secretary is giving consideration to the report of the departmental committee on sexual offences against young persons, but will not propose legislation till he has also received a forthcoming report on the treatment of youthful offenders.

Experiments on the efficiency of various poison gases are still being carried out by the War Office.

Obituary.

We regret to announce the death of Mr. SIDNEY ELLIS of Salisbury, who died on January 25th from influenza and double pneumonia. He was a native of Binsted, near Arundel, and started his professional life at the early age of 16 as apprentice to the late Dr. Evershed, a well known hunting practitioner of that district who kept a large stable of horses. He received his medical training at King's College Hospital, and after obtaining the M.R.C.S. Eng. and L.S.A. diplomas in 1883 he became medical registrar of the Seamen's Hospital, Greenwich. Later, while assisting the late Mr. Ensor of Tisbury, he became acquainted with his wife, the daughter of Mr. G. Smith, coroner for Salisbury and secretary to the infirmary, and this led to his taking in 1893, after practising at Culmstock, Devon, the practice of the late Dr. Gordon of Salisbury, which included two Poor Law appointments, one for the city and one for the country district of Winterslow. Mr. Ellis was also a public vaccinator, one of the medical officers of the Provident Dispensary, and he had a large number of club and panel patients. This, in addition to his private practice, meant a very arduous life, which, together with the death of his wife after a long illness, undoubtedly affected his health. A colleague writes: Mr. Ellis worked very hard for the good of his poorer patients, and the widespread regret at the loss of "our doctor," so touchingly expressed by them, has indeed testified to his place in their hearts. He was a keen and good cricketer, playing for his hospital, and at Salisbury for South Wilts and local clubs. He was one of a small number of friends, lately entirely medical, who for many years met weekly, first for whist and then for bridge, when many things were talked over and much cheerful chaffing done; the gap is very much felt. It was at one of these gatherings just before his illness that he was telling us of an anxious and probably

irate husband dragging him, a 16-year-old apprentice, and the dispenser to attend his wife at her confinement, Dr. Evershed being away. He also had very interesting stories of the superstitions, medical and otherwise, of his Devonshire practice. He was a member of the British Medical Association, and represented the local Division on the committee of management of Salisbury General Infirmary.

DONALD MACRITCHIE, who died at Huntingdon on January 28th, after a short illness, at the age of 71, received his medical education in Aberdeen and Edinburgh. He graduated M.B., C.M.Aberd. in 1875, and obtained the L.R.C.S. and L.M.Edin. in 1876. After holding the post of assistant medical officer to the Royal Asylum, Aberdeen, he came south in 1877 and was appointed house-surgeon at the County Hospital, Huntingdon. There he remained until 1880, when he resigned to join Dr. Ballard in the county town. He was in the same year elected honorary surgeon to the County Hospital, a position he held until his death. His life was entirely devoted to his practice and the hospital, where he was to be found at stated times with unfailing regularity. To the hospital his loss will be very great, for he was ever at hand to advise and to undertake responsibility for action in the absence of his colleagues. A colleague writes: He was a man of wide experience, ripe judgement, acute observation, and practical shrewdness in rare combination. His patients will miss a true friend, counsellor, and a genuine sympathizer with them in their troubles. As a member of the British Medical Association his retiring nature made him unwilling to accept the publicity of the highest honour the local Branch wished to confer upon him.

The funeral service for the late Mr. CHARLES P. CHILDE, F.R.C.S., Past-President of the British Medical Association, who died at Monte Carlo on January 30th, was held in St. Jude's Church, Southsea, on Wednesday, February 10th, at noon, and the interment followed at Highland Road Cemetery. The Council of the British Medical Association was represented by Dr. David Ewart, O.B.E., of Chichester, and the headquarters staff by Dr. C. Courtenay Lord, Assistant Medical Secretary.

Medical News.

THE chairman, H.R.H. Prince Arthur of Connaught, and the Board of the Middlesex Hospital, have issued invitations to the opening of the hospital annexe to be performed on Tuesday, February 23rd, at 3.30 p.m., by the Right Hon. Neville Chamberlain, M.P., Minister of Health.

THE trustees of the Will Edmonds Clinical Research Fund invite applications for a Fellowship. The salary is £500 per annum, and the holder is eligible for annual re-election up to five years. The successful candidate will be required to devote his whole time to research in a metropolitan hospital. Applications must be sent to the honorary secretary of the Fund, 68, Great Cumberland Place, London, W.1, on or before February 27th.

A COURSE of three lectures on some principles of therapeutics will be given by Professor D. Murray Lyon (Edinburgh) at St. Thomas's Hospital Medical School, Albert Embankment, S.E.1, on February 22nd, 23rd, and 24th at 5.30 p.m. Professor H. Maclean will take the chair at the first lecture. Admission to the lectures is free.

THE Fellowship of Medicine announces that on February 18th a lecture on artificial pneumothorax as a means of treating pulmonary tuberculosis will be given by Dr. R. A. Young at 11, Chandos Street, at 5 p.m.; this lecture is free to all members of the medical profession. Mr. J. Swift Joly will hold a special clinical surgery demonstration at 2 p.m. at St. Peter's Hospital, on February 17th, for members of the Fellowship or holders of its general course tickets. Beginning on February 15th, the Queen Mary's Hospital, Stratford, will hold a fortnight's course in general medicine and surgery, from 10 a.m. until 5 p.m. daily, except Mondays, when the sessions start at noon. During the first fortnight in March at the Royal Eye Hospital there will be a special course in ophthalmology, with clinical demonstrations each afternoon from Monday to Friday inclusive. During the early part of March also, the Westminster Hospital will arrange a special course in bacteriology. The Chelsea Hospital for Women

will give a course in gynaecology occupying the last three weeks of March, consisting of operations, lectures, and demonstrations, and during the last fortnight the Brompton Hospital will hold an all-day course in diseases of the chest. From March 15th to 27th there will be a daily course in general medicine and surgery at the Hampstead General Hospital from 4.30 to 6 p.m. for general practitioners. A course in tropical medicine, consisting of two sessions weekly at the London School of Tropical Medicine, will begin on March 16th. Copies of all syllabuses and of the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

A MEETING of the Society of Medical Officers of Health will be held in Glasgow on February 19th, at 2.30 p.m. The agenda includes a discussion on heart disease from the points of view of public health administration, the physician, the school medical officer, and the factory surgeon. Dr. J. J. Buchan will read a paper on his experience at Bradford of the new notification clauses with regard to venereal disease. A portrait of Dr. Chalmers, president of the society from 1913 to 1914, will be presented by the Scottish branch. Members attending the meeting will be entertained at luncheon by the Provost and Corporation of Glasgow, and those proposing to be present are asked to notify Dr. A. S. M. Macgregor, Sanitary Chambers, Glasgow, as soon as possible.

THE public health section of the College of Nursing has arranged a post-graduate course from April 1st to 15th. The first week will include classes in anatomy, physiology, hygiene, and sanitary law, and during the second week lectures will be given on Poor Law reform, State insurance, heliotherapy, diseases of early infancy, and similar subjects. Either week may be taken separately if desired, and it is stated that grants are obtainable from the local authorities towards the expenses of the nurses attending both courses.

A CLEAN milk and food exhibition organized by the Medical Officer's Department of the Borough of Hornsey will be held at Christ Church Hall, Edison Road, Crouch End, from March 2nd to 5th. It will be opened by the Right Hon. Neville Chamberlain, M.P., Minister of Health, at 2.30 p.m. on Tuesday, March 2nd.

A MEETING of the Central Midwives Board for England and Wales was held on February 4th, with Sir Francis Champneys, Bt., in the chair. The ordinary meeting was preceded by a penal session. It was announced that Sir Francis Champneys, Dr. R. A. Lyster, Mr. L. H. West, and Mrs. Bruce Richmond had been re-elected to the Board. Drs. Florence Bentham and Arthur R. Lister were approved as lecturers, and approval as a training school was granted to the Norwich Union Infirmary. It was stated that the training of pupil midwives had been discontinued at Islington Infirmary. Approval as teachers was granted to two applicants.

A COURSE in dermatology will be held at the Hôpital Saint-Louis in Paris, from April 12th to May 16th, followed by one in venereology from May 17th to June 11th, and another in therapeutics from June 14th to July 2nd. Throughout this period there will also be a course in laboratory technique. Further information may be obtained from Dr. Burnier, Hôpital Saint-Louis (Pavillon Bazin). The fee for each course is 250 francs.

THE Académie de Médecine of Paris has awarded the Buisson prize of 12,000 francs to Dr. Levaditi for his work on bismuth in the treatment of syphilis.

THE *Journal de Médecine de Bordeaux et du Sud-Ouest* for November 25th, 1925, contains a facsimile of the cover of the *Journal Médical de la Gironde*, which, as we stated in our issue of January 23rd (p. 174), was the original title of the journal.

THE following professors have recently been nominated in the French Faculties of Medicine: Dr. Pierret (chair of hygiene and bacteriology at Lille), Dr. Lafforgue (chair of hygiene and preventive medicine at Toulouse), M. Chaîne (chair of comparative anatomy and embryology at Bordeaux), and Dr. Baylac (chair of children's diseases at Toulouse). Dr. Rathery has been elected professor of experimental pathology, and Dr. Lemierre professor of bacteriology, in the Paris Faculty of Medicine, and Dr. Leblanc has been nominated professor of clinical surgery at the Algiers Faculty of Medicine.

PROFESSOR GARRÉ, director of the surgical clinic at Bonn, and Professor Minkowski, director of the medical clinic at Breslau, will retire on April 1st.

DURING 1925 Sao Paulo, Brazil, suffered from the severest epidemic of typhoid fever known in its history; 1,343 cases with 287 deaths were notified between December 1st, 1924, and May 31st, 1925.

ACCORDING to official investigations the number of dentists and midwives in Japan at the end of 1923 was 8,771 and 39,515 respectively—equivalent to 1.50 per 10,000 of the population of the former and 6.76 of the latter.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS.

CLIMATE.

"BOURNEMOUTHIAN."—There is no really dry warm climate in England. Our correspondent might compare the climatic data of his district with those of other English climatic resorts in Edgar Hawkins's *Medical Climatology of England and Wales*, London, 1923. Sidmouth, Budleigh Salterton, and Torquay might be thought of.

"M. K. H.," who desires a place on the Eastern Riviera for an all-the-year-round residence for a middle-aged man with bronchial trouble, might consider Nervi (closely connected with Genoa) and Viareggio (thirteen miles from Pisa). We published in the **JOURNAL** of January 20th, 1923 (p. 116), a short article on the Italian Riviera. Further particulars can, we believe, be obtained from the tourist office of the Italian State Railways, 12, Waterloo Place, Regent Street, S.W.1.

ARSENICAL DERMATITIS IN SYPHILIS.

"F. M." asks for advice as to the point he raises at the end of his account of the following case. A man of 48 has syphilitic ulcers on right leg of several months' duration; he is a garage proprietor, and is very anxious not to lie up. Eight months ago I gave him six injections of N.A.B. and the ulcers became much smaller, although he did not rest, but after the fourth injection (0.45 gram) he complained that he had had severe itching of his feet; after the fifth he had blisters on his feet and itching for two nights; after the 6th (0.6 gram) red miliary papules appeared, extremely irritable on wrists and feet; temperature 99°; lasted two days. I then waited a month and gave another dose of 0.6 gram, which was followed by severe reaction as before. I then decided to substitute Silbersalvarsan, and gave one dose of 0.1 and four of 0.2 gram, but the ulcers did not improve; he was taking mercury and iodides all the time; he was also given three intramuscular doses of bismuth salicylate. Is it safe to try N.A.B. again by itself or mixed with sodium hypsulphite solution?

WANTED—A CHILD.

"PUZZLED" asks for helpful suggestions in the following case in which the patient is very anxious to have a living child. Her first pregnancy at seven and a half calendar months was complicated by placenta praevia and a transverse presentation. Caesarean section was performed and the mother made an uneventful recovery. Her second pregnancy, three years later, miscarried at eight calendar months; the child was dead, but the foetal heart had been heard two weeks previously. The patient is an apparently healthy woman, aged 26; her Wassermann reaction is negative. There has been no albuminuria during pregnancy; the blood pressure is normal, and the uterus and appendages are healthy.

INCOME TAX.

Car Depreciation.

"S. M. I." bought a car in 1920 for £560 and replaced it in 1923 by another car of higher power for £555, receiving £180 for the original car. What allowances is he entitled to?

(1) As an expense of replacement as incurred in the year 1923, £555—£180=£375. In our view to base the allowance on the

1923 cost of the original car is in opposition to the evidence given before the Royal Commission by the present Chairman of the Board of Inland Revenue. (2) By way of depreciation allowance for the financial year 1925-26, say 20 per cent. on the £555 as written down by one year's depreciation—that is, 20 per cent. of 80 per cent. of £555=£88. It is true that "S. M. I." for the time drops one year's depreciation, but when the present car is renewed he can claim the cost of renewal as a professional expense provided he treats the total of the allowances received as deductible from the net renewal cost; he will then be recouped for the fact that he has had no allowance for the financial year 1924-25.

Allowance for Student Son.

"J. W. B." has claimed relief in respect of his son, who is a student, aged 19, at a London hospital; his claim has been refused on the ground that "attendance at a medical school cannot be taken as in the nature of general education."

* * The statute does not speak of "general" education, and we are of opinion that the allowance can properly be given—in many instances it is given—in respect of a student at a recognized hospital course of training. We suggest that "J. W. B." might ask the local inspector to inquire of headquarters on the point, or alternatively that he should himself put the case in writing to the Secretary, Board of Inland Revenue, Somerset House.

LETTERS, NOTES, ETC.

VITAMIN DEFICIENCY.

DR. S. HENNING BELFRAGE (London, W.) writes: Your leader on this subject (February 6th, p. 250) cannot fail to arouse widespread interest and attention. It is to be hoped that the medical profession will now speak with less uncertainty and greater unanimity than heretofore on this long-debated question of the use of whole meal as opposed to white flour. Not a few authoritative pronouncements on this subject have hitherto been either half-hearted or definitely at variance. The economic difficulties can only be solved in one way—namely, by the education of the consumer to a realization of the extreme importance of a radical change in the existing preference for white as opposed to whole wheat flour. Such education can only be given by the medical profession, and no facilities for carrying it out must be denied to those whose obligation and privilege it is to educate the public in all matters concerning the maintenance of health and the avoidance of disease. Once the demand is created means will be found to ensure the supply. I was informed recently by one of the largest bread caterers in London that they have for some time past demanded from their millers that no wheat which had been subjected to the use of preservatives or bleaching agents should be supplied to them, and they have experienced no difficulty in obtaining the untreated article. In their opinion there would be no greater difficulty in obtaining whole wheat flour if, in response to a demand from the public, they wished to obtain and supply it. The facts are sufficiently well established without any further research work to enable the medical profession to act energetically and unanimously in furthering the interests of the health of the community by advocating this all-important change in its dietary habits.

A FAULTY GERMAN LEG.

IN the *Münchener medizinische Wochenschrift* for January 29th Dr. E. Schilcher describes a light prosthesis for thigh amputations, for which he claims the advantages of lightness, security from falls, and cheapness.

As Dr. Schilcher describes the usual artificial limb with movable knee-joint as weighing from 7 to 10 German pounds, or 7½ to 11 lb. *avoidupois*, it is evident that he is not familiar with the light metal limbs supplied by the British Ministry of Pensions, which are as light as Dr. Schilcher's prosthesis. The limb which he describes has a rigid knee for walking, with a lock-joint to be used for sitting only. It has a toe-joint, but no ankle-joint. Thus it will appear that it compromises between the peg-leg and in this country such-like limbs are certain manifest advantages, very few amputees are content to go about with a locked knee when once they have mastered the management of a well fitted and balanced metal limb with a movable knee-joint. Those who are content with a stiff knee would probably prefer to have the simple and light peg rather than a hybrid limb such as Dr. Schilcher describes. The Beaufort limb, which is also a compromise, has never been popular in this country. From the remarks of the author of the article as to the weight and qualities of the artificial limbs in use in Germany, we are inclined to conclude that the British limb-maker has little, if anything, to learn from Munich.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 59.

The Hugh Owen Thomas Lecture ON THE ORTHOPAEDIC ASPECTS OF CHRONIC ARTHRITIS.

DELIVERED BEFORE THE LIVERPOOL MEDICAL INSTITUTION
BY

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At the outset I wish to express my admiration for the qualities of mind and heart possessed by the great character in whose memory this lectureship has been founded, and to acknowledge the debt of gratitude and affection which I owe to his successor and my orthopaedic master, Sir Robert Jones.

The subject of the orthopaedic aspects of chronic non-tuberculous arthritis has been chosen, first, because chronic joint disease merits all the attention which may be directed toward it; secondly, because there are certain aspects of these widespread and crippling affections which, in respect to functional treatment, come within the purview of orthopaedic surgery; and thirdly, because these conditions have been of almost chief concern to the immediate group of professional associates with whom my pleasant lot has been cast. I would emphasize the clinical nature of our discussion, disclaiming at the outset any significant share in the experimental or laboratory investigation which has clarified our conception of these diseases or types of disease, and which we earnestly hope will eventually make our treatment less empirical and more rational.

We still, in many cases, lack conclusive proof of the specific nature of the infections, if indeed they be infections, which draw the first strokes of clinical pictures eventually very similar. We still lack accurate knowledge of the abnormal physiological processes and biochemical derangements which as primary factors initiate, or as secondary factors prolong, the symptom-complexes with which we are familiar. Therefore, while we recognize the importance of placing the

emphasis upon investigation and not upon therapy, we shall strive to rationalize the knowledge of the morbid processes which we possess and apply this knowledge to a functional therapy.

NOMENCLATURE.

Let us not fall into the still common error of thinking of all cases of deforming arthritis as representing different manifestations of the same diseases, protecting our diagnostic heads by the shelter of the impressive name of "arthritis deformans." Even if we are convinced that there is a common etiological factor—infection, we must recognize at least two clinical types, running so true to form and exhibiting such distinct characteristics that they demand a separate nomenclature. Since no entirely satisfactorily descriptive terminology has yet been suggested, I direct your attention to Table I, in which, under headings of the commonly understood terminology of rheumatoid arthritis and osteo-arthritis, a few of the more important attempts at classification have been synonymized. Goldthwait and Swaim, my co-workers, believe that the rheumatoid type should be subdivided into those which are probably due to a specific infection which they call "infectious arthritis," and those in which atrophic bone and joint and muscle changes occur very early, seemingly not wholly dependent upon disuse, and suggesting a real but undefined neurotrophic factor. This form they designate as "atrophic arthritis." Strangeways¹ has recognized pathologically seven types of arthritis, which are often included in Great Britain under the name of "rheumatoid arthritis." I also direct your attention to Table II, in which the main contrasting differences in the two types are briefly recorded.

RHEUMATOID ARTHRITIS.

Etiology.

To most investigators at first sight no etiologic theory seems so probable as the infectious theory. Many investigators, after carefully reviewing the evidence, still believe that this theory offers the most attractive and hopeful explanation of the pathologic findings and the clinical pictures. We know that a chronic Neisser infection may be associated with a chronic polyarticular affection in which the joint tissue changes are fairly typical of rheumatoid

TABLE I.—Chronic Non-tuberculous Arthritis.

AUTHORS.	RHEUMATOID ARTHRITIS.	OSTEO-ARTHRITIS.
Adams (1857) ²	Polyarticular type	Monarticular type.
Charcot (1881) ³	Rapid evolution. Age incidence 16 to 30. Little new formation of bone	Gradual evolution. Age incidence 40-60. Hyperostosis. Heberden's nodes. Malum coxae senilis.
Garrod (1890) ⁴	Rheumatoid arthritis: (a) Acute. (b) Chronic. Still's disease	Osteo-arthritis.
Bannatyne (1895) ⁵	Rheumatoid arthritis: early	Rheumatoid arthritis: late.
Goldthwait (1904) ⁶	(a) Infectious arthritis. (b) Atrophic arthritis	Hypertrophic arthritis.
Nathan (1906) ⁷	(a) Acute infectious arthritis (inflammatory). (b) Insidious autotoxic arthritis (trophic)	Insidious progressive osteo-arthritis (trophic), senile arthritis. Heberden's nodes, malum coxae senilis. Tabes dorsalis, syringomelia, etc.
Pribram (1907) ⁸	(a) Chronic pseudo-rheumatism. (b) Chronic secondary articular rheumatism. (c) Rheumatoid arthritis	Osteo-arthritis deformans.
Hoffa and Wollenberg (1903) ⁹	(a) Secondary chronic articular rheumatism. (b) Primary progressive polyarthritis. "Arthritis destruens"	Osteo-arthritis deformans.
Llewellyn Jones and other British authors (1903) ¹⁰	Rheumatoid arthritis: (a) Acute. (b) Subacute	Osteo-arthritis.
Nichols and Richardson (1903) ¹¹	Proliferating or ankylosing arthritis	Degenerative or non-ankylosing arthritis.
Osler and McCrae ¹²	(a) Lesions principally in synovial membrane. (b) Atrophic changes in cartilage and bone	Hypertrophy and overgrowth of bone.
Ely (1914) ¹³	TYPE I. Primary proliferation of synovial membrane and marrow. Secondary atrophy of cartilage and bone	TYPE II. Primary inflammation of synovial membrane and degeneration of synovial membrane and marrow. Secondary hypertrophy of bone and cartilage.
Fisher (1923) ¹⁴	TYPE II (Synovial). Primary synovial membrane invasion. Secondary cartilage and bone invasion	TYPE I (Chondro-osseous). Primary cartilage and bone invasion. Secondary synovial membrane invasion.
	TYPE III (Mixed). Simultaneous invasion synovial membrane, cartilage, and bone.	
	"Poker back." Marie type. ¹⁶	SPONDYLITIS DEFORMANS. Strümpell-Osteo-arthritis. ¹⁷ Hypertrophic arthritis, Von Bechterew type. ¹⁸

TABLE II.—*Differential Diagnosis.*

	RHEUMATOID ARTHRITIS.	OSTEO-ARTHRITIS.
Age incidence:	Infancy to middle life	Middle life to old age.
Onset:	Acute to insidious	Subacute to ignorance of presence.
Joint manifestations:	Periarticular and articular swelling. Often free fluid. Early limitation of motion considerable. In hands mid-phalangeal and metacarpophalangeal joints usually involved first	No periarticular and usually only localized articular swelling. Rarely free fluid. Little limitation of motion till late. In hands terminal joints usually involved first.
Symptoms:	General health usually less robust. Ptotic type. Pain and disability usually more marked	General health usually robust. Well nourished type. Pain and disability usually less marked.
Early radiogram:	No discoverable cartilage or bone changes. Shadows of excess of fluid and general increased density of soft parts	Early slight "lipping" of articular margins. Shadows of localized synovial membrane proliferations may or may not be seen.
Late radiogram:	Diminished density of bones. Usually absence of hyperostosis. Narrowed articular cartilage space. Ends of bones fairly regular in outline. Bony ankylosis common	Except after long disuse no diminished density of bones. Presence of marked hyperostosis. "Joint mice." Narrowed articular cartilage space. Ends of bones irregular in outline. Bony ankylosis rare.
Temperature:	In early stage often slightly elevated. In late stage often subnormal	Normal.
Blood pressure:	Usually lower than normal for age	May be low, but usually normal or high for age.
Morbid histology:	Early proliferation of synovial membrane. Pannus. Usually small round-cell infiltration. Late atrophic and destructive changes in cartilage and bone. No cyst-like cavities in ends of bones. Fibrous or bony ankylosis common	Early fibrillation of cartilage. Chondro-ossous hypertrophy Cyst-like cavities in ends of bone. Bony ankylosis rare.

arthritis. Gonococci have been found in these joints.¹⁹ The disease has been arrested and in early cases cured by the eradication of the deep foci of the primary infection.²⁰ We have all known similar recoveries to have quickly followed the removal of other foci of infection in the tonsils, teeth,²¹ sinuses, and intestinal canal, but it would seem that on the present evidence we have no conclusive proof that any known specific organism which invades and continues to inhabit the joints themselves can be held solely responsible for the disease.

We are beginning to accumulate suggestive evidence of the important part which faulty alimentation may play in the production of chronic arthritis. Woodward and Wallis²² and Baldwin²³ have shown a low hydrochloric acid in the gastric juice in cases of rheumatoid arthritis; and Clark²⁴ has found a very close association of gastro-intestinal derangements with the same disease. Pemberton²⁵ has made a series of close observations which show that in general these patients have a lowered sugar tolerance and a sort of carbohydrate intolerance. They do best on diets in which the carbohydrate calories are cut down to the lowest level which can be maintained without loss of weight. Fletcher²⁶ has recently confirmed these observations on 150 unselected cases. Nichols and Richardson, approaching the disease by a careful investigation of the morbid histology of material obtained from 65 early and late cases of chronic arthritis, came to the conclusion that the changes which they observed in the rheumatoid type might result from a great variety of irritants, such as infections, disease, and trauma. They suggest that the primary changes once produced may act in a vicious circle, with or without the primary cause continuing to be active.

Since careful and seemingly thorough experimental and laboratory study of the disease has not been thus far completely illuminating, it may be well to turn to the clinical aspects of the condition in a search for etiologic light.

My own clinical observations lead me to believe with Garrod²⁸ that everything which causes debility or loss of tone to the articulation acts as a predisposing cause, and with Pemberton that probably a variety of factors influence the substratum—for example, various types of infections, exposure to wet and cold, intestinal disturbances, endocrine imbalance. Pemberton²⁹ also believes that the changes found are associated with a low blood supply and disturbances of capillary control.

One other clinical observation to which Goldthwait³² has directed attention, and which has impressed me greatly, has been the common incidence of the disease in the so-called congenital viscerotonic type of individual—Treves's³³ and Bryant's³⁴ carnivorous type and Bean's³⁵ hyperontomorph. The female sex is more susceptible to ptosis and to the disease than the male, but in both sexes the type runs surprisingly true. Poor body mechanics,

vasomotor changes, faulty alimentation, endocrine disturbances, general lack of resistance to infection, and lowering of the vitality, perhaps worry and mental strain—these seem to be the predisposing clinical factors; and the joint changes once initiated may continue to progress until by some means—removal of serious focal infections, restoration of endocrine balance, relief of imperfect alimentation, correction of bad body mechanics—this general resistance can be raised, the lowered blood supply to the joints and the disturbance of capillary control overcome, and the complicated parts of the body machine coaxed again to function in harmony.

We have been unable positively to identify Still's disease as a separate entity. The disease in children seems to present certain peculiarities—for example, frequently a more general glandular enlargement and a more profound constitutional disturbance. No specific etiology has been worked out, and faulty alimentation is often, we believe, the most favourable point of attack.

Therapeutic Indications.

I do not feel that the general experience of clinical observers with vaccines and non-specific protein therapy has, by and large, been as hopeful in respect to permanent cure as the earlier reports suggested. My own limited trial of these methods is in accord with this general experience. The recent interesting articles of Professor Stockman³⁶ and Dr. Campbell³⁷ of Glasgow seem more encouraging.

I do not feel that the surgical removal of possible foci of infection, with some reservation as to those of the intestinal canal, has been followed in the majority of cases by the amelioration of symptoms which the patient had been led to expect; surely not in the well advanced type of case which usually in our country consults the orthopaedic surgeon. Let me not be misunderstood. It is of indubitable importance to eradicate, surgically or medically, any focus of infection which may reasonably be held responsible for any lowering of the general resistance, just as it is of greatest importance to adjust any discoverable endocrine disturbance or correct the faults of body mechanics. I suggest, however, that the reason for these procedures be made clear to the patient, and that, remembering our clinical experience, we stay the surgical and dental hands of our confreres, unless they can assure us that the foci of infection are affecting the general health of the patient and are not simply themselves expressions of a lowered vitality for which there are other causes. If we expect joint recovery to follow the removal of even well demonstrated possible foci, in a large proportion of the cases we shall find "Hope such a poor virtue that Disappointment pays her debts."

There is much to suggest that the path is very open

by which bacterial or chemical toxins may pass from the intestines, especially the colon, to the joints, and I urge most careful attention to normal evacuation of the bowels by means of mechanical correction of ptosis, abdominal massage, colonic irrigation, and non-irritating catharsis by mouth. A daily movement of the bowels, naturally or artificially produced, does not necessarily mean a safe and complete evacuation. The rather rare case, usually of short duration and fairly acute onset, which recovers spectacularly after the removal of a frank surgical focus, is quickly reported and too often considered the type. The case which begins to improve when it is possible to bring about a more normal rate of passage of intestinal contents and to secure a more complete evacuation of the colon, is perhaps less spectacular, but we believe much more common.

Of drugs I have little to say. Aspirin and salicylates surely relieve pain, and in small doses are useful for this purpose, but my impression is that in large or prolonged doses they are harmful to the digestive processes, and at no stage of the disease do they seem to exert a beneficial effect on its course. In a surprisingly large number of these cases the readings of the basal metabolism tests have been found well below normal, and their toleration of thyroid extract given in carefully graded doses to be considerable.

There is much evidence to suggest that the immediate cause of the crippling joint changes is directly due to a lowered blood supply and loss of capillary control, so that physiotherapy in the forms of heliotherapy, active motion to toleration, non-irritating massage general and local, diaphoresis by means of low temperature steam baths, radiant light, and perhaps diathermy locally—a fresh air and heliotherapeutic regime—is surely indicated. Occupational therapy has a great place in the treatment of these cases, and special exercises, often taken in recumbency, not so much of the standardized Swedish type as those designed to increase the vital capacity and relieve the ptosis, are with us prescribed as a routine. I should be unfaithful to our cult if I did not stress the great importance of the prevention of deformity. Here our orthopaedic skill will be taxed to devise apparatus, walking splints, weight and pulley traction, etc., to make sure that contractions do not occur and that the greatest amount of motion shall be conserved. I would warn against prolonged fixation or splinting in this type, because it still further lowers the already low blood supply and increases the atrophy. Even a surgical giant cannot scale Olympus by “piling Pelion on Ossa.”

Surgery in Rheumatoid Arthritis.

Have we a rational surgical attack on these joints themselves? Surely not in the acute stage, unless occasionally to relieve the hypertension of a joint by aspiration; perhaps not until the disease seems well under control. Then we are inclined to believe that the local progressive intra-articular changes, especially in the cartilage, may be checked and function conserved by the operation which has been called synovectomy. Goldthwait first advocated and practised the removal of joint fringes and pannus. The operation as it is understood to-day was introduced, we believe, by Mr. A. H. Tubby⁶⁰ in 1908, who removed all the proliferated synovial membrane and pannus from three knee-joints, with relief of local symptoms and the conservation of motion. Lately Swett⁶¹ and Jones⁶² have reported larger series of encouraging results.

Is it not probably conservative surgery, when we believe the process arrested, to remove these painful villi and the mass of pannus which eventually causes destruction of the articular cartilages, before this irreparable damage has been done? If deformities have occurred and complete or nearly complete ankylosis has taken place, resection will often bring about better weight-bearing lines by depriving the joint of all motion and will establish painless function. Manipulations of the quiescent joints after the carefully outlined methods of Sir Robert Jones⁶³ are often of great value in correcting malposition and even restoring motion. No successes have followed our attempts at arthroplasty on the knee-joints of these wasted limbs. Two stiff hips with limited or absent knee-joint motion represent an

enormous handicap, and while in these old cases perfect arthroplasties are as rarely accomplished in the hip as in the knee, some form of pseudarthrosis like that of Sir Robert Jones,⁶⁴ the reconstruction operation of Whitman,⁶⁵ or even a simple excision, allows the patients limited locomotion, with or without crutches, and makes it possible for them to sit in a chair with comfort. It is a fearful hardship to be obliged to be continually either completely *upright* or completely *downright*. To be able to receive attention without attracting it is a great blessing.

SPONDYLITIS DEFORMANS.

Rheumatoid Arthritic Type.

In discussing spondylitis deformans we have placed under the caption of rheumatoid arthritis that form described as the Strümpell-Marie type, the so-called spondylose rhizomélisque, or “poker back.” There is little chondro-osseous proliferation, but a gradual ossification of the spinal ligaments and intervertebral capsules, resulting in a complete bony stiffening of the spine and an ankylosis of the costo-vertebral articulations. There is also frequently a fusion of the root joints, the shoulders, and the hips. Our present knowledge would lead us to discuss its etiology as we have discussed the etiology of the general type of rheumatoid arthritis, recognizing the fact that this crippling spinal affection has frequently been observed to follow an infection of the prostate gland.

The orthopaedic aspects are of great importance. The early signs of this vertebral affection are definite—limited motion of the column and diminished chest expansion. We should never fail to recognize these early signs. The progress of the disease is often difficult to check, but the prevention of deformity is not difficult. If the intervertebral and costo-vertebral articulations are to ankylose, we must see to it that they ankylose in such a position that the action of the thoracic viscera, the lungs, and heart, and diaphragm shall suffer the minimal interference with their function. Again, attention to body mechanics should be our first concern. It is often possible, even after marked degrees of stiffening have occurred, to increase greatly the capacity of the thoracic cage by means of enforced positions, exercises, braces, and corrective jackets. Long and by no means intolerable life is possible with a completely rigid spine if the lungs and heart are allowed space in which to function and the diaphragm in which to act.

OSTEO-ARTHRITIS.

Etiology.

The type of chronic non-tuberculous arthritis which is generally designated in Great Britain as osteo-arthritis, and is more often spoken of in America as hypertrophic arthritis, demands less review as to its etiology than the rheumatoid type, for, unfortunately, it has been the subject of less thorough investigation. Climatic conditions offer little clue to its causation. As in rheumatoid arthritis, Strangeways has found that the tropics and the polar regions seem to furnish few examples of the disease. Exposure to cold and wet is a less frequent history than in the first type. Lowered general vitality is rarely demonstrable before the onset. Definite trauma is often prominent in the patient's mind, and repeated unnoticed traumata and the malalignments of joint surfaces, the “incongruence” of Preiser,⁶⁶ can often be found for the searching. Intra-articular fractures are usually followed by such changes.

Except for the rather rare frankly traumatic case the age incidence is striking. It is a disease of middle or late life, and is no respecter of persons or sexes or social standing. The early joint changes which are obvious to physical examination and Roentgenologic study are slight or moderate localized joint swellings, ridging of the articular ends, and chondro-osseous overgrowths at the margins of the cartilage. Eventually if the process is unchecked the articular cartilage disappears, leaving an eburnated bone end often irregular in contour, interlocking but not uniting with its opposing joint element. They are called “Heberden's nodes” in the fingers, “malum coxae senilis” in the hip, and “ring bone” in the spine. Nichols and Richardson⁶⁷ found the earliest changes to

consist of a fibrillation of the cartilage. Clinically the joint disturbances under discussion do not often suggest any inflammatory process, certainly not as much as the disturbances in gouty joints, for which we hold responsible, not an infection, but faulty body chemistry.

There is some evidence to support the etiologic theory of faulty body chemistry. Haygarth,⁶⁹ and recently Cecil and Benjamin,⁷⁰ have called attention to the fact that many cases of this type appear at about the time of the menopause in women, and Cecil has observed this to be true in certain patients in whom an artificial menopause had been induced. Cecil could establish no relation to possible alveolar foci, many of his patients having had all their teeth extracted years before the onset of the trouble. My experience has not been that of Mr. Fisher, that the removal of surgical foci has favourably influenced the condition of the joints, unless these foci were profoundly affecting the general health of the patient. Ely^{67(c)} holds an amoeba probably responsible.

Rheumatoid arthritis usually appears in the light, ptotic, carnivorous type—the hyperontomorph of Bean. Osteoarthritis usually appears in the heavy, herbivorous type—the hypo-ontomorph of Bean. As the patients usually present themselves, they describe their general health as excellent and their appearance does not belie their words. They have been active men and women, their digestions have been excellent, their bowels usually fairly regular, their weight is often above normal, but one or more of their joints are beginning to “bother” them and to interfere with activities for the pursuit of which they still feel a zest.

Therapy.

The orthopaedic aspects of this type of chronic arthritis are more striking and of even earlier concern than in the rheumatoid type. They may be said to present themselves at the very earliest sign of the onset of the process. The local therapeutic indications are to maintain and stimulate the blood supply of the joint by heat and massage about, but not on, the chondro-osseous ridges, and by intermittent active, painless motion, but not by manipulation. First and foremost, we must diminish in every way intra-articular friction.

These joints do not ankylose except in the spine and pelvic joints, where one chondro-osseous spicule directly impinges upon, and finally fuses with, another. We need not fear that fibrous or bony fusion will result from even complete immobilization. The spicules and ridges of bone at the articular margins which the Roentgen ray reveals are capped by a sensitive cartilage which proliferates from the irritation of frictional motion. Protect the sensitive ridge, limit joint motion, or even temporarily completely deprive the joint of motion, and the irritation will subside. The roentgenogram later will show no change, but the patient will often declare himself completely relieved. If he is willing to restrict his activities to the limit of non-irritating use, his joint function may represent the least of the incapacities of his increasing age.

This rest and protection of the affected joints, with painful active or passive motion always discouraged, we believe to be our first therapeutic indication, although it is a purely local one. The next indication is a more general one, and has to do with body mechanics. We should strive to bring about as perfect an alignment of the weight-bearing mechanism as it is possible to attain. This may mean the relief of knee strain by the correction of pronated feet, the relief of low back and hip strain by the adequate support of a pendulous abdomen, the neutralization of dorsal and shoulder girdle and cervical strain by suitable braces. Do not understand me as advocating these initial measures as of more importance than an attempt to discover the underlying biochemical cause of the joint changes. This is, of course, our ultimate goal, but our initial endeavour should be at the earliest moment to prevent, by local measures, processes which to many of us seem essentially degenerative from being accentuated by “wear and tear.” In general the patients do better on a low protein and fat intake, a low meat and sweet, and low acid-forming diet, as do the gouty cases. The endocrine disturbances have not been so common in this type.

Surgery in Osteo-arthritis.

Surgery may offer temporary and sometimes permanent relief in difficult cases. We often hear manipulation of these joints advocated. This is justifiable in those rare cases in which contractures have taken place or malpositions of weight-bearing have occurred and in those monarticular cases in which repeated attacks have left adhesions. Intra-articular adhesions are uncommon in the polyarticular case, and in my experience forcible manipulations, save to secure better functional positions, have rarely afforded more than temporary relief, and have seemed to affect unfavourably the course of the local process. Unless prolonged fixation follow the manipulation, the old faulty position is soon reassumed. I am aware that my experience has not been that reported by other clinicians, but it is definite none the less.

Loose bodies arising from detached chondro-osteophytes or synovial membrane fringes are often greatly incapacitating, as they are especially prone to occur in the knee-joint, and these with fringes which catch between the articular ends, and chondro-osteophytes which impinge, often make arthrotomies justifiable. Their removal may afford a long relief, without, of course, the assurance of their non-recurrence. These operations should be performed only after the disease has been rendered quiescent by a period of adequate protection. The underlying pathologic process militates against the success of nice arthroplastic operations, and because of the eburnation and cyst formation in the ends of the bones, makes it difficult to obtain firm bony union after resection. Fortunately, the operation of arthrodesis is rarely indicated in any of the joints affected by the disease, the hip-joint alone excepted.

Malum coxae senilis presents a special problem. Local protection of the other joints usually makes life tolerable, and even in the hip, if the functional position be not too bad and the patient is willing to suffer the inconvenience of a stiff spica, or even some less radical protective appliance, pain and discomfort may be relieved.

Dr. Royal Whitman⁷⁶ has recently applied with success his reconstruction operation to cases of arthritis deformans of the hip-joint. I have followed several cases in older subjects whose deformed femoral heads have been quickly resected with no attempt made to reconstruct a stable joint. Convalescence has been rapid and pain relieved. Though I cannot speak from personal experience, I believe one of the most useful and least shocking operations in “elderly and fragile patients” is the pseudarthrosis of Sir Robert Jones. In these older cases surgery is surely the last resort, seldom demanded and always hazardous. In some of the extreme cases in good surgical risks an attempt at an arthrodesis seems to be the method of choice. If this choice is taken the operation in a well advanced case demands a complete exposure and disarticulation. Only the most thorough procedure offers a reasonable chance of success.

SPONDYLITIS DEFORMANS.

Osteo-arthritic Type.

Under the caption of osteo-arthritis we have placed those forms of spinal affections described by von Bechterew, the hereditary traumatic kyphosis, and the hypertrophic arthritis of Goldthwait. It differs in no way either etiologically or pathologically, in our opinion, from the other articular manifestations of osteo-arthritis, except that the chondro-osseous ridges and spicules at the margins of the vertebral bodies are prone to impinge upon one another and occasionally eventually unite. In subjects who bear heavy burdens on their shoulders or assume an habitual posture of stoop shoulder, a rounded, rigid dorsal kyphosis ensues. Though the intervertebral foramina themselves are usually free from osseous changes, the chondro-osseous ridges may impinge on the nerves after their exit from the intervertebral foramina. Brachial, intercostal, and sciatic pain are, therefore, not uncommon symptoms of this disease when it affects the spine, and a localized or general rigidity of the back is nearly always present. The roentgenograms of spines taken for suspected kidney or other visceral lesions frequently reveal well marked osteo-arthritic changes often when the subjective symptoms of this type of articular change are entirely absent.

The orthopaedic aspects of the condition concern us very acutely, especially since industrial insurance and workmen's compensation cases have become so numerous. The therapeutic indications are the same as in other types of the condition: attention to general health and free elimination, physiotherapy, protection of the affected portion of the spine by a Thomas collar, a spinal brace or jacket, and an attempt to neutralize or correct the faulty spinal curves and bring about a normal weight-bearing alignment. Conceivably a spinal fusion operation might be a rational procedure in an occasional case. Relief from less radical measures is ordinarily easy to obtain, and for this, in the commonly met cases exhibiting low back pain and sciatica, the low short back brace with an abdominal supporting pad devised by Goldthwait has been a sheet anchor which has held. If rest of the affected part, diminution of intra-articular friction, and free elimination can be provided, we may expect symptomatic relief.

SUMMARY.

1. Rheumatoid arthritis is a disease in which no specific organism has been found which can be held constantly responsible for its causation. Probably many different types of organisms and many other factors play etiologic parts in its onset and course.

2. In the early stages of rheumatoid arthritis, if these organisms and if the other factors can be overcome, complete recovery is possible. In the later stages, if the factors inimical to normal vitality can be eliminated and the essentials for normal body mechanics can be satisfied, arrest of the disease and great functional betterment may be expected. In this stage the simple eradication of a possible surgical focus of infection will rarely be successful in controlling the progress of the disease.

3. Osteo-arthritis is a disease in which no specific organism has been conclusively proved to be responsible for its causation. On the basis of the present evidence, its manifestations may occur unassociated with any demonstrable remote or local focus of infection.

4. In the early stages of osteo-arthritis, if a faulty body chemistry and a faulty body mechanics can be corrected and intra-articular friction can be lessened, almost complete relief of the subjective symptoms is possible. In the later stages, if intelligent physiotherapy, protective appliances, and well conceived surgery be added to these measures, relief of discomfort and greatly improved function may be expected.

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PHRENIC EVULSION AS AN AID IN THE TREATMENT OF PULMONARY TUBERCULOSIS AND BRONCHIECTASIS.

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(With Special Plate.)

Is pulmonary tuberculosis it is quite common to find by radiological examination a reduction of the range of movement, or a delay, or, occasionally, complete immobility of one or both domes of the diaphragm. This reduction in the mobility of the diaphragm is not of the nature of a paresis or paralysis, but rather of a tonic contraction, exercising probably the same type of protective function as is seen in the rigidity of the muscles of the back in cases of pulmonary tuberculosis, or of the abdominal muscles in intra-abdominal lesions. The rigid diaphragm will, in chronic fibrotic cases, become drawn up somewhat into the thorax and so aid slightly in reducing its volume. In the upward displacement, if the base of the lung is adherent to the muscle, distortion will be added to the upward displacement. This tonic spasm becomes an added factor in disturbing the normal reflexes of respiration, and is therefore a contributory agent in the production of dyspnoea. Briscoe has stated that when the phrenic nerve is involved by pressure due to neoplasms, etc., dyspnoea is at first one of the striking features of the clinical picture; later, when doubtless the irritation of the pressure has given way to paralysis, the dyspnoea subsides.

When the phrenic nerve is paralysed by severance of the nerve supply the condition, as seen by radiological exami-

ination, is very different. There is complete loss of tone of the muscle, and the dome (when one half is paralysed) occupies a higher position in the thorax. On the right side the elevation may be from 4 to 8 cm.; on the left side it is less—from 2 to 4 cm. The maximum rise is not seen at once; the initial change in position is increased during the ensuing weeks as the muscle atrophies. The rise is due partly to the pull of the intrathoracic negative pressure, but mainly to the upward pushing force exercised from the abdomen by the abdominal muscles. During ordinary respiratory movements the paralysed dome is immobile. In most cases, but not in all, paradoxical movements can be observed during deep respirations—that is, the paralysed dome will rise still further into the thorax during inspiration and will sink back during expiration. These movements, according to Landé, are especially noticeable with Bittorf's method (that is, inspiration with closed nose and mouth).

The effect of the paralysis is twofold: it prevents the diaphragm pulling on the lung and expanding the lower lobe; it also does what is of such value in the treatment of certain types of disease—it produces a partial collapse of the base of the lung. Such collapse varies considerably in different cases, depending probably on the absence or the extent of the adhesions in the *costo-phrenic sulcus*. As there is rest of the lung and collapse of the base, benefit is derived from the diminution in the outpouring of toxins into the lymph stream. The realization of these facts aids the appreciation of the value of unilateral diaphragmatic paralysis in the treatment of certain pulmonary diseases, especially when localized at the base.

So much disappointment was experienced by the repeated failure of simple phrenicotomy that the operation fell into comparative disuse. Willy Felix published in 1922 a paper giving the results of his anatomical, experimental, and clinical researches on the phrenic nerve and the innervation of the diaphragm. His work explained the previous failures, which, until then, had been somewhat vaguely attributed to the existence of additional nerve fibres to the diaphragm said to run with the nerve to the subclavius.

Briefly, Felix's findings are as follows. The main nerve supply to the diaphragm is the phrenic nerve; the last intercostal nerve does send some filaments to the muscle, but these are of no consequence. The important point is that the phrenic nerve when it reaches the diaphragm does not always consist only of the fibres of the phrenic nerve as found in the neck. It may receive fibres from the nerve to the subclavius muscle; it may also receive them from the hypoglossal, the spinal accessory, the vagus, or the suprascapular nerves, either directly or through the *ansa hypoglossi*. But of much greater importance is the fact that the phrenic nerve is often duplicated in the neck. In such cases, the true phrenic occupies the usual course, traversing the *scalenus anticus* muscle from without inwards and entering the thorax *behind* the subclavian vein. The accessory phrenic, when present, lies at first some 3 cm. lateral to the true phrenic. It originates from the fifth cervical and frequently runs in close contact with the nerve to the subclavius muscle, leaving it just before that nerve enters the muscle. The accessory phrenic then enters the thorax *in front* of the subclavian vein, crossing the *scalenus anticus* at its point of insertion into the first rib. Either at this spot, on the inner side of the muscle, or behind the innominate vein, or even at some lower

point in the thorax, the accessory joins up with the true phrenic. This double phrenic occurs in at least 20 or 25 per cent. of people, according to Felix. Goetze, who has also examined a series of bodies, found that in 68 per cent. of them there were accessory branches to the main nerve. In one case the accessory phrenic joined the true phrenic at a point 3 cm. only above the diaphragm. Ruheman, in his examination of 17 bodies, found some abnormality—that is, a condition other than that of a single phrenic nerve—in 11 of them. In 4 there was a bilateral accessory phrenic; in 3 the accessory phrenic ran with the nerve to the subclavius.

It is only necessary to appreciate how frequently the main phrenic nerve is supplemented by fibres reaching it during some part of its course (usually in the thorax) to understand why the old operation of phrenicotomy—that is, simple section of the nerve in the neck—is almost more likely to fail in producing the required result than it is to succeed.

Two operations have been devised to ensure complete

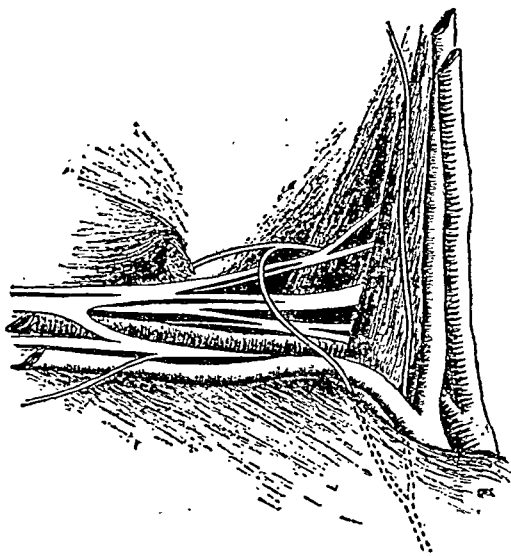


FIG. 1.—Diagram illustrating the phrenic nerve occupying a normal position in relation to the *scalenus anticus* muscle, and entering the thorax deep to the subclavian vein. The commonest variety of the accessory phrenic is also shown. It arises from the upper trunk of the brachial plexus, which it crosses superficially, to reach and enter the thorax, passing superficial to the subclavian vein. The intrathoracic junction of the phrenic and accessory phrenic nerves is shown by dotted lines.

paralysis of one dome of the diaphragm. (1) The radical operation of Goetze. Goetze makes a long incision along the posterior border of the sternomastoid muscle. Through the lower end of this he exposes the phrenic nerve and divides it as low as possible, so as to cut off the sympathetic fibres from the inferior cervical ganglion. Then, through the upper part of the incision, he exposes the fifth cervical root, identifies the nerve to the subclavius muscle, and divides this. This operation has not found favour. (2) Phrenic evulsion (phrenic exaeresis) suggested by Thiersch, and first done by Willy Felix; the phrenic nerve is divided in the neck and the peripheral end is twisted and pulled out of the thorax. When complete evulsion is obtained the various terminal branches are plucked out of the diaphragm; frequently, however, the nerve breaks at some point in its intrathoracic course.

The theoretical objections to phrenic evulsion are:

1. The phrenic nerve may rupture at a point above that at which the main stem is joined by the accessory.
 2. Bleeding may occur from the pericardio-phrenic artery, which accompanies the nerve in its intrathoracic course. In one case Sauerbruch had to open the chest after evulsion and evacuate 2 litres of blood.
 3. The phrenic nerve entering the thorax behind the subclavian vein, while the accessory enters in front of it, means that when the former nerve bundle has strong traction exerted on it the vein is caught in the loop and dragged on. Theoretically the vein might rupture before the nerve bundles give way. This has never occurred.
 4. Changes in the pleura, in the neighbourhood of the nerve have led to the implication and inclusion of the nerve, which becomes embedded in the organized lymph deposit. Traction on the nerve trunk may lead to rupture of it proximal to its point of fixation; on the other hand, the thickened pleura round the nerve may get torn away and expose the mediastinum to infection from pus, if such is present in the pleural cavity. Similarly, the nerve may have become attached to the surface of the lung or to a gland, and rupture of either of these may occur, with resulting pneumothorax or pyo-pneumothorax.
- Experience, which now includes many hundreds of cases, shows that these dangers are more hypothetical than real. One other danger must be mentioned, but chiefly as a warning: on four occasions the vagus nerve has been mistaken for the phrenic, with fatal results each time.

The bleeding from cut veins may be merely "troublesome," but there is also the danger of air embolism, which has occurred on more than one occasion. Zadek has on two occasions seen haemoptysis during the operation; he and Felix have both seen temporary cardiac failure. Reflex cardiac and respiratory phenomena have been reported by H. Alexander. J. Alexander says: "Dyspnoea, rapid or slow, weak and irregular pulse are usual during the actual twisting of the nerve." Morone has seen one case of dyspnoea following the operation. This hitherto has not been my experience, except in so far that during traction when the nerve parts company with the diaphragm the sudden rebound which occurs at that moment usually causes a momentary gasp and an acceleration of the pulse rate. I have observed the pulse weaken and a feeling of faintness come over the patient temporarily on three or four occasions, but there has been nothing to indicate that this is a direct reflex due to traction on the nerve as opposed to the mental strain associated with any operation done under a local anaesthetic.

INDICATIONS FOR PHRENIC EVULSION.

1. As a means of arresting disease in cases of basal tuberculosis and bronchiectasis. It must be understood that, wide as is the range over which unilateral paralysis of the diaphragm can be regarded as efficacious, its value is chiefly as an accessory to other forms of treatment, as a means of controlling symptoms, or as an intermediate measure to enable other lines of treatment to be more complete or more successful or to be adopted after an interval of time. Only when the disease is strictly limited to the lower lobes can complete arrest be expected by phrenic evulsion as the sole method of treatment. The case of bronchiectasis given in detail later on (Case 1) is an illustration of the very successful results which can be hoped for, especially on the right side. Rist also quotes a case of bronchiectasis healed by phrenic evulsion.

2. Phrenic evulsion in association with local thoracoplasty is applicable to such cases as those described above but in which the disease is somewhat more extensive.

3. To assist in controlling the disease in more generally extensive or more advanced or more acute cases of pulmonary tuberculosis. Fischer, discussing radical phrenicotomy, says that the infiltrating, rapidly progressive, disintegrating forms of pulmonary tuberculosis, which so often give bad results with thoracoplasty, are exactly the type of case which give favourable results with phrenicotomy. Baemeister, with an experience of 38 cases, states that even those of the acute exudative type, which have resisted treatment, have been improved. Goetze states that phrenicotomy constitutes, with pneumothorax and thoracoplasty, a third useful operative method of treatment for pulmonary tuberculosis, and resembles pneumothorax in its freedom from danger. It has the advantage over pneumothorax in that it is a single operation with progressive efficiency. Sultau is in agreement with Sauerbruch rather than with Goetze; he considers that phrenic evulsion as the sole method of treatment should be used in exceptional cases only. J. Alexander states that phrenic evulsion has produced some startling results in acute, highly febrile, progressive, predominantly caseous types of the disease.

In the advanced type of case an amelioration only of the symptoms should be expected. In severe unilateral cases phrenic evulsion may be done when pneumothorax has failed, in the hope that sufficient improvement will occur to admit a thoracoplasty being done at some later time. In bilateral cases hemidiaphragmatic paralysis may be produced on the more affected side so as to obtain for the patient some diminution of the cough and sputum and some reduction of temperature. Landgraf has done phrenic evulsion on the more affected side in 20 cases with bilateral disease. Of these 4 were uninfluenced and 16 improved (in 3 there was disappearance of pyrexia and in 5 of sputum).

4. As an accessory to artificial pneumothorax treatment. Sauerbruch, Brunner, Zadek, Goetze, Sultau, Baer, Ziegler, and Schulte-Tigges are all greatly in favour of the combination of phrenic evulsion with artificial pneumothorax. When adhesions are present between the base of the lung

and the diaphragm, and are interfering with the pneumothorax, and are responsible for definite symptoms such as cough, etc., considerable improvement and relief may result from paralysing the dome. There is a general consensus of opinions that effusions are less frequent if the diaphragm has been paralysed, and that there is less rapid absorption of the gas, with the result that the intervals between the refills can be lengthened. Zadek estimates that the interval can be lengthened by 25 to 33 per cent. According to Sauerbruch, the interval can be doubled or even trebled. It is suggested that the diminution of movement is responsible for both these benefits; possibly also the removal of the drag on adhesions, when such are present, is also beneficial. Lastly, in conjunction with artificial pneumothorax, it is of great advantage to paralyse the dome of the diaphragm before permitting a lung, long collapsed, to re-expand. As J. Alexander says:

"To release an artificial pneumothorax and permit a scarred, shrunken lung to re-expand in an attempt to meet the chest wall is a hazardous procedure, and not rarely followed by emphysema, mediastinal displacement, dyspnoea, pain, unfolding of cavities, lighting up of infirmly encapsuled foci, and reactivation of the tuberculous disease. The narrowing of the chest, caused by the mounting of the diaphragm, largely compensates for the disproportion in volume between the unchanged capacity of the hemithorax and the diminished volume of the shrunken, fibrotic lung."

So valuable and helpful has the combination been found to be that it has been recommended as a routine procedure. Zadek does the phrenic evulsion before starting the pneumothorax; Goetze after.

5. Phrenic evulsion for the treatment of symptoms. Sauerbruch considers diaphragmatic paralysis of special value in that it makes coughing easier; this leads to freer expectoration and prevents stagnation of secretions. The beneficial effects are in turn seen in the reduction of pyrexia and the improvement in the general condition. In my experience this is undoubtedly the case. The value of hemidiaphragmatic paralysis in easing the cough needs even greater emphasis than is given to it by Sauerbruch, Brunner, and others. When the base of the lung is adherent to the diaphragm there is set up at times an intolerable irritating cough, which is dry and incessant. The slightest movement, even talking and laughing, may start it, and it is some minutes before it subsides. I have done phrenicotomy for the relief of this condition since 1914. Whenever the diaphragm was paralysed and raised into the thorax by the section of the nerve, the result was always most gratifying; now, with the substitution of evulsion for section, the much greater certainty of success makes one unhesitatingly advocate this method of easing a very distressing symptom. In three of the cases detailed later this reiterating cough was one of the main reasons for recommending phrenic evulsion. It is not only this type of cough which is benefited; the act of coughing, in general, is aided by the paralysis of the diaphragm. Cases have been recorded of the cessation of haemoptysis after phrenic evulsion (Morelli). It is more likely to be successful when the bleeding comes from the lower lobe. In such cases phrenic evulsion should undoubtedly be done if artificial pneumothorax is impossible or incomplete. The pumping action of the diaphragm on the stomach frequently leads to the association of vomiting with the morning bout of coughing, especially if this comes on during or immediately after breakfast. The same may occur after other meals. In two of the cases of my series this vomiting was one of the symptoms indicating the operation (see Cases 5 and 8). Sauerbruch has treated hiccup by bilateral diaphragmatic paralysis. The results have been successful, and have not been accompanied by any ill effects. It is astonishing what complete freedom from all unpleasant sensations there is after one dome of the diaphragm has been paralysed. Most patients are quite unconscious of any change in the region of the muscle, except one of relief. When there has been constant coughing, complaint may be made of intense soreness, aching, and even pain round the costal margin; these sensations will disappear completely after the muscle is paralysed. Two patients noticed a "hollow feeling" below the costal margin after the

operation. Usually there is a diminution of cough and sputum (there may be increase for the first day or two); a feeling of greater ease and freedom in breathing; dyspnoea is lessened; with it all there is the feeling of greater well-being.

6. *As a preliminary to thoracoplasty:* (a) As a test of the ability of the sounder lung to stand up to the increased work which will be imposed on it by the major operation; (b) as an aid in improving the general condition of the patient; (c) to prevent the development of catarrhal signs in the lower lobe.

7. *As a preliminary to radical treatment of a tuberculous empyema.* Sauerbruch and Brunner recommend that unilateral diaphragmatic paralysis should be produced before doing a thoracoplasty in cases of tuberculous empyema. The object is to reduce as far as possible the size of the pleural cavity so as to lessen the extensiveness of the subsequent operation.

8. *After imperfect resolution of pneumonia.* Pneumonia, when it subsides completely, leaves little, if any, trace; when resolution is imperfect fibrosis takes place and the volume of the lobe or lung shrinks. Following this, and as a natural consequence of it, bronchiectatic changes appear and progress. In from two to four years after the pneumonia the patient exhibits the complete picture of bronchiectasis. If the lung is allowed to contract freely during the early post-pneumonic fibrotic stage the bronchiectatic changes will not develop. Phrenic evulsion, by paralyzing the dome of the diaphragm and allowing it to rise into the thorax, will give to the affected lobe or lung the freedom to shrink in response to the contraction associated with the active changes of fibrosis.

9. *In order to free the heart from embarrassment.* In cases of extreme fibrosis of a lung there is very considerable displacement of the heart. This in itself may embarrass the heart's action. Such embarrassment is likely to be increased if there has been much pleuro-pericardial thickening. After phrenic evulsion the rise in the position of the diaphragm will allow some return of the heart towards its normal position and so tend to relieve the symptoms.

TECHNIQUE OF PHRENIC EVULSION.

The operation is done under local analgesia. Novocain 1 per cent. is used with adrenaline hydrochloride; 12 c.cm. should be sufficient completely to anaesthetize the field of operation. The patient is given also an injection of omnopon gr. 1/3, or morphine gr. 1/4.

The skin incision is either oblique along the lateral border of the sterno-mastoid muscle, 5 cm. long, the centre being 5 or 6 cm. above the clavicle; or transverse, 5 to 6 cm. above the clavicle, two-thirds being lateral and one-third mesial to the lateral border of the sterno-mastoid muscle. The skin, platysma, and fascia are divided and the lateral border of the sterno-mastoid is defined and exposed, and is then retracted mesially. The next landmark is the omo-hyoid muscle crossing the wound downwards and laterally. This is retracted downwards. The scalenus anticus muscle with the phrenic nerve crossing it is still concealed from view by fat, glands, and the deep cervical fascia. The dissection must be carried down through these and the muscle exposed. If the nerve is running a normal course it will now be seen crossing obliquely from above downwards and medially across the surface of the muscle. Care must be taken not to displace the nerve to one side with the fascia. During the deeper dissection the internal jugular vein will be seen on the medial aspect of the wound, and must be drawn to one side. The superficial cervical and suprascapular vessels can be seen running across the lower end of the wound.

It must be remembered that the course of the phrenic nerve is not constant; it may not come on to the anterior

surface of the scalenus anticus till low down in the neck; it may cross to the medial margin high up; at times it may run through the substance of the muscle. When the nerve is pinched with a pair of forceps the commonest sensation is one of pain referred to the shoulder or to the upper part of the arm. Sometimes a fluttering sensation is felt in the region of the costal margin, or a definite sharp contraction of the dome of the diaphragm can be both seen and felt.

The nerve is divided at the highest exposed point, and the cut peripheral end is seized in a pair of forceps. Traction is now applied, and as each successive length of nerve appears a Spencer Wells forceps is applied to it. This is to retain a hold on the nerve should it rupture immediately below the upper forceps through which the traction force is exerted. When some 10 cm. of the nerve has been slowly drawn out from the wound, an extra pull will probably rupture the filaments from the diaphragm and the whole nerve comes away. At the moment when the break occurs the patient usually experiences a sudden jerk at the base of the chest. The operation is now concluded by stitching together the divided deep fascia, the superficial fascia and platysma, and the skin.

If the whole of the peripheral part of the nerve has been evulsed, the part extracted will be found to consist of the trunk and the main terminal branches. The trunk of one nerve so evulsed was 30 cm. long, while the main branch was an additional 10 cm., making a total length of 40 cm. Another similarly complete evulsion from a small woman gave a total length of 24 cm. These have been the extremes in the cases recorded here.* It is generally held that if a total length of 11 to 12 cm. of the nerve has been evulsed this, in the great majority of cases, will have necessitated rupture of the accessory phrenic, if present.

In three of my cases I have abandoned the attempt at complete evulsion, because in each the same phenomenon was observed, and I decided that discretion was the wiser course. After the first 6 cm. or so of nerve had appeared, instead of the diaphragmatic pull one usually feels, I obtained arterial pulsation. The stronger the force used the greater became the pulsation. In these cases, therefore, I divided the nerve as low down as possible. In each case the diaphragm was found afterwards to be paralyzed on the side of the operation and to be raised up into the thorax; in two of the cases there were paradoxical movements. Most Continental surgeons exercise a torsion force as well as a traction force, giving the nerve not more than one complete turn a minute round its long axis.

Perret, Pignat, and Giraud, summarizing the results of phrenic evulsion, say:

"The results obtained in the most successful cases, as a result of phrenic exaeresis, can be likened to those of the other plastic operations, though they are rarely as complete. Between the successful and the unsuccessful there is room for the whole range of partial success characterized by the improvement of such and such a symptom, physical, functional, or general. . . . The inconstancy of the results must, in our opinion, be attributed to two principal causes: (1) incomplete evulsion of the phrenic and its anastomoses; and (2) cases wrongly selected."

I have now done phrenic evulsion twenty times.† The cases come under the aforementioned groups as follows:

1. For the purpose of arresting disease . . .	3
2. In conjunction with local thoracoplasty . . .	0
3. To assist in controlling disease . . .	4
4. As an accessory during artificial pneumothorax treatment . . .	5
5. For the treatment of symptoms . . .	2
6. As a preliminary to thoracoplasty . . .	4
7. As a preliminary to the radical treatment of a tuberculous empyema . . .	2
8. After imperfect resolution of pneumonia . . .	0
9. To free the heart from embarrassment . . .	0

* In a later series I have evulsed a nerve the trunk of which was 29 cm. long and the terminal ramifications 17 cm.—total 46 cm.

† I have since done phrenic evulsion an additional fourteen times.

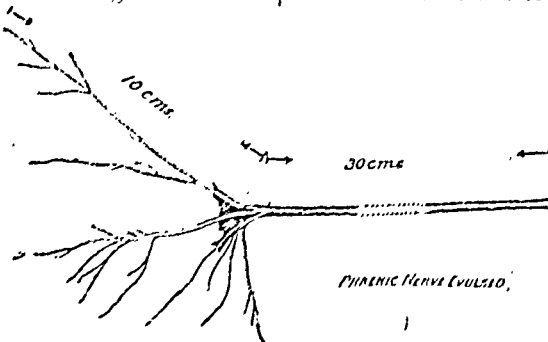


FIG. 2.—Drawing of an evulsed phrenic nerve, showing the main trunk (not in its entirety) and the terminal ramifications.



FIG. 3.—Case 1, before operative treatment. The semicircular wire shadows mark the nipples. The shrapnel can be seen immediately above the right dome of the diaphragm.

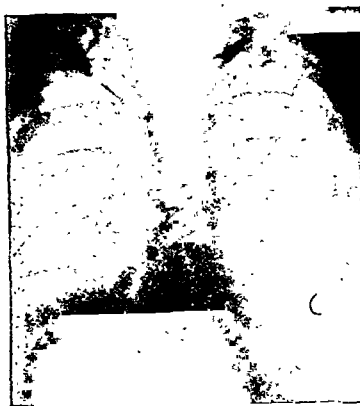


FIG. 4.—Case 1, ten days after evulsion of the right phrenic nerve.



FIG. 5.—Case 2. Skiagram taken the day before phrenic evulsion. Partial pneumothorax on the left side.



FIG. 6.—Case 2. Skiagram taken seven days after evulsion of the right phrenic nerve.



FIG. 7.—Case 3. Skiagram taken eight days after evulsion of the right phrenic nerve.



FIG. 8.—Case 8. Skiagram taken about seven weeks after evulsion of the right phrenic nerve.

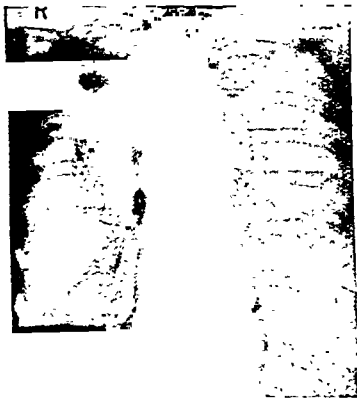


FIG. 9.—Case 8. Skiagram taken five months later to show the increase in the heightened position of the right dome of the diaphragm and the greater collapse of the right lung.

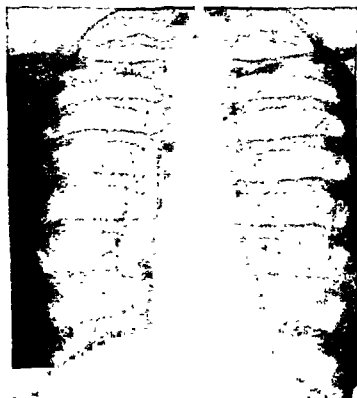


FIG. 10.—Case 14. Skiagram taken before phrenic evulsion.



FIG. 11.—Case 14. Skiagram taken six months after evulsion of the left phrenic nerve.

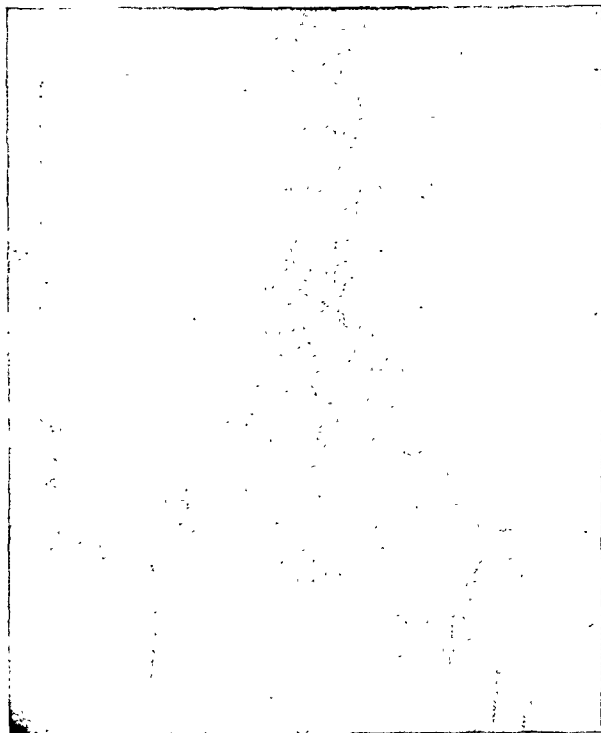


FIG. 1.—Ovarian pregnancy; antero-posterior view.



FIG. 2.—Ovarian pregnancy; postero-anterior view.

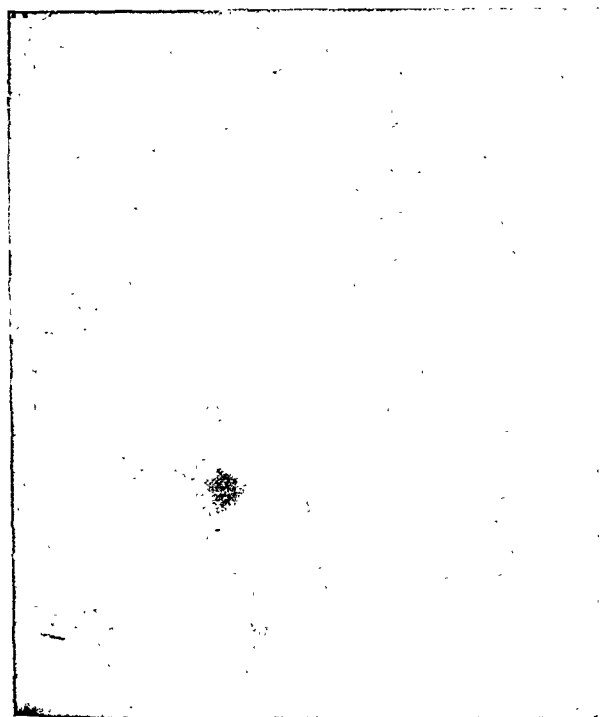


FIG. 3.—Ovarian pregnancy; side view.



FIG. 4.—Normal pregnancy; postero-anterior position.

The following is a synopsis of the cases. With the exception of Case 1 the operations were all done under local

Case 1 (Group 1).—E. M., aged 39. (V.C.S.) In 1918 gunshot wound right side of the neck. Division of the recurrent laryngeal nerve. Subsequent operation in the front of the neck, and dorsal vertebra. Drainage tube passed down posterior mediastinum and gradually became worse. Sputum at times extremely offensive. Admitted October, 1924. Incessant cough and the expectoration of some 4 ounces of offensive sputum per diem. Breath and bronchiectasis, chiefly of the right lower lobe. In December, 1924, the right phrenic nerve was evulsed. The operation was very difficult because of the great distension of all veins. The phrenic nerve was apparently caught in scar tissue, and traction on it caused considerable pain; a little chloroform was therefore given. The nerve ruptured and 11 cm. were evulsed. The irritating cough disappeared at once, while the sputum diminished rapidly and lost all offensive odour. Radiograms showed that the right dome of the diaphragm had been raised 7.5 cm. above its original position (this is the highest immediate rise I have seen), while the foreign body had been shifted 5.5 cm. Paradoxical movements were present on deep respirations; no movement of the right dome during shallow respiration. In April, apart from an occasional spit first thing in the morning, he was untroubled by cough, sputum, offensive odour, or dyspnoea. This patient was sent to me by Dr. E. A. Peters, London.

Case 2 (Group 1).—Mrs. Ch., aged 27. (V.C.S.) On admission left lung only involved. Artificial pneumothorax started September, 1921. Kept very well till November, 1925. In January, 1924, artificial pneumothorax was started on the right side also, that on the left being maintained, but to a less degree. Again, the patient responded well to treatment and became free from symptoms. In April, 1925, the patient was extremely well, but in May there was again a relapse due to extension of the disease to the uncollapsed lower lobe of the right lung. The artificial pneumothorax on the right side was abandoned. In June, 1925, the right phrenic nerve was evulsed, 11 cm. of nerve being extracted. The sputum was at first increased and then diminished. Screen examination showed that the right dome of the diaphragm was paralysed and raised into the thorax; there were no paradoxical movements. On August 30th, 1925, she was much improved; there was considerable lessening of cough, sputum, and dyspnoea. January, 1926: There are practically no symptoms.

Case 3 (Group 1).—Mrs. B., aged 31. (N.W.S.) Clinical and radiological evidence of tuberculous involvement of right lower lobe. On May 4th, 1925, right phrenic evulsion was performed, 10 cm. of the nerve being extracted. The nerve lay on the lateral side of the scalenus anticus muscle, which it crossed just above the insertion into the first rib. With it ran another nerve, the two being closely connected in the upper part of their course. This second nerve left the phrenic in the lower part of the neck and turned outwards across the posterior triangle. The appearance of these two nerves suggests that the normal phrenic was absent and that the whole of the nerve supply to the diaphragm was in the accessory phrenic which ran with the suprascapular nerve.† Seen six weeks after the operation, the diaphragm was found to be raised and immobile. There was no paradoxical movement. The cough and sputum had ceased except for a very occasional dry single cough and a spit once or twice in the week.

Case 4 (Group 3).—E. L., aged 23. (P.P.) A long history of very chronic pulmonary tuberculosis involving the left lung, but mainly the lower part. In June, 1925, the symptoms had increased; the cough was troublesome and there were 2 ounces of sputum per diem. He had pain and discomfort over the left base and was unable to lie on that side. On June 12th left phrenic evulsion was performed. In this case the nerve did not give way, but was cut after the first stage of the evulsion owing to the strong pulsation felt on continuing the traction; 8.5 cm. only were excised. A week later the cough and sputum were reduced to three or four coughs and spits in the twenty-four hours. The patient had lost the sensation of dragging at the base of the lung, was much more comfortable, and could lie on the left side. Screen examination showed that the left dome was raised and was immobile during quiet respiration, but that it became tilted during deep inspiration owing to the pull of the central tendon of the diaphragm.

Case 5 (Group 3).—Miss M. H., aged 23. (N.W.S.) Left lower lobe extensively diseased and very retracted; involvement of the left upper lobe also, but to a less degree. On July 15th, 1925, the left phrenic nerve was evulsed. The nerve was 21 cm. long. Screen examination showed that the left dome of the diaphragm was raised and that paradoxical movements were present. Left dome 2 cm. above right on shallow inspiration; 4 cm. above on deep inspiration. On August 31st the cough was still troublesome; sputum diminished in amount; temperature a degree lower.

* Explanations of abbreviations: V.C.S. denotes Vale of Clwyd Sanatorium, N.W.S. denotes North Wales Sanatorium, belonging to the Welsh National Memorial Association. These patients were under the care of Dr. Powell, medical superintendent, and Dr. Emrys Jones. P.P. denotes private patient under the care of Dr. Cropper, Ruthin.
† In a later series I have had two other cases with identically the same arrangement of the nerves.

Case 6 (Group 3).—M. W., aged 55. (V.C.S.) Extensive fibrotic and bronchiectatic changes in the right lung. On August 27th, 1925, the right phrenic nerve was evulsed. Total length 36.25 cm. (main trunk 25 cm.; terminal ramifications 11.25 cm.). Screen examination showed that the right dome had been raised 5 cm. There were slight paradoxical movements.

Case 7 (Group 3).—Miss V., aged 47. (V.C.S.) About 5 ounces of sputum per diem; constant reiterating cough disturbing sleep. Clinical signs mainly in the right lower lobe, but fine rales on the left also. X rays confirmed main changes in the right lower lobe. On September 19th, 1925, evulsion of the right phrenic nerve was performed. Very great traction force was required, the nerve finally breaking; 10 cm. extracted. September 23rd, 1925: Very little cough or expectoration since operation. Night's rest unbroken by cough. Right dome raised 3 cm. above pre-operative position. This patient was sent by Dr. Elkington, Newport, Salop.

Case 8 (Group 4).—A. S., aged 32. (N.W.S.) transferred from the South Wales Sanatorium by Dr. Watson for the operation. Artificial pneumothorax started on the right side in September, 1924. Collapse greatly interfered with by adhesions. Mesial half of the base of the lung fixed to the diaphragm. In January, 1925, the right phrenic nerve was evulsed; 18 cm. of nerve extracted. The dome was only slightly raised into the thorax; it was immobile during quiet respirations, but showed paradoxical movements on deep respirations. By July, however, radiograms showed that the dome had risen into the thorax a further 2.25 cm. Dr. Watson, writing to me on July 1st, said: "Though it may be little, I think he has made some improvement." Since the evulsion it has been found possible to double the interval between the refills.

Case 9 (Group 4).—Mrs. G., aged 35. (V.C.S.) Admitted May, 1925, with extensive activity and fibrosis all over the left lung and slight involvement of the root of the right lung. Artificial pneumothorax started on the left side in June, 1925. Condition greatly improved by the end of October, when she returned home. In September, 1924, signs of activity present in right upper lobe; the left lower lobe was beginning to creep out. There was also a constant purposeless cough. On February 5th, 1925, left phrenic evulsion was performed; 40 cm. of nerve evulsed; the last 10 cm. consisted of the terminal branches plucked out from the diaphragm. A week later screen examination showed the left dome raised and immobile, except on deep inspirations, when the paradoxical movements were present. The purposeless cough disappeared, and the coughing was reduced 75 per cent. Unlike the last case, in this the evulsion has made no difference between the length of the refills. In neither of them has any obvious alteration in the intrapleural pressures been noticed.

Case 10 (Group 4).—Miss D. R., aged 26. (N.W.S.) Admitted with pleural effusion over the lateral surface of the left lung. Effusion aspirated and replaced by air. The lung fixed in a position of partial collapse by thickened pleura. On June 15th, 1925, phrenic evulsion was done on the right side as the effusion kept recurring; 13.5 cm. of nerve evulsed. On June 15th, much better; was eating and sleeping better. On July 31st she felt gone, but dyspnoea practically unchanged. Very slow reaccumulation of liquid. Right dome raised 3 cm. above left; no paradoxical movements.

Case 11 (Group 4).—Mrs. S., aged 25. (V.C.S.) Bronchiectasis of right lower lobe. Admitted February, 1925. Artificial pneumothorax done, but partial collapse of base only obtained. On July 18th, 1925, evulsion of the right phrenic nerve attempted. During traction on the nerve the patient experienced pain referred to the right shoulder, and became very restless. The evulsion was therefore abandoned and the nerve was cut as low as possible, 3.5 cm. being excised. On July 25th the right dome was seen to be slightly raised and to show paradoxical movements. A month later, however, the muscle had recovered, and although the movements of the right dome were considerably less than those of the left they were synchronous.

Case 12 (Group 5).—Miss D. E., aged 33. (V.C.S.) Readmitted October, 1924. Evening temperature 102° (rectal). Involvement of all five lobes, the disease on the left side being considerably worse than on the right. General condition bad; thin, emaciated, dyspnoeic. Constant hard "barking" cough, which seemed to shake the left side; vomiting associated with the cough after meals. An attempt to produce a partial pneumothorax on the left side failed. On December 16th, 1924, left phrenic evulsion was done; 10 cm. of nerve extracted. The incessant barking cough disappeared completely. Moreover, vomiting ceased, except as an occasional feature. On screen examination a raised dome was seen on the left side, immobile during quiet breathing, but showing paradoxical movements on deep respirations. The treatment in this case was not done in the hope of preventing the ultimate end-result of the disease, but to give the patient relief from two most distressing symptoms. In this it was and still is successful. Such relief must necessarily influence greatly both the mental and the physical state of the patient.

Case 13 (Group 5).—T. A. M., aged 50. (V.C.S.) The chief symptom was the almost incessant cough, day and night, except when under the influence of drugs. Artificial pneumothorax attempted but abandoned. On December 19th, 1924, evulsion of the right phrenic nerve was performed; 26.5 cm. of nerve extracted. The patient's condition before the operation was feeble; a close watch was kept on his pulse during the evulsion, but no change in the rate or quality was observed at any stage.

A large quantity of sputum was brought up in the ensuing twenty-four hours; after this the cough subsided and the incessant distressing character of it disappeared. A month later the cough had diminished so greatly that there was a bout of coughing about every eight hours, at which time the sputum was brought up; in between there was no cough or expectoration. The temperature was a degree lower. In this case also the object of the operation was attained, in that he was afforded peace from the incessant cough. The arrest of the disease was of a temporary nature only; the patient died in July, 1925.

Case 14 (Group 5).—Miss T., aged 25. (N.W.S.) Symptoms started with dry pleurisy on the left side in December, 1922. Artificial pneumothorax was begun on the left side in August, 1923. Adhesions prevented more than a moderate collapse. Vomiting started in March, 1924. In December, 1924, owing to the severity of the vomiting, the artificial pneumothorax was given up and a phrenic evulsion was done on the left side; 9 cm. of nerve was extracted. The dome was paralysed, but was not much raised. Paradoxical movements were present with deep respirations. She wrote in July that she was in business, and felt "famous."

Cases 15, 16, 17, 18 (Group 6).—In these four cases the phrenic evulsion was done as a preliminary to thoracoplasty for tuberculous empyema. Lengths of nerves evulsed: 11.5 cm., 24 cm., 16.5 cm., and 32 cm.

Cases 19 and 20 (Group 7).—Phrenic evulsion done as a preliminary to thoracoplasty for tuberculous empyema. Lengths of nerves evulsed: 35.5 cm. and 23 cm.

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FULL-TIME OVARIAN FOETATION.

BY

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With X-ray Photographs and Notes by

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(With Special Plate.)

A CASE of ovarian foetation is sufficiently rare to merit report. The literature of the recorded cases from 1910 to 1917 has been reviewed by Lockyer in vol. 10 of the *Proceedings of the Royal Society of Medicine*; he says that of the 33 cases quoted in the German statistics only 8 were full-time pregnancies. An American authority, however, questions the authenticity of some of these; 17 further cases he classed as highly probable, of which 8 had proceeded to term. The case which is now reported was seen in November, 1924, and the conditions found at the subsequent operation lead to the conclusion that it was a case of full-time ovarian foetation. The patient was submitted to x-ray examination and several excellent skiagrams were obtained of the unborn foetus a few weeks prior to operation.

Report by L. ERNEST ACOMB.

The patient was a married woman, aged 33, of rather slight and small build; she had a normal menstrual history. Though married for six years or so she had not hitherto become pregnant. On November 30th I was of opinion that she was about eight and a half months pregnant. To the best of her recollection her last period occurred at the latter end of January. She complained of distension and considerable pain in the left groin. She found it uncomfortable to lie flat in bed and had to be propped up.

The abdomen was tense but symmetrical and presented the appearance of a normal pregnancy of about eight and a half months' gestation. A narrow crescentic projection could be palpated in the left groin. This projection was slightly movable, but immediately returned to its former position, and I could not decide the anatomical part of the foetus to which this corresponded. On vaginal examination the cervix was small and considerably harder than is usually the case in pregnancy at this stage. It was high in position and displaced laterally. The os was closed. I was unable to determine the nature of the presentation, and decided to make a further examination under an anaesthetic. Again neither the presenting part nor the lie of the baby could be definitely ascertained. It was certainly not a head presentation and all efforts to perform version were unsuccessful.

I referred the patient to Dr. Candy for x-ray examination with a view to obtaining some definite information upon the position and presentation of the foetus. The unusually interesting series of skiagrams which he obtained accompany this report, and his observations upon them are given below. The projection, the anatomical nature of which I had been unable to determine, was found to be due to the acutely flexed cervical spine.

In consequence of the abnormal x-ray findings it was decided to perform Caesarean section. On opening the abdomen (December 29th) I found the foetal membranes lying towards the right side. The uterus itself was in the pelvis and was slightly enlarged, but not much larger than the non-pregnant uterus. The right Fallopian tube was flattened and stretched over the sac, and the tissue of the right ovary was thinned out, constituting the outer layer of the sac. The latter lay above the broad ligament.

A full-time male child, weighing 7½ lb., lying in dark-stained liquor amnii was extracted without difficulty. The skin was soft and slightly macerated. The child appeared to have been dead for two or three weeks. Large vessels coursed between the walls of the sac. There was no difficulty in removing the placenta, but had the child been alive no doubt extensive haemorrhage would have been met with. The sac and the tube on the right side were removed and the abdomen closed. The patient made an uneventful recovery.

Observations upon the X-ray Examination by
T. I. CANDY.

Skiagrams were taken in the following three positions: (1) dorso-ventrally (abdomen nearest film); (2) ventro-dorsally (back nearest film); (3) laterally (profile view). These showed a fully developed foetal skeleton of about eight to eight and a half months' gestation which was lying in an extremely irregular position. The head was above the pelvis and acutely flexed upon the chest. The cervical spine formed an acute projection against the abdominal wall of the mother. The skeleton of the foetus as a whole was observed, from the lateral view, to lie in a much more ventral position than normal. As it could be seen that

there was ample room for the head to enter the pelvis, it was thought that it was prevented from doing so by the presence of a tumour such as a fibroid; but clinical examination ruled out this possibility.

The subsequent findings at operation of a full-time ovarian pregnancy lend exceptional interest to this series of skiagrams. The radiography of the unborn baby is a very recent advance in radiology, and these skiagrams are, in all probability, the first on record of a case of this nature.

As the x-ray appearance of a normal foetus *in utero* is unfamiliar to many, a skiagram of a normal full-time vertex presentation is also shown.

DISAPPEARING DISEASES.*

BY

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WHEN Mr. Levis did me the honour to ask me to read a paper I thought that as I had just completed forty years of life as a qualified medical man I ought to have something to talk about; but I found it by no means easy to find a subject suitable for a society such as this until one day, while perusing the last report of the Chief Medical Officer to the Ministry of Health, I read the figures relating to the death rate of England and Wales, and noticed that it had dropped, during the past fifty years, from 21.4 to 12.2 per 1,000 living, and the question suggested itself. At what points in the wide battle front of disease had death been repulsed, and for which of these successful fights could we claim credit?

My intention is to give my own impressions as to the decline in frequency of the incidence and the severity of attack of certain diseases and morbid conditions, but before doing so I give you some figures published by the Ministry of Health, as they are accurate records of actual facts, and while they deal only with death rates they may be taken as an index of the incidence and the severity of the diseases referred to.

Table showing the Decline in the Death Rates (per 1,000 population) from Certain Infectious Diseases in the Period 1871 to 1924.

	1871-1880.	1924.	Decrease.
Death rate	21.40	12.20	Per cent. 43.0
Infant mortality (1891)	150.00	75.00	50.0
Diphtheria (1891-1900)	0.26	0.06	77.0
Enteric fever	0.32	0.01	97.9
Scarlet fever	0.72	0.02	97.3
Small-pox	0.24	0.00	100.0
Tuberculosis (respiratory)	2.13	0.81	60.0

This table is a striking record of the disappearing in varying degree of a group of widespread and serious maladies. Except that I have never seen, in private practice, a case of small-pox, the figures here shown are, in their general import, in accord with my own experience.

In the defeat of each of these diseases medicine, curative and preventive, may justly claim to have had a share either directly or indirectly, but we must be careful as to the extent of our claim, since the general improvement in the conditions of the life of the people must have had a large influence in the betterment of their health. Except, perhaps, in the case of rabies it is doubtful whether we—the medical profession and those acting on our advice—can demand credit for the immediate, intentional, direct, and entire control of any one disease. We pride ourselves and our health administration on the reduction in the death rate of phthisis; but I would draw your attention to the accompanying chart (drawn up from figures supplied

by the Ministry of Health) for the years 1847 to 1924, which, it must be remembered, records not the incidence of the disease but the deaths. Note the long steady decline. What influence had the Local Government Act of 1875? During the thirty years preceding it the rate per million had declined by 1,000, during the thirty years succeeding it the rate declined by 1,100. Looking at the chart, it does not appear that any decrease in the death rate followed the discovery of the infecting organism, or that any influence has been exerted by sanatorium treatment and the general campaign against tuberculosis which have been so actively carried on during the last twenty years. The only remarkable point is that the rate rushed up in a startling manner during the years of the war, to fall immediately the war ceased.

It may be urged that without all this activity there might have been a stop in the decline; on the other hand, it may be that the decline is due to a naturally produced immunity of the community, a growing power of resistance to the disease, or the infecting organism may by some natural process be undergoing a change to a less virulent type.

The infectious diseases already noticed naturally occurred to me as the most notable of disappearing diseases, but there are others that present themselves to all of us, in varying degree according to our personal experience. Such, for instance, is gout; how rarely now, compared with forty years ago, does one see a classical case of acute gout. In Bath, the Mecca of the footsore arthritic pilgrim, those who are the high priests of the hydrotherapeutic prophet may have a false impression of the prevalence of gout, though it may be that even they have noticed a falling off in the numbers attending the steamy shrine. Is this decline due solely to dietetic reasons, chiefly to the greatly decreased consumption of port wine and beer, and so only one of the contingent results in the decrease in alcoholism? Surely one of the most outstanding facts in a survey of the last few decades of medical practice is this decrease in alcoholism and all its associated morbid conditions.

How seldom now, compared with thirty years ago, does one have to treat a serious case of acute rheumatism, so-called rheumatic fever; if this is not merely a personal experience, what is the explanation of the diminution in the number of these cases?

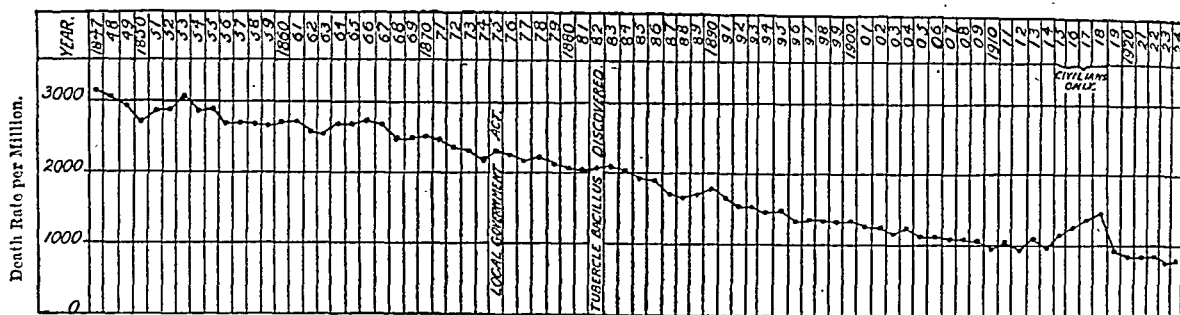
In a list of disappearing diseases in ordinary surgery or consulting-room practice I should be inclined to put first anaemia; it seems not long since one was always attending not one but several cases of chlorosis, chiefly, though by no means only, among girls of the servant or working class; now how comparatively rare these patients are. Better conditions of life, of home and workshop, the stopping of child labour, shorter hours of work, better food, more sunlight and air, more rational dress, more outdoor recreation, and last, but by no means least, better teeth—all of these things have, I suppose, been instrumental in this change; and with the decrease in this form of anaemia there must have been a decrease in many conditions attendant on it, such as gastric ulcer, headache, heart failure, and phthisis. Also, I assume, due to the healthier and happier life is the decrease in the number of cases of hysteria, which not long ago were so frequent among the young women whose physical and mental energies were unnaturally restricted. This is the more notable when we realize the apparent increase in so many other morbid nervous and psychical conditions.

Another disease that is much less prevalent is rickets; this is due no doubt to better conditions of life. Here again it may appear to those having charge of the clinics in an orthopaedic centre such as Bath has become that this statement is not justified, but I would like to know the opinion of those in general practice who see these cases in the first instance.

There are many conditions which are much less frequently met with now, which can, perhaps, hardly be described as dying diseases, because they are merely the result of the more effective treatment in an early stage of some disease or deformed condition. Such, for instance, are strangulated hernia, daily becoming less frequent, for the obvious reason that hernias are cured before they become strangulated; peritonitis, which thirty years ago was probably in

* A paper read before the Bath Clinical Society, January 8th, 1925.

CHART SHOWING THE DEATH RATE FROM PHTHISIS FOR THE YEARS 1847 TO 1924.



nine cases out of ten neglected appendicitis; persistent headaches, due to errors of refraction.

Lupus, which is now treated early and successfully, and gastric ulcer, which is now actually cured in hospital by the physician or, failing him, by the surgeon, may be only apparently less frequent, for they, like many other conditions, have possibly, on account of their long duration, given rise to a false impression of their prevalence. For example, one patient with gastric ulcer would require many attendances over a long period of time and leave on the mind of the medical attendant the impression of many cases, with the consequence that when such a case is cured early in its life it may incline one to think that gastric ulcers are less frequent than they used to be.

Again, there are some conditions that may appear to be less frequent because it is no longer fashionable to look for them or to talk about them—such, for example, as movable kidney and displaced uterus, both at one time the delight of the seeker after sympathy and for the doctor dividend-earning ailments. So, no doubt, in due time "blood pressure" will become a less fashionable and less prevalent complaint.

Although it is not a disease, I almost think that we might add to the list of disappearing diseases senility; if it is not disappearing there is much evidence that its onset is postponed by several years.

There is little profit in merely registering the fact of the decline of a disease unless at the same time we can form some idea of the causes of that decline; in the case of the zymotic diseases this is not so difficult, though it is by no means easy to assess the value of the part played by the different agents. It is at any rate obvious that each section of the medical profession—the laboratory worker, the clinician, and the public health administrator—has had an important share in the campaign. Medicine in the fruition of its work has been helped by the State; the State has been dependent on the medical profession, but the brunt of the battle has fallen on the medical man, who has had for long weary years to educate and to persuade an unwilling, an unbelieving, and a not always grateful, public that if only it will listen and help it may be relieved of many of its ills.

With the good old times, whose passing many lament, have passed diseases and conditions of life that none can want back; with improving medical knowledge and service and conditions of life we may look with hope to the disappearance of still more diseases.

Are we ever justified in concluding that any diseases naturally get less virulent and then disappear? What is the reason of the undoubted milder type of some of the infectious diseases—such, for example, as small-pox? Is it due to vaccination and an inherited immunity? If so, why in the recent epidemic in Gloucester was there no difference in the character of the disease in the unvaccinated, whether they were the children of vaccinated parents, or of one or two generations of unvaccinated parents?

Why is it that scarlet fever has become so much less serious? There can be no question of artificial immunity, and one can hardly think that the mere isolation of some of the cases can account for this alteration. Although, judging by the analogy of diphtheria, it may be argued that isolation may have some influence in affecting virulence, the earlier cases in an epidemic of diphtheria are

generally of a very mild type; as the epidemic increases the type becomes more virulent; if, however, the earliest cases are effectively treated and isolated there is not the same increase in virulence.

Is not the disappearance of an infective disease due to altered conditions which render its continuance difficult? Given the old conditions, would it not reappear?

Are we to look forward to a time when, having been freed from all diseases, we shall, like the antivaccinators, lulled into a false sense of security, forget the forces that drove them out, and, relapsing into the old conditions—an unprepared, a non-immunized, and non-resisting community—be attacked with devastating effect?

Memoranda :

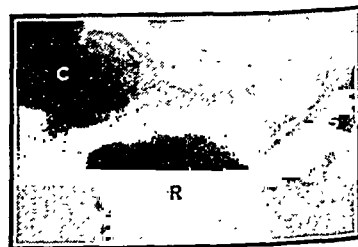
MEDICAL, SURGICAL, OBSTETRICAL.

THE PREDIVERTICULAR STATE AND DIVERTICULOSIS.

THE recent interesting article by E. I. Spriggs and O. A. Marxer (January 23rd, p. 130) throws a considerable light on the etiology of diverticulitis of the sigmoid colon. The fully developed condition is well recognized by surgeons, but no satisfactory explanation of the train of events which leads up to the formation of the sacculi has been given previous to the report of Marxer in 1923. A recent case in which I have had the opportunity of seeing the colon at operation confirms and amplifies the observations they record in the article mentioned above.

The patient, a man aged 43, had suffered from the passing of loose motions for three or four years; in the latter part of this period he occasionally passed a little blood. Latterly he had a little vague discomfort in the left iliac fossa, but continued to work till brought to hospital, alarmed by the blood in his motions. He was sallow and anaemic. On abdominal examination a somewhat tender spastic colon could be felt in the left iliac fossa; by the rectum the mucosa felt velvety and inflamed. A barium enema of 70 oz. was given without pain, and the picture had all the characteristics mentioned by Spriggs and Marxer: passing out of the ampulla of the rectum there was a length of colon going for some four inches upwards and to the left. This segment was narrowed and its edges presented that peculiar spiky condition so well shown in their illustrations. The radiograph of this length of bowel conveyed to the eye the sense of a rigid walled tube with weak areas in it and contrasted strongly with the distensible colon, into which it passed above, which had the bold curves normal to the bowel.

Sigmoidoscopy was done, but the tube could not be introduced past the rectum owing to pain and inability to distend the bowel properly, while the view was constantly spoiled by blood-stained mucus coming from the bowel above. Laparotomy was performed under spinal anaesthesia. The sigmoid colon, on examination, showed no gross changes, no sacculi, no excessive deposit of fat, no narrowing. Its walls were rather thicker than normal, however, and the areas between the longitudinal bands showed a peritoneum that was distinctly injected and a little oedematous.



C, Caecum. R, Rectum. S, Sigmoid.

While under examination a most extraordinary sequence of events occurred, which in my experience is quite unique. At one point the bowel suddenly narrowed to half its previous diameter; this narrowing spread up and down for three or four inches, the bowel in this area becoming the size of the index finger and quite as firm. It was so rigid that it resisted flexion like a string of large beads very tightly threaded. While the spasm lasted many tiny sacculae appeared between the longitudinal bands; these were each segments of a circle about a third of an inch or less in diameter and lay regularly like beads along the sides of the gut. In a few seconds the spasm passed off and a nearly normal bowel remained with faint evidence of the tiny projections indicated for a few seconds by the altered blood supply at their sites owing to the tension to which the peritoneum had been subjected. The cycle of spasm repeated itself thrice during the time the abdomen was open.

In the absence of any real indication for removing the bowel, appendicectomy was performed in order to allow of local treatment of the mucosa, which from the presence of blood and mucus was evidently inflamed.

This case would appear to be an example of the pre-diverticular state and presents the clinical and radiographic picture that Spriggs and Marxer have described; they emphasize the part that infection plays in preparing the bowel wall, but do not put stress on the second factor which this case exhibits so well—the remarkable local spasm which would appear to be the second link in the chain. The third incident, the herniation, may or may not appear. One sees from time to time cases in which a length of the colon appears rigid and fibrous without diverticula; in these cases the infection would appear to have gone on to fibrosis without herniation. As to whether the tiny projections seen at operation were incipient herniations, I think they were too regular in size and position for this to be the case. Their appearance makes it more probable that they were due to local spasm of the coats of the bowel producing minute haustra like those normally seen on a larger scale in the colon higher up. The sacculae in diverticulitis are variable in size and irregularly situated and for the most part have narrow necks.

In another case of mine with definite sacculae of considerable size the same oedema and injection of the bowel wall was present, and whilst the bowel was being handled a tiny diverticulum, so thin-walled as to be translucent and not more than 4 mm. long by 2 mm. in diameter, shot out like a glove finger when the bowel was squeezed, only to relapse as the pressure was relaxed. This tiny thin-walled sacculae, appearing and disappearing with spasm and relaxation, would seem to be a further stage in the evolution of a diverticulum.

The sequence of local infection of the bowel wall and violent local spasm followed by herniation appears to offer a logical explanation of the etiology of a condition which has hitherto been somewhat baffling to those accustomed to meet with it.

Birmingham.

SEYMOUR BARLING.

THE BLOOD SUGAR IN A CASE OF ADDISON'S DISEASE.

A low blood sugar and a raised tolerance are to be expected in Addison's disease, but it appears that very few actual determinations have been recorded. For this reason I venture to submit the following case. The patient was in the Radcliffe Infirmary, Oxford, under Dr. Waters, to whom I am indebted for permission to make the blood sugar estimations.

A married woman, aged 35, with four children, presented most of the classical signs and symptoms of Addison's disease. In January, 1925, she began to suffer from diarrhoea and some abdominal pain, and the menses ceased. These symptoms persisting, she was admitted to the Radcliffe Infirmary. When seen in June, about a fortnight before her death, she was thin and wasted, though not suffering from extreme asthenia. Her skin, which, she said, had always been somewhat dark, was everywhere deeply pigmented except upon the dorsal surfaces of the feet. The buccal mucous membrane was pale, and not pigmented. The chest showed no abnormalities. The abdomen was enlarged, especially in the lower part, and several small masses were felt near the umbilicus; no ascites was present at the time of examination, though shifting dullness had been noted on admission. The systolic blood pressure had been recorded on several occasions and lay between 88 and 100 mm. of mercury. Some fever was present. The urine contained a trace of albumin. The faeces had been examined once for tubercle bacilli, with a negative result, and a blood count had given the following figures: red blood corpuscles 4,220,000, white blood corpuscles 7,600, haemoglobin 52 per cent., colour index 0.6. The diagnosis was Addison's disease, secondary to tuberculous peritonitis.

A glucose tolerance test was made out on June 12th. The fasting blood sugar was 0.08 (grams per 100 c.cm.). This is low, the normal being 0.09 to 0.11. After taking 50 grams of glucose, the figures obtained were as follows:

Time after Glucose.	Blood Sugar.
30 minutes ...	... 0.11
45 minutes ...	... 0.11
1 hour ...	... (spoiled)
1 hour 30 minutes ...	... 0.11
2 hours ...	... 0.08

No glycosuria resulted. The treatment included injections of adrenalin, but none were given for twenty-four hours before the test.

Although one determination was spoiled, the remainder are quite sufficient to show that the sugar tolerance curve is remarkably flat, in accordance with a raised tolerance for glucose. Maclean's method was employed; as regards accuracy, a large number of control estimations, using standard glucose solutions, had shown my mean error to be ± 5 per cent., with a maximum error of ± 10 per cent.

The patient died rather suddenly on June 26th. There was no autopsy.

I desire to thank Dr. Waters for allowing me to examine and report on this case.

Wokingham.

E. F. CHAPMAN.

A NEW OCCUPATIONAL BURSA ("DUSTMAN'S" BURSA).

MANY occupational bursae have been described—the housemaid's, the miner's or student's, the porter's, and others—but for the first time

I have recently seen one due to the occupation of a dustman. It will be observed that a dustman not infrequently has a short ladder by the side of his dust-cart, and that he mounts two or three rungs of this, and then leans with the upper third of his tibia against one of the higher rungs, so as to get a purchase to enable him to tilt the dust from the receptacle into the cart. The accompanying photograph shows the condition better than any description. On the left leg will be seen the adventitious bursa, while on the right leg will be observed the roughened skin at the site where the intermittent pressure has been applied.



W. MCADAM ECCLES, M.S.Lond., F.R.C.S.,
Surgeon to St. Bartholomew's Hospital.

RASH FOLLOWING BARBITONE-SODIUM.

BARBITURIC acid or its derivatives are so much used now as hypnotics that the record of a very marked rash following comparatively small doses may be of interest.

The patient, an adult, was given 10 grains of medinal (barbitone-sodium) every night for three nights, after which a rash appeared on the extensor surface of the arms and legs below the knee. The rash was dark red and papular, and accompanied by considerable itching. As the use of medinal was not then associated with the rash it was continued for three more nights, making a total dose of 60 grains in six days. The result of this was that the rash became more marked, and there was oedema of the parts affected, but the rash did not spread beyond the situations described.

On reading in Martindale's *Extra Pharmacopoeia* that the barbitone series "may produce erythema" the drug was discontinued, and the rash started to fade, disappearing in seven days, with slight desquamation.

Eastbourne.

P. W. MATHEW.

SACCHARIN IN DISPENSING.

DURING the late war saccharin came into considerable prominence as a substitute for sugar; nowadays it is occasionally given to diabetics as a sweetening agent for tea, coffee, etc., but otherwise it never appears, so far as I can ascertain, to have been used in therapeutics. It occurred to me that its intense and "penetrating" sweetness (said to be 500 to 600 times that of sugar) might be employed to useful purpose for modifying the bitterness of many commonly used drugs. I therefore selected a series of preparations notorious for their disagreeable (and, more particularly, bitter) taste, and tried the effect of adding small quantities of saccharin. The results were encouraging: even added by itself it always produced marked improvement where bitterness was the principal objectionable feature; in combination with various flavouring agents it proved to be a valuable supplement. For example:

Magnesium sulphate: 0.3 grain of saccharin added to 1 drachm in an ounce of water produced a solution hardly distinguishable from sugar and water; 0.15 grain added to an ounce of "white mixture" made this preparation far more palatable.

Paraldehyde: 0.6 grain of saccharin added to 1 drachm in an ounce of water produced a marked improvement in taste. In combination with the juice of half a lemon it provides, I think, the most satisfactory method yet suggested of administering this nauseous drug.

Cascara sagrada (liquid extract): It was found necessary to add 2 grains of saccharin to a drachm (in an ounce of water) before any marked improvement was shown; even then the result was not satisfactory. After partly disguising a drachm of cascara with liquorice and glycerin, however, a grain of saccharin proved to be a valuable addition.

Quinine: Small quantities of saccharin (0.6 grain to each dose) made a welcome addition to various liquid preparations of quinine.

In the case of drugs owing their disagreeable character rather to "flavour" than to "taste," I was not surprised to find that saccharin was of comparatively little value—for example, tincture of valerian was scarcely improved. Creosote, however, in spite of its marked "burning" character, was improved by the addition of 0.6 grain of saccharin to every 3 minims.

For the purpose of disguising the bitter taste of certain medicines, therefore, it would seem that in saccharin we have an agent of which we might well make greater use. It is cheap, innocuous, does not (so far as I am aware) possess any serious incompatibilities, and is readily soluble in warm water.

Upper Norwood, S.E.

T. W. PRESTON, M.B.

Reports of Societies.

FOCAL SEPSIS.

At a general meeting of Fellows of the Royal Society of Medicine on February 15th, with the President, Sir STCLAIR THOMSON, in the chair, a discussion was held on focal sepsis as a factor in disease.

Professor G. R. MURRAY, in opening, referred to the increased attention which had been drawn to the subject of focal sepsis within recent years, and proceeded to deal with the modes in which such infection could initiate or affect the course of a malady, illustrating his remarks by suitable cases. In the first place bacteria might be discharged from some focus and conveyed mechanically to some other place. Secondly, bacteria might overcome local resistance at the focus of infection and be conveyed by the lymphatics to the nearest gland, which might arrest further progress, or they might pass direct into the blood stream from the septic focus or after the defence of a lymphatic gland had failed. Once in the blood stream bacteria might multiply and cause septicaemia, they might multiply only at some local spot, or without gaining any real footing they might produce slow but progressive changes in certain organs. Thirdly, bacteria might remain at the focus of infection and influence the body by their toxins which were absorbed. Examples of the first mechanical process were seen in the spread of infection by the fingers in cases of furunculosis, and in the way in which bacteria in the mouth could travel, for example, up Stenson's duct, or be swallowed and produce such lesions as gastritis and colitis, or be inhaled and produce, for example, gangrene of the lung. Direct absorption of bacteria into the blood stream gave rise to

the terrible cases of *post-mortem* septicaemia, or in some cases the organisms seemed to favour some particular spot for multiplying, as in malignant endocarditis. Professor Murray then dealt with the connexion between dental sepsis and arthritis, emphasizing the importance of root abscesses, which might be overlooked if the teeth were not carefully skiagraphed. He quoted Rosenow's work, which went to show that non-haemolytic varieties of streptococci produced fibrositis at points of muscular insertion, and referred to the relation between oral sepsis and severe anaemias. Certain work indicated that the organisms responsible for focal infection were selective in the tissues they attacked, and Professor Murray suggested that it might be a question of the oxygen and food supply available. Considering the large number of organisms present in the mouths and intestines of normal individuals, he thought that there must be some sort of acquired tolerance to these organisms in many cases. He referred briefly to the relation between focal sepsis and nephritis, and then described some cases where the continued absorption of toxins from empyemata had led to early amyloid change or to extensive clubbing of the fingers, which disappeared when these foci were effectively drained. Coming to the question of treatment, Professor Murray pointed out that the eradication of a septic focus was not altogether free from danger. He mentioned some interesting work in connexion with the effect of dental sepsis on the nursing mother, where feeding difficulties could be largely overcome by adequate dental treatment. Certain of the endocrine glands seemed to be affected by sepsis. Focal infection would certainly aggravate and retard the cure of such conditions as exophthalmic goitre, and acute pancreatitis might sometimes be the result of oral sepsis. Professor Murray referred briefly to the problem of systemic infections, such as infection of the bronchi or genito-urinary system, and with regard to intestinal stasis said that he believed it to be far less frequently the cause of disease than some authorities would admit. In summing up, he pointed out that the foci of infection could usually be found in the head, diverticula of the alimentary canal, or genito-urinary passages, while the organisms mostly concerned were either micrococci or members of the *B. coli* group.

Mr. HERBERT TILLEY dealt with chronic focal sepsis in the nose, ear, and throat. He described the paths of infection as direct, as by ingestion or inhalation, and indirect by the lymphatics or blood stream. Dealing first with the faucial tonsils, he defined a "septic tonsil" as one which had suffered from recurrent attacks of inflammation, and was associated with enlargement of the tonsillar lymphatic glands in the neck. The size of the tonsils was not of so much importance, since buried small tonsils appeared to be particularly liable to give rise to systemic infection. From the pathological point of view septic tonsils were associated with excess of polymorphonuclear leucocytes on the surface or in the substance of the gland, the presence of bacteria or debris in the gland not being of such great importance. Mr. Tilley described a striking case of chronic toxæmia completely cured by enucleation of "septic tonsils," and quoted Dr. F. J. Poynton's remarks with regard to the relationship between tonsillar infection and rheumatism in children. He described the various lesions which were produced by tonsillar sepsis, and then dealt with infection of the paranasal and accessory sinuses. It was only within the last few years, he said, that the infection of these sinuses in children had been adequately recognized, and the symptoms produced were very like those of chronic tonsillitis and explained those cases in which symptoms persisted after tonsillectomy. A great deal of pus could be swallowed from an infected sinus in the course of the day, and hence alimentary tract infections were commoner in these cases, and chronic cachexia, often closely simulating malignant disease, was often present. He referred to some work which went to show that cases of lobar pneumonia frequently had infection of the nasal sinuses, and suggested that this would explain the occurrence of cerebral abscess in cases of bronchiectases, since the nasal sinuses appeared to be frequently involved in this disease. He urged that physicians should constantly bear in mind

the possibility of nasal sinus infection, especially when the patient described his symptoms as those of post-nasal catarrh.

Mr. F. W. BRODERICK discussed the dental aspect of the problem. He had been struck with the large number of patients with peri-apical absorption who were yet in perfect health, and on the other hand he had seen great improvement in sick people after such teeth were treated. It therefore appeared to him that the main problem lay in the patient's defensive mechanism. In this connexion he referred to recent work, and showed that defensive measures on the part of the body were largely controlled by the autonomic-endocrine system, so that both a septic focus and a general upset of bodily metabolism might be due to an endocrine or nervous cause. Hence in cases of arthritis, for example, both the joint condition and the septic teeth might be due to the same cause, and the focal sepsis act by still further depressing the action of the defensive mechanism, leading to a vicious circle best broken at the point of dental or tonsillar sepsis. Mr. Broderick quoted some interesting work with regard to the formation of granulomatous tissue at the apex of a tooth, this being a definite defence process, and pointed out that both dental caries and pyorrhoëa could now be explained on a general rather than on a local pathology.

Dr. F. G. THOMSON dealt with the relation between rheumatoid, or, as he preferred to call it, focal arthritis and focal sepsis, and emphasized the importance of treating such sepsis early in the disease. He pointed out that such cases frequently showed absolute or relative absence of free hydrochloric acid in the stomach.

Dr. T. C. GRAVES described the influence of focal sepsis in the production of mental disease, and showed some striking photographs of cases improved by dealing with such infection and by the administration of calcium.

Mr. G. A. PEAKE, speaking as a practising dentist, described certain cases where dental treatment had improved general disorders, but on the whole he had been dissatisfied with the results of such treatment. With regard to dental sepsis and mental disease he had not been satisfied that improvement followed treatment, and he pleaded for a cessation of the prevailing practice of general extraction in almost any disease.

The PRESIDENT showed four temperature charts to illustrate how very acute sinus infection might be, and Professor MURRAY briefly replied.

PSYCHIATRY.

A MEETING of the Psychiatric Section of the Royal Society of Medicine was held in the Central Laboratory of the London County Mental Hospitals on February 10th, on the invitation of Dr. F. L. Golla, the director of the laboratory. Dr. R. H. COLE, the President of the Section, was in the chair, and about forty members and visitors were present. Exhibits by Dr. Golla and his staff of recent methods of investigation were demonstrated, and pathological specimens were shown by Dr. LOVELL and others.

Dr. LANDIS showed the electro-cardiograph and the effects on the tracing of emotional stimulation in psychotic and normal subjects. He also demonstrated an apparatus for recording continuous blood pressure and the effects of various stimuli. Dr. S. MAXX showed various forms of apparatus for determining basal metabolism. Dr. ISABELLA ROBERTSON showed colorimetric methods for determining the hydrogen ion concentration in blood and urine, and the variations seen in certain abnormal cases; she also demonstrated the Van Slyke apparatus for basal alkalinity and a new model for alveolar air estimation. Dr. SHEPHERD showed the Pachon recording apparatus for estimating the blood flow in the hand, and the effects of emotion on this. Dr. LOVELL showed specimens of pancreas and the brains from cases of encephalitis lethargica, and also of certain anxiety and melancholic cases. The slides and microphotographs from the pancreas in the two conditions showed similar inflammatory changes, and Dr. Lovell suggested, from this and other work, that this pancreatic insufficiency might be the predisposing cause rendering the patient liable to cerebral infections and other

lesions. Considerable discussion followed on this, in which Dr. J. R. LORD, Dr. COLE, and others took part. Dr. CLOAKE suggested that the pancreatic and other endocrine disorders might be due to sympathetic lesions following disease of the centres around the third ventricle. Specimens of tumour shown by Dr. GOLLA and others were also discussed, and Dr. COLE quoted a case similar to one shown which had also exhibited few signs during life.

Dr. LORD and Dr. NICOL showed a case of porncephaly which exhibited comparatively few signs in life. Dr. BRANDER showed slides of a pituitary gland from a case of the Lorain type of infantilism in which the anterior lobe alone was affected.

Owing to lack of time discussion was only possible on a few of the subjects exhibited. Dr. COLE, in closing the meeting, proposed a vote of thanks to those who had shown material, and said he felt this type of pathological meeting had proved very successful.

BACTERIAL HAEMOLYSINS IN PERNICIOUS ANAEMIA.

At a pathological meeting of the Leeds and West Riding Medico-Chirurgical Society on February 5th, Mr. A. J. WHITEHEAD, the President, in the chair, Professor J. W. McLEOD and Dr. BERTHA WHEATLEY communicated a joint paper entitled "The importance of bacterial haemolysins in pernicious anaemia."

Professor McLeod said that the emphasis recently laid on the importance of achlorhydria in pernicious anaemia had awakened fresh interest in the bacterial haemolysins as possible factors in the development of this disease, since an increased bacterial content of the upper bowel in achlorhydria had been accepted by everyone who had investigated the point. The observations on which the paper was based had been made with the help of Dr. W. MacAdam in obtaining duodenal fluids by means of the Einhorn tube. Twelve cases of pernicious anaemia and several cases with normal or hyperchlorhydric gastric juice, as well as one or two achlorhydrias without anaemia, had been investigated. The general impression obtained by examining both fresh and heated blood agar plates inoculated from these fluids was that in all achlorhydrias the duodenum contained large numbers of bacteria, among which the pharyngeal and bowel types were fairly evenly represented. No actively haemolytic streptococcus was ever isolated, although the common types of mouth streptococcus which gave slight haloes of clearing on blood agar plates were usually present. The two haemolytic bacteria found were the haemolytic haemoglobinophilic bacterium of Pritchett and Stillman and the *B. welchii*. The first was found more often; but *B. welchii* produced a more powerful haemolysin. Professor Adrian Stokes in this country, and Moench, Kahn, and Torrey in America, had recently drawn attention to the markedly increased content of *B. welchii* in the faeces in pernicious anaemia. Unless a specific parasite responsible both for the achlorhydria and the anaemia existed it would seem likely that *B. welchii* played the chief part in producing anaemia when once the bowel and throat bacteria had invaded the jejunum and duodenum. Difficulties existed in regard to the role of *B. welchii*, however, since injections of Welch toxin induced an increase in the polymorphonuclear leucocytes and also, after a short time, immunity.

Osteomalacia.

Dr. F. S. FOWWEATHER read a paper entitled "Some remarks on osteomalacia, with special reference to a recent case." He stated that a careful blood and urine analysis made recently in connexion with a patient in the Leeds General Infirmary showed the existence of a moderate degree of acidosis, together with evidence of deficient absorption from the alimentary tract. The acidosis was shown to be a "starvation" acidosis, believed to have resulted from chronic malnutrition, and probably due to a qualitative diet defect. The relation between acidosis and calcium loss was discussed. Other workers who had found a connexion between osteomalacia and chronic malnutrition were quoted. The relation between diet defects and the war-time cases of osteomalacia in Europe was noted,

and attention was drawn to the work of Cramer, who believed that deficient absorption due to atrophy of the intestinal mucosa was a result of vitamin deficiency. The tendency to acidosis during pregnancy was put forward as an important factor in the onset of osteomalacia in the under-nourished. Rickets and osteomalacia were stated to be due to the same causes operating at different periods of life.

Amino-acids and Bacterial Growth.

Dr. J. GORDON read a paper on the influence of amino-acids on bacterial growth. Fourteen different amino-acids had been investigated separately with regard to their effect on the growth of bacteria in concentrations from 0.1 to 1 per cent. in 1 per cent. peptone broth. No marked effect was observed on the growth of bacteria, such as *B. coli* and the staphylococcus, which constantly grow freely in peptone broth. Such of the more delicately growing bacteria as were tested were distinctly influenced by some amino-acids, and by this criterion the amino-acids might be divided into three groups: (a) *Indifferent amino-acids*—arginine, glutamic acid, histidine, leucine, lysine, tyrosine, and valine. (b) *Favouring amino-acids*—taurine, aspartic acid, and alanine. (c) *Inhibitory amino-acids*—cystine, glycine, phenylalanine, and tryptophane. In the absence of serum or blood those media with a basis of tryptic digest were inferior to peptone broth for growing delicate bacteria; such media could be improved if a considerable part of the amino-acid was removed by butyl alcohol extraction.

Demonstration of Specimens.

Dr. MOLL (Leeds), in association with Dr. C. W. VINING, showed an example of a Meckel's diverticulum 2 ft. 9½ in. long. The diverticulum had become displaced from its normal anatomical relation with the small intestine; it ran parallel for the whole of its course with the small intestine, and was firmly and physiologically adherent to it. The whole specimen had the appearance of several feet of double intestine. Dr. Moll had been unable to find a similar case in the literature. He presented a diagram showing the process by which he suggested that the diverticulum had been displaced from the antimesenteric border of the small intestine. Dr. MAXWELL TELLING had never seen such a specimen before, nor was he aware that "doubling" of the small intestine occurred at the particular part of the gut.

Mr. CARLTON OLDFIELD (Leeds) showed a case of ovarian pregnancy. He described the specimen, and by means of a slide he demonstrated the corresponding very early ovum and embryo. Mr. Oldfield reviewed the whole subject of extrauterine gestation, and gave an historical account of its place in obstetrics since the time of Lawson Tait. He recounted the examples met with recently, with special reference to the incidence of true ovarian gestation and its significance, and gave the clinical details of the case under discussion. Dr. E. O. CROFT (Leeds) continued the discussion, and gave an account of his experience in the matter of ovarian gestation.

THE MALARIA TREATMENT OF GENERAL PARALYSIS.

At a meeting of the Liverpool Medical Institution on February 4th Professor WARRINGTON YORKE read a paper on the malaria treatment of general paralysis of the insane.

Professor Yorke commenced by pointing out that the treatment of neuro-syphilis could be divided into specific and non-specific. With regard to specific and anti-syphilitic treatment, he was of opinion that the numerous modern intrathecal and other methods of medication were little better than the older treatment with mercury ointment; he felt, however, that it was probable that tryparsamide might prove to be as effective in syphilis as it had been in sleeping sickness. With regard to non-specific treatment, he reminded his audience that Hippocrates and Galen knew that fevers influenced psychoses, as also did Boerhaave and Sydenham. In the middle of the nineteenth century attempts had been made to produce

changes in cases of general paralysis of the insane by the induction of abscess formation and other similar processes. Later, there followed in succession treatment by the injection of non-bacterial substances, such as milk, then the use of vaccines, and ultimately, in 1917, the injection of living micro-organisms. In 1920 Wagner-Jauregg, in Vienna, published the results of the treatment of a series of cases infected with malaria. The technique was comparatively simple, the blood from a malarial individual being introduced into the patient either intravenously, intramuscularly, or by scarification. Professor Yorke advised that the patient should be allowed to have eight or twelve malarial attacks; it was difficult, and needed experience, to decide when the attacks should be stopped. If they were stopped too soon no benefit would ensue; if they were allowed to go on too long the patient might die. There was no means of modifying the severity of the attack; the premature administration of quinine completely spoiled the results and also prevented reinfection for a period of many months. The investigation of 400 cases treated in Vienna during the years 1917 to 1922 showed the following results: complete remission 33 per cent., and partial remission 14 per cent. In a series of 299 cases treated in 1922 in five large British mental hospitals, 70 patients had improved to such an extent that they could be discharged from hospital. In a series of cases in the pre-asylum stage, complete remissions were obtained in over 30 per cent. The latter group obviously contained a larger proportion of cases in the early stage of the disease. It was unfortunate that in many cases the condition was only arrested and the victims still remained useless members of society. At the same time, many such cases became cleaner in their habits and consequently easier to nurse. It was impossible to forecast the result of malarial treatment except that greater success could be expected in early cases. In some cases the improvement was immediate and dramatic, whereas in others it was slow and might go on for months. As regards the effect of the treatment on the serum and cerebro-spinal fluid reactions, these might become normal, but in many cases they were not parallel with the clinical changes; clinical improvement might be complete, while the pathological reactions remained unchanged for a considerable period and only after many months gradually moved in the normal direction. Several pathologists had had the opportunity of examining the brains of remitted cases who had died from intercurrent disease; it was most interesting to note that some of them showed no changes recognizable as those of general paralysis of the insane. Professor Yorke then referred to the opportunity that treatment of these cases had given for studying closely the phenomena of malaria. He pointed out that in these induced cases very few doses of quinine sufficed apparently to cure the patients, in contrast with the difficulty of producing this result in ordinary tropical practice. It had also been possible to establish definitely the existence of three species of malaria parasites, the parasites of each species always breeding true. In the induced cases relapse was comparatively rare, and, when it did occur, long delayed. The ineffectiveness of quinine to cure the war cases and patients in tropical practice was due to the fact that they were not primary infections. The factor which governed relapse was the patient's individuality; the occurrence of relapses was in no way related to the strains of parasites with which the patients were infected, to the drugs used, or to the dosage and method of administration. He advanced an hypothesis of the process by which quinine indirectly destroyed the parasites, and concluded by pointing out the uselessness and the actual danger of either too large doses or of too prolonged administration of quinine.

Spontaneous Dislocations of the Hip.

Mr. R. WATSON JONES read a paper on spontaneous dislocation of the hip. In a series of 6,000 patients there were 27 spontaneous dislocations of the hip resulting from infantile paralysis, spastic paraplegia, and various forms of acute arthritis. After emphasizing the important part played by muscular action in the stabilization of joints, and indicating that the action of ligaments was essentially subservient to that of muscular control, it was shown that

precisely the same derangement of muscular balance existed in all types of spontaneous dislocation. There was always an overaction of the flexor and adductor muscle groups, this being due to paralysis of the antagonists in poliomyelitis, to spasticity of the muscles in cerebral paraplegia, and to reflex muscle spasm in acute arthritis. Moreover, the position of flexion and adduction was anatomically the most unstable position of the hip-joint. The rational preventive treatment based on these facts was the maintenance of the extended and abducted position of the hip, and in all cases (except some cases of arthritis in which there was complete destruction of the joint) this procedure should be sufficient to prevent spontaneous dislocation. In the consideration of the differential diagnosis x-ray photographs were shown in cases of congenital dislocation coincident with poliomyelitis, spastic paraplegia, and even suppurative arthritis.

THE VALUE OF RENAL FUNCTION TESTS.

At a meeting of the Newport Medical Society on January 27th, the President, Dr. S. HAMILTON, in the chair, Lieut.-Colonel W. K. BEAMAN read a paper on the value of renal function tests in clinical medicine. He began by pleading for closer co-operation between the clinician and the biochemist or pathologist, and said that the pathologist had done great things although handicapped in the past by this lack of co-operation; in the newer biochemical research co-operation was essential. He then touched shortly upon the general methods in use at the present time for the estimation of renal function, and for general use he recommended the urea concentration test of Calvert, which was a modification of Maclean's original urea concentration test. Lieut.-Colonel Beaman stated that after considerable experience of this test he placed the greatest reliance upon it, and believed it to have a very wide sphere of usefulness. He described its value in surgical cases, especially in cases of obstruction to the flow of urine, as exemplified in enlargement of the prostate. In obstetric work—for instance, in cases of albuminuria—he claimed that the test was of great value in indicating those cases of nephritis complicated by pregnancy in which termination of the pregnancy was indicated. In general medical practice he stressed its value in defining the various types of nephritis, and stated that he had found it invaluable in distinguishing cases of pure hyperpiesia from cases of chronic interstitial nephritis. It was in this last respect that he considered the test most valuable, since the diagnosis was often so difficult clinically, and a correct diagnosis was so essential from the point of view of prognosis. He then showed a chart of the findings given by Calvert as typical of the various conditions mentioned, and next a series of charts of certain cases investigated by himself during the past year. These charts brought out very clearly the differences between azotaemic and hydraemic nephritis, and also between chronic interstitial (azotaemic) nephritis and hyperpiesia. He then showed charts of several other renal and genitourinary cases where this test had been of value either from the point of view of diagnosis or as an indication for treatment, and lastly, charts of cases in which the findings were atypical or the diagnosis was still in doubt. He hoped that by continuing investigation in this class of case and combining close clinical observation with the use of this test its value would be further enhanced and its scope made still wider.

OPERATIVE TREATMENT FOR RECTOCELE.

At a meeting of the Edinburgh Obstetrical Society held on January 13th, with the President, Dr. R. W. JOHNSTONE, in the chair, Professor B. P. WATSON read a preliminary communication on his technique for the cure of rectocele.

Professor Watson pointed out that the essential feature in his operation was the isolation of the special fascio-muscular sheet, which supported the rectum and which was deficient in all cases of rectocele. Thus it was that recto-

cele only occurred when this sheet was damaged, but did not occur even when the levator ani muscle and its fascia were badly damaged so long as this rectal fascia remained intact. The fascia lay deep to the levator ani muscle, in close relation to and supporting the anterior rectal wall. It was in intimate relation with the posterior vaginal wall in its middle third, and became continuous at the sides of the cervix with the pubo-cervical layer of fascia—the essential support of the bladder. The operative treatment recommended for rectocele therefore consisted in defining and freeing this fascia and then repairing it after replacing the herniated rectum. The operation was then described in detail and was fully illustrated by lantern slides. The chief point of the operation was the raising of a flap of the posterior vaginal wall by inserting closed scissors midway between the middle line and the limit of the muco-cutaneous perineal incision on either side. The scissors were passed beneath the postero-lateral vaginal wall well to the side of the rectum, and were opened out; in this way the natural line of cleavage was easily found. Dissection was then continued towards the middle line where scar tissue obliterated any definite layers. This scar tissue was easily dissected off the rectum from the sides, and the dissection was carried to the upper limit of the rectocele. As this was done two bands of tissue appeared, which were firmly attached to the under surface of the vaginal flap, and between which, in the middle line, there bulged the rectal wall. These bands were the edges of the torn rectal fascia and, when the dissection was extended to the upper limit of the rectocele, were found to unite in the middle line. This fascia was freed and then united over the rectum with a continuous suture, and by this means the rectocele was cured. The perineum was built up in the usual way. The most important part of the operation was the separation of this rectal fascia from the under surface of the levator ani, which was done by blunt scissors dissection; the fascia could thus be sutured separately and not together with the muscle, which was the usual procedure. By this means there was no tension, thus ensuring better healing and more accurate apposition. The operation was claimed to be more correct anatomically than the usual procedures in cases of rectocele, and had given, in Professor Watson's experience, most excellent results, no recurrence of a rectocele having ever been reported after its performance.

Three Caesarean Sections.

Professor J. A. KYNOCN (Dundee) read a paper on three cases of Caesarean section, which he had performed during the last few years, the operation being required for some unusual occurrence in each case.

The first was an 8-para, who was suffering from severe internal accidental haemorrhage, and was in a collapsed condition before operation was performed. Caesarean section was done as quickly as possible, and on opening the abdomen the uterus was found to be congested and haemorrhagic in appearance, with purple mottled patches here and there. There was concealed haemorrhage in the left broad ligament, and the left Fallopian tube also presented the same haemorrhagic appearance. The child was delivered, and the uterus was stimulated to contract by means of pituitary extract and by hot towel stimulation. This was continued for at least ten minutes before the contractions became satisfactory, after which the uterus and abdomen were closed. Although in a very weak state after the operation the patient made an uninterrupted recovery and left the hospital in three weeks. The case showed that in some cases, at any rate with hot towel pressure and injections, contractions could become so satisfactory that hysterectomy was not required. The second case was one of prolapse of the cord, which occurred in a 2-para, whose first confinement had been difficult on account of a slightly contracted pelvis, and the child, though born alive, did not survive. On admission for the second confinement the cervix was slightly dilated, the cord was found to be prolapsed, but pulsating, and the foetal heart sounds were satisfactory. On account of the contraction of the pelvis Caesarean section was decided upon and a living child was delivered. The third case of Caesarean section was performed in a case of a funnel-shaped pelvis, which Professor Kynoch deemed to be more common even in this country than was generally supposed. In this case the head had remained on the pelvic floor and had been making no progress for four hours: on examination the subpubic angle was found to be so acute that barely two fingers could be admitted. The diameters of the

outlet were: intertuberischial $3\frac{1}{2}$ in., posterior sagittal 3 in. On account of these measurements and the acuteness of the subpubic angle spontaneous or instrumental delivery was impossible, and therefore it was a question whether pubiotomy or Caesarean section was to be the treatment. As the patient was a primipara Caesarean section was decided upon and a 7 lb. child was delivered. Both mother and child made a satisfactory recovery.

Post-partum Convulsions.

Dr. E. CHALMERS FAHMY described a case of post-partum convulsions, which presented great difficulty in diagnosis.

The case was one of a primipara, who was admitted to the Royal Maternity Hospital, Edinburgh, in labour. The first labour had been uneventful, and she had been well throughout the second pregnancy, except for some slight oedema of the feet and legs. On admission the blood pressure was normal, and there was only a slight trace of albumin in the urine. She was delivered spontaneously, and the placenta and membranes came away completely; twelve hours after delivery the patient complained of headache and difficulty of vision. Morphine was given at once, but a fit developed. The usual eclamptic treatment was then administered, but a second fit occurred one and a half hours later. There was albumin (1.4 per cent.) in the urine, but the blood pressure was only 140/98 mm. The patient became drowsy on recovering from the fits, and this drowsy condition lasted for seven days. The blood pressure for these days was never above 130 mm., and the albumin decreased by degrees. On the seventh day after delivery the fits recurred, and within twelve hours she had eleven fits. Lumbar puncture was performed, and some clear fluid under increased tension was withdrawn. No micro-organisms were found in the fluid. There was only a slight trace of albumin now in the urine. The patient again became drowsy, but consciousness returned in a few days, and she eventually recovered completely, being discharged from hospital after a further three weeks' stay. At a subsequent pregnancy a healthy child was delivered, without any signs or symptoms of toxæmia, and during this pregnancy there was no albumin in the urine.

The diagnosis offered great difficulty, and, in Dr. Fahmy's opinion, the fits were due in the first case to eclampsia. This was followed by drowsiness, culminating in fresh convulsions, due, probably, to the brain being affected by the toxæmic condition. Possible diagnoses of hysteria, epilepsy, and a lesion of the brain were ruled out, but it was difficult to exclude nephritic toxæmia definitely; on taking into account her subsequent pregnancy, when no albumin manifested itself in the urine, the presence of the last condition appeared unlikely.

RADIUM.

At a meeting of the London Association of the Medical Women's Federation, held on February 9th at the British Medical Association House, the President, Dr. CHRISTINE MURRELL, in the chair, a paper, illustrated by lantern slides, was read by Professor SIDNEY RUSS on radium and its clinical applications.

After briefly recounting the discovery of radium and the rapidity with which this was followed by experiments relating to its possible therapeutic uses, Professor Russ went on to discuss some of the most outstanding features of its physical properties. He pointed out that it gave off three distinct kinds of ray (alpha, beta, and gamma rays), each of very different penetrative power, and probably of different physical nature. Of these the gamma rays were the most important clinically, as they had the greatest penetrative power. He then dealt with the necessity of control of the rays, and went into the questions of size and shape of containers, the effect of these on the rays, and the intensity of the rays at various distances from the radium tube. The biological action of the beta and gamma rays was next considered. Slides were shown demonstrating the deleterious effect of the rays on cultures of bacteria and on germinating plants. It was this property of inhibiting growth which had led to the employment of radium clinically in the treatment of malignant tumours. Experiments by Webb, Dominici, Chambers, and others were described, illustrating the results of irradiation on carcinoma and sarcoma in animals. For the first few days

the tumour cells appeared unaffected, but soon they disappeared, overcome by the normal tissues of the body. Tumour cells after exposure to radium would not grow if transplanted into another animal. It was, however, shown conversely that under certain conditions normal fibrous tissue might become sarcomatous under the influence of radium, hence the necessity for a more thorough investigation into the problem of dosage. The effect on animal tissues, which possessed the power of repair, depended on the length of time of the individual application rather than on a summation of several exposures. This, of course, was not so in the case of a photographic plate, in which the result of exposure was the same whether the exposure had been made over one long or several short periods. The effect of radium on cells in the growing or dividing stage was described, and reference made to recent experiments in Paris and Brussels. Professor Russ also dealt with the characteristics of the radium emanation or radon, and concluded with a convincing experiment as to its electrical properties; an electroscope was discharged merely by bringing near to it a piece of iron which had been for a short time in contact with a tube of radon.

REFLEX PROCESSES.

On February 9th Dr. BRYSON, in a paper before the James Mackenzie Institute for Clinical Research, St. Andrews, on the functional unit and reflex processes, criticized the prevailing teaching that certain reflex activities were controlled by centres, maintaining that in all cases control from the periphery was the only factor regulating them apart from psychological influence. In a previous communication he had elaborated this view in regard to the cardiomotor and vasomotor reflexes. The functioning of the organs of the body, he said, was regulated according to the requirements of its functional units. The physiological unit consisted of the cell with its capillary supply. The latter could only be efficiently regulated by the cell. The activities of heart and arteries must be determined by the needs of the functional units and be regulated by them. Impulses from these peripheral structures must therefore determine the activities of the so-called cardiomotor and vasomotor centres. The "centre," in fact, was nothing more than a focus of integration for impulses received from the functional units at the periphery. The continued belief in "specific" centres was largely due to the difficulty of demonstrating afferent tracts. This principle of peripheral control acting *through* the central nervous system was incompatible with control *by* the central nervous system, and this applied to all reflex processes. For a reflex to be modified in its course implied that it was imperfect in its design.

The lecturer then discussed the role of sensation, maintaining that between the sensory and motor areas of the cortex intermediate neurones were present, upon which sensation arose and conditioning occurred upon the reflex processes. This he termed "psychical integration." Elliot Smith had shown that as evolution advanced the sensory and motor areas increased in size, but that it was not to these areas that the brain of man chiefly owed its size, but to the part interposed between them. Dr. Bryson illustrated his view by reference to hunger, thirst, exhaustion, and other sensations, and in conclusion emphasized the clinical importance of the study of the relationship of reflex processes to sensation and of the psychological problems involved.

The paper gave rise to an animated discussion, in which Professor DAVID MORRISON, Mr. MACE, and others took part.

THE seventh Congress of the German Society of Urology will be held from September 30th to October 2nd, under the presidency of Dr. V. Blum, at the Billroth-Haus in Vienna, when the chief subjects for discussion will be the pathology, pharmacology, and treatment of anaemia, and the pathology and treatment of malignant tumours of the bladder. There will be an exhibition of instruments, apparatus, and drugs. Further information can be obtained from Dr. Hans Gallus Pleschner, Alsterstrasse 20, Vienna.

Reviews.

PRINCIPLES OF TREATMENT IN EMPYEMA.

PROFESSOR EVARTS GRAHAM of Washington University, St. Louis, is a scientific surgeon, and has again shown this in his recently published essay on *Some Fundamental Considerations in the Treatment of Empyema Thoracis*,¹ which was awarded the Samuel D. Gross prize of the Philadelphia Academy of Surgery in 1920. The delay in its publication has been due to disputes in the publishing business, which previously rendered it impossible to offer the monograph to the public at a reasonable price. Professor Evarts Graham was a member of the Empyema Commission of the United States Army which investigated the high mortality of the cases of empyema which occurred during the winter of 1917-18 in the army camps in America, and were found to be due to a haemolytic streptococcus. The high mortality (30 per cent. on an average, but in some camps as high as 70 per cent.) occurred when the then orthodox plan of operating early on such empyemas was in vogue, and fell (to the very low percentage of 4.5) when the principles enunciated by the Commission and described in the present volume were acted upon. The delay in the publication of this essay has enabled the author to supply in an addendum a most fair-minded reply to the criticism raised, especially by Duval, against the Commission's conclusions.

The three fundamental principles laid down for the treatment of empyemas due to the haemolytic streptococci are (i) to avoid the production of an open pneumothorax in the early stage when the lung is in a condition of influenzal inflammation, (ii) to prevent the production of a chronic empyema by rapid sterilization and obliteration of the infected cavity, and (iii) careful attention to the patient's nutrition. A large number of experiments were made on animals to elucidate the subject of intrapleural tension and on the effect of producing an open pneumothorax when the pleura had been infected; it is noteworthy that comparative determinations of the intrapleural tension in human corpses and in dead animals were made before assuming that the experimental results could be applied to man. The experiments showed that the current conception that the mediastinum acts as a rigid partition so that the lung on the sound side remains unaffected by an open pneumothorax on the other side is incorrect; in reality the intrapleural pressure on the two sides remains about the same, except in old empyemas and mediastinitis when, from the formation of adhesions, the mediastinum does become a more resistant partition; in such cases, therefore, the risk of making a large opening into the pleura is much less than in an acute case. The bad effects of making an open pneumothorax, quite apart from the introduction of micro-organisms, are discussed in an interesting manner. With regard to the second fundamental principle, Dakin's solution of neutral 5 per cent. sodium hypochlorite is most satisfactory, both as a sterilizer and by its solvent action on the exudate and its decorticating effect in leading to obliteration of the cavity.

THE HIPPOCRATIC CONCEPTION.

In an interesting medical historical work on the history of medicine, entitled *Il Volto di Ippocrate*² (the countenance of Hippocrates) Professor CASTIGLIONI demonstrates to us a sound method of gaining a clear comprehension of the evolution of the science. Discarding the common practice of abstracting medical conceptions from their surroundings and tracing their history in isolation through the centuries, he examines them as it were *in situ*. He portrays the social, political, and religious features of successive epochs and shows how closely medical theories are related to and coloured by them. Modern conceptions, indeed, are often merely ancient ideas in a different dress, suited to the philosophical fancies of the time. The foundation of medical science is the same in all ages—

namely, the desire to allerviate human suffering; and the measures employed to that end in any given epoch depend, not only on the stock of knowledge already accumulated, but to a very large extent on the social, political, and religious ideas prevailing at the time. Thus, among the Hebrews we find that their comparatively advanced knowledge of hygiene was due in very small degree to the mere progress of scientific knowledge; on the contrary, it arose as a natural corollary to their religious belief. They held that purity of heart was impossible in a body that was unclean.

Many other instances of an analogous kind might be quoted from Professor Castiglioni's book, such as the organization of the medical profession, and the creation of the science of forensic medicine by those masters in law and organization, the ancient Romans of the late republic and early empire. Fully to carry out the scheme outlined by the author would doubtless require several volumes, and to bring the subject within moderate limits Professor Castiglioni has selected several epochs bridging the period between the times of Hippocrates and our own days. Three chapters are devoted respectively to Hippocrates and the philosophy of his period, the sanitary laws of the Hebrews, and the medical profession among the old Romans. The writings of Dante are utilized to introduce the subject of mediaeval scholasticism and its influence on medical ideas. Similarly the subjects of anatomy and physiology are introduced in connexion with the work of Leonardo da Vinci and Valsalva. In this way a very clear idea is obtained, not only of the actual progress of the science, but also of the reasons for its development in certain directions during certain periods, and for its phases of decadence and renaissance. Three interesting chapters deal with the subjects of venesection, medical journalism, and the chemist's shop, and in connexion with the last named the author has provided a number of beautiful illustrations of Etruscan vases of which he is the fortunate possessor. In addition to these, the book is copiously illustrated by fine reproductions of drawings from the old masters and writers, which contribute greatly to what we consider a very attractive book.

LEWIS'S "CLINICAL DISORDERS OF THE HEART BEAT."

Now in its fifteenth year and sixth edition, Sir THOMAS LEWIS'S *Clinical Disorders of the Heart Beat*³ is a clear and authoritative guide, and, contrary to the general rule, has not increased in bulk to correspond with its progressive reputation; in fact, the present edition is ten pages shorter than the previous one. Although believing that those who are unfamiliar with the new conception of heart disease due to the employment of graphic methods are incompetent to deal with cardiac patients, Sir Thomas Lewis does not suggest that practitioners should be more than cognizant of its principles and deductions, or that they need be expert in taking graphic records. Those engaged in cardiological research and teaching should establish simple clinical means of recognizing conditions the nature of which has been determined by methods demanding technical skill.

The last edition (1921) came out at about the time that Sir T. Lewis's researches on the circus movement of the auricles in auricular flutter and fibrillation (vide Oliver-Sharpey Lectures, *BRITISH MEDICAL JOURNAL*, 1921, i, 551, 590) were published, and these experimental results are embodied in the present volume, which also contains a critical opinion as to the value and future of quinidine treatment; that this drug will come into general use is doubtful, for restoration to a normal rhythm is seldom permanent, and a close control of the reaction is possible only by means of the electro-cardiograph. Paroxysmal tachycardia and the rarer condition of paroxysmal fibrillation are distinguished, and the treatment of the two laid down. In regard to heart-block it is pointed out that, though digitalis often increases the grade of heart-block, this effect is not in itself harmful, and that the

¹ *Some Fundamental Considerations in the Treatment of Empyema Thoracis*. By EVARTS A. GRAHAM, A.B., M.D. London: Henry Kimpton. 1925. (Med. Bro. pp. 110; 15 illustrations. 7s. 6d.)

² *Il Volto di Ippocrate*. By ARTHUR CASTIGLIONI. Milan: Società Editrice Unica. 1925. (Double roy. 16mo, pp. 383; 133 figures. L.60.)

³ *Clinical Disorders of the Heart Beat: A Handbook for Practitioners and Students*. By Sir THOMAS LEWIS, C.B.E., M.D., D.Sc., F.R.S., F.R.C.P. Sixth edition. London: Shaw and Sons. 1925. (Extra post 8vo, pp. xii+131; 55 figures. 8s. 6d. net.)

drug may be given without hesitation and sometimes with benefit.

This valuable handbook may well remind the senior reader of the writings of the late Dr. Samuel Gee, for there is never a word too much, and each word is in its right place and tells with its full value and weight; thus *pulsus alternans* is described as "the faint cry of an anguished and fast failing muscle, which, when it comes, all should strain to hear, for it is not long repeated. A few months, a few years at most, and the end comes."

OPOTHERAPY.

In his book on endocrine therapy⁴ Dr. GUY LAROCHE gives a short and very readable summary of the experimental and clinical evidence which forms the basis for the use of endocrine extracts. He describes the pharmacological and therapeutical actions of preparations of the thyroid, the parathyroids, the thymus, and the suprarenal glands, the gonads, and the islets of Langerhans.

The book is written in a reasonably critical manner, and in his preface the author points out the necessity of basing endocrine treatment on the solid foundations of physiology and pathology. The recent French work in endocrinology is well described, and an interesting feature is a summary of the work of Chauffard, Laroche, and Grigaut, who studied the cholesterol content of the suprarenal glands in health and disease, and showed that this content was very low in infectious diseases and remarkably high in arteriosclerosis. The author considers that these facts point to the suprarenal cortex as being the site of formation of certain lipoids, in particular cholesterol.

Dr. Laroche confines himself to the description of effects for which definite objective evidence can be adduced, and the claims made for organotherapy show a corresponding restraint. About three-quarters of the volume is occupied by a description of the action of preparations of the thyroid, suprarenal, and pituitary glands. The book as a whole should serve as a sound guide to practitioners, and indicate to them what effects may reasonably be expected to be obtained from endocrine therapy.

Dr. MARCEL LAEMMER has produced a formulary of clinical opotherapy,⁵ giving an account of the mode of administration of a very wide variety of organ extracts, including the thyroid, parathyroids, thymus, pituitary, pineal, and suprarenal glands, the spleen, gonads (testicles and ovaries), kidneys, liver (liver substance and bile), pancreas, prostate, mammary glands, stomach, duodenum, brain, spinal cord, heart, lungs, lymphatic glands, bone marrow, bones, muscle, and placenta. In the introduction it is said that it contains "advice and formulae which do not conform strictly to laboratory evidence, but always to clinical experience." The first statement is certainly indisputable. The line of treatment indicated in the volume is exemplified in a series of formulae recommended for a girl of 16 with obesity coupled with retarded sexual and mental development; injections of pituitary extract are recommended, as well as bone powder, brain powder, powdered bone marrow, thyroid and ovarian extract given by mouth in various combinations.

The book gives an account of polyglandular therapy pushed to an extreme, and some may think to absurdity.

HEDONISTIC PSYCHOLOGY.

We gather from Dr. DEARDEN's book, *The Science of Happiness*,⁶ that the main object of life is its achievement, that the pursuit of this ideal is a science, that scientific method involves a knowledge of psychology, and that the object is to be attained by certain mental exercises combined with physical culture and proper feeding. By an intelligent study of psychology, says Dr. Dearden, the lives of all of us can be rendered more happy, healthy, and efficient. Though the increasing strain of existence is

causing life to be fraught with terrible possibilities, a new era has dawned for the sufferer from nervous exhaustion. Therefore, in the italics that Dr. Dearden uses so often, let us *set ourselves intelligently to develop to the highest intensity the mental qualities we possess already*.

The author then proceeds to study the various functions of the mind, and the methods of keeping the central cells in the nervous system in perfect peace; for "it is in the production of this peace of mind that a knowledge of psychology is of such great value." There are chapters on the nature of reactions, habit, instincts, emotions, memory, attention, the will, and reason. The explanation of the working of these functions is accompanied by an account of disorder in their action, and by descriptions of the methods Dr. Dearden recommends for their restoration and maintenance. Thus for the prevention of mental despondency and gloom it is necessary, on rising from your bed, to go to your looking-glass, and force yourself to greet with a beaming smile that curiously complex fellow who is yourself. No matter if the smile is sardonic: do it all the same. This is called the Morning Beam. On the James-Lange theory that the feeling in the coarser emotions results from the bodily expression, the morning beam will set your mind beaming. At various times in the day, certainly in the evening, it is necessary to perform the ceremony of relaxation. You then school your features to take on an expression of peace and happiness, and you go over in this most receptive frame of mind the catalogue of all those circumstances in your condition which should make for cheerfulness. If suffering from insomnia you prepare for the ceremony by taking no solid food for at least two hours before bedtime. Half an hour before retiring you take a glass of hot milk or hot water, not tea, coffee, or alcohol. You then lie back in your chair and go through formal relaxation. Each system of muscles is taken in turn, you see how far you can "let go" from the strained position in which you find them. You imagine yourself sprawling loosely in an attitude of abandon; and, relaxing your mouth in a happy, far-off smile, you make your mind dwell on the great mind of the universe. At intervals during the day your time may be occupied by tackling some of the examination papers which Dr. Dearden attaches to some of his chapters. You may describe the psychology underlying the appeal of the Salvation Army Band or of the three-card trick; or you may puzzle your brain in explaining the value to the individual suffering from nerves of the instinct of curiosity.

Dr. Dearden has thought it well to discuss in a separate section the thorny problem of sex; and, according to the publisher's book-wrapper, he has handled the subject with a boldness and delicacy hitherto unapproached. The sexual act is described, and there are chapters on perversion, self-abuse, impotence, and marriage. With regard to contraceptives Dr. Dearden appears to favour the sheath or condom as the best general method for adoption. In discussing the sexual inactivity imposed upon women Dr. Dearden remarks: "Amongst the so-called 'lower classes' . . . a healthy sexual freedom has been allowed to women which it is assumed will be followed by marriage in the event of a child resulting from the intercourse." How far the practice is general we do not know; but it certainly exists in many parts of rural England. Country doctors, we believe, attend many primiparae within a few weeks of marriage; and the occurrence does not seem to arouse much comment. In some places in the South of England there used to exist a custom called "bundling." Unmarried girls, having been sewn up securely by their mothers in some sort of clothing, were allowed to pass the night with the man of their choice.

Dr. Dearden's book aroused the interest of a well known writer in the *Times*, who raised the question, often debated before, whether, according to the James-Lange theory, the simulation of an emotion aroused that emotion in actors. This question drew replies from Sir Frederick Mott and Dr. C. S. Myers. Quite apart from such questions of detail, it might be interesting to investigate Dr. Dearden's main thesis, and to ask whether the pursuit of happiness is really the main object of existence. Is happiness obtainable, with or without a knowledge of psychology, or must we believe the German author, quoted recently by the

⁴ *Opothérapie Endocrinienne*. Par Dr. Guy Laroche. Paris: Masson et Cie, 1925. (51 x 81, pp. 151, 10 fr.)
⁵ *Opothérapie*. Par Dr. Marcel Laemmer. Paris: Masson et Cie, 1925. (51 x 81, pp. 151, 10 fr.)
⁶ *The Science of Happiness*. By Harold Dearden, M.R.C.S., L.R.C.P. London: W. Heinemann, Ltd, 1925. (Demy 8vo. pp. viii + 341. 10s. 6d. net.)

B.B.C.: "Man may not linger, and nowhere finds he repose; we stay not, but wander, we grief-laden mortals, blindly from one sad hour to another, like water from cliff unto cliff ever dropping?"

And although Dr. Dearden seems to suggest that a knowledge of self would lead to unselfishness, the process of obtaining that knowledge by self-investigation seems to be so arduous that it is doubtful whether much time would be available for more altruistic efforts. Perhaps the fact of the matter is that the healthy, not needing a physician, need not bother to read Dr. Dearden's book or to practise the Morning Beam. The neurotic and the nerve-exhausted, on the other hand, should derive from its perusal as much satisfaction as from the Eleusinian mysteries of modern cults, with a much more healthy effect upon their minds. Dr. Dearden deals with his subject in an entertaining manner; he illustrates his meaning amusingly; and very few of his remarks can irritate anybody.

EVOLUTION AND GENETICS.

A third and revised edition of four lectures delivered in 1916 under the Vanuxem Foundation at Princeton University by Professor T. H. MORGAN, who occupies the chair of experimental zoology in Columbia University, has just been published. The previous editions bore the title "A Critique of the Theory of Evolution"; the title of the new has been altered to *Evolution and Genetics*,¹ not because it is less a criticism of the theory of evolution than its predecessors, but because greater attention is given to the bearing of recent discoveries in genetics and in mutation on evolution. The original four lectures have been subdivided and enlarged into thirteen short chapters; the two last, which deal with the inheritance of acquired characters and the evidence of human inheritance, are entirely new.

In the opening chapter the author exposes the looseness of definition in the use of the term "evolution," and finds essential differences between historical evolution, such as the evolution of the earth or of human inventions, and the biological evolution of organic life. He then proceeds to criticize what he describes as the four great historical speculations regarding the origin of species—namely, the theory of Buffon and St. Hilaire, who attributed changes in fauna and flora to environment; the theory of use and disuse, to which Lamarck's name is attached but which has now few followers among trained investigators in consequence of Weismann's views as to the inadequacy of the evidence that acquired characters are inherited; the theory of orthogenesis, or inner driving force or principle; and Darwin's theory of natural selection. The evidence of organic evolution from comparative anatomy, embryology, palaeontology, and genetics is then discussed. Professor Morgan's view is that at present there is no evidence that withstands the test of criticism in favour of any other origin than that the slighter as well as the larger differences, creating new inherited variations in biological life, have arisen as genetic mutations. This is his standpoint throughout the remaining chapters. He endeavours to demonstrate the advance in the study of evolutionary processes by the discovery of the manner in which new characters appear and are inherited in consequence of the behaviour of the chromosomes of the reproductive cell and their bearing on Mendel's two laws of heredity—the law of segregation and the law of free assortment. This is further developed in chapters on linkage groups and the chromosomes, sex-linked inheritance, crossing over, and the origin of species, in which the element of chance may in some cases be the cause of new mutation characters in the progeny. In dealing with the subject of the inheritance of acquired characters the author attacks the belief that such characters can be or are ever inherited. He attributes its popularity to the willingness to listen to every new tale that furnishes evidence of inheritance of acquired characters and to the human longing "to pass on to our offspring the fruits of our bodily gains and mental accumulations." But, he significantly remarks, "In our

hope for the best we forget that we are invoking a principle that also calls for the inheritance of the worst." The final chapter, on human inheritance, is of special interest to medical men, for it discusses the genetics of physical defects, colour-blindness, night-blindness, haemophilia, and the four blood groups, by which the selection of donors in blood transfusion is determined. The inheritance of mental traits, insanity, and superiority or inferiority in racial and social groups is also examined in this chapter. The author's conclusion is that the geneticist finds it impossible to discover within each human social group the genetic basis of behaviour with any certainty. Differences, he thinks, are obviously connected, not only with material advantages and disadvantages resulting from location, climate, soil, and mineral wealth, but also with traditions, customs, religions, taboos, conventions, and prejudices. Superiority or inferiority is not a matter of inherited biological characters, but is due to conditions that have their roots in the past, and is acquired by each new generation as a result of imitation and training. He is inclined, however, to think that there are considerable differences in man that are probably strictly genetic, although he insists that at present there is no real scientific evidence of this of the kind with which geneticists are familiar in other animals and in plants.

The impression obtained from the book is that the author, while rejecting the old theories of evolution, adopts an attitude towards genetic inheritance of mental qualities and defects that is agnostic. As a whole, it is full of suggestive thought and scientific possibilities. A drawback to any reader who is not a trained biologist is the difficulty of following some of the charts and illustrations, several of which are photographic reproductions much reduced in size and with inadequate explanations, either in the text or in the legend, of conventional signs and letterings.

POST-MORTEM APPEARANCES.

Dr. JOAN M. ROSS, assistant pathologist to St. Mary's Hospital, has provided a useful handbook on *Post-Mortem Appearances*,² which, from its conveniently small size, might well be called a pocket-book. It is clearly and concisely written, and gives in the appendix tables of the normal weights of the organs in the adult and newborn, and of the eruption of the teeth. There are directions as to the methods of making a necropsy, notes on the preservation of morbid specimens, and descriptions of the appearances in twenty-one kinds of poisoning, including that by veronal.

In any further edition the author might consider the propriety of omitting the word "hyperpiosis" in brackets after arterio-sclerosis, for this implies that they are synonymous. It would be well to maintain the original sense in which the late Sir Clifford Allbutt employed the word—namely, as signifying high arterial blood pressure of obscure origin, not due to, or necessarily associated with, renal disease or arterio-sclerosis, though they may follow in its train. Mitral stenosis is described as being usually in the body of "a female, an adult and possibly old," but this does not quite meet the case, for it is certainly much commoner in children than in old women. As the adjective myeloid is employed to designate one form of leukaemia, lymphoid would be better than lymphatic for the other. These, however, are comparatively minor criticisms, and on the whole the work is distinctly well done, and should be popular with students and useful to the practitioner in making ordinary and medico-legal necropsies.

NOTES ON BOOKS.

THE eighth edition of Dr. T. L. STEDMAN'S *Practical Medical Dictionary*,³ of which the last edition appeared scarcely more than two years ago and was noticed in our issue of February 2nd, 1924 (p. 209), contains many hundred new words, but space has been found for these without

¹ *Evolution and Genetics*. By Thomas Hunt Morgan, Professor of Experimental Zoology in Columbia University. Princeton: Princeton University Press; London: H. Milford, Oxford University Press. 1925. (Demy 8vo, pp. ix + 211; 77 figures. 9s. net.)

² *Post-Mortem Appearances*. By Joan M. Ross, M.B., B.S.Lond., M.R.C.S., L.R.C.P. With a preface by E. H. Kettle, M.D., Oxford Medical Publications. London: Humphrey Milford, Oxford University Press. 1925. (Crown 8vo, pp. viii + 236. 7s. 6d. net.)

³ *A Practical Medical Dictionary*. By Thomas Lathrop Stedman, A.M., M.D. Eighth revised edition. London: Baillière, Tindall and Cox. 1925. (6½ x 9½, pp. xii + 1146; over 400 figures, 15 plates. 35s. net.)

appreciably increasing the size of the book. The number of pages, in fact, is only two more than that of the 1923 edition. This feat has been accomplished by omitting the entries regarding the mineral springs of America and Europe, a subject (as the editor observes in his preface) that properly belongs to special treatises or encyclopaedias rather than to a defining dictionary. As in the last edition, the full-page illustrations have been gathered together at the end of the volume, which on the whole is an advantage. A large proportion of the new terms relate to dentistry, so that "Stedman's" is now in effect a medical and dental dictionary. The work in its revised form maintains the high standard that we have learnt to expect from American medical dictionaries. The spelling, of course, follows throughout American usage, and therefore, to take one instance only, English readers will not find words like "oesophagoplasty" among those beginning with "oe." These little inconveniences must, however, be put up with until such time as a first-rate medical dictionary is produced in this country.

The *Minutes of the General Medical Council and of its Various Committees*¹⁰ for the year 1925 have been published in a bound volume with fifteen appendixes. A detailed report is given of the two sessions of the General Medical Council, together with those of the English, Scottish, and Irish Branch Councils. The presidential addresses of Sir Donald MacAlister at each of these sessions, which were published in our columns when delivered; are also printed here. Copies of the correspondence with licensing bodies as to their new Regulations are included. The *General Index* to the *Minutes* of the General Medical Council and of its Executive and Dental Committees, and of its three Branch Councils, from 1903 to 1925, has also been published. It relates to volumes xl to lxii of the *Minutes*. The plan of previous indexes has been closely followed and each subject is fully indexed, the references being arranged chronologically; in many cases special subheadings have been inserted. This *Index*, revised annually so as to include the last year's items, forms a useful key to the proceedings of the General Medical Council and of its committees.

Dr. R. MOURGUE of Nîmes has prepared a French edition of Professor MONRAD-KROHN's clinical handbook¹¹ on the examination of the nervous system, the translation of which into English has already reached its second edition. The French edition has also been revised and augmented by the author, and a preface has been written by Dr. Souques. The book is very complete, is of a size convenient for use at the bedside, and should prove of special value to hospital residents, clinical assistants, and others who wish to educate themselves in a sound routine in the investigation of cases of nervous disease. No method of importance is omitted, and considerable attention is given to the systematic examination of the mental faculties—a factor of importance often inadequately dealt with in books of this kind. In addition to the chapters on the cranial nerves, motor and sensory systems, cutaneous and tendon reflexes, descriptions are given of the special investigation of cerebellar function, defence reflexes, electrical reactions, cerebro-spinal fluid, Binet-Simon tests, vestibular reactions, and so on. The descriptions throughout are clear and succinct, and the information thoroughly up to date.

The second volume of the second edition of the system of internal medicine,¹² edited by Professors G. VON BERGMANN and R. STAHELIN, is devoted, like its predecessor (see JOURNAL, April 18th, 1925, p. 746), to infectious diseases. In addition to the commoner infectious disorders not discussed in the first volume, such as erysipelas, acute articular rheumatism, septic diseases, and enteric, the present volume contains an account of leprosy, plague, malaria, blackwater fever, sleeping sickness, beri-beri, and diseases common to man and animals, such as actinomycosis, glanders, foot-and-mouth disease, trichinosis, anthrax, and rabies. A supplement to the section on the acute exanthemata contains chapters on exanthema subitum by Dr. E. Glanzmann of Berne, and alastrim and abnormally mild epidemics of small-pox by Dr. Rudolf Massini of Berlin. Some of the articles in the previous edition have been revised either by the original writers, such as that on enteric by Dr. Schottmüller, or by new hands, such as the articles on erysipelas and acute articular rheumatism by Dr. Carl Hegler; other articles,

again, such as those on septic diseases by Drs. Schottmüller and Bengold and on plague by Dr. Rodenhuis, which had formerly been written by Professor Jochmann, are entirely new. Many fresh illustrations, including several in colour, have been added.

To those whose knowledge of the Hebrides is of the desolating and desultory variety, gained as soaked and soured tourists, it is hard to explain the mysterious affection of the islanders for their inhospitable soil. Can the islanders explain it themselves? They leave their homeland to thrive elsewhere, or stay at home to live what is (outside the towns) a hand-to-mouth existence at best. They refuse the dictation of the doubtless well meaning Sassenach millionaire; a Highlander cannot live by high wages alone, and between his ideas and those of the philanthropic plutocrat a wide and impassable gulf is fixed. *Behold the Hebrides*¹³ tells us how if it cannot tell us why; for the author is himself an islander with the Gaelic blood and tongue. So here we have vivid pen-pictures of hill and sea and rain and mist, with the telling of tales about the mighty and high-handed heroes of the past, romantic heroes like Ruairi an Tartair, "the noisy and turbulent Roderic" who dwelt in Kisimul Castle and domineered over sea and land. No weather held him back; no mercy had he for friend or foe; merchant galleys existed only for the filling of his cellars with casks of the rarest vintage from Spain and France, or to supply gold—gold, no less!—for the shoes of his three pairs of black steeds. A great man, in truth, and not without due appreciation of his own merits. For, after he had feasted, his bugler sounded a call from the Kisimul tower to announce to all lesser folk that since Ruairi the great chief had dined, "all kings and princes of the earth were now permitted to do likewise." And later, captured and tried in Edinburgh, he defiantly explained his acts of piracy on the Queen of England's merchantmen as being his only means of avenging the cruelty which Mary, mother of the king, had suffered at the hands of her royal sister. His plea saved him his life but not his lands and heritages, and

"In Barra Ruairi
Was a daring chief no more."

Here, too, our author gives us the strange tale of the Fifo Adventurers and their ill fated attempt to settle amongst a warlike race (although the Southrons dubbed them "bludie and wicket Hielandmen"), and the prolonged and cruel struggle that ensued. Of Dunvegan and the Faery Flag, of the tragic cave at Eigg where the MacLeods suffocated two hundred MacDonalds by a fire of peat and sun-dried bracken kindled at its mouth and kept fiercely burning until all within had succumbed, of many more feats of the dirk and claymore we have the vivid telling. It is a book every expatriated Highlander will love to have in his hands, while the Southron is thoughtfully provided with the crutch of a glossary to help him round the more difficult corners. It is to be hoped that at no late date Mr. MACGREGOR will give us another Hebridean volume.

Whoever is interested in the subject of sugar ought to read Mr. GEOFFREY FAIRRIE's book.¹⁴ It is, we believe, the only thing of its kind relating to sugar; it combines a popular account of all the phases of its production, with a technical description of the processes used in its manufacture and preparation for the table. Lest anyone think that such a combination of purposes must result in a dull volume, we hasten to assure him that the book is full of life, for the writer knows his subject (he is a manufacturer connected with a large sugar refinery), and he has an entertaining way of telling his story. How many amateur philologists knew that the word "sugar" is derived from Sanskrit *caraka*, meaning grains of sand? We admire the facility with which the writer has interwoven his digressions; these never wander far without returning directly to the subject; they always contain engaging information and fit the theme aptly. In a brief allusion to Demerara crystals it is explained that owing to a less complete process of refinement than that used for white crystals some of the natural plant juice remains adherent to the crystals, and that such crystals (technically known as direct consumption raw sugars) are sometimes prescribed by physicians for infants on account of the laxative action of the adherent juice. The description of mechanical inventions is quite exhaustive both as to historical development and present uses. Incidentally it is remarked that Bessemer, famous in the steel industry, was the holder of numerous patents connected with sugar production, and that he promoted a company which erected a new sugar refinery

¹⁰ *Minutes*, 12s.; *Index to Minutes*, 7s. 6d. London: Constable and Co., Ltd. 1925.

¹¹ *Technique clinique d'examen complet du système nerveux*. Par G. H. Monrad-Krohn. Edition française d'après la deuxième édition anglaise, revue et augmentée par l'auteur. Par le Dr. R. Mourgue. Paris: E. Le François. 1925. (Cr. 8vo, pp. 216; 35 figures. 12fr.)

¹² *Handbuch der inneren Medizin*. Zweite Auflage, herausgegeben von G. von Bergmann und R. Stachelin. Erster Band, zweite Teil: Infektionskrankheiten. II. Berlin: Julius Springer. 1925. (Roy. 8vo, pp. x + 797; 171 figures. 54 G M.)

¹³ *Behold the Hebrides! or Wayfaring in the Western Isles*. By Alasdair Alpin MacGregor, M.A., Edinburgh and London: W. and R. Chambers, Ltd. 1925. (Post 8vo, pp. xv + 248; illustrated. 7s. 6d. net.)

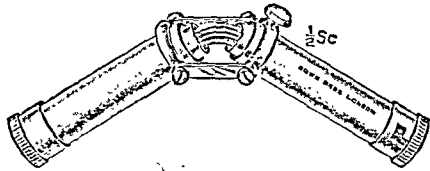
¹⁴ *Sugar*. By Geoffrey Fairrie. Liverpool: Fairrie and Co., Ltd. 1925. (Roy. 8vo, pp. xiv + 235; 62 plates. 12s. 6d. net, post free; an illustrated prospectus will be sent free on application.)

on the Thames. This refinery, however, was closed after two or three years, the capabilities of the great man in relation to steel not being adaptable to the demands of the sugar industry. This book may be recommended to all who have any interest in the subject—to the grower for the discussion on conditions of production; to the manufacturer for the description of mechanical plant; to the merchant for the statistical account of crops, prices, duties, and so on; and to the general reader for much interesting information.

PREPARATIONS AND APPLIANCES.

A Breaker for Suture Tubes.

Mr. H. G. BARNHAM BLACKMAN (Norwich) writes: I have designed the tube breaker, illustrated herewith, to obviate any risk of cutting the gloves or even the fingers in the act of breaking the glass tubes in which catgut is supplied. Occasionally the tubes are very difficult to snap, and in using much force the likelihood of broken glass perforating the gauze and puncturing the gloves is very great. The breaker consists of two portions of tubing separated by a long hinge which can be opened in either direction.



At one end there is a cap which fits on the tube by means of a bayonet joint. This cap can be quickly removed, the tube of catgut slipped in, and the cap replaced. The glass tube can then be snapped quickly and neatly by opening the hinge in either direction. The catgut is easily withdrawn by means of a pair of dissecting forceps, and by opening the hinge to its full extent the broken tube can be shaken out. If a tube of catgut is unusually short, a small portion of sterile cotton wool can be pushed down to the far end of the instrument so as to bring the file mark on the tube near the centre of the gap. To remove the wool later is quite simple, as the cap at the far end unscrews. The appliance is made by Messrs. Down Bros., Ltd., 21 and 23, St. Thomas's Street, London, S.E.1.

Hyperol.

Hyperol (solid hydrogen peroxide) is a preparation in tablet form of a compound of hydrogen peroxide and urea. It is made by Messrs. F. W. Berk and Co., Ltd. (106, Fenchurch Street, London, E.C.5). A tablet of 0.55 gram (8½ grains) yields 55 c.c.m. of oxygen, and this corresponds to a content of 30 per cent. of hydrogen peroxide in the tablet. A tablet dissolved in 5 c.c.m. of water will therefore form a 10-volume solution of hydrogen peroxide. These tablets are a very convenient form for transport of hydrogen peroxide; by their use fresh solutions of hydrogen peroxide can be obtained with a minimum of trouble.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee fifty-seven cases were considered and £577 voted to forty-four applicants. The following are notes on some of the cases relieved.

Widow, aged 50, of M.R.C.S. who died last year. When the late husband's estate is settled up the income will be about £200 a year for herself and three children, two boys 13 and 8 years and a girl of 11. The Committee made a small grant to render the case eligible for the Guild's assistance with education.

Widow, aged 37, of M.B.Manch. (1908) who died last April. Left with three children aged 10, 5, and 2, without any income, and too ill at present to do anything towards maintenance of self or children. The applicant asks for assistance for education. The Committee made a small grant so that the Guild can deal with the case.

L.A.H.Dubl. (1907), aged 47, married, one son aged 14. Six years' war service. Sold practice before joining up. Has repeated attacks of malaria. Now unable to find employment. Medical work for the last twelve months brought in £165. Officers' Association granted £15. Has pawned and sold various articles. Voted £7.

Widow, aged 65, of M.R.C.S.Eng. who died in 1922. Her only income is about £42. Lives in one room at 9s. a week. £5 voted by the Committee and application has been made for a grant from the Masonic Benevolent Fund.

Daughter, aged 70, of M.R.C.S.Eng. who died in 1872. Used to make a living by teaching small children, but had to give up this to look after her mother, who died in 1920. Tries to let a portion of a house, but is at present without a tenant. She received £25 from letting and a brother allowed her £27. She has had the old age pension since August last year. Rent and rates £58. Voted £9 in twelve monthly instalments.

Widow, aged 37, of L.R.C.P.Ed. (1917) who died last March. The house and shop where she carries on a small business has been sold and she will have to vacate the premises in a few months. Has one boy, aged 12, for whom she asks educational assistance. The Committee made a small grant and handed the case over to the Guild to deal with.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

PRINCIPLES OF TREATMENT IN DISEASES OF THE NERVOUS SYSTEM.

FIRST LETTSOMIAN LECTURE BY DR. E. FARQUHAR BUZZARD.

At the Medical Society of London on February 15th Dr. E. FARQUHAR BUZZARD delivered the first of three Lettsomian lectures on the general subject of "Principles of treatment in relation to diseases of the nervous system."

Dr. Buzzard opened with a reference to John Coakley Lettsom, and quoted a passage from an address on Lettsom by Sir StClair Thomson indicating the prevalence of quackery in the time of the eighteenth century physician. Dr. Buzzard remarked that notwithstanding the advances made since then in the science of medicine the rivalry of quackery remained undiminished, if it had not increased. How was it that orthodox methods of treatment, which had steadily gained in range and efficacy, had hardly done more than hold their own? It was easy to answer the question by asserting that there was no limit to the ignorance and credulity of the public in medical matters. But could medical men boast that they had used their position and authority to the best advantage in gaining the confidence of their lay brethren? There might be two opinions as to the possibility of educating the public to the requisite state of medical knowledge. In other matters, less intricate, the public was content to follow the experts it employed; and it was hardly likely that in medicine, which required a long training, not only in its own principles, but in preliminary sciences, the layman could ever aspire legitimately to a position from which he could speak with competence on medical subjects. This consideration, while it would not stifle the incompetent critic, might lead some medical men to question how far attempts to educate the public in medical lore should be promoted. But if it was impossible to educate the public sufficiently in medicine to enable them to realize the advantages of treatment governed by scientific knowledge over that which depended on ignorance and credulity for its acceptance, some other method must be found for establishing the position and supremacy of the qualified profession in relation to its unqualified rivals. Some means must be found whereby the confidence of the public in medical practice could be won and preserved.

The Meaning and Importance of Diagnosis.

How was all this related to the topic of these lectures? In the first place, it was essential, in order to apply principles of treatment with success in practice, to hold the confidence of those submitted to such treatment. In the second place, it seemed necessary to review critically the methods of treatment in general use, with special reference to their effect on the confidence of the patient and his respect for his medical man. At the present moment there was a lack of mutual understanding between the profession and the public. An atmosphere charged with mistrust was not congenial to therapeutic work, and if he could contribute any suggestion for the creation of better climatic conditions he would risk an occasional burst of thunder.

The first step towards the creation of a better atmosphere would be to have it announced abroad that physicians—he could not speak for surgeons—made no pretence of curing disease, and, although they claimed some understanding of morbid processes and disorders of function, they were in a position to act only as Nature's allies and agents. Let the claim to cure disease be left to the unqualified. The first principle of treatment was a preceding diagnosis. Diagnosis was, or should be, much more than a label. It should indicate the pathology and natural history of the morbid process. The doctor's responsibility did not end with labelling a patient's disorder and prescribing treatment. He should be in a position to describe in general terms the nature of the malady and the course it was likely to take, as well as the objective and probable effects of the measures he recommended. It was true that the patient was content with a name and insisted on having some form of treatment.

Here osteopathy had an advantage: the osteopath had only one diagnosis (a bone out of place) and one treatment (replacement). The simplicity of this appealed to the lay mind. But was it not possible that if medical men one and all gave more frank advice to their patients, even though they ran the risk of losing a few of them, the time would come when the public would listen to their words of wisdom? Medical men all denounced quacks, some would legislate against them, but far too many imitated them. Only by raising the standard of practice in proportion to knowledge, and by living up to ideals foreign to their competitors, could they hope to win the public respect which was due to a qualified profession.

Lesions of the Upper Motor Neurone.

Dr. Buzzard then turned to a consideration of the principles which should guide treatment in lesions of the upper motor neurone. He instanced a patient suffering from right hemiplegia resulting from a vascular lesion in the neighbourhood of the left internal capsule, and described the instructions which should be given to the nurse with regard to the movement of the paralysed limbs. In 75 per cent. of such cases massage and electricity were likely to be ordered, and the patient would be allowed tacitly to understand that these were the agents responsible for his recovery. It might be that simple passive movements were desirable for preventing complications, and that a little rubbing would promote circulation in limbs apt to become cold and stiff. But if the current wasted in a year on the limbs of hemiplegic patients could be stored in accumulators it would go far to assist the Government scheme of electric supply! Electricity in some departments of medicine was as unjustifiable and useless as osteopathy, chiropractic, and the like.

He described the simple and rational explanation which he would give to the patient of his disability. The patient should be told that much depended on his own efforts. He must not expect any treatment applied to the limbs in the way of rubbing or manipulations to restore the power of movement. The object of the masseur was to keep the joints in good condition until such time as the patient could make use of them. The patient should be told to devote a few minutes several times a day to systematic attempts at movement, studying the movements on the sound side and endeavouring to repeat them on the other. The masseur of the present day was, of course, often intelligent enough to encourage his patient to carry out movements against resistance, and so to enlist his interest in his paralysed limbs, which was the first therapeutic requirement; but in ninety-nine cases out of a hundred the patient was convinced that it was what the masseur did to him and not what he did himself that was responsible for his gradual recovery. What did it matter as long as the patient improved? It mattered a great deal, both from the point of view of the patient's pocket and the reputation of the profession.

Lesions of the Lower Motor Neurone.

Dr. Buzzard next touched on lesions of the lower motor neurone, and instanced a case of acute poliomyelitis. What could be done with muscles showing no sign of life except their ability to respond to the make and break of a galvanic current? No method was known of restoring function to the neurones temporarily crippled. One could only keep the paralysed parts in so healthy a condition that any restoration of function might find the muscles, tendons, and joints fit to take their place once more. Simple passive movements were to be recommended, and the nutrition of the muscles must be maintained by keeping them warm, and by rubbing, and their contractility might perhaps be promoted by applying a certain amount of electrical stimulation. The length of time for which these measures should be pursued would vary. In acute poliomyelitis it was customary to teach that treatment should continue for twelve or eighteen months after the acute illness. But if the treatment had been efficient from the onset, muscles which showed no return of function at the end of four or six months would not develop a sufficient amount of power to be of any practical use, however long the massage or electrical treatment was continued. A general recognition of the principles

governing treatment would save muscular energy, electrical current, time, and money. Further treatment must depend on the nature of the disability and the orthopaedic measures which could be devised to reduce it to the minimum.

The Psychological Adjustment of the Patient.

In cases in which there was degeneration of the motor neurone he summarized the advice and assurances which might be given to the patient, a simple and true explanation of his condition, the fact that there was no reliable remedy, the necessity for avoiding needless muscular exertion, the futility of muscular exercise in the hope of restoring power, and of electricity and the injection of drugs like strychnine, which could do no good and might possibly do harm. Gentle massage might be helpful in maintaining nutrition of what muscular tissue was left, but it should not be regarded as remedial. The patient should be told that he had nothing to fear with regard to pain, and that although the condition was not free from danger those similarly afflicted had lived for many years, and their lives had not been shortened.

This gave the patient the opportunity of making his psychological adjustments to whatever fate might have in store for him, and enabled him to avoid the pursuit of many false remedies, the raising of false hopes, and cruel disillusionment. Medical men were responsible for the psychological as well as the physical condition of their patients, even when there was organic disease to be treated. By such means the standard would be raised above that of quackery, and the public would be left in no doubt as to where to place its faith.

Nova et Vetera.

A VENERABLE MAN OF SCIENCE.

PROFESSOR NAUNYN'S MEMOIRS.

THE "Reminiscences" of Professor Naunyn,¹ whose death has removed from among us one of the most venerable figures in the world of medical science, were published but a few months ago, and cover, therefore, practically the whole span of his long life of eighty-six years. The book is one which, we have little doubt, will be as durable as his scientific work, and no one who is interested in the history of medicine during the latter half of the nineteenth century can afford to neglect it. He had, it is true, and as he himself has stated, no very startling incidents to relate, such as might be found enlivening the memoirs of a royal or imperial aide-de-camp; but he was himself a participator and contributor in the great forward movement of his time, and could write with knowledge of the men and events concerned in it. And this he has done evidently with that studied regard for accuracy which characterizes his own scientific work and that of his race, and which renders the fund of information contained in his book of sterling worth.

Perhaps the most important part of the memoirs is to be found in the vivid character sketches that are thickly scattered through the volume from beginning to end. By means of these we seem to gain an intimate acquaintance with the personalities of many men whose names have hitherto tended to stand for us rather in the nature of algebraical symbols of scientific facts. The fascination of depicting character, which Professor Naunyn evidently felt, apparently arose from his habit of searching for evidences of a capacity for friendship (not mere friendliness, he was careful to explain) in his acquaintances; "a man and a friend" might well have been his motto, and in these observations of his the good qualities of a man naturally came uppermost, and whatever might be his foibles he always had an honest chronicler in Professor Naunyn. Not that foibles were overlooked, though they were often mentioned to be palliated. Thus, in a generous panegyric on his co-worker Mikulicz, for whom he had an unbounded admiration, an inability to say "No" is

¹ *Erinnerungen Gedanken und Meinungen des Dr. B. Naunyn, Emeritierter Professor der innern Klinik Universität, Strassburg. München: J. F. Bergmann. 1925. (Demy 8vo, pp. 571; 1 portrait.)*

referred to, a weakness which gained him the reputation of breaking his promises, and was detrimental to the full recognition of his outstanding qualities. Naunyn repudiates the fact as merely marking the constitutional difference between a light-hearted Viennese and a cool, adroit Prussian or shrewd Hessian, for instance. These character sketches sometimes give us mere passing glimpses, as in the case of the venerable Professor von Baer, who comes upon the stage for a few moments suffering from a supposed incipient hemiplegia, which is forthwith cured by the removal of a hypertrophied toe-nail, which had been overlooked. In other instances, as in the account of Frerichs, the details are sufficiently full to give a valuable picture of the man and his work.

It was under Frerichs at the Charité in Berlin that Naunyn acquired that interest in the pathology of metabolism which bound him to the study of the liver, pancreas, and diabetes for the rest of his career. It was an interesting period in the history of medicine, for at that time German clinicians were beginning to install laboratories in which the problems of clinical medicine were studied by the experimental method and with all the technical refinements afforded by the natural sciences. It was a movement of far-reaching importance, for in these German laboratories experimental pathology took its birth, and attracted scientists from all parts of the civilized world. When, later, Naunyn was called to the chair of clinical medicine in Strassburg his interest in clinical pathology naturally incited him to improve the clinical side of the institute there, which was in a backward condition. Pathological anatomy appears to have been in the ascendant at the time, under the influence of the vigorous personality of Professor von Recklinghausen. Hence arose something in the nature of a stone of stumbling and rock of offence, which it became Naunyn's business to surmount. Von Recklinghausen seems to have dominated the faculty. We are told that in committee he always spoke first and often, and always at great length, explaining in the first instance what he did not want, and often leaving it doubtful, both to his hearers and to himself, what he really desired. Such dominating personalities are not unknown among idealist members of committees in our own country, but von Recklinghausen appears to have been abnormally tenacious of principle. In urging the claims of clinical pathology Naunyn had the temerity to suggest that there should be some give-and-take in the matter—compromise, in short. "What!" exclaimed von Recklinghausen, "I to yield to a demand that I consider unjustified! You are asking me to make a sacrifice intellectus!" Naunyn had his way, and to this little *rencontre* we are indebted for a pleasant glimpse of the famous pathological anatomist, for whom Naunyn naturally had the greatest admiration.

If these character sketches constitute the most interesting part of the *Reminiscences* their most attractive feature is certainly to be found in the delineation of the author himself. With a minuteness of detail resembling the work of the old Dutch painters he has unconsciously drawn a portrait which it is pleasant to contemplate in its restrained and quiet colouring and homely circumstance. We are told of the old home in Berlin, and its inmates; of Burgomaster Naunyn, his father, and his troubles with the revolutionaries of '48; of his schoolmasters, and especially of Jungk, whom he credits with implanting in him his lasting distaste for superficiality of thought and expression; of his student life in Berlin, where he came in contact with Reichert, Frerichs, Traube, Lieberkühn, Langenbeck, Du Bois-Reymond, Virchow, and others, the representatives of the new school of German medical science; of the "Dissertation on the development of the echinococcus," the product of his earliest research. From 1869 to 1871 he held the chair of clinical medicine in Dorpat; and that in Berne from 1871 to 1872, passing in the latter year to Königsberg, where he remained for sixteen years. He then succeeded Kussmaul in Strassburg, finally retiring from professorial work in 1904, and taking up his residence in Baden-Baden, where he passed the remaining years of his life. He did not retire into idleness, however; his two journals, the *Archiv für experimentelle Pathologie* and the *Mitteilungen aus den Grenzgebieten*, as well as

other literary work, engaged his thoughts, and he was also occupied on the *Reminiscences*.

During the war, notwithstanding his great age—for he was nearly 80—he was unwilling to remain inactive, and for a time occupied a post in a military hospital in Baden-Baden; and there the old passion for pathological research revived in him, and he recommenced the study of cholelithiasis, which engaged his interest almost to the end of his life. "Thus," he writes, "the activity to which I devoted my life has, in old age, been my own familiar friend, and has helped me through these troublous times, in so far as that was possible."

In the memoirs of a man of so sympathetic a nature as Naunyn it is natural to search for those more intimate traits which form, so to speak, the mainspring of individuality. As to his religious opinions, he gives us very little information; he tells us, not without a touch of humour, that if, as he had been told, a man's work was his religion, then he reckoned himself to be a very pious man. As to his love affair, for the fragmentary but charming hints of his courtship of his pretty cousin Anna the reader must turn to the book itself. Of his conception of friendship as one of the main foundations of the worth of life we have already made mention. Of his quiet sense of humour the memoirs contain many instances, although one will, perhaps, appeal more especially to the readers of this journal. "I was beginning to become famous," he writes; "foreign countries began to notice me—and England first of all. The first invitation came in 1874 from the British Medical Association, and ran as follows: 'Lodging with breakfast, but without dinner!' This conscientious recognition of my qualification as a guest pleased me, as I was a great friend of the English at that time."

The central point of the *Reminiscences*, however, remains to be mentioned—the high-light of the whole picture as it were. In one passage Naunyn dimly hints that his book owed its inception to the single idea that he might enshrine within it the memory of his wife; and assuredly no more noble tribute was ever penned than the description of her virtues with which he has adorned his pages.

HEALTH ORGANIZATION IN LATVIA.

SCARCITY OF DOCTORS.

LAST October (vol. ii, p. 759) some account was given of the reports made to the Health Organization of the League of Nations on medical and public health services in Czechoslovakia and Greater Serbia. There has now come to hand a report on Latvia, one of the Baltic states, which again demonstrates that the Organization arrived at a wise resolution when it determined early in its proceedings to allow a large latitude to the authors of the series of reports on the health organization of countries embraced in the League. The report for Latvia¹ is by Dr. Cazeueneuve of Geneva, who spent some time making inquiries in that country. He states that, in 1923, the population was close on two millions (1,661,187), and that there were 813 doctors, 168 surgeons specially recognized by the Department of Public Health,² 880 midwives, and 538 dental surgeons. This gives one doctor per 2,276 inhabitants, so that rateably to population the medical service should be reasonably sufficient. But the distribution of the 813 is remarkable, for no fewer than 425 are in the capital city Riga, which has a population of 285,000, or at the rate of one per 670 inhabitants. More than half of all the practitioners in Latvia are thus in one town, containing less than a sixth of the population. There are three other towns, with a total population of 143,193, sharing amongst them the services of 123 doctors, one to every 1,163 inhabitants. Excluding these four towns, the country consists of three provinces, with a total population of 1,533,224, and these have among them only 265 doctors. This gives one practitioner to 5,785 inhabitants. But even here the distribution is very unequal—in one

¹ Organization of the Public Health Services in Latvia. By Dr. J. H. Cazeueneuve, Geneva.

² These are probably included in the 813.

province (Vidzeme) the population to each doctor is 3,928, in another (Kudzeme) 5,980, and in the third (Latgale) 8,817. Compared with Riga, Latgale, which has over half a million people, has only one doctor for every thirteen in the equivalent population of the capital city. If the facts were known it would probably be found that within Latgale itself there is irregularity in the areas and populations supposed to be served by the sixty doctors in the province. Dr. Cazeneuve calls attention to the special conditions of life and the way in which the population is distributed in the rural areas. "In Latvia," he says, "the peasants' dwellings are not, as a rule, close together in hamlets and villages, but are scattered over the whole surface of the arable land. The breaking up of the big estates under the new agrarian laws has accentuated this dissemination of dwellings; the holders of the new estates, which run to about 20 hectares, establish their farms on the land they acquire. The difficulties of communication and the great distances to be covered render the exercise of the medical profession in the rural districts particularly arduous."

In such conditions there must be many instances of serious and fatal illness in which regular medical attendance, or perhaps any medical attendance, is unobtainable. At the same time, it is right to point out that the provincial conditions of life described by Dr. Cazeneuve have their redeeming features in respect of health. The peasants' dwellings, scattered as they are, must be singularly free from risks of spread of infectious or contagious disease, acute or chronic, while whatever be the character of the houses themselves, and the habits of the people, their outdoor peasant life will naturally be healthy. In view of these considerations, the death rates, as stated by Dr. Cazeneuve, are of interest. In the year 1923 they were as follows, beginning with the lowest:

				Per 1,000 inhabitants.
Kudzeme (Courland) ...	...	...	...	12.12
Vidzeme (Livonia) ...	...	...	...	13.12
Riga ...	...	...	...	13.72
Zemgale ...	...	...	...	13.88
Latgale ...	...	...	...	14.89

Latvia as a whole had a rate of 13.66. Without fuller knowledge than is available, the suggestion is not unreasonable that the excess of the Latgale rate over that of the country as a whole may be largely due to deficiency of medical attendance. The question naturally occurs whether the lack of doctors in the country districts may not, especially as regards women and children, be supplemented by the service of midwives. But the report gives little indication of such relief. Of 813 midwives in Latvia, 336 are in Riga, 150 in other towns, and only 345 in all the rest of the country. How these are distributed throughout the provinces does not appear.

The following table for the year 1923 by Dr. Cazeneuve, relating to the countries bordering on the Baltic, is of interest.

	No. of physicians.	No. of physicians per 10,000 inhabitants.	No. of inhabitants per physician.
Latvia ...	813	4.39	2,276
Lithuania ...	410	1.74	5,741
Esthonia ...	534	4.45	2,247
Finland ...	720	2.22	3,372
Sweden ...	1,771	2.96	4,730
Poland ...	5,192	1.96	5,079
Germany ...	38,186	5.98	1,667

This shows that, taking the countries as a whole, Latvia is very much better off as regards medical supply than most of the others, and it has already been pointed out that in Latvia the distribution, not the number of doctors and midwives, is at fault. It will be seen that Lithuania, Poland, and even Sweden, have not for their populations respectively one-half the doctors of Latvia. Germany, on the other hand, has one doctor to 1,667 inhabitants. (In England, Scotland, and Ireland, in 1923, the proportion

of doctors was even greater than in Germany, the total being 35,447, which, in a population of, say, 45 millions, gives one doctor to about 1,270 inhabitants.)

The conditions in Latgale resemble those in the Highlands and Islands of Scotland before the Medical Service Act. As the bulk of the working class in these regions were not under any "contract of service" but occupied on their own account as crofters and fishermen, etc., the Insurance Act did not apply to them, so that they could not have the services of insurance practitioners as such. At the same time earnings were low, money as a medium of exchange scarce, and direct payment for attendance difficult. Another factor in the case was that the distance from the nearest doctor was often so great as to make reasonable payment not merely difficult but impossible. A committee appointed by Government to inquire into the whole position found that extraordinary hardships were resulting from these conditions, both to the people and to their doctors. On considering the committee's report the Government introduced and passed a measure of relief for the provision of medical and nursing attendance, etc. Distance from the doctor was entirely set aside in considering the amount of the fee to be paid by the patient for the visit. The charge for attendance at ten or twenty miles' distance was to be the same as if the patient lived in the same village with the doctor, and the difference was made up by payment from a fund voted by Parliament for the purpose. Some aid was given also towards the provision, where necessary, of small hospitals and houses for doctors and nurses. That is the meiest outline of the main features of an Act which has practically revolutionized the medical and nursing service in the Highlands and Islands of Scotland.

It seems most unlikely that any such scheme is at present practicable for the provinces of Latvia, having regard to what the report incidentally mentions as to the economic conditions of that country, but some such ideal should be kept in mind when the possibility of its attainment comes within sight. Roads and other means of transit may be worse in Latgale than in the Highlands, and the population may be even more sparse and difficult of access. Dr. Cazeneuve's report tells about the devastated area of Latvia, which had previously been one of the best cultivated and most prosperous in the country. There were destroyed 25,000 farms, over 100,000 buildings, 170,000 cattle, 28,000 carts, 20,000 ploughs, and 12,000 agricultural machines. More than 300,000 inhabitants, including 92,000 children, were left homeless, without clothing or means of support. All this was a terrible handicap to the new Government, but with charitable aid, including that given by the American Red Cross and Child Welfare Organization, the situation has been faced and relief and reconstruction begun.

A new health scheme had to be built up on the ruins of the Russian system. A campaign against typhus was a measure of the utmost urgency, involving hospital re-organization and equipment, along with the re-establishment of notification, isolation, and disinfection. At the same time improvement in water supply and sewerage had to be undertaken. The progress already made is wonderful. A new university, which had 854 students in 1923, was founded at Riga for medical instruction, whilst a health commission and health boards, analytical and vaccine laboratories, and welfare associations have been established, central and local health services, including a coastal service and quarantine station, have been organized, as well as workmen's insurance against sickness and accident, and sanitary inspection of factories and workshops.

But this story is too long already, and cannot be extended to give even a synopsis of the account of the stage now reached in the establishment or re-establishment of modern health services in the sorely stricken nation of Latvia. Dr. Cazeneuve's account is full of interest from beginning to end. As regards health legislation, he shows how far the old Russian laws have been adapted to the new conditions, and he reviews the present administration in respect both of official and philanthropic activities, central and local.

J. C. M.

British Medical Journal.

SATURDAY, FEBRUARY 20TH, 1926.

IMMUNITY REACTIONS TO PNEUMOCOCCI.

An explanation for the dramatic crisis and sudden fall of temperature which occurs in favourable cases of pneumonia is provided by experimental work which Dr. R. R. Armstrong has recently completed (*Proc. Roy. Soc., B.*, vol. 98, 1925).¹ He devised a method which enabled him to measure accurately the protective power of serum prepared by immunizing rabbits with pneumococcal vaccine against measured doses of living pneumococcus cultures, using mice as test objects. When rabbits were inoculated with pneumococcal vaccine immunity developed in a remarkable and characteristic manner. An inductive phase, lasting three to five days, was followed by an outpouring of protective antibodies into the serum at a rapidly increasing rate corresponding to a geometrical progression, a maximum concentration of protective substances being reached on the eighth day after inoculation. This sudden liberation of antibodies is shown very clearly by logarithmic curves, which have the following characteristics. The first phase, described as the inductive period, is occupied by a neutralization of any natural non-specific immunity present. This is followed by a phase of rapidly developing and increasing immunity, and this again by a phase during which the immunity rises regularly but more slowly to a maximum. Finally follows a phase of constant high immunity, which may be regarded as the period during which, probably, the serum is saturated with immunizing substances. We should look on the crisis in a case of pneumonia as the signal of the sudden and prolific liberation of antibodies, provoked by the gradual growth of the pneumococci in the lungs.

Many of the facts that Dr. Armstrong has elicited from his experimental work may have an important bearing on the question of protective immunization against pneumonia. Thus he found that, provided very large or very small doses of vaccine were avoided, an exact correlation existed between the quantity of pneumococcus vaccine inoculated and the immunity response. The smaller the vaccine dose, the less complete and shorter was the phase of neutralization and induction. The smaller the dose the earlier did immunity appear and the sooner was the maximum immunity attained. He found also that the smaller the dose the shorter was the period during which active immunity persisted. In short, the maximum immunity attained was proportional to the size of the dose of vaccine, provided, of course, that this was not too large.

Dr. Armstrong has also compared the antigenic properties of sensitized and raw pneumococcal vaccines. The pneumococcus, like other bacteria, combines proportionally with its homologous protective antibodies to form a "sensitized" vaccine.

On inoculation a sensitized vaccine liberates the greater part of its charge of antibodies, rapidly conferring a slight degree of immunity, and afterwards excites an active immunity in a manner comparable to that of a raw vaccine. Sensitization, however, leads to a reduction in the intensity and to delay in the immunity response, compared with that following an equal dose of raw vaccine. These effects were imitated by separate administration of immunizing serum both before and after inoculation with vaccine.

The quantitative methods of study employed by Dr. Armstrong have yielded information which forms an important contribution to our knowledge of the mechanism of immunity towards pneumococcal infections. Moreover, they promise ways of gaining a clearer insight into some of the problems connected with preventive inoculation against pneumonia in man.

UNQUALIFIED MEDICAL PRACTICE.

THE parliamentary debate (reported in our last issue at page 306) on Dr. Graham Little's motion for an inquiry into irregular medical practice may have served a useful purpose; for, although the motion and Mr. Atkinson's amendment on behalf of osteopaths were both talked out, the Minister of Health took the opportunity of expressing his views, and this has done something to clear the air. The main point in Mr. Chamberlain's speech was that he could support neither the legal recognition of osteopaths and other irregular practitioners, nor prohibition of practice by them. A good many years before the Medical Act of 1858 was passed proposals to prohibit the practice of medicine by unqualified persons were made by the medical profession during discussions and interviews with Ministers. The then Home Secretary, Sir George Graham, was very emphatic in his refusal, and as he clearly had the support of Parliament those who were engaged in promoting the Act had to realize that, were the proposal persisted in, legislation which was greatly needed for other purposes would not be obtained. There is, therefore, nothing new in Mr. Chamberlain's attitude; he is merely continuing the policy of his predecessors. The new point is that he has so emphatically rejected the proposal to afford some sort of legal recognition to osteopaths and other irregular practitioners. This is, of course, satisfactory to those who desire protection for the public, but cannot be expected to satisfy the osteopaths and other organized irregular practitioners who are asking for statutory recognition, and it is not to be supposed that the present agitation will immediately subside. Incidentally, however, the debate also gave an opportunity for the raising of a different, though not wholly unrelated, issue—the disciplinary powers and decisions of the General Medical Council. Dr. Little did not himself branch off into that sidepath during the debate on February 9th, though he has written much good sense lately about the General Medical Council and the Asham case, both in the correspondence columns of the *Times* and in an article in this month's issue of the *Nineteenth Century*.

The two subjects—irregular practice and the General Medical Council—have, however, become so mixed up in the lay press, in Parliament, and elsewhere, that it is difficult to consider one at the present time without touching upon the other. The General Medical Council has, of course, no powers over irregular practice. Its only concern with it is to warn registered practitioners against assisting or covering the medical practice of unregistered persons (especially in such

¹ Dr. Armstrong's experiments were carried out in the research laboratory of St. Bartholomew's Hospital, with the assistance of a grant from the Medical Research Council. Acknowledgements are expressed to Sir Frederick Andrewes and Dr. M. H. Gordon. His interest in the serological characters of pneumococci appears to have begun when he was research scholar of the British Medical Association (see *BRITISH MEDICAL JOURNAL*, 1914, vol. ii, SUPPLEMENT, p. 57, and *BRITISH MEDICAL JOURNAL*, 1921, vol. i, p. 259).

a way as to mislead the public as to the status and qualifications of such persons), and to punish those who do so by removal from the *Medical Register*, or by suspension of judgement to give the offender an opportunity of mending his ways. The artificial agitation against the penal procedure of the Council has, among other things, focused attention upon two matters—the first relating to the Council's constitution, and the second to its jurisdiction. By statute the Council need not be a wholly medical body, though in fact it has always hitherto been so. We see no particular advantage in including a lay element in a professional body concerned with education and registration, and some strong objections may be taken to this course; but if the Privy Council or the universities choose to nominate laymen they would be acting within their powers. It is quite possible that a brief experience by laymen sitting within the Council might dispel once and for all some astonishing misconceptions about the procedure and capabilities of that body. In regard to the claim that there should be a right of appeal from the disciplinary decisions of the Council, there are obvious disadvantages in allowing the man who wants publicity at any price to get the double advertisement of a hearing by the General Medical Council followed by an appeal to the High Court. A certain type of man, who now hesitates to trail his coat at the Council, might well be encouraged to do so by the opportunity for limelight displays which further proceedings in the courts would afford him. It is apt to be forgotten that at any of the Council's six-monthly sessions a man who feels himself aggrieved by an adverse decision may plead for reconsideration. As for the case of Dr. Axham, our feeling, since he quitted his association with an unqualified person and is not in a position to resume such an association, is that clemency would not come amiss. This was a matter in the first instance for the Colleges whose diplomas he had forfeited after the General Medical Council, having heard the charge brought against him by an outside body, had struck his name off the *Medical Register*. These Colleges could scarcely be expected to restore his diplomas until (as has now happened) he or his friends applied to them; nor has it been within the power of the Council itself to take any action until this was done.

From this digression we return to the question of unqualified practice in medicine and surgery by osteopaths, chiropractors, and other irregular practitioners. Dr. Graham Little's motion in the House of Commons called for an authoritative inquiry, with the object of making recommendations to Parliament for dealing with the whole position. Two of the many points he made may be recalled here. Early in his speech he said that the keynote of unqualified practice was the secrecy of the methods employed and the absence of opportunities for clinical study; and at the close he spoke of the terrible neglect of the poor through unqualified medical treatment, referring in particular to the dispensing chemist, the optician who pretended to be an ophthalmologist, and the quack dentist who fitted new plates upon septic stumps. Another medical M.P., Dr. Shiels, while doubtful of the need for an inquiry at the present time, agreed that some observation ought to be kept on unqualified practice. He rejected altogether the counter-proposal that a general diploma should be recognized for osteopaths, on the ground that no one could safely be given any sort of licence to practise without some proper guarantee of a definite minimum of fundamental scientific and medical knowledge. The Minister of Health, after some sound

remarks on the dangers of irregular practice, made short work of the claim, put forward by Mr. Atkinson and other parliamentary friends of osteopathy, for the recognition and registration of manipulative practitioners "having approved qualifications." Such recognition and registration, he said, would be taken by the public as a guarantee, though it would in fact be nothing of the kind. How, he asked, could a nation lay down rules for the testing of skill? The State would have to fall back on diplomas given by American colleges—diplomas into the value of which it could not examine, and colleges over whose qualifications it had no control; that was not practicable. On the other hand, he knew nothing to prevent the osteopaths setting up their own colleges and giving their own diplomas. They would then be forced to do what had been done in America: their curriculum would gradually approach to the normal. He thought the House would therefore do best to leave things to develop in their own normal fashion. Thus Mr. Chamberlain came down strongly, and with the weight of a Cabinet Minister speaking in the House, against any idea of an official register for osteopaths. That is all to the public good.

While the confusion of the public mind about irregular practice has, we should hope, been cleared up a little by the debate in Parliament, much obscurity and misunderstanding still persist. It may be well, therefore, to remind our readers of the discussion held on December 9th last by the Marylebone Division of the British Medical Association. The subject was the attitude of the medical profession towards unqualified practice, and Dr. Hawthorne argued most effectively that this must rest upon certain well established principles. The first of these is that the profession cannot allow it to be a safe and wise course for anyone to submit to treatment based upon the diagnosis of a man who has not undergone the discipline of the medical curriculum and passed the professional tests. The second follows from the first: that medical practitioners cannot and will not meet in consultation, for the purpose of diagnosis, any person who has neither the training nor the knowledge to make such consultation useful and fruitful. The third is that the profession refuses to recognize as a philanthropist or benefactor anyone who possesses on his own showing a remedy for disease and yet keeps this secret for his own personal gain. The fourth principle—which we rejoice to find echoed in Mr. Chamberlain's speech—is that no group of unqualified practitioners ought to be allowed to acquire by Government action a status and recognition which would be readily mistaken by the public as a guarantee of efficient training and competence in the diagnosis and treatment of disease. Thus in four negative propositions Dr. Hawthorne defined the attitude of our profession. Meanwhile (he added with wise moderation) medical practitioners, being to some extent interested parties, did not ask for a legal monopoly in the relief of suffering, but would try to keep an open mind towards knowledge, from whatever source it came.

The chairman of the meeting, Lord Dawson, in his summing up, agreed with Dr. Hawthorne that there must be not the smallest concession to unqualified practice on any matter relating to diagnosis; but the question of treatment raised other considerations. With medicine ever widening its bounds it might, Lord Dawson thought, be necessary in some branches to employ technicians, strictly under medical supervision, who were not themselves medical men. The general control of all the means of treatment must

be maintained by an educated and responsible medical profession, though the actual carrying out of certain methods of treatment could perhaps be delegated under proper supervision—as is, in fact, in some directions the present practice. This, however, would not meet the pretensions of osteopaths and their friends, whose demand is for equal status with the registered practitioner. They have had a public rebuff from the Minister of Health; but, unless we are much mistaken, they will try again, and the medical profession must keep on the watch. This watch is necessary, not primarily or mainly in the interests of the profession (for medical history shows that theories and practices based on altogether unscientific foundations have no very long life), but in the interests of the public, who, though it may be at liberty to submit itself to the manifest and prevalent dangers of unqualified practice, should be protected from the danger of doing so unwittingly.

WILLIAM BATESON.

ENGLISH biology has sustained a great loss by the death, on February 8th, of Professor William Bateson, F.R.S., for he was acknowledged to be one of the leaders of scientific thought in this country. Although his most important and striking work was in connexion with heredity and evolution, Bateson's first studies after a brilliant academic career at Cambridge were in the field of embryology, where he came under the influence of Francis Balfour. He worked both at Cambridge and later in America at certain problems in morphology, but the broader questions of evolution attracted him, and he turned his attention to the study of variations. This work often necessitated his travelling wide afield, for he would seek to investigate cases wherever he heard they might be found, and in 1894 his brilliant *Materials for the Study of Variation* gave the first results of his work. The facts he described in this book and the masterly theories he based upon them came as something of a shock to the then prevalent school of thought, for Bateson showed that Nature often proceeds by discontinuous variations, a view which was strikingly confirmed by the discovery of Mendel's famous papers a few years later. Bateson's ideas were so similar to those which Mendel set forth that he was at once convinced of the correctness of "Mendelism," despite the hostility of most professional biologists, and he proceeded by laborious experiment, in his own garden at Grantchester and in the Cambridge Botanical Garden, to obtain material which would extend and confirm Mendel's views. In 1904, at the Cambridge meeting of the British Association, Bateson, as president of the Zoological Section, opened an important discussion on Mendelism, and so striking was the work he described and the facts he brought forward that he completely carried a crowded meeting. He had been appointed professor of biology at Cambridge in 1908, but after only a year of office he resigned in order to become director of the John Innes Horticultural Institute at Merton Park, where he had more ample resources and more scope for his work on variation, which proceeded both in his own hands and in those of his enthusiastic followers. Bateson was the son of the Rev. W. H. Bateson, Master of St. John's College, Cambridge, from 1857 to 1861, and he was educated at Rugby and at his father's college. He obtained a first class in the Natural Sciences Tripos, in company with Dr. J. G. Adami and Dr. Henry Head, and was elected to a fellowship at his college. Many honours came to him in later life, for he was twice a medallist of the Royal Society, the recipient of many honorary degrees, and the honorary member of many learned societies both at home and abroad. He was president of the British Association at Melbourne in 1914, and was to have been president of

the Botanical Section this year at Oxford. Bateson's work in biology has been of supreme importance in elucidating many of the problems of evolution. There still remains for the workers who follow him to apply many of his results, some of which have an important bearing on certain unsettled questions in medicine.

TYPHOID FEVER IN EUROPE.

It has been the practice of the *Journal of the American Medical Association* to give an annual survey of the mortality from typhoid fever in the large cities of the United States, and in the issue of December 12th, 1925, it recorded by way of comparison the condition in this respect of certain large European cities with populations exceeding 100,000. It is gratifying to find it stated of Great Britain that no other country can show so long a list of large cities free from a single typhoid death. No fewer than fifteen of our cities, with a total population of 2,256,700, had a perfectly clear record for 1924. In the list of British cities no municipality had a rate over 5 per 100,000 population in 1924, and all but three had a rate of less than 2. London reported a typhoid rate of only 1.1 for 1924—a record exceeded by seven American cities in the same year. In Germany only two out of thirty-six large cities—Chemnitz and Carlsruhe—reported no typhoid deaths, and more than half the German cities had rates over 2; six had rates over 5. On the whole the rates in German cities were not much lower than those in the large cities in the United States under similar climatic conditions. Typhoid rates in the French cities were somewhat higher on the average than those of Great Britain or Germany. In general the northern French cities had lower rates than those further south, the extremes being represented by Strasbourg (0.6) and Marseilles (31). In the rest of Europe there was a general, though not exact, correspondence between the latitude of the city and the typhoid rate, Southern Europe having a higher average typhoid mortality than the northern part, as is the case in the United States. The Russian and Polish cities, especially Moscow, Ufa, Lwow, and Vilna, appear to suffer more from typhoid than any other European countries in the same latitude. In many parts of Europe the typhoid rate in 1924 was notably higher than in 1923, especially in the Baltic regions.

EVOLUTION OF PREHISTORIC MAN.

THE controversies which surround the various finds bearing upon the antiquity of man were illustrated at a meeting of the Eugenics Education Society on February 12th, when Dr. H. F. Humphreys gave an able address on the evolution of the prehistoric races. His chairman, Professor E. W. MacBride, F.R.S., however, thought that Dr. Humphreys took too optimistic a view with regard to the well known specimens of supposedly extinct species of the human family. Professor MacBride believed the lower jaw of the Piltdown fragments to be almost certainly that of a chimpanzee which, being in the vicinity, had been supposed to belong to the otherwise human skull; the Pithecanthropus of Java was extremely unlikely to have been a man at all, but only a gigantic species of gibbon; and as to the Rhodesian skull, he believed it to be the remains of a comparatively modern type of savage. Dr. Humphreys, in the course of his address, said that all undoubted traces of the human family fell in the Pleistocene period of the geologists, which preceded the Holocene or recent period. The Pleistocene period consisted of violent oscillations of climate, with two ice ages, and a genial age between them. The earliest known traces of *Homo sapiens* dated from the later part of this period. This prehistoric man had skill in fashioning flint instruments, an understanding and control of fire, a measure of

artistic skill, and the habit of burying his dead, which argued imagination and some belief in a future life. In physical development he was not inferior to the civilized man of to-day, and his cranial capacity even exceeded the modern average. He represented, not a human archetype, but merely one of the varieties into which the human species had already diverged. Since his time the human race had progressed mainly by the addition of one invention to another—in other words, modern man, compared with these ancestors, was not biologically a superman, but simply the heir of the ages. In the second ice age of the Pleistocene period *Homo sapiens* was not traced, and Europe was apparently then peopled by the Neanderthal man, another species of the same genus. The Neanderthal man walked with a less erect posture and a shuffling gait, his eyebrows had protruding ridges, and the frontal area of his brain was small. In the genial age between the first and second ice ages the evidence of human existence consisted only of flint instruments and a few fossils. The Piltdown and Heidelberg skulls were generally regarded as belonging to this period. The Piltdown man had a characteristically human cranium, though of small size, but the lower jaw was characteristic of the chimpanzee. The Heidelberg skull was at least as old as the Piltdown, and showed characteristics intermediate between the ape and man; the teeth, however, were entirely human. The Rhodesian skull was discovered under conditions which made it impossible to assign the place of the skull in geological time, and although it was a lower type than Neanderthal man it might have been more recent. In the case of the Pithecanthropus of Java, while the cranial capacity was halfway between the averages of apes and man, the remains were too fragmentary to determine the relation of this creature to man, whose direct ancestor it was unlikely to have been. The Pliocene period, preceding the Pleistocene, was a blank in the history of man, and it seemed likely that the genus *homo*, like many other living genera, was a creation of Pleistocene time. From the Miocene period, preceding the Pliocene, dated the earliest remains yet discovered of the large anthropoid apes, and there was good reason to suppose that some species of ape of the Miocene period became the progenitors of the human family. These creatures seemed to have been less brutal in their character than the later apes, they had not such excessive length of arm or canine tusks, and probably their foreheads were less receding. In the relatively refined characteristics of the young chimpanzee, repeating the history of the race, there existed a truer picture of the ancestor than in the brutal adult form. From this origin, in Miocene times, the family would branch into different genera, of which several, perhaps all, would acquire the habit of walking erect and the rudiments of speech. Of these genera to-day *Homo sapiens* was the sole survivor, and of his actual ancestors no remains had been discovered, for all the skulls mentioned were those of collaterals. In tracing the evolution from the ape to man, Dr. Humphreys said that regard must be paid to the beginnings of the primates or monkey family, which, with the insectivora, was the oldest existing order of mammals, and was represented even at the beginning of the Eocene period by some primitive lemurs. The ancestors of the primates lived in trees, where their impressions would no longer be dominated, as in the case of other mammals, by the sense of smell, and there would be a development of the centres of sight and, in a less degree, of hearing, also of the portion of the brain concerned with the co-ordination of complicated muscular movements. At some time, possibly in the Miocene period, the ape-like ancestors of the human family, perhaps on account of climatic change, forsook their forest home and their vegetarian habits, and took to hunting wild game in more open country. The erect posture would help them to run faster, and would set free

the hand as an auxiliary hunting or sexual weapon, thereby superseding the canine tusks. Single-handed the ape could not run down game, and the combination of the animals into a pack, which greatly enhanced the chances of success, would involve subordination to a strong and cunning leader, a primitive discipline and strategy, and a system of signalling and calling. The primitive ape had also to make some provision for females and young who could not hunt, and this might lead to some moral development. But Dr. Humphreys had to admit that all this did not account for the high powers of imagination and abstract thinking of which man was the sole possessor.

INTERNATIONAL SOCIETY OF SURGERY.

The seventh Congress of the International Society of Surgery (as announced in our issue of January 23rd) will be held in Rome from April 7th to 10th of this year. Professor Giordano, the well known surgeon of Venice, is the president. The subjects for discussion and the speakers are as follows:—(1) Radium treatment of uterine cancer: Drs. Beuttner (Geneva), Donaldson and Forsdike (London), Pestolozza (Rome), Recasens (Madrid), and Regaud (Paris). (2) Abscess of the liver: Drs. Dominici (Rome) and Petridis (Alexandria). (3) Treatment of cerebral tumours: Drs. Adson (Mayo Clinic), Bastianelli (Rome), do Martel (Paris), Percy Sargent (London), Brun (Lucerne), and Lozano (Saragossa). (4) Surgery of the spleen: Drs. Cortes-Illado (Seville), Henschen (St. Gall), Leotta (Bari), Papayannou (Ghezireh), and Patel (Lyons). (5) Late results of Jacksonian epilepsy: Dr. Leriche (Strasbourg). Operations will be performed in the hospitals on two mornings. The social side of the Congress comprises receptions by the Governor of Rome and the President of the Congress, a banquet given by the Italian members, and an excursion to Tivoli. Two tours in connexion with the Congress have been arranged: (1) A tour to Milan, Venice, Padua, Bologna, and Florence, starting from London on March 29th and arriving in Rome for the commencement of the Congress. (2) A tour to Naples, Pompeii, Vesuvius, and the Isle of Capri, from April 13th to 16th. Messrs. Thomas Cook and Son, Ltd., have been appointed official agents, and will quote inclusive fares based on reductions granted by the Italian State Railways to members of the Congress. Members may be accompanied by their wives and families. Further particulars may be obtained from Mr. J. E. H. Roberts, 26, Harley Street, W.1, the British delegate.

A SIGHT-TESTING OPTICIANS' BILL.

SIGHT-TESTING opticians just now are very busy preparing draft bills for Parliament. There are several organizations of opticians, and these seem to vie with each other in putting together and issuing these "bills" which are to be laid before the Legislature. The latest of them is issued by the "Joint Council of Qualified Opticians." It is marked in heavy black type on the front page "Draft No. 11," so it would appear that the officers of this joint council must have had some practice in drafting bills. The present draft is a massive document of twenty pages containing twenty clauses and three schedules. Its title indicates its purpose: "To secure the registration of optical practitioners and to regulate the practice of sight-testing and optical dispensing, and for the purposes incidental thereto." Plainly put, the desire of the sight-testing opticians is to secure control of the practice of what they describe as optometry, and to prohibit anyone else doing this work. Optometry includes "the giving of any treatment, advice, or attendance on or to any person as preparatory to or for the purpose of or in connexion with any of the processes aforesaid, and any treatment, advice, or attendance usually given by optometrists or refractionists." Such a definition would cover the administration of drugs

by persons ignorant of their therapeutic power or of how to check their effect in untoward cases. Besides this the draft bill seeks to prohibit any person selling spectacles (other than goggles!) unless he is registered on a supplementary register for dispensing opticians. The optometrists may, of course, sell their own spectacles to the persons for whom they prescribe them. The draft bill prescribes heavy penalties for breach of the regulations. Apparently registered medical practitioners would also be involved in these penalties, for they are not exempt from its provisions. It is true that Clause 1, Section (4) provides that "Nothing in the Act shall operate to prevent the practice of optometry by a registered medical ophthalmic specialist." But there is nothing to show what is meant by a registered medical ophthalmic specialist, and we fail to recognize this term as one current in medical circles or known to the General Medical Council. But the sight-testing opticians are not content with all that, with an exclusive register and heavy penalties against offenders; they desire more effective powers. A Central Optical Board is to be constituted to guard the register. The first board is to consist of twenty-five persons. Two members are to be appointed by the General Medical Council (and this is the only mention of the medical control of the affairs embraced in the draft bill); five appointed by certain universities; fifteen elected by the optometrists on the temporary register; and three appointed by the Minister of Health, all of whom must be opticians, sight-testers or otherwise. A truly liberal constitution for a proposed national service! But Draft No. 11 may be followed by further drafts. The general subject of irregular practice is discussed in a leading article at page 337. In regard to this particular branch of unqualified practice, we hold that the aims set out are not conducive to the public good. It is against the interest of the public that an inferior order of quasi-medical practitioners should be recognized by law for the treatment of conditions of disease or abnormality. Sight, the chief sense organ of man, is far too precious to be left to the ministrations of persons untrained in the knowledge of the human body as a whole. To do this is to incur a risk that we know to be unjustifiable. For the State to set up a register and establish a close corporation of untrained, or at best half-trained, persons would be to assure its citizens, on the authority of Parliament, that there is no such risk. The position of the medical profession in this matter is summed up in the decision of the Representative Body of the British Medical Association in 1923: "That any State recognition of sight-testing by persons not possessed of a medical qualification would not be in the interests of the community, and ought to be opposed in the strongest possible manner."

ROBERT BURNS: DIATHESIS OR DRINK?

THE 25th of January sees year by year the foaming spate of Burns oratory go thundering to the sea of oblivion, and—*Dieu soit loué!*—in spite of it all the serene light of the man's genius shines without a flicker. Books are written telling the "truth" about him, "messages" are extracted by perfervid gentlemen in white ties (especially those of the type Mark Twain called "the pisonest kind"), who, to their own satisfaction at least, prove him to have been a Socialist, a Unitarian, or whatever their taste and fancy direct. But hardly a speech or a book appears without some fellow sinner indulging in an apologia for the alleged dissolute habits of the poet. Had he dissolute habits? This is the question that Sir James Crichton-Browne sets himself to answer in a little book lately published,¹ and he traces the origin of the accusation to the poet's first biographer, Dr. Currie. After the lapse of years it seems fitting that the venom introduced by one medical man

should receive its antidote from another. Currie, we gather, was a well-meaning man with a strong hereditary strain in him of the "unco-guid," aggravated by an inability to see more than one side of a question. Like some other fierce teetotalers, he seemed to smell drink in almost everything and everybody. To him, then, our author attributes the original tainting of the stream of biography, as so many of the later biographers drew without question on the authority of Currie. The thesis Sir James Crichton-Browne sets out to prove is that (while acknowledging occasional lapses on the part of Burns in the way of over-indulgence in liquor at a time when such lapses were held to be more venial than now) the poet can by no means be classed as an habitual drunkard; and that this is confirmed by the life of toil he led, first as an agriculturist and later as an exciseman, when his work in that capacity was approved by his superiors and at no time called for disciplinary interference. Wilson has said that "not a man could be found in Dumfries who had ever seen Burns intoxicated." Further, much of the ill health from which he suffered, and his subsequent death, were due not, as has hitherto been generally supposed, to alcoholic excess, but to some form of rheumatism, which had been slowly but surely undermining his constitution for twenty years. In support of this belief Sir James Crichton-Browne gives chapter and verse throughout his book, and criticizes the treatment given to the patient by his last medical attendant, Dr. Maxwell, who sent a sufferer from valvular disease of the heart to the Brown-Well Spa, where, "lodged in a thatched cottage with only a but and a ben and partaking of nothing but porridge and milk," the unfortunate patient was further recommended to indulge in sea bathing and horse exercise. Naturally "he got steadily worse while he was there, had a sharp feverish attack before he left it, and returned home from it" to die three days later. One other medical point made by the author is that Burns, when he refers (as he frequently does in his letters) to his "hypochondriasis," was not using the word "in the medical sense of the term, that is to say morbid apprehensions and delusions about his bodily health," but to signify that he suffered "from an inherited predisposition to nervous depression, aggravated by the pressure of incessant and wearing toil, with inferior and perhaps scanty nutriment in his boyhood and youth. Thus came his stooping shoulders." Hence also came "the self-accusations which are so profusely scattered through the letters and poems, many of which were groundless or grotesque amplifications of venial offences or mere anguished exclamations." A good book—appearing at an appropriate season—and a charitable one. Every Scot will wish to have it on his shelf among his Burns literature.

FIRST AID FOR BORROWERS.

THAT moneylending is a profitable business is shown by the statistical report of new companies registered in England during the year 1925, published by Jordan and Sons, Ltd., company registration agents, Chancery Lane. From this report it appears that thirty-seven new money-lending concerns were registered, with a total capital of £150,000. The subject may interest medical men since Mr. H. H. Kelsey, in his pamphlet *3,000%, or the Borrower's Book on Money-Lending*,¹ places doctors third on the list of favourite victims of the moneylender. They give precedence only to expectant heirs and clergymen. We confess that this surprises us; but if, as Mr. Kelsey says, the existence of 30,000 moneylenders involves a borrowing population of at least 3,000,000, there may well be many doctors among the gullible. The moneylender, it appears, builds his trade on the seemingly contradictory

¹ *Burns from a New Point of View*. By Sir James Crichton-Browne. London: Hodder and Stoughton, Ltd. 1925. (Cr. 8vo, pp. 92. 3s. 6d. net.)

¹ *3,000%, or the Borrower's Book on Money-Lending*, 1926. By H. H. Kelsey. London: Anti-Moneylending Association, Ltd. 1926. (Demy 8vo, pp. 40. 2s. net.)

supports of privacy and publicity. He snares the victim's confidence by the "strict privacy" of his methods, and bludgeons him into exorbitant repayment by blackmailing threats of publicity. Thus the village doctor may receive a telegram demanding money or threatening proceedings. Mr. Kelsey affirms that moneylenders do not lend without security; their security in most cases is the powerful weapon of blackmail. So that the first advice given in this book is not to be afraid of publicity. Threaten to deal with such action as if it were blackmail, and the moneylender will show little fight. In fact, the keynote of Mr. Kelsey's advice to the borrower is to get his blow in first. If the borrower expects to be sued, let him (if he can) tender the money borrowed and a fair rate of interest. If the tender is made the moneylender rarely sues: he will have to pay the borrower's costs in the event of not recovering more than the amount tendered. If the moneylender holds a bill of sale, and is threatening to seize the furniture, let the borrower issue a writ claiming relief under the Moneylenders Act and an injunction against the seizure: the moneylender will promptly come round to negotiate a settlement. It is suggested by Mr. Kelsey that the law is still too much in favour of the moneylender. Thus, under the Moneylenders Act of 1900, even if the moneylender's interest is held to be harsh, unconscionable, and excessive, and is cut down by the court, the borrower has to pay the costs of the action unless before the action he has tendered or paid into court the sum borrowed and a reasonable amount for interest; and these costs frequently amount to more than the relief that has been granted to the borrower by the court. As the moneylender's solicitor is said not to be paid by the moneylender, but to trust to getting his costs out of the borrower, the door is open to all sorts of shady practices. Thus subpoenas are served upon people whom the borrower would least like to be made aware of his troubles. There is no real intention of calling these people as witnesses; it is hoped that the fear of the borrower may compel him to pay up rather than expose his father or employer to the trouble of attending the court. Frequently the moneylender will try to induce the borrower to sign a statutory declaration, in the hope that he will make an inaccurate declaration, and thus furnish the moneylender with the further weapon of a threat of criminal prosecution. Mr. Kelsey would remedy these injustices by restricting the present powers of a moneylender under a bill of sale, by making the moneylender pay all costs if his interest is cut down by the court, by restricting the issue of subpoenas to material witnesses only, and by making statutory declarations in moneylending transactions illegal. At the same time, Mr. Kelsey admits that in remedying the injustices to borrowers the moneylending business would probably be extinguished. He says that under his proposed amendment of the Moneylenders Act no moneylender would ever sue unless he knew his interest was sufficiently reasonable for no judge to interfere with it. But if he cannot sue no moneylender will lend; and as, under Mr. Kelsey's amendment, if the interest is cut down the moneylender will be out of pocket through having to pay the borrower's costs, the moneylender will be put out of business. Whether this is desirable or not we are not prepared, upon present evidence, to say. Anyhow, the moneylender continues to flourish, notwithstanding the weighty words of Mr. Justice Mathew in the report of the Moneylending Commission of 1898. In certain cases, Mr. Justice Mathew said, the borrower is placed in a position where it is a question of "his money or his life." "The moneylender may do with him as he pleases. That is not a position in which one man ought to be placed by the law with reference to another; he ought not to have that power of coercion; he ought not to have his fellow creature in that state of subjection." However wise the advice, "Neither a borrower nor a lender be," we are afraid that there will

always be some men so hard pressed as not to know where to turn for help. Mr. Kelsey suggests the experiment of founding a philanthropic institution for lending money at a fixed rate of 10 per cent. per annum; but he sorrowfully admits that the bad debts would probably be considerable.

A NEW HEART JOURNAL.

THERE have recently come to hand the first two numbers of the *American Heart Journal*, a new periodical issued under the editorial direction of the American Heart Association. It has been established in response to a demand by physicians in the United States for a journal covering this field of medicine, and in the confident expectation that it might be of much assistance in furthering the objects of the association. While primarily clinical in character, the *American Heart Journal* aims at embracing all phases of the subject, and will embody the results of recent researches, as well as dealing with the preventive aspects. It should attract, not only the cardiologist specialist, but also the general physician. The numbers before us contain, among others, articles on such diverse subjects as prognosis in subacute bacterial endocarditis; the selection of patients with angina pectoris for sympathectomy; the heart in myxoedema; the circulation of the heart valves; vaso-dilatation following sympathetic neurectomy; the independence of electrical and mechanical reactions in the mammalian heart; basal metabolism in organic heart disease. Small sections are devoted to society transactions and reviews and abstracts of current literature. The journal will appear every second month, though later it is proposed to make it a monthly periodical. It is published by the C. V. Mosby Company, St. Louis (H. Kimpton, London), and the price is \$1.25.

THE spring lectures at the Royal College of Physicians of London will commence on March 2nd, when Professor W. W. C. Topley will deliver the first of his three Milroy Lectures on experimental epidemiology; the dates of the second and third are March 4th and 9th. The Goulstonian Lectures will be delivered by Dr. Bernard Hart on March 11th, 16th, and 18th; his subject is the development of psycho-pathology and its place in medicine. Sir Thomas Horder, Bt., will give the Lumleian Lectures, on endocarditis, on March 23rd, 25th, and 30th. The Oliver-Sharpey Lectures, on carbohydrate metabolism in health and disease, will be given on May 4th and 6th by Professor Hugh Maclean. Sir Thomas Lewis's Croonian Lectures, entitled "Observations upon blood vessels of the human skin," will be given on June 8th, 10th, 15th, and 17th. All lectures will be delivered at 5 p.m. at the College, Pall Mall East. Members of the medical profession will be admitted to them on presentation of card.

THE series of Hunterian Lectures on the fossil remains of ape and man and their bearing on man's evolution, by Sir Arthur Keith, which had to be interrupted owing to the lecturer's illness, will be delivered in the theatre of the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on February 22nd, 24th, and 26th, at 5 p.m. The first lecture will deal with the Taungs anthropoid and its zoological and geological position; the second with the fossil anthropoids of Europe and of Asia; and the last with the Kiru gorilla and its bearings on the problems of human evolution. The lectures will be illustrated by casts and preparations from the museum and by lantern slides. The spring course of museum demonstrations at the College will commence on March 12th at 5 p.m., when Sir Arthur Keith will demonstrate parts concerned in the secretion and absorption of cerebro-spinal fluid. The demonstrations will be continued on succeeding Mondays and Fridays, at 5 p.m., until Monday, March 29th, when Mr. Shattock will demonstrate pathological conditions of the breast.

Scotland.

THE MORISON LECTURES.

THE Morison Lectures on mental deficiency before the Royal College of Physicians of Edinburgh will be delivered in the Hall of the College, 9, Queen Street, Edinburgh, by Dr. R. D. Clarkson, on March 1st, 3rd, and 5th, at 5 p.m. The first lecture will deal with the definition of mental deficiency and the classification of mental defectives, the second with the cause of mental deficiency, and the last with the treatment of mental defectives.

MEMORIAL TO SIR WILLIAM MACEWEN.

At a meeting of Glasgow University Court, held on February 11th, a letter was read from Mr. Archibald Young, honorary secretary to the Sir William Macewen Memorial Fund. The letter stated that it was intended to procure a bust by a sculptor of the first rank for presentation to the university and a replica to be presented to Lady Macewen. It was also intended to establish a Macewen memorial lecture and, if sufficient funds were obtained, to found a Macewen medal or prize in the class of surgery. The letter added that the bust and replica were now completed, and that the committee had in hand a balance of £1,400, of which probably £1,200 would be assigned for the establishment and endowment of the Macewen memorial lecture and the remainder for the establishment of a memorial medal. It was agreed that the bust and replica should be presented on Commemoration day, June 23rd, and that the first memorial lecture would be given at the same time, and thereafter biannually.

MATERNAL MORTALITY.

A lecture entitled "The problem of our high maternal and infantile mortality and morbidity" was delivered on February 11th by Professor B. P. Watson, in the Gartshore Hall, Edinburgh, under the auspices of the Edinburgh Women Citizens' Association. Lady Findlay, who presided, said that she hoped public opinion might be stimulated to try to remove some of the causes of the high mortality. Children had wonderful vitality, and given a normal, healthy environment would thrive without much care or attention. Unfortunately, however, the conditions under which children lived to-day were far from being normal, as they were deprived of light and air under the miserable housing conditions of our cities. In her opinion most of our social evils came from the housing conditions in overcrowded cities. Professor Watson pointed out that the maternal death rate in Scotland was 6.2 per 1,000. Scotland was in the unenviable position of having one of the highest maternal death rates, the lowest death rate being in the Netherlands and the highest in Spain. Under present economic conditions it was not possible that every child should be born in a properly equipped institution, but he hoped the day would come when that would be the case. Preventive medicine as applied to midwifery consisted of proper ante-natal care. Clinics should be established in every large centre of population. Ante-natal care had really begun in Edinburgh under the late Dr. J. W. Ballantyne, who was the first to see the tremendous importance of this aspect of preventive medicine. The first ante-natal bed to be endowed had been in the Royal Maternity Hospital at Edinburgh, but more hospital accommodation was needed for maternity work. Large sums of money had been given to general hospitals and infirmaries, but the maternity hospitals had been left out for the most part. In his opinion, the modern tendency to link up the maternity hospital with the general hospital was to the good. In Edinburgh an affiliation between the new maternity hospital and the Royal Infirmary would be welcomed, and he thought this would bring about a diminution in cost and an increase in efficiency.

CARNEGIE TRUST ANNUAL REPORT.

The annual meeting of the Carnegie Trust for the Scottish Universities was held on February 10th at the

Universities' Bureau, Russell Square, London; Lord Sands presided. The executive committee to the trustees, in presenting the twenty-fourth annual report, indicated that during the past five years private benefactions to the four Scottish Universities had exceeded £800,000, but that there were few sections of their activities which had not called for some further advances. A committee of visitation had been appointed to consider and report upon the various claims of the universities, and a considerable amount of assistance had been given to university hostels. A sum of £20,000 had been allocated to St. Andrews University towards the provision of a residence for male students at St. Andrews, £10,000 to Edinburgh University for hostels for men and women, and £20,000 to Aberdeen University towards a new students' union. Several institutions which had not previously benefited had been assisted, such as the Glasgow and West of Scotland Commercial College, the Scottish Marine Biological Station at Millport, the Rowett Institution at Aberdeen, and the Animal Breeding Research Department at Edinburgh. The various distributions by the Trust arranged to cover the period from October, 1902, to September, 1930; included grants amounting to £1,394,029, which included grants for libraries, £127,925; for buildings and permanent equipment, £817,267; and for endowment of chairs and lectureships and similar general purposes, £448,837. By the end of 1930 fourteen chairs and thirty-one lectureships would have been endowed largely by the help of grants from the Trust. The sums granted by the Trust for endowment of research during 1924-25 amounted to £18,267. At Edinburgh University it had been proposed that the whole of the grant for five years, other than the library grant, should be devoted to payment of the cost of erection of the new chemical buildings, towards which the Trust had already contributed £75,000, and upon full consideration the committee recommended the executive to meet, as far as possible, the views of the university in this matter. A grant of £18,000 was recommended for the provision of new buildings for the natural history department. The committee recommended that £10,000 should be granted towards the cost of a hostel for male students in George Square and towards the completion of the block of hostels for women. The committee also recommended a supplementary grant of £25,000 towards the cost of erection of the chemical laboratories, which brought up the total contribution of the Trust to this department to the sum of £100,000.

Lord Sands, in moving the adoption of the annual report, emphasized the principle that the Carnegie Trust's grants must be regarded as capital grants and not as annual payments. A grant was given to encourage some new activity, and under their system was payable in five yearly instalments. There had been an erroneous tendency to look upon payments coming in this way as annual subventions which might be expected to be renewed for the next five years. The executive committee, however, was of opinion that this misconception must be corrected, and that the general principle that he had mentioned must be adhered to, whether in the case of small or large grants, or as concerning extra-mural institutions and universities. An annual sum of approximately £18,000 was devoted to grants in aid of research, in payment of part-time researchers who were part-time university lecturers, and in subsidies to graduates who for a year or two devoted themselves exclusively to training in research. Such grants had been rewarded by the immediate valuable results of work carried on with their assistance, and also by the undoubted subsequent success of many of their students in different spheres of research. Discussing the payment of class fees, Lord Sands stated that the number of applicants was so great that the contribution had had to be reduced in amount and the executive had been obliged to tighten up the test of family necessity. It might be necessary more fully to reconsider this matter, for so far the result had been disappointing. At present the most which the Trust was able to contribute was less than half of the total fees in the case of each student. During the past academic year the number of Carnegie students was 4,543, of whom 2,714 were men and 1,829 women, this number being over 70 per cent. of the whole of the Scottish students who

were educationally eligible for assistance. Students were assisted in virtue of a declaration by a parent or guardian that his circumstances were such that, without the assistance of the Trust, he would be unable to provide university education for his child or ward. It was startling that to the extent of 70 per cent. of Scottish students the parents were in a position of being able to furnish seven-eighths, but quite unable to provide the last eighth, which half of the fees might be taken to represent. These figures created an uneasy impression that there must be a very considerable number of cases where the declaration was signed without a due sense of responsibility by persons who in other relations would not seek to obtain assistance from public funds by untrue declaration. In conclusion, the chairman mentioned that during the past year £1,416 had been repaid by thirty-one former beneficiaries, which was the second highest amount received in any one year. The repayments came from all parts of the world, and the number coming from remote places seemed to suggest that sojourn far away might have a quickening effect on the conscience.

Lord Haldane expressed the opinion that it was essential that a trust of this kind should exist, not so much for the purpose of keeping up students or chairs, but for stimulating the growth of learning, which could best be done by bringing new people and new institutions into existence on the footing that as they gained vitality they would maintain themselves from other sources than the Trust. He was in favour of this Trust assisting research largely, but he believed that many people were apt to be misled as to their capacity to undertake research. He believed that research, like poetry, required an inherent imagination, and was in many ways a gift of Nature. Principal Sir James Irvine thought he could almost put a quantitative figure on Lord Haldane's statement. Out of 100 graduates with first-class honours, only some 20 were suitable for trial in research work; of these 20 in turn, after two years' experience, about 5 were worthy of encouragement. He thought that this was demonstrable from the figures of their own Trust and from those of the Council of Scientific and Industrial Research.

Principal Sir Donald MacAlister hoped the valuable work that had been done in improving the students' unions and in building hostels would receive due credit from the Scottish public. He referred to the falling off in the numbers of medical students, and especially those of women medical students. He pointed out that immediately after the war, when the men of the medical profession had been called to serve under the State and the demand for women to take their place was very great, a suggestion went abroad that now was the time for women to go into the medical profession, and they proceeded in a somewhat precipitate manner to flock into medical schools, rather to the embarrassment of the teachers. Some of them had foreseen the inevitable result, and warned the women again and again, but they would not listen. As soon as the doctors came back from the war it was obvious that they would fall into their places, and the women who had graduated were displaced. These facts had verified the prophecies that were made, and demonstrated that there were not such a number of sheltered places in the medical profession as the women thought.

NEW CHAIR OF BACTERIOLOGY AT ABERDEEN.

At a meeting of Aberdeen University Court, held on February 9th, Dr. John Cruickshank, reader in bacteriology in Aberdeen University, was appointed to the new chair of bacteriology at Aberdeen as from October 1st, 1926. Dr. Cruickshank is a native of Glasgow, and was educated at Alan Glen's School, Glasgow, and at the University of Glasgow, where he graduated with honours in 1908, gaining at the same time the Brunton Memorial Prize for the most distinguished graduate of the year. After graduation he became assistant to Professor Robert Muir in the department of pathology at Glasgow University, and acted in this capacity for three years. He was awarded the John Reid Memorial Prize for research work, and in 1912 was appointed bacteriologist to the Crichton Royal Institution, Dumfries. During his tenure of this post he was awarded the Foulis Memorial Prize for

research work into the causation of mental disease. In 1913 he took the M.D. degree with honours, gaining the Bellahouston Gold Medal for his thesis. During the war Dr. Cruickshank was for a time in charge of a mobile bacteriological laboratory in France, and acted also as assistant adviser in pathology to the Third Army. He has published the results of numerous researches especially connected with the subject of immunity.

England and Wales.

BRITISH INDUSTRIES FAIR.

THE British Industries Fair, which opened in London and Birmingham on February 15th, affords a comprehensive display of British industrial products. The London section, which is housed at the White City, includes fifteen separate departments, each devoted to a special line of production; the number of exhibitors is over 750, and a stand space of over 150,000 sq. ft. has been allotted. One of the most important groups is that devoted to chemicals and drugs, to which some sixty manufacturing concerns contribute. It is stated that now over one thousand fine chemicals, which were not made in Great Britain previous to the war, are being produced. The chemicals shown include, not only the highly specialized drugs familiar to medicine, but chemicals used in general scientific research, in photography, and for various industrial purposes such as dyeing. The Association of Chemical Manufacturers shows raw materials and intermediate products used in the manufacture of dyestuffs, as well as a specialized range of dyestuffs of great interest. The exhibits of crystals of alum, bichromates, and cyanides call attention to the fact that this country is still pre-eminent in the manufacture of these products. The section of scientific and optical instruments is less complete than that of chemicals and drugs, but it illustrates the remarkable development whereby this country has erected a large and independent optical glass industry of recent years, and there is also an interesting collection of various measuring instruments, such as thermometers, as well as instruments of special use for the airman. Other sections of the Fair deal with food products (and here one notes that the methods of packing become more ingenious and pleasing), leather goods, cutlery, furniture, and clothing, and an inevitable innovation is a special section for wireless. The Fair, admission to which on previous occasions has been granted only to those on business, is now open to the public in the evenings, and a visit can be recommended as a corrective to pessimism about the national future in industry.

THE POPULATION QUESTION.

At a meeting of the Nottingham Medico-Chirurgical Society on February 3rd, with the President, Mr. H. Bell Tawse, in the chair, Sir James Barr (Liverpool) delivered an address on the question of population, with special reference to heredity and birth control. He contended that despite the more or less continuous outcry in the daily press about the falling birth rate, what the country really needed was quality, not quantity. The lecturer regarded all deaths under 15 years as a dead loss to the State, and from those under 20 years there was no profit, as up to that age each individual cost on an average £500 to £400 in food, clothing, education, and sickness. He quoted, from the 1923 Report of the Principal Medical Officer to the Board of Education that 48 per cent. of elementary school children were suffering from physical defects of varying degree, and about 2 per cent. from malnutrition, heart disease, anaemia, or deformities. As a whole this accounted for 100,000 victims. He agreed that the welfare centres did excellent work; but the period of a child's life from 2 to 5 years—aptly described as No Man's Land—was entirely devoid of supervision, and until this was rectified little or no diminution in the number of defects in the elementary school children need be expected. He disagreed with the statement that all these children were born healthy, and held that the majority were by heredity weak, and that the poor vitality was intensified by

unhealthy environment. Feeble-mindedness was a Mendelian recessive which bred true, but many apparently normal individuals had latent taints which cropped up in future generations. After remarking that there were 2,000 more cases of tuberculosis in 1924 than in 1923, he referred to the statement made by the late Dr. D. W. Hunter—that until we had a selective birth rate he would look upon abolition of the tubercle bacillus as a national calamity.

Sir James Barr then passed to the subject of Mendelism, and remarked that he preferred to improve the breed both of plants and of animals rather than deal with their degenerate mutations arising from plasma weakness. He insisted that an "A1 nation," morally, intellectually, and physically, could only be raised by selective breeding. When a nation became overstocked beyond the means of subsistence the unfit got wiped out by war, famine, disease, and pestilence. The least desirable nations of the earth were the most prolific, and most of the world's unrest was due to the fecundity of the women of Russia, India, and Egypt. The Japanese, a very prolific race, were now practising birth control, as there was no outlet for their surplus population. The only hope for the peace of Europe was that the people of Germany might practise birth control and thus keep their population within the means of subsistence. Although it was difficult to know what characters led to the elevation of the race, one could make a start by eliminating those that were not wanted—for example, idiots, imbeciles, feeble-minded, useless wastrels, habitual criminals, etc. Birth control he considered essential for the masses if the poor were not always to be kept in poverty, in order to provide cheap labour. There was plenty of virility in the working class—as much as in any other grade of society—and if they were not kept in gross ignorance of sexual matters and economic laws they would raise themselves and their families in the social scale by putting no limit on output, except the human output. The lecturer concluded with a tribute to New Zealand, where, although birth control was practised, the birth rate was 21.6 per 1,000 of population, as against 18.8 in England. The address was discussed by the President (Mr. Bell Tawse), Drs. Watson, Newth, Hamilton, Flint, Robinson, and Miss Sarah Gray.

THE ROYAL ALBERT INSTITUTION, LANCASTER.

The Royal Albert Institution was established by voluntary effort in 1864 for the care, education, and training of the improvable feeble-minded of all classes belonging to the seven northern counties—Lancashire, Yorkshire, Cheshire, Westmorland, Cumberland, Durham, and Northumberland. Three classes are admitted: private patients at rates from 80 to 250 guineas per annum; patients belonging to one of the seven counties at rates from 40 to 80 guineas; patients elected by subscribers whose friends are unable to meet the lowest payment. Since the opening of the institution 4,286 patients have been admitted, some 10 per cent. of whom have become practically self-supporting under friendly supervision. The institution is subject to inspection by the Commissioners of the Board of Control, and by deputations from boards of guardians and local authorities under the Mental Deficiency Act. The medical superintendent's report shows an increase in the average number of patients from 801 to 806 on March 31st, 1925. The number of deaths recorded was 27. An explanation of the legal procedure necessary for admission to the institution is incorporated in this report.

CARTER HOSPITAL, MIDDLESBROUGH.

The Carter Bequest Hospital, which has recently been opened at Middlesbrough, is essentially a general practitioners' hospital. There is no appointed staff, but the practitioner sends his patients and provides the necessary attendance himself, summoning any specialist he may select. The professional fee is a matter between patient and doctor, and is no concern of the hospital management. In addition to four wards, each with ten beds, single private rooms are available at a charge of three guineas weekly. The administrative block, uniting the two ward blocks, contains reception rooms, accommodation for the

matron and nurses, a dispensary, and a pathological laboratory. The operating block, reached by a connecting corridor, is placed behind the ward blocks, and includes operating, anaesthetic, x-ray, and surgeon's rooms. Each ten-bed ward is fitted with a verandah on to which the patient's bed can be wheeled. Although this hospital was originally planned towards the end of the last century, its erection has been delayed by the need for obtaining a larger sum than that primarily available. The actual building was begun in March, 1924, and the hospital was completed in October, 1925.

LONDON COUNTY COUNCIL.

The Mental Hospitals Committee of the London County Council has not felt justified in assenting to a request voiced in the council that butter be generally substituted for margarine for the table use of mental hospital patients. It has, however, instructed medical superintendents that when there is any shortage of the uncooked vegetables, salads, and fresh fruit usually available as part of the ordinary dietary, and there is any fear that in consequence patients may be adversely affected in health, the vitamin A content of the dietary may be supplemented by substituting butter for margarine. The view of the committee is that the dietary at present in force, which was considerably improved two years ago, having regard to the provision it makes for the issue of fat meat and green vegetables, cannot be said to be inadequate in the provision of vitamin A generally. The London County Council, in furtherance of a scheme for additional accommodation for epileptic children, has arranged with the managers of the Lingfield epileptic colony (Surrey) for the enlargement of that institution so that eighty new vacancies may be available for London children—forty-eight for boys and thirty-two for girls.

Correspondence.

UNQUALIFIED MEDICAL PRACTICE.

SIR,—Under the heading "Medical Notes in Parliament" in your issue of February 13th (p. 306) this statement occurs: "In putting down his motion on unqualified practice Dr. Graham Little did not act for, or in consultation with, the Medical Committee of the House of Commons." I was unable to consult my medical colleagues in the House, because I had only two hours—between 8 and 10 p.m.—in which to choose the subject of my motion. My choice was made because I had read and written much on the position of unqualified medical practice, with special reference to osteopaths.

This subject had, within the last few months, been very freely discussed in medical circles in London—for example, at the Medical Society, the Harveian Society, and others. I considered that it would be useful to "feel the pulse" of the House of Commons regarding the admission to practice of osteopaths; to be forewarned as to the strength of one's opponents is to be forearmed. A private member's motion (such as mine was) seldom goes to a division, and is usually regarded as a means of taking the opinion of the House without action following upon it, so that no serious results were to be feared. My position as an Independent member, returned by a university with a very large and important medical electorate, whom I represent upon the Senate as well as in Parliament, made it more easy for me to take a step which a strict party man might have found it desirable to avoid; and I may say that my postbag since Tuesday has brought me many assurances that my constituents have approved my action. I would quote a typical congratulatory statement from one of these letters, written by one of the most distinguished medical graduates in the University:

"It is generally known and felt that you took an opportunity to put up a motion with which all reasonable people agree; made your opponents expose their very bad hand, and drew a most important statement of policy from the Minister of Health."

The motion was talked out by one of our medical members in agreement with the front Government bench, after the very clear and important statement of the Minister of Health, whose contemptuous rejection of the claim for the registration of osteopaths upon American certificates more than met our chief objection. His statement produced something like dismay in the osteopathic ranks, a result which I submit amply justified my motion. The best means, in my opinion, of finally defeating the osteopathic movement would be to institute a diploma in manipulative surgery similar to those now in force in ophthalmology, laryngology, and tropical medicine; and the courageous statement of the Minister that qualified medical men are no longer neglecting manipulative surgery should encourage the institution of such a diploma.

The position of the Parliamentary Medical Committee should, I think, be made clear to the profession. It consists of all members of Parliament who happen to be qualified medical men, together with certain representatives (not themselves medical men) of universities with large medical constituencies. We have been elected to Parliament for political, not professional, reasons. With the exception of the university members, none of the committee can be said to represent medical opinion in any particular way—the chairman, for instance, sits for an agricultural constituency; four-fifths of the committee have either never practised or do not now practise. My position in that committee is somewhat exceptional, inasmuch as I remain in full and active practice—both hospital and private—and I am the only member who holds an appointment on the staff of a medical school in London or who has had continuous experience of medical education in the metropolis for thirty years. This position, of course, has its obvious drawbacks. I cannot speak with the detachment of the retired practitioner. But I claim that the position has more than corresponding advantages, inasmuch as I am in close touch with current opinion at the great medical schools and the great medical societies of London. I believe that I voiced this opinion in my motion of February 9th.—I am, etc.,

London, W., Feb. 16th.

E. GRAHAM LITTLE.

** We refer to the main subject of Dr. Graham Little's letter in a leading article at page 337.

THE STATISTICAL STUDY OF CANCER.

SIR,—I greatly regret if anything I have written has given offence to Dr. Greenwood or his colleagues on the Statistical Committee instituted by the League of Nations. Though not a statistician, I think I can appreciate the enormous labour and the great care which have gone into the making of their report. I hoped that I had given in my lecture full expression to my admiration for their work, and I cannot help thinking that Dr. Greenwood has read into my remarks a meaning which was not intended by me. In order to give a survey of our present knowledge of cancer in the narrow limits of one lecture I had necessarily to be brief in dealing with the various aspects. I do not see, however—even after reading carefully Dr. Greenwood's letter—where I have been guilty of a misstatement; and the last sentence of Dr. Greenwood's letter makes me doubt whether he has correctly appreciated the point which I raised. It should not be necessary for me to say that I had no intention of disparaging either the results or the mentality of cancer statisticians. I merely wished to show how completely the new conception of cancer affects the investigation of cancer in all its branches. I can assure Dr. Greenwood that there are several facts in experimental cancer research which have been overlooked by all of us because we did not have the knowledge to interpret them correctly, and to appreciate their significance. I am not a statistician and I do not presume to argue with Dr. Greenwood on questions of statistics, as such. But I submit that statistics on cancer are not a purely statistical problem, that they are subject to pathological considerations, and that the following considerations are relevant.

Until quite recently the development of cancer in a

particular organ or tissue was regarded as the result of a purely local process unconditioned by general factors involving the organism as a whole. From this point of view cancer of a particular organ or tissue could be regarded as a separate entity. It was natural to assume that differences in the incidence of cancer of the breast in different countries could be correlated with local conditions of the affected organ. So far the results of this very statistical investigation have failed to reveal any such correlation.

But since the statistical inquiry was instituted a complete change has come over our conception of cancer. There is new experimental evidence that the local process which leads to the development of cancer is conditioned by general factors. I gave as an instance in my lecture that a resistance to the induction of skin cancer by tar is, according to Murray, established by the previous genesis of cancer in some other organ—the mamma, for instance. The reverse is also true. Mammary cancer is relatively frequent in mice. In this laboratory we have had under observation during the last five years certainly over 200 mice with skin cancer induced by tar, in which the tumour was removed by operation so that the animals could reach what is for a mouse a ripe old age. Only one case of mammary carcinoma has occurred in these mice. In this group of mice the incidence of mammary cancer has been diminished by the increased incidence of skin cancer.

In addition to observations of this kind, we have the discovery of Gye which shows that all cases of cancer have in common one extrinsic factor—the virus. This also is a general and not a local factor.

It seems to me to follow clearly from experimental observations such as these, that we can no longer discuss the incidence of cancer in one particular organ as a self-contained phenomenon. We can no longer look upon the total mortality from cancer as merely the sum total of the mortality from cancer of the individual organs. We now have to recognize that there are not only local but also general factors determining the incidence of cancer in any particular organ or tissue.—I am, etc.,

Imperial Cancer Research Fund,
London, W.C.1, Feb. 16th.

W. CRAMER.

THE ULTRAMICROSCOPE IN CANCER RESEARCH.

SIR,—I have to thank Mr. Barnard for his reply (February 6th, p. 260) to my letter of January 16th, 1926 (p. 119), with its misleading and irrelevant matter. This latter, I can assure him, is not due to careless reading of his or of other publications, but simply to my being what in Scotland we call "slow in the uptake," so that it is my intelligence that is at fault, not my hurried reading.

My use of the term "ultramicroscope" may not, in Mr. Barnard's opinion, be correct, but what he says in his letter in no way indicates that it is not descriptive of the work he has done. Mr. Barnard implies that no x rays have been used in any way in his work, but he is well aware that in the now recognized spectrum of rays there is a gap between the ultra-violet and the x rays, and that the nature of the rays therein contained has not yet been cleared up. What this unknown series contains is problematical, but in this unknown gap there may be some rays closely allied to the x rays, if not identical with them in their action. In fact, in this supra-ultra-violet ray gap there may be radiations that have a special influence on growth, as well as on human life. Mr. Barnard's letter shows that he is not absolutely certain about the causation of the results he has obtained, and he is finding it necessary to continue investigations in which x rays are to be used. It will be interesting to hear what results come from the inquiry that he says is now in progress. When one is dealing with invisible rays and considers how little is certainly known about their biological action on tissues, any opinion as to their method of action scarcely merits the term "misleading."—I am, etc.,

Glasgow, Feb. 16th.

GEORGE THOMAS BEATSON.

COCCIDIA OF FISH IN HUMAN FAECES.

SIR,—The very interesting communication by Thomson and Robertson which appeared in your last issue (February 13th, p. 282) has solved a difficulty which has for some time been apparent to me. The three coccidia *Eimeria wenyoni*, *Eimeria oxyspora*, and *Eimeria snijdersi*, which Dobell and others regarded as parasites of man, have now been shown to be common parasites of the liver and "soft roe" of herrings, and there can be no doubt that the cysts which appeared in human faeces were merely passing through the human intestine and were no indication that the human beings were parasitized. The cysts, as in the first case which was described by me in 1916, were present in the stools for a very short time only, and it is remarkable that the true explanation of their presence should have so long escaped notice. I myself (1916) did, however, suggest that the one seen by me might have been *Eimeria falciformis* of mice. Dobell and others who followed him concluded that the cysts belonged to parasites specific for man, though Brug (1922) suggested that the form seen by Snijders (1921) in the faeces of a patient in the Dutch East Indies, and named *Eimeria snijdersi* by Dobell, was possibly not a human parasite at all but one which had been eaten with food. Brug points out that natives of Eastern countries often eat the intestines and livers of animals, a fact which may explain the temporary occasional presence of unusual cysts in the stools. He even went so far as to make the suggestion that the degenerate condition of many of the cysts, which was a feature of this particular case, might be accounted for by the heating used in the preparation of the food.

I have for some time been aware of the fact that the coccidia described by Thélohan (*Eimeria clupearum* and *Eimeria sardinac*) corresponded morphologically with Dobell's *Eimeria wenyoni* and *Eimeria oxyspora*, and, as I pointed out to Dr. Thomson, I had already stated in the manuscript of my forthcoming book on protozoology that it was very probable that the supposed parasites of man were merely coccidia of fish, as Thomson and Robertson have now demonstrated.—I am, etc.,

C. M. WENYON,

London, W.C.1, Feb. 12th.

Wellcome Bureau of Scientific Research.

BLOOD PRESSURE IN THE SCHOOL CHILD.

SIR,—I have followed with interest Lord Dawson's arguments (BRITISH MEDICAL JOURNAL, 1925, ii, p. 1161) in favour of school medical officers devoting some special attention to blood pressure readings in school children, and have read with equal interest Dr. Stocks's letter on the subject (ibid., p. 1244). After mature consideration, however, I regret that I cannot agree either with their premises or with their conclusions. Since 1911 I have taken blood pressure in all boys as a routine measure, but I have long ago discarded the assumption that such readings have the slightest clinical or theoretical value. When I became medical inspector of schools in the Transvaal in 1914, and found that my readings leaped up in an alarming fashion with differences of altitude, humidity, and temperature, I thought it time to devote a little more attention to blood pressure in general, and after such study I cannot say that I am at all convinced that in present circumstances "blood pressure readings" are of any real value. We use the term "blood pressure" in such widely different ways; so far as I can follow, Lord Dawson, in his address at Bath, gives it three entirely different meanings, and if a hydraulic engineer were to discuss the subject he would probably differ widely from the interpretations attached to each. Nor do I like the term "hyperpiesis" any better; apart altogether from its etymological absurdity, it conveys no further information than the term, as generally used, "high blood pressure."

My records of blood pressure estimation in Transvaal school children, especially in those with chronic malarial cachexia, number more than 12,000, so I may claim to be able to speak with some authority. Moreover these are both systolic and diastolic readings, and personally I attach no importance whatever to a single systolic record, unconfirmed by readings taken, with all due allowance made

for psychical influences that can, however, never be entirely excluded and that may seriously affect the systolic readings, after exercise and in both the sitting and recumbent positions. Such readings take up a great deal of time, and cannot possibly be carried out at routine examinations, though they can, and ought to be, attempted at the examination clinic.

Notwithstanding my voluminous record cards, I am more than chary of attempting to draw conclusions. I did attempt to do so in regard to the blood pressure of malarious children, and published my conclusions in the *South African Medical Journal*. I then thought that the changes in blood pressure, especially in the diastolic readings, in such children might throw some light upon the "debris" theory of cortical emboli in that disease and explain some of the post-malarial psychoses in children. With wider experience I no longer hold that view, for it seems to me that it is purposeless to try and measure intra-arterial pressure in brain or cord by arm or leg readings in which, for really scientific purposes, a great many factors other than arterial pressure or tone have to be taken into consideration. Nor do extraordinarily wide excursions of the manometer give us much better insight into the physiological action of the vascular system. I have followed up most of my high and low readings, and the data are of little value one way or the other. I have not found a single boy who had what one might call an abnormally high pressure—I am not yet sure what is a normal pressure for, say, 90° F., 500 feet altitude, average humidity, and average actinic influence—without presenting other abnormalities that were of greater clinical importance; herein my experience obviously differs from that of Dr. Stocks. I have lately examined two boys, one of 9 and one of 11, sent to me simply because the family doctor thinks, from clinical examination, that they have a high blood pressure, but cannot find any symptoms. Both are suffering from a definite intoxication. One boy, whose pressure formula is recorded as " $\frac{135}{85}$; 72; 82, regular, bounding, normal wall," has fairly extensive caries of the teeth, with probably antral trouble. The 9-year-old (" $\frac{134}{84}$; 55; 102; easily compressible, regular") had irregular attacks of fever some months ago, and his urine gives a positive Griess-Hosvay reaction, so I have no doubt that, upon plating, it will be found that he is suffering from a chronic coli pyelitis. Some of the highest pressures, diastolic as well as systolic, recorded in my notes concern children who are of the well known Stiller type, with probable enteroptosis, and at all events a decided dys-equilibrium in general muscle tone.

I may carry the attack into, let me not say the enemy's territory, but the other extreme domain, by suggesting that cases of early hypotension will repay following up. Indeed, I consider a distinctly low diastolic pressure in childhood, especially when there is a loss or weakening of the ankle reflex, of some clinical significance. I cannot say that the moderately high pressures recorded have so far yielded data of any great clinical value—I allude to those in which there were obviously no other recorded signs of pathological abnormality. Naturally all have not been followed up, but those that have been seen again, some after six and others after ten years, show no signs of arterial degeneration and do not even show a trace of postural albuminuria.

I write, not to discourage school medical inspectors from recording pressures, but simply to state that such readings have already been largely done without yielding those significant results that Lord Dawson adumbrates. So long as our concepts of blood pressure, and our terms in relation to it, are as unscientific and as inchoate as they appear to be at present, no definite results can be looked for. I would suggest that a representative medical committee be appointed to consider the whole question of blood pressure and the hydraulics of the circulation. Such a committee, especially if it secures the help of competent physicists, should be able to clarify much of the present muddle, both in regard to terminology and definition, and to the interpretation of data. Perhaps Lord Dawson and Dr. Stocks might take the initiative in this much-needed reform.—I am, etc.,

Capetown, Jan. 22nd.

C. LOUIS LEIPOLDT.

SPENCER'S "CAESAREAN SECTION."

SIR,—Your reviewer of Dr. Herbert Spencer's book made a serious error in the figures he quoted, presumably in support of Potter. He recognized his error, but would have been more likely to overtake his mistakes if he had given in his correction actual and correct statistics in the interesting comparisons he drew attention to, instead of making probable statements. It is difficult to see how by any basis he reduces the Edinburgh figure to 8 per 1,000, or even the Manchester figure to 36. Still, the true figures which I shall give place Potter in a very lurid light. He further suggests that Spencer reduces his number of sections by doing induction as an alternative. Spencer quoted Rotunda figures for sections as comparable with his own, but figures for induction in the Rotunda are not shown.

I have taken the following figures from the same reports as those to which your reviewer referred. The total number of cases is composed, in each instance, of intern deliveries, excluding abortions and early miscarriages, except for Liverpool and University College, London, plus the deliveries in the districts; this latter does not exclude abortions.

Hospitals.	Total Cases.	Caesarean Sections.	Induction.	Cranio-tomy.	Total C. P. Cases.
University College ...	5,647	All 37	C. P. 32	C. P. 113	2
Per 1,000 ...		6.5	5.6	20	0.4
Edinburgh ...	2,086	54	31	24	11
Per 1,000 ...		25	15	11	5.4
Manchester ...	2,581	138	116	12	15
Per 1,000 ...		53	45	5	5.8
Liverpool... ..	2,269	93	88	117	5
Per 1,000 ...		40	38	51	2.2
Sheffield ...	968	41	37	2	16
Per 1,000 ...		42	38	2	16
Rotunda ...	3,636	19	19	12	1
Per 1,000 ...		5.2	5.2	4.4	0.3
					33* 9

C. P. = Contracted pelvis.

* Includes one pubiotomy.

It is interesting to compare the following figures, from Manchester and the Rotunda Hospital for the year 1910, with those given above.

	Manchester.	Rotunda.
Total cases ...	4,388	4,406
Caesarean sections—		
All ...	25	4
Contracted pelvis ...	22	4
Induction (contracted pelvis) ...	17	6
Craniotomy (contracted pelvis) ...	14	2
Total contracted pelvis cases ...	55*	16†

* Includes 2 pubiotomies.

† Includes 4 pubiotomies.

The year 1910 was that immediately preceding Routh's paper, which had an enormous influence in stimulating the performance of Caesarean section early in or before labour.

I do not propose to defend the number of inductions in University College, but I would wish to point out that it is a relatively much safer operation than section. In Queen Charlotte's Hospital during six years induction was performed 346 times with one death, and section was done 203 times with four deaths, the latter giving six times greater mortality than the former. It is inconceivable that the physique of the female population has degenerated to the extent suggested by operative obstetrics. Perhaps the explanation is suggested by your reviewer when he refers to Spencer's longer experience and greater faith in the natural processes of labour. Spencer learnt his obstetrics at a time when the dangers of surgery were great, and it was only resorted to when Nature failed; whereas the present-day obstetric surgeon, being impressed by the comparative safety of surgery, resorts to it as a substitute for obstetrics, overlooking the incomparably greater safety of the natural process, and thus fails to appreciate the wonders of which Nature is capable. Spencer's book seems to be a timely call of "Halt" to the excessive vogue of section.—I am, etc.,

Rotunda Hospital, Feb. 9th.

GIBBON FITZGIBBON.

THE ACTION OF PITUITARY EXTRACT ADMINISTERED BY THE ALIMENTARY CANAL.

SIR,—In your issue of February 6th (p. 234) Dr. Knaus made a valuable communication on the efficacy of pituitary extract administered by the mouth in promoting uterine contractions. In his paper he made certain criticisms of my original experiments which appear to be based on a misunderstanding, possibly due to the somewhat condensed form in which the communication was published (*Proceedings of the Royal Society of Medicine (Therapeutics Section)*, 17, 1921).

He writes: (1) "The method of recording uterine movements was such that any small movements of the animal upset the record . . ." and (2) "He states himself that the records were difficult to obtain on account of peristalsis and straining." Precaution was taken in my work to avoid straining by having the animals deeply anaesthetized, and it was rare for it to occur within an hour after the administration of the pituitary extract, whereas uterine contractions set in usually within ten minutes to half an hour. Any experiments where movement or straining occurred before the onset of well marked uterine contractions were discarded. The second quotation, it will be seen on reference to the original paper, refers to experiments on absorption from the intestine; no conclusions were drawn from them.

My observations showed that absorption from the stomach was most rapid in animals recently fed. It would be interesting to know whether Dr. Knaus repeated this observation.

I am interested to see that Dr. Knaus confirms my observation that no effect on blood pressure was demonstrable.—I am, etc.,

London, W.1, Feb. 15th.

P. HAMILL.

TETANUS FOLLOWING OPERATIONS FOR
HÆMORRHOIDS.

SIR,—Your correspondent Dr. Andrew Smith, in your issue of November 28th, 1925 (p. 1031), asks for the experience of others on this subject. We have got to thank Dr. Smith for his courage in publishing the case.

I know of four cases in which tetanus followed ligature of a pile—all in the hands of careful men; one of them was in my own hospital, done by my assistant. On his arrival I drew his attention to the other three cases, and pointed out to him that they were all explicable by Colonel Semple's investigations on the relation of quinine administered intramuscularly being followed by tetanus occasionally. He had done hundreds of such ligatures, and had no accidents. I was out in camp shortly after, and on my return I found a case of tetanus in hospital following a ligature of a pile by him. He was then more easily persuaded to desist from ligaturing piles.

On this subject I would invite attention to Colonel Semple's paper in the *Scientific Memoirs of the Government of India*.—I am, etc.,

HENRY SMITH, C.I.E.,
Lieut.-Colonel I.M.S. (ret.).

January 26th.

NOVASUROL.

SIR,—I notice from recent literature that the diuretic novasurol is coming into prominence. I believe I was the first in this country to give it notice in page 96 of my book *Modern Aspects of Syphilis*, published in January, 1923, where it is referred to as a powerful diuretic.

I beg to endorse the note in the *JOURNAL* of February 6th (p. 261) by Professor Moorhead as to the advantage of commencing with small doses. On the other hand, perhaps my experience of several thousand intravenous injections of 1.5 to 2 c.cm. may be of interest.

For an average male adult I use 1.5 to 2 c.cm. of novasurol combined with, say, 0.45 gram neosalvarsan dissolved in 8 c.cm. aq. dest. in weekly doses, sometimes every fifth day. The mixture alters somewhat in colour. No evil effects were noted by the patient; certainly no day's work was lost.

In non-syphilitic diseases this mercurial is not borne so well. I have given several hundred injections in general medical cases where its use seemed indicated, in weekly doses of 1.5 to 2 c.cm., intravenously. Effects alarming enough ensued very often—ulcerated mouth, profuse diarrhoea, bloody stools. Yet some of the moribund water-logged cases on which this remedy was tried rallied in surprising fashion. In the cases in which I was driven to control this mercurial intoxication by injections of contramine, I found the diuretic effect continue as powerfully as in those cases which were left uncontrolled. Latterly in debilitated cases I have given an injection of contramine before or very soon after the injection of novasurol, and have still noticed the diuresis, whereas enteritis and sore gums were absent.—I am, etc.,

Nottingham, Feb. 8th.

M. J. HORGAN.

INDIVIDUAL OVERDOSE OF ULTRA-VIOLET RAYS.

SIR,—I have read with interest Dr. Paige Arnold's letter on individual overdose of ultra-violet rays in your issue of February 13th (p. 304). I have administered ultra-violet ray treatment by means of a "Percy Hall" lamp extensively in my practice during the last year for many and varied diseases, and have not yet come across a single patient who demonstrated the severe group of symptoms which he has enumerated. I have treated eczemas of the scalp and alopecia, and have pushed the treatment in the former disease to as much as fifty minutes at a distance of six inches. Bodily irradiation has been given up to half an hour at twelve inches for conditions such as hyperpiesis, anaemia, etc.

Dr. Percy Hall refers in his book to two cases of "idiosyncrasy" to the treatment, when in each case severe symptoms resulted after an irradiation lasting only two minutes.

Dr. Paige Arnold refers to the similarity in the symptoms caused by large doses of ultra-violet rays and α rays. But no doubt he is aware of the entirely dissimilar biological and physiological effects of the two forms of treatment. We know that α rays produce an endarteritis of the capillaries, whereas ultra-violet rays produce a dilatation. α rays kill the hair follicle, whereas ultra-violet rays stimulate the hair follicle—hence the good results in alopecia, and the obvious advantages of ultra-violet ray treatment over α -ray treatment in such conditions as ring-worm of the scalp. α -ray treatment causes a leucopenia, whereas a leucocytosis is produced by ultra-violet ray treatment.

No doubt an occasional patient—and this one must be a very small percentage of the total treated—will show an idiosyncrasy. Perhaps I have been lucky, but undoubtedly Dr. Paige Arnold has been the reverse. In my opinion, and after one year's experience, this is a form of treatment which no practitioner can afford to neglect.—I am, etc.,

W. A. TROUP, M.C., M.B., Ch.B.

Cooden Beach, Sussex, Feb. 13th.

SIR,—May I be allowed to endorse the warning uttered by Dr. Paige Arnold as to the dangers of indiscriminate dosage of ultra-violet rays in your issue of February 13th (p. 304)?

I have uttered similar warnings time after time during the last two years, both written and oral, pointing out the dangers to patients if this remedy is administered by unskilled or inexperienced operators, and particularly if left to unqualified persons. Instances of medical men referring both children and adults suffering from tuberculosis and other diseases to lay operators, with no indications as to dosage and no supervision save of the most perfunctory character, reach me from time to time. Quite apart from the questionable ethics of this procedure is the actual danger to the well-being, and, indeed, occasionally lives, of these patients.

Ill results thus occurring are likely to bring into undeserved disrepute and discredit one of the most valuable therapeutic remedies at our disposal. The dosage given is

frequently too great, too frequently repeated, and at too short intervals. The heresy of the necessity of brisk erythematata followed by pigmentation is to blame for these mistakes.

The comparison between the effects of ultra-violet and α rays can be carried too far. One does not wish to frighten either the profession or the public, and it is tolerably certain that ultra-violet irradiation is not likely to be followed by any remote ill effects such as has happened after the use of α rays. Certainly no ill effects have ever been described following the intensive and long-continued local irradiation of lupus by the Finsen lamp, although the records go back over a quarter of a century.

I uttered warnings of this character throughout the text of my book on *Ultra-Violet Rays*, and especially in the preface to the second edition.—I am, etc.,

London, W.1, Feb. 15th.

PERCY HALL.

ETYMOLOGY OF "ORTHOPAEDICS."

SIR,—I suppose that there are few medical terms of which the etymology is more certain, and few of which it is more often questioned, than "orthopaedia," "orthopaedic," etc. The question crops up, is answered apparently with finality, and is asked again every few years. This has been going on ever since orthopaedic surgery was revived in this country, about ninety years ago.

In the preface to "Orthopaedia: or the Art of Correcting and Preventing Deformities in Children, etc., Translated from the French of M. Andry, Professor of Medicine in the Royal College, and Senior Dean of the Faculty of Physick at Paris," etc., published in London MDCCLXIII, you will find the following, which is a faithful translation of the original French:

"As to the Title, I have formed it of two Greek Words, viz. *ὀρθός*, which signifies straight, free from Deformity, and *παῖδιον*, a Child. Out of these two Words I have compounded that of Orthopaedia, to express in one Term the Design I propose, which is to teach the different Methods of preventing and correcting the Deformities of Children. The Expression seemed to me the more allowable, that the two celebrated Authors above cited, [he refers to Scévole de Sainte Marthe and Claude Quillet] have made use of Terms of the same Kind; the first in giving the Title of Paedotrophia to a Treatise upon the Manner of suckling Infants; and the second that of Callipaedia, to a Poem upon the method of getting beautiful Children: both which Titles are likewise taken from the Greek; the first from *παῖς* an Infant and *τροφή* Nourishment; and the second from *καλός* beautiful, and *παῖδιον* a Child."

In the face of this very explicit statement it would seem that speculations about *παίδεια*, etc., are superfluous, and confuse the modern meaning of the term with its etymology. May I suggest that it might save future trouble if you were to have the above passage from Andry's book printed on a leaflet for the information of future critics of "orthopaedic," who are sure to turn up before long?—I am, etc.,

London, W.1, Feb. 12th.

E. MUIRHEAD LITTLE.

SIR,—Your derivation of the word "orthopaedics," in the footnote to Dr. Mackay's letter, is of course correct. But none of the standard dictionaries gives the historical origin, although examples of its use in literature are quoted in the *New English Dictionary*. I wrote an account of the birth of the word in an article which appeared in the *BRITISH MEDICAL JOURNAL* of August 11th, 1917. It was first coined in 1741 by M. Andry, Professor of Medicine in the Royal College, and Senior Dean of the Faculty of Physick at Paris. He wrote a book to which he gave the name "Orthopaedia," and explains his choice of the title as follows: "I have formed it of two Greek Words, viz. *ὀρθός*, which signifies straight, free from Deformity, and *παῖδιον*, a Child. Out of these two Words I have compounded that of Orthopaedia, to express in one Term the Design I propose, which is to teach the different Methods of preventing and correcting the Deformities of Children." Although Andry had the straightening of children primarily in mind, yet the meaning of the word

has gradually been extended so as to denote the prevention and correction of deformity, from whatever cause, in children and adults.

The practical difficulty of the word "orthopaedic" has rarely been with reference to the shades of Greek meaning, but rather in the assumption of a Graeco-Latin derivation. This is a common mistake even of the informed public, leading them to regard orthopaedic surgery as being concerned with disabilities of the foot only, and they are not helped when we choose to write "orthopedic" instead of "orthopaedic."—I am, etc.,

ARTHUR ROCYN JONES, F.R.C.S.

London, W.1, Feb. 15th.

SIR,—As regards the etymology of "orthopaedics," may I point out (1) that if it were derived from *ὀρθός* and *παῖς* the word would be either "orthopaedeutics" or "orthopaedeusis"; (2) that the word primarily refers to putting children straight? The fact that grown-up people occasionally were not put straight as children does not necessarily render childish, even though etymologically correct, the use which most of us (who had possibly never seen the word *παῖς*) had made of the word—that is, referring primarily to children. To recapitulate, the Greek verb *παίδεω* could not correctly make an ending "-paedics."—I am, etc.,

Flackwell Heath, Bucks, Feb. 13th.

G. D. PARKER.

** We wish to thank other contributors to this discussion for letters the substance of which is contained in the communications of Mr. Muirhead Little and Mr. Rocyn Jones.

THE FINAL NURSING EXAMINATION.

SIR,—I am very glad to see Dr. Bradley's letter in the present issue of the JOURNAL (February 13th, p. 305) calling attention to the absurd questions asked the nurses in the medicine examination paper.

In the JOURNAL two years ago (February 23rd, 1924, p. 354) I, with others, strongly protested against the time of the nurses being taken up by instruction in medicine and surgery, the knowledge of which would be of no use to them as nurses. I said, "On no account would I advocate the lowering of the standard of nursing knowledge," but I pointed out that they were being trained as if they were going to practise as doctors rather than nurses. Would it be possible to find a more glaring instance of this than the examination paper to which Dr. Bradley has called attention? It might very well have been set for a final examination for medical students. How much more capable is a nurse—as a nurse—because she knows the early symptoms of typhoid fever? There would be some sense in the question if she had been asked what symptoms might indicate perforation of a typhoid ulcer; every nurse ought to know that, so that she may at once summon the doctor; or what characters she should be on the look-out for in the motions.

Then take Question 2. Why should any nurse be expected to differentiate between gastric ulcer and other abdominal diseases? In the next paper in medicine the nurse will probably be asked the skiagraphic appearance of gastric ulcer, and what variety of tube the x-ray examination should be made with. The diagnosis of gastric ulcer is an endless source of mistakes to doctors, and how can a nurse be expected to have any clear idea about it, and why should she? If she thinks she can diagnose it, such an idea may do actual harm, for she may be so unwise as to hint to some patient she suspects its presence, and unnecessarily alarm him.

With regard to Question 3, may I ask: Are nurses who pass the General Nursing Council examination to consider themselves qualified to treat retroversion of the uterus, and, if not, why are they expected to answer such a question?

As Dr. Bradley truly says, if nurses have to waste their time getting up such information many will abstain from joining the nursing profession. Is it for instruction in such matters they pay fees which support sister tutors? I suspect that the reasons such absurd questions have been asked in this medicine paper is because some lecturers in

medicine to the nurses have been lecturing to them as if they were medical students, and the paper was set by some of these lecturers, and what they have been teaching them in the lectures they thought they could fairly examine them on. The initial mistake is therefore in the lecturer taking them over ground which is quite beyond the scope of a nurse's training.

I say again they cannot be too highly trained as nurses, but this is not nurses' training; it is training them to be doctors and rendering them, not more valuable as nurses, but even dangerous; for they may use this useless knowledge actually to the detriment of the patient.—I am, etc.,

Bristol, Feb. 14th.

CHARLES A. MORTON.

The Services.

MILITARY HOSPITALS RESERVE.

The reorganization of the Home Hospitals Reserve under the designation of "The Military Hospitals Reserve" has been approved, and the qualifications for enrolment are stated in an Army Order issued on February 14th. This Reserve will consist of warrant and non-commissioned officers and privates only, with an authorized establishment of 2,000. The functions of the Reserve will be (a) to staff the military hospitals and other establishments maintained by the regular medical services upon the mobilization and withdrawal of the regular R.A.M.C. for duty in the field; and (b) to provide reinforcements for the medical units of the expeditionary force overseas after mobilization.

Membership will be entirely voluntary, and the personnel will be provided by the St. John Ambulance Brigade for England and Wales and Northern Ireland, and the St. Andrew's Ambulance Corps for Scotland.

The age limits for enrolment will be from 19 to 40, and no member will be permitted to remain in the Reserve after he has reached the age of 45. Every applicant must be in possession of the first-aid certificate recognized or granted by the St. John Ambulance Association or St. Andrew's Ambulance Association, and obtain a nursing certificate recognized by those bodies within a period of twelve months after enrolment. A proportion of the total establishment of each rank in the Reserve will, in annual rotation, receive training for eight days in a military hospital or other military medical establishment, and as far as possible each member will be sent to the hospital to which he would be posted on mobilization. A member of the Reserve will receive, both during training and on coming up for duty in replacement of a member of the R.A.M.C., pay and allowances at the rates laid down for a man of the corresponding army rank and trade group (if qualified) whom he replaces on mobilization; promotion to fill the authorized establishment of ranks during service in the Reserve will be given according to service, merit, and qualifications.

DEATHS IN THE SERVICES.

Lieut.-Colonel Augustus Edward Richard Stephens, Bengal Medical Service (ret.), died in London on January 29th, aged 75. He was born on October 24th, 1850, the youngest son of the late Matthew Spray Stephens, solicitor, of Gillingham, and was educated at Charing Cross Hospital, taking the M.R.C.S. in 1873 and the L.R.C.P. Lond. in 1874. Entering the I.M.S. as surgeon on March 31st, 1876, he became surgeon lieutenant-colonel after twenty years' service, retiring on April 25th, 1897. Most of his service was spent in military employ, but for the last few years he was in civil employ in Bengal. He served in the Afghan war of 1878-80, when he was present at the battle of Ahmed Khel, and received the medal with a clasp; and on the North-West frontier of India in the Hazara expedition of 1883, receiving the frontier medal with a clasp.

Lieut.-Colonel William Woppell Pope, C.M.G., R.A.M.C. (ret.), died at Bournemouth on January 31st, aged 68. He was born at Exeter on September 17th, 1857, the son of John Pope, of Baring Lodge, Exeter, educated at Sherborne, and, after taking the M.R.C.S. and L.R.C.P. Ed. in 1880, entered the army as surgeon on February 5th, 1881. He became lieutenant-colonel after twenty years' service, and retired on June 22nd, 1901. He had a long list of war service—Egypt, 1882, battle of Tel-el-Kehir, medal with clasp and Khedive's bronze star; South Africa, Bechuanaland campaign, 1884-85, and operations in Zululand, 1888; north-west frontier of India, 1897-98, Tirah, medal with clasp; South Africa, 1899-1900, operations in Natal, actions at Reitfontein and Lombard's Kop, defence of Ladysmith, Queen's medal with a clasp. On October 1st, 1914, he rejoined for service in the recent great war, and in 1917 received the C.M.G. In 1917 he married Mabel Jennie, only child of George Whitwell of Durham.

Obituary.

HENRY RAYNER, M.D., M.R.C.P.Ed.,

Formerly Physician for Mental Diseases, St. Thomas's Hospital.

WE regret to record the death of Dr. Henry Rayner on February 8th, at the age of 84. He was the son of Mr. W. Rayner, J.P., of Hythe, Kent, and received his medical education at St. Thomas's Hospital and the University of Aberdeen. During his student days in London he took an active interest in philanthropic work, and was associated with the Bermondsey Social Mission, then under the Bishop of London's Fund. He was also president in 1863-64 of the London Medical Students' Union, also known as the Junior Medical Society of London. In 1864 he obtained the diplomas M.R.C.S.Eng. and L.S.A., and graduated in 1866 M.B., C.M.Aberd. with highest honours, proceeding M.D. in 1870. In 1878 he became a member of the Royal College of Physicians of Edinburgh.

After serving as resident assistant physician at Bethlem Royal Hospital Dr. Rayner decided to specialize in psychological medicine, and was appointed out-patient physician for mental diseases, and lecturer in this subject, at St. Thomas's Hospital, where the organization of the mental clinic nearly fifty years ago was mainly due to him. He was also for some time lecturer on mental diseases in the Middlesex Hospital school, and for several years he held the responsible post of medical superintendent of the male department of the London County Council Asylum at Hanwell. During the war he acted as consulting physician to the "Recuperative Homes" at Hampstead, established by Sir Frederick Milner for ex-service men suffering from nerve diseases. In 1870 Dr. Rayner became a member of the Medico-Psychological Association of Great Britain and Ireland; he was elected general secretary in 1877 and president in 1884. He was co-editor of the *Journal of Mental Science* from 1895 to 1911. His literary contributions to psychological medicine were very numerous and varied; they include an article on "Melancholia and hypochondriasis" in *Allbutt's System of Medicine*, on "Sleep and narcosis" in the *Journal of Mental Science* (1902), "Early treatment of mental defects in children," "Gout and insanity," and "Moral insanity."

At the Annual Meetings of the British Medical Association in 1879, in 1892, and again in 1895, Dr. Rayner was vice-president of the Section of Psychology. At the Annual Meeting at Carlisle in 1886 he read a paper on incipient insanity, which led to the appointment of a joint committee of the Association and of the Medico-Psychological Association, of which he was appointed chairman. Suggestions were made by this committee to the Lord Chancellor and resulted in amendments of the Lunacy Acts during the three succeeding years. For more than a quarter of a century he was chairman of the council of the Mental After-Care Association, for poor persons convalescent or recovered from institutions for the insane, which has rendered most valuable assistance by enabling a large number of convalescent mental patients to take up again active life in the community without relapsing.

Dr. Rayner was deeply interested in horticulture, and his family residence at Hythe, in Kent, is noted for its gardens. He was a sturdy pedestrian, and in his younger days possessed considerable golfing abilities.

M. W. B. OLIVER, M.A., M.B., F.R.C.S.,

Surgeon, Central London Ophthalmic Hospital.

THE news of the premature death of Mr. M. W. B. Oliver will be received with profound regret by a large circle of friends and contemporaries. He was playing golf, and apparently in good health, on February 6th, and died from pneumonia at his sister's house in the country on February 10th.

Matthew William Baillie Oliver was born in 1832; his father was the late Robert Oliver of Strathwell, Whitwell, Isle of Wight. He was a descendant of the famous morbid anatomist and physician to

St. George's Hospital, Matthew Baillie, M.D., F.R.S., whose mother, Dorothea Baillie, was a sister of the great anatomists, John and William Hunter, and whose sister was Joanna Baillie, the poetess. From Cheltenham College Matthew Oliver went to Trinity, Cambridge, and graduated B.A. in the Natural Sciences Tripos of 1903. He then entered St. Bartholomew's Hospital, and after obtaining the M.R.C.S. and L.R.C.P. diplomas in 1906 served as ophthalmic house-surgeon. He next held resident house appointments at St. George's Hospital for two years, and in 1909 proceeded to the M.A., M.B., and B.Ch. degrees. While at St. George's he used his spare afternoons to work as a clinical assistant at the Royal Westminster Ophthalmic Hospital, and later became chief assistant in the eye department at St. Bartholomew's and at Moorfields. In 1914 he obtained the F.R.C.S.Eng. diploma, and was appointed assistant ophthalmic surgeon to the Miller Hospital, Greenwich. Subsequently he became surgeon to the Central London Ophthalmic Hospital, ophthalmic surgeon to the Royal National Orthopaedic Hospital, to Queen Mary's Auxiliary Hospital at Roehampton, and to the Italian Hospital; and consulting ophthalmic surgeon to the Willesden Urban District Council. At the Central London in particular, where much of his work was done, he will be sadly missed. During the Annual Meeting of the British Medical Association at Portsmouth in 1923 he was honorary secretary of the Ophthalmological Section.

This bare record will reveal Oliver's energy and capacity for work, and it was the same for games. At St. Bartholomew's, for instance, he was one of the keenest and hardest working forwards in the Rugby football fifteen. He confessed to having overstrained his heart at games, and possibly this may have turned the scale against him when he succumbed in a few days to pneumonia. Such a character must have been the life and soul of any mess to which he chanced to be attached during the war, and his work in France, where he was surgical specialist to No. 15 Casualty Clearing Station and held the temporary rank of Major R.A.M.C., met with approval from the highest authorities. He was mentioned in dispatches and received the O.B.E. On returning in 1919 he did much useful plastic work at the Queen's Hospital at Sidcup. The region of the orbit and eyelids was allotted to him, and this was one of the few subjects on which he wrote. Here a knowledge of general surgery, combined with ophthalmology, was invaluable. If he never accomplished anything very original he did an enormous amount of careful and thorough work in a department where such qualities count for more than show and brilliance.

His singularly happy nature endeared him to all who had the good fortune to be associated with him, and the writer, who knew him at school, at the university, at hospital, and later on during the war in France and at Sidcup, and in later days met him not infrequently in practice, never remembers him except as cheerful and smiling. One day at the end of the morning in his consulting room Oliver had just made the discovery that the last patient had not only spilt the ink on his new carpet, but had forgotten to add his signature to the cheque; even this combination of injuries left him quite unruffled. He was known to all his friends without exception as "Bubbles." Whatever the origin of this was, it seems to indicate that happy, friendly, fearless soul, always bubbling with energy and life. It is by that name that he will long be remembered.

L. C.

From two other close friends we have received the following tribute: The sudden and quite unexpected death of M. W. B. Oliver came as a shock to his many friends. Wherever Oliver found himself he made friends; and it can truly be said that he did not have an enemy. This was due partly to his cheerful optimism and in part to his unflinching sympathy with all classes with which he came in contact. His loss has been a deep blow to a large number of friends, for he was essentially a "clubbable" man, and of the many clubs to which he belonged at none will his cheerful personality be more missed than at the "Fountain," of which he was an original member.

J. F. GEMMILL, M.A., M.D., D.Sc., F.R.S.,

Professor of Natural History, University College, Dundee.

WE regret to record the death by drowning of Dr. J. F. Gemmill, Professor of Natural History at University College, Dundee. His body was found on February 10th in the River Tay at Dundee esplanade, several hundred yards west of the Tay Bridge. He had been in indifferent health for some time.

James Fairlie Gemmill was a native of Mauchline, Ayrshire, and received his education at Mauchline Public School, Kilmarnock Academy, and Glasgow University. He graduated M.A. at Glasgow University with honours, and M.B., C.M. with high commendation in 1894. In 1900 he proceeded M.D. with honours, and in 1910 obtained the degree of D.Sc. For a time he worked as a research fellow in embryology at the University of Glasgow and as lecturer in zoology at the Glasgow Provincial Training College. In 1919 he was appointed to the chair of natural history in University College, Dundee. He had held numerous posts of distinction in the department of natural science, including that of president of the Natural History Society and Microscopical Society of Glasgow and honorary vice-president of the Scottish Marine Biological Association. He was the first president of this association while it was still known as the Marine Biological Association of the West of Scotland. He had also been for some years a Fellow of the Zoological Society.

Professor Gemmill's numerous publications dealing with problems in natural history included "The teratology of fishes" in 1912; "The lantern of Aristotle as an organ of locomotion in *Echinus*," published in the *Transactions of the Royal Society* in 1912; "Development of the starfish *Solaster endeca*," published in the *Transactions of the Zoological Society* in 1912; "Ciliation of asteroids and on the question of ciliary nutrition in certain species," *ibid.*, 1915; "Development and adult anatomy of the starfish (*Asterias rubens*)," published in the *Transactions of the Royal Society of London*, 1914; and "Development of the starfish (*Porania pulvillus*)," published in the *Quarterly Journal of the Microscopical Society*, 1915.

Professor Gemmill was unmarried. The interment took place at the Western Cemetery, Dundee, on February 13th.

JOHN CAMERON YOUNG, M.A., M.D.,

Medical Missionary, Keith-Falconer Medical Mission, Aden.

A CABLEGRAM from Abyssinia, whither he had gone on medical advice for rest and change, announces the death of the "Grand Old Man of Aden," Dr. Young. His many and varied activities for thirty-two years, in one of the most trying climates of the world, had made him known more widely than is the lot of most.

A soldier's son, John Cameron Young's strenuous life of work began at the early age of 10, when he was taken from school to earn his own living, and some years later he went through a full joiner's apprenticeship. While working at his trade he experienced a religious awakening that spurred him to devote his life to mission work. Undeterred by difficulties, he worked like Livingstone, to whom in later years he bore some personal resemblance, and successfully made his way, not only through the medical curriculum in Glasgow, but also through an arts and at least part of a theological course. Working at his trade in the vacations, and in term time earning some money by teaching and book-keeping, he managed to support himself during these years. After graduating M.B., C.M. in 1892, he was sent by the Free Church of Scotland to Sheikh Othman, ten miles inland from Aden, where mission work had been begun some six years previously by that brilliant athlete and Arabic scholar, the Hon. Ion Keith-Falconer.

Young started work with characteristic enthusiasm, and soon found himself embarrassed by the number of his patients. For many years he was handicapped by lack of suitable buildings. The hospital was the bungalow which Keith-Falconer had been building for himself at the time of his death, and was not designed for medical work. Moreover, it had not been built of teak, and the white ants soon rendered its upper floor unsafe, while lack of funds prevented its repair. In course of years, largely

through his own efforts, money was raised, the building was enlarged and repaired, and the new hospital was opened by the Resident of Aden in 1909. For the first time in the mission's history it was possible to do surgical work under reasonably good conditions. A rapid influx of patients resulted, the nominal hundred beds of the hospital were filled to overflowing, and so great was the demand for surgery that two whole days a week had to be devoted to this branch of the work. Only those who have experienced it know what a ten hours' day of operations means, with the shade temperature at 98°, as it is for months at a time in Aden.

That operative work by one living only a mile from the frontier of the Aden Hinterland, where every man goes armed, was not without its dangers to the operator, was proved by an incident in Dr. Young's career. He had been summoned to the neighbouring town of Lahej to operate for cataract on an Arab dignitary. His instructions as to dressings were disregarded by the patient, eager to use his eye, and sepsis ensued. Some days later Young's horse was found dead, stabbed in its stable in his compound. It was afterwards discovered that an emissary of his unfortunate patient had been sent to murder the doctor, but, being unable to make his entrance into the bungalow, had contented himself by killing the doctor's horse!

Working as he did in the midst of a more or less fanatical Moslem population, it was not to be wondered at that Young's preaching in the hospital won for him the title of "El Maghawī," "the deceiver." It pleased him when a patient, restored to health by his efforts, suggested altering a letter in the Arabic word and called him "El Makawī," "the strengthener." His interest in other parts of his work, the mission school, his work as chaplain to the Presbyterian and Wesleyan troops in the Aden garrison, and his English services for Europeans in the little Presbyterian church at Steamer Point, prevented him devoting sufficient attention to surgery to become a brilliant operator, but many things he did very well. Amputation at the site of election, often necessary as the result of the terribly prevalent tropical ulcer, Syme's amputation for such conditions as madura foot, and litholapaxy were among the operations he did best. He had no lack of surgical courage in an emergency, and a successful Caesarean section in a desperate case early in his career won him the devotion of an influential family.

One of the social reforms of which he was most proud was the stopping, in the neighbouring sultanate, of the barbarous custom, sanctioned by Moslem law, of chopping off the right hand as a punishment for theft. To arrest the haemorrhage the stump was plunged in boiling tar. Several of these unfortunates having come to him for treatment, in many cases involving reamputation, Dr. Young spoke to the Resident about it. The Resident, at that time General O'Moore Creagh, afterwards Commander-in-Chief in India, visited the Sultan and mentioned the subject. The Sultan was inclined to resent any interference in his domestic affairs, but Creagh tactfully suggested that Queen Victoria would be shocked to hear from him that his friend the Sultan of Lahej was in the habit of treating his subjects in this way, and finally asked the Sultan as a personal favour to give it up. On his way home General Creagh called at the mission bungalow to tell Dr. Young of the Sultan's promise to do so—a promise that was faithfully kept.

The outbreak of the local war in July, 1915, when Sheikh Othman was for eleven days in enemy hands, and after recapture was an armed camp till long after the armistice, put an end for the time to the mission's activities. Dr. Young was asked by the Government of India to act as port health officer in Aden, so releasing an I.M.S. officer for active service. He carried out these duties for the remaining period of the war, and afterwards for a time was acting civil surgeon and jail superintendent. As soon as the way was open he returned to the work he loved so well in Sheikh Othman, and laboured there till his death. It is characteristic of him that after his return to mission work he informed his committee that it need send him no more salary, as he had saved enough in his years in Government service to support him for the rest of his life.

For the last year, owing to the breakdown in health of his colleague, he was the only doctor in the mission. In a letter received by the writer just before the news came of his death he gives his statistics for the year. He had seen during the year 8,104 new out-patients, with 35,000 attendances; he had had 677 in-patients in the hospital; and he had performed 1,331 operations—no mean record for a man of 66.

The value of his work was recognized by the Government when in 1905 he was awarded the Kaisar-i-Hind silver medal "for public service in India," for his work in years of plague and famine. In 1912, for further service, the gold medal was conferred on him. In 1905 he had obtained the D.T.M. Liverpool.

Lieut.-Colonel H. F. Jacob, C.S.I., for many years First Assistant Resident in Aden and the greatest living authority on the Yemen, refers in glowing terms in his books to the value of the Keith-Falconer Hospital, and Dr. Young's work there, as a means of establishing friendly relations with a great part of the Arabian peninsula. So widespread is the hospital's reputation that it is no uncommon thing to have patients coming thirty and even forty days' journey, from the almost unexplored wilds of the Yemen, Asir, and the Hadhramaut, to seek the help of its medical staff.

Dr. Young's crowded life and his very large private correspondence did not leave him much time for literary work. What he wrote mostly took the form of articles for mission magazines and the *Expositor*. His little book entitled *Children of Arabia* has had a wide sale. For his M.D. thesis in 1921 he wrote on Arabian medical and surgical lore and practices.

A man of sterling moral rectitude, devoted to his duty as he saw it, untiring and absolutely unsparing of himself, extraordinarily generous, always the champion of the oppressed, thousands of his friends in many lands will feel that the world is the poorer by his passing. "He was ever a fighter," he has fought "one fight more, the last and the best."

A. MACR.

H. R. PRENTICE, M.B., M.R.C.P.,

Medical Superintendent, Seamen's Hospital.

WE regret to record the death, in his 47th year, of Dr. Hugh Ridley Prentice, which occurred at Greenwich on February 3rd. He was the eldest son of Thomas Ridley Prentice, a distinguished musician of his time and professor of the piano at the Guildhall School of Music, who in 1869 started some popular concerts at Brixton, and about 1880 gave concerts at Kensington Town Hall, called "twopenny concerts," for the working classes. His father died when Prentice was 15; from him he inherited a fondness for the study of music and a marked technical ability. It was one of his chief sorrows that his crippling disabilities should have made it impossible for him to exercise one of his most cherished hobbies. From his mother he inherited a taste for literary study, and his knowledge of philosophy added power and clarity to a mind always at once orderly and far-seeing. He had two brothers; one was killed in France in 1915, and the other, who resides abroad, survives him.

Prentice was educated at Weimar and at St. Bartholomew's Hospital, took his English Conjoint Diplomas in 1906, the M.R.C.P. in 1912, and graduated M.B., B.S. Lond. in 1913. For four years after qualifying he held the post of resident medical officer at the National Hospital for the Paralysed and Epileptic, Queen Square, where he worked directly under Sir Victor Horsley. He then commenced a consulting practice in Welbeck Street, selecting neurology as his particular study. In 1914 he was appointed assistant physician to the West End Hospital for Nervous Diseases, to the Belgrave Hospital for Children, and to the Seamen's Hospital, Greenwich. During the war he held a commission in the Royal Navy, and was seconded for duty at the Seamen's Hospital. After the war he was appointed medical superintendent of the Seamen's Hospital, retaining at the same time his position on the honorary medical staff of that institution, the while he still continued his connexion with the West

End Hospital for Nervous Diseases. It was soon after his appointment as superintendent that there appeared the first indications of the long and painful illness which eventually led to his death. His attitude throughout was one of philosophic courage, which masked his sufferings so effectively that only those who were most intimate with him were able to gauge their intensity.

He leaves a widow and three children, the eldest of whom is 5. By his death the Seamen's Hospital has suffered a great loss, for his tolerant clarity of mind and speech could always be relied on to guide his colleagues when intricate questions of policy were under discussion.

His many friends will learn with deep regret the news of the sudden death, on January 30th, of Dr. WILLIAM DAVID MOORE, who recently retired from the position of medical superintendent of Holloway Sanatorium, Virginia Water. While attending a committee meeting summoned to appoint his successor, Dr. Moore was suddenly seized with a heart attack, and died soon after. He was born in 1858, and received his medical education at Queen's College, Belfast, Galway, and the London Hospital. He graduated M.D., M.Ch. of the Royal University of Ireland in 1880, and obtained the diploma L.M. of the Royal College of Physicians of Ireland in 1888. After acting for some time as an assistant in private practice, he became assistant medical officer to the Wilts County Asylum, and subsequently, after another period of private practice, was appointed medical officer of health at Alresford. In 1892 he became senior assistant medical officer at the Holloway Sanatorium, and in 1899 was appointed medical superintendent in succession to Dr. Sutherland Rees-Philipp, whose recent death abroad we reported in our issue of January 23rd. Dr. Moore devoted himself wholeheartedly to improving this institution, and bringing it into the front rank of hospitals dealing with mental diseases. In his earlier days he took an active interest in athletics, including, rowing, swimming, and skating. He represented Ireland in international Rugby football in 1878 and the two following years. He was a member of the Wiltshire county cricket team, and reached the semi-final of the amateur golf championship. His great sympathy, tact, and patience won him an abiding friendship with his patients and the hospital staff, and his memory will long be kept green in the hearts of those who were associated with him. His wife predeceased him in 1917.

On February 5th, after an operation for duodenal ulcer, there passed away in London Dr. HENRY JAMES GORRIE, who, since the war, had built up an extensive dental practice in Sutton, and who also held the appointment of dental surgeon to the Banstead Mental Hospital. Dr. Gorrie was educated at Dundee University College and Edinburgh, where he obtained the diplomas L.D.S.R.C.S. in 1905, and L.R.C.P., L.R.C.S., and L.R.F.P.S. in 1906. Dr. Gorrie at first practised dentistry with his father in Dundee, and later at Carnoustie, Forfarshire. Immediately on the outbreak of war he was mobilized with the 3rd Highland Field Ambulance, and served in France with the 51st Division throughout the whole campaign, except for a short period of illness. For his war service he was decorated with the O.B.E., and he retired on demobilization with the rank of major, R.A.M.C.T. He returned home in poor health, but started a practice in Sutton which steadily increased. A colleague writes: To have known Henry Gorrie, as I have, for thirty-five years was a privilege. He was a man of the most charming personality and of the greatest sincerity, whose cheerful disposition endeared him to everyone. He was always breezy and full of that dry pawky humour characteristic of his Scottish nationality. Of strong convictions, he only laughed at difficulties, and in all the years I knew him I never heard him complain or say aught against any man. Gorrie had many friends, both in and out of the profession: few could command such a wide circle of constant friends, who will not readily find another so true and sincere as he was. To those in the profession less fortunate than himself his charity and kindness was

A meeting of the Fellows will be held at the College on Thursday, July 1st, at 2.30 p.m., for the election of four Fellows into the Council in the vacancies occasioned by the retirement in rotation of Mr. W. G. Spencer and Mr. E. W. Hey Groves and by the resignation of Sir Charles Ballance and Mr. James Sherren. Notice of the meeting will be given to the Fellows by advertisement and by circular on March 5th. The last day for the nomination of candidates will be March 15th. A voting paper will be sent on March 30th to every Fellow of the College (except women Fellows) whose address is registered at the College.

Hunterian Lectures.

Sir Arthur Keith's remaining three Hunterian lectures on "Fossil remains of ape and man and their bearing on the evolution of human races" will be given on February 22nd, 24th, and 26th.

Queen Victoria Jubilee Institute for Nurses.

Sir D'Arcy Power was reappointed to represent the College on the council of Queen Victoria's Jubilee Institute for Nurses for three years from March 1st next.

Diplomas of Fellowship were granted to Mr. Alan Cameron Maconie and Mr. Harold Burt-White, who have now complied with the regulations.

Diplomas of Membership were granted to 179 candidates, including 35 women, and diplomas in ophthalmic medicine and surgery were granted jointly with the Royal College of Physicians of London to 19 candidates. (The names of the diplomates were published in the report of the comitia of the Royal College of Physicians printed in our issue of February 6th, p. 266.)

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has again considered Supplementary Estimates this week, and has debated the new Treaty with Iraq. Orders laid on the table of both Houses include a number dealing with National Health Insurance and two concerning the General Nursing Council for England and Wales—one amending the rule relating to reciprocal registration and the other including a syllabus of subjects for examination for the certificate of general nursing. The Public Health and Housing Group of the Conservative party in the House of Commons met on February 16th and considered its operations for the session.

The Harnett Case.

In the House of Commons on February 15th, in Committee of Supply on a Supplementary Estimate for £26,660 for the salaries and expenses of the Board of Control (Lunacy and Mental Deficiency), England, and for grants in respect of maintenance for certain ex-service mental patients, and of certain damages and costs in a legal action.

Mr. Pethick-Lawrence called attention to the sum of £2,800 which appeared in the estimate in respect of the case of Harnett v. Bond. In this case, he said, the plaintiff, Mr. W. S. Harnett, brought an action against Dr. Bond, a Commissioner of the Board of Control, and another, on the ground of alleged wrongful imprisonment as a lunatic. He was released, according to the statement of the medical officer of the asylum, on twenty-eight days' leave. He found that his brother was in charge of his property, and went to the Board of Control to have the matter investigated. While he was there he interviewed a member of the Board, Dr. Bond, who detained him, and sent him back to the asylum, where he remained in custody for eight years. The jury awarded £25,000 damages against Dr. Bond and £5,000 against the medical officer of the asylum. On appeal, the Court of Appeal ordered a new trial as between the plaintiff and Dr. Bond. The plaintiff appealed against this judgement to the House of Lords, who dismissed the appeal. At this stage the Board of Control offered a sum of £250 as damages and £2,500 in respect of plaintiff's costs. After negotiations this offer was accepted. The case was a serious one, as this unfortunate man had not merely suffered eight years' detention as a lunatic, when he was sane, but he had also spent a sum of over £25,000 to obtain his rights. The taxpayer (who had had to pay the sum of £3,000 or £4,000 already) was now called upon to pay a further sum of £2,800.

Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health), in reply, said he thought that Mr. Pethick-Lawrence had been wholly misinstructed as to the facts of the case. He (Sir Kingsley Wood) intended to be very guarded in his reply, as he understood that Mr. Harnett had brought another action in the King's Bench Division against the doctor who gave the first certificate of his insanity.

Mr. Short asked the chairman (Mr. Hope) if it was right for the Committee to discuss the matter, seeing that it was again to be brought into court. He suggested that the vote should be withdrawn pending the final decision of the case.

Sir Douglas Hogg (Attorney-General) said it was possible to discuss the vote, which was necessary to carry out the arrangement come to in the first action, without touching on the issue in the forthcoming case.

The Chairman said that in the circumstances it would be better to withdraw the vote until later to allow him to consider the situation. He would not like to rule on the matter right off in case it might be taken as a precedent.

The vote was postponed accordingly.

Small-pox.

Answering Mr. Lansbury, Mr. Chamberlain said that from January 1st, 1925, to February 6th, 1926, 1,966 cases of small-pox had been notified in the county of Durham. In two instances small-pox had been entered on a death certificate as one of the causes of death. Medical officers of the Ministry of Health had paid numerous visits to advise and assist the local authorities and their officers. Reports of these medical officers indicated that the outbreak might be attributed to the spread of the disease from other infected areas, and that the present prevalence was in large measure due to the neglect of vaccination and in some districts to lack of adequate hospital accommodation. He did not think that the districts which were worst affected were those where men had been most impoverished, and he could not say what percentage of cases had been vaccinated. It would be difficult to draw any safe deduction from the figures in his possession, but they did not bear out the suggestion that the cessation of poor relief in a union was the cause of special prevalence of disease in that union, seeing that prevalence was less than in an adjoining union.

Mr. Chamberlain gave statistics showing that in the week ended January 24th, 1925, one case of small-pox was notified in county Durham, 11 cases in the week ended June 27th, 12 cases in the week ended September 26th, and 104 cases in the week ended December 26th. In 1925 the figures were: weeks ended January 2nd, 98 cases; January 9th, 138; January 16th, 139; January 23rd, 177; January 30th, 182; and February 6th, 213 cases. The areas where the disease was most prevalent were: Gateshead C.B., Blaydon U.D., Chester-le-Street U.D., Whickham U.D., South Shields C.B., Auckland R.D., Chester-le-Street R.D., Easington R.D., Houghton-le-Spring R.D., Lanchester R.D., Sunderland R.D., and Spennymoor U.D.

Mr. Davidson, Financial Secretary of the Admiralty, told Mr. Bromfield that restrictions on leave for naval officers and men in districts where small-pox was prevalent were necessary in view of the fact that, although every reasonable precaution was taken to ensure the protection of every individual in the navy against this disease by vaccination, there still must be a certain proportion unprotected, either by oversight or on the grounds of conscientious objection, to which must be added recent entrants who had not yet undergone protection by vaccination. In addition, dockyard employees were not under the same control as naval personnel as regards vaccination, and consequently a large proportion of them were non-immune, and as naval personnel and these employees were intimately associated infection might be carried either by a person in the early stages of small-pox or by the clothing of one who had been recently in contact with a case. No precaution should be neglected to prevent a case of small-pox occurring in one of His Majesty's ships or establishments, as, apart from the menace to health, great expense was incurred in isolation and destruction of clothing, bedding, etc. In addition, there was the inconvenience and expense of keeping all contacts of a case in isolation and under observation for fourteen days.

Sir Kingsley Wood, replying, on February 15th, to Sir William Davison, stated that the number of cases of small-pox in England and Wales had increased from 311 in 1919 to approximately 5,300 in 1925. The Minister of Health had no information as to the number of persons not protected by vaccination, but there could be little doubt that it had been steadily increasing since the war, although it was generally found that considerable numbers of persons presented themselves for vaccination when any serious outbreak of small-pox took place. The Minister had no information as to the number of infant children living to-day who were unvaccinated. In 1923, the last year for which complete information relating to the vaccinations of infants was at present available, 758,404 births were registered in England and Wales. Of these, 395,553 had not been vaccinated by January 31st, 1925. The percentage of vaccinations to births in 1923 was 47.8, and the corresponding percentage for 1905 was 75.8.

Sir William Davison asked whether the Ministry of Health would issue a leaflet urging upon the public the desirability of protecting themselves against small-pox by vaccination. Sir Kingsley Wood said he would put this suggestion before the Minister. Sir Henry Craik asked whether the Minister did not consider that the time had come to take legislative steps to protect the people. No answer was returned.

Encephalitis Lethargica.

Sir Kingsley Wood informed Mr. Ammon that the departments concerned were considering the best means of providing for such cases as that of the young man charged with theft at Lambeth on January 5th, who was found to be suffering from the after-effects of encephalitis lethargica. The arrangements made by the Metropolitan Asylums Board for institutional treatment of children suffering from mental after-effects of this disease provided for the ordinary hospital accommodation of the patients and for all necessary treatment and medical care. The Home Secretary told Mr. Ammon that at places of detention to which young persons under 16 were remanded medical attendance was usually afforded by a doctor in general practice, but where mental trouble was suspected the case might be referred to a school medical officer or other specially qualified doctor. Officers over 16 were remanded to prisons where the medical officers were experienced general physicians and surgeons of good qualifications, with special

experience of insanity and mental deficiency. The medical examination of young offenders was being considered by the committee appointed last year to inquire into the treatment of young offenders.

Bills.

Dr. Fremantle has introduced a Midwives and Maternity Homes Bill, to amend the Midwives Acts, 1902 and 1918, and to provide for the registration of maternity homes and for purposes connected therewith. The bill is backed by Major Hills, and has been prepared in consultation with the Ministry of Health. It consists of two parts. The first is for amending the Midwives Acts to provide for the better control of unqualified midwives, for decreasing the deficit in the funds of the Central Midwives Board, which is due to the inclusion in the roll of midwives published annually of the names of large numbers of women who, for one reason or another, are not practising; for the payment of compensation to midwives who are suspended from practice through no fault of their own; for fixing a time limit for the rendering of claims for fees by medical practitioners called in by midwives in emergencies; and for certain other purposes. Part II is for the registration and inspection of maternity homes by the councils of counties and of county boroughs.

Objection having been taken to the second reading of the Bethlem Hospital Bill, consideration of it has been deferred for a month.

The Home Secretary hopes to reintroduce the Lead Paints Protection Bill very shortly.

Silicosis.—On February 15th Mr. Rennie Smith asked the Home Secretary if he could see his way to introduce amending legislation with regard to compensation for silicosis under the Refractories Industries (Silicosis) Scheme, and, in particular, those clauses which dealt with workers who had been employed for twenty years in industries where this disease was liable to be contracted and who, after twenty years' employment or more, had left the industry. Sir W. Joynson-Hicks replied that a workman who had left the industries could apply for compensation at any time if totally disabled by silicosis. In the case of partial incapacity, the claim must be made within one month after he had left the employment. In view of the great difficulties in dealing with claims put forward long after the employment had ceased, these provisions seemed to him very favourable to the workman, and the departmental committee which recently inquired into the work of the scheme made no recommendation for any alteration. He was not prepared, therefore, as at present advised, to propose any amendment. Sir W. Joynson-Hicks also stated that he was informed that out of the 547 persons examined in the Wadley Bridge area of Yorkshire, only 15 were certified to be suffering from silicosis. Special regulations for the prevention of the disease had been put in force in the local works, and he was advised that the conditions had greatly improved. This point would continue to receive the special attention of the department.

Miner's Nystagmus.—On February 16th Colonel Lane-Fox, Secretary for Mines, in reply to Mr. W. Paling, said that the number of certificates of disablement of coal-miners through nystagmus given by certifying surgeons was: in 1921, 1,986; in 1922, 4,047; in 1923, 4,050; in 1924, 3,446. The figures for 1925 had not yet been compiled by the Home Office. Sir H. Barnston, on behalf of the Home Secretary, in reply to Mr. Paling, also stated that the number of new cases of miner's nystagmus for which compensation was paid under the Workmen's Compensation Acts in each of the years 1921 to 1924 was as follows: 1,913 in 1921, 4,092 in 1922, 3,883 in 1923, and 3,271 in 1924. The figures for 1925 were not yet available.

National Insurance.—The Minister of Health has at present no information showing what it would cost to provide allowances for dependants of sick insured persons on the same scale as those now allowed for the dependants of insured persons under the Unemployment Insurance Acts. He understands that it will be dealt with in the forthcoming report of the Royal Commission on National Health Insurance. Mr. Chamberlain informed Mr. Rhys Davies, on February 15th, that he had received a copy of Memorandum 273 I.C., Post-Confinement Certification, dated December, 1925, issued by the Scottish Board of Health to all insurance practitioners in Scotland. There was no evidence that insurance practitioners in England and Wales were under the misapprehensions which the memorandum was designed to correct, and it was not proposed to issue a similar memorandum in England and Wales.

Pensions.—Major Tryon (Minister of Pensions) has stated that the present arrangements for supply of artificial metal legs were working satisfactorily, and he was not prepared to reconsider them. The few cases in which requests were made for a special make of limb not covered by the present contracts were considered by a board of surgeons constituted for the purpose. Supplies were arranged where necessary in accordance with their advice. Answering Mr. T. Kennedy, Major Tryon said he had issued instructions that in the rare case of an applicant discharged from the service for more than seven years, where an old wound, thought to have been healed, had broken down, and the man was in need of urgent surgical treatment, immediate steps should be taken to provide such treatment. Such cases were, for the most part, restored by treatment, but if in any instance the man was found after treatment to be seriously incapacitated, consideration

would be given to the making of an appropriate grant. This was not a new policy. In reply to Mr. Windsor, Major Tryon said that 4,863 claims in respect of tuberculosis were made during 1925, of which 1,314 were admitted.

Physique of Recruits.—Out of each 1,000 recruits rejected for the British army on examination in 1924-25, 30.11 were rejected for defects of the lower extremities, 14.10 for deficient chest measurement, 20.02 for insufficient weight, 32.39 for defective vision, 40.45 for diseases of the ear, 47.69 for diseases of the heart, 11.73 for diseases of the veins (varix), 32.78 for loss or decay of many teeth, 10.95 for varicocele, and 19.63 for flat-feet. Of recruits accepted for the navy in 1925, 2.67 per cent. were invalidated out within twelve months of acceptance.

Prison Medical Officers.—Answering Dr. Watts, the Home Secretary said he was unaware that certain prison medical officers were not getting the full benefit of the recommendations of the Stanhope Committee as regards increases of salary. Therefore the question of his inquiry into this matter did not arise.

Naval Medical Service.—The total number of medical and dental officers, sick-leath staff, nursing and massage sisters, and pharmaceutical staff under the Admiralty is 665 at home and 110 abroad. The annual cost of this staff at home is £135,422 and abroad £29,300. The maximum home accommodation for patients is 3,040 and average daily number 1,323. Abroad the maximum accommodation is 654 and average daily number 311.

Maternity and Child Welfare in Scotland.—On February 16th Sir J. Gilmour, the Secretary for Scotland, replying to Mr. N. McLean, said that under the maternity service and child welfare schemes in Scotland no payments of grant were made directly to maternity institutions, but where a local authority had made approved arrangements with a voluntary institution or itself provided an institution the approved cost ranked against the maternity and child welfare grant. The whole question of the finance of voluntary hospitals in Scotland had been the subject of a remit to a special committee, whose report he had just received. (See SUPPLEMENT to BRITISH MEDICAL JOURNAL of February 13th, p. 54.)

National Birth Rates.—Answering Sir N. Grattan Doyle, Mr. Neville Chamberlain gave the following birth rates of European countries in the latest years available:

Birth Rate per 100 Population.		
England and Wales (1925)	1.83	Netherlands (1924) ... 2.52*
England and Wales (1924)	1.88	Belgium (1924) ... 1.99
Sweden (1924) ...	1.81*	Spain (1924) ... 2.99*
France (1924) ...	1.89	Hungary (1924) ... 2.68
Finland (1924) ...	2.24	Czecho-Slovakia (1924) ... 1.95*
Germany (1924) ...	2.04*	Austria (1923) ... 2.25*
Denmark (1923) ...	2.54	Italy (1923) ... 2.93
Switzerland (1924) ...	1.87	

* Provisional.

Contraceptive Literature.—The Home Secretary, in reply to Sir N. Grattan Doyle, said he had received numerous complaints from members of the medical profession and others regarding the transmission through the post of circulars advertising contraceptives. In conjunction with the Home Office, the Director of Public Prosecutions had given the subject close attention, and would continue to take action in cases which appeared to involve a contravention of the law. The success of such proceedings depended upon the magistrates being satisfied that the postal matter was in fact indecent, and the divided state of public opinion had been reflected in the decisions given. The Home Secretary did not know of any further steps which he could usefully take.

Notes in Brief.

Measures for the protection of the civil population against poison gas are still under consideration, but the Government deems it inexpedient to give specific information.

Negotiations have been concluded between the Air Minister and the life insurance companies whereby the companies have reduced their annual premiums to cover flying risks in the case of R.A.F. officers.

The Government is unable to promote legislation to amend the provisions of the Dangerous Drugs Amendment Act, 1923, as applied to animal medicines.

A discussion on the Public Health (Preservatives in Food) Regulations is to be arranged on the vote for the Minister of Health's salary.

The Under Secretary for India states that outside doctors are or rarely neither allowed nor needed for the attendance of sick persons in gaol.

The Minister of Health cannot at present consider the granting of free licences and the making of free tuberculin tests for producers of Grade A milk.

The Home Secretary does not propose to appoint a committee to consider tests for drunkenness.

Sir Kingsley Wood states that there is nothing in Section 5 of the Dentists Act, 1921, as interpreted hitherto, to prevent any co-operative society or similar body from arranging for the dental treatment of its members, provided it does not seek any profit in so doing.

During the financial year 1924 £21,180 was expended in administration, as apart from capital expenditure, on medical and sanitary services by the Government of the Gambia.

Medical News.

SIR GEORGE NEWMAN, K.C.B., will deliver the Hunterian Oration at a meeting of the Hunterian Society of London to be held at the Mansion House, on Monday, February 22nd, at 9 p.m. His subject is the relation of the general practitioner to preventive medicine.

DR. E. GRAHAM LITTLE, M.P., has been elected a corresponding member of the Danish Dermatological Society and of the Royal Society of Medicine of Budapest, and honorary member of the Italian Society of Dermatology and Syphilography.

THE sixth biennial Sydney Ringer lecture will be delivered at University College Hospital Medical School by Dr. G. V. Anrep on Thursday, March 4th, at 5 p.m.; the subject is the regulation of the coronary circulation. The lecture is open to all qualified practitioners and medical students.

The annual dinner of the Glasgow University Club, London, postponed from December 4th last, will take place at the Trocadero Restaurant, Piccadilly, on Friday, February 26th, at 7.15 p.m. for 7.30 precisely. The chair is to be taken by Sir Henry Craik, Bt., K.C.B., M.P., and Sir Martin Conway, M.P., will respond to the toast of "The Guests." Any Glasgow University men who, though not members of the club, would like to attend will kindly communicate with the Honorary Secretaries, 62, Harley House, N.W.1.

A CHADWICK public lecture on the activated sludge process of sewage treatment will be given by Mr. H. T. Calvert, D.Sc., in the lecture hall of the Institution of Civil Engineers, Great George Street, Westminster, on Friday, February 26th, at 8 p.m. Admission is free.

A PROVINCIAL meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health is being held in Birmingham on February 19th and 20th. Papers are being read on child welfare work in the United States and Canada, and on the effect of defective ante-natal care and obstetrics on the health of the mother. Clinical demonstrations have been arranged in various Birmingham clinics.

At a meeting of the Sociological Society to be held at the rooms of the Royal Society, Burlington House, Piccadilly, W., on Tuesday, February 25rd, at 8.15 p.m., Dr. Binnie Dunlop will speak on the Malthusian principle and sociology. The chair will be taken by Sir Francis Younghusband.

THE Grade "A" (Tuberculin Tested) Milk Producers Association is arranging a conference at University College, Reading, for March 23rd and 24th, on similar lines to that held in 1924. On the first day, under the chairmanship of Dr. R. King Brown, medical officer of health for Bermondsey, the subjects to be dealt with include the present position of certified and Grade "A" (tuberculin tested) milk in Scotland, the steps taken by the (Ministry of Agriculture to promote the production of graded milk, and the cost of producing Grade "A" (tuberculin tested) milk. The chairman for the second day will be Dr. A. A. Mussen, medical officer of health for Liverpool, and discussions will be held on the value of the tuberculin test to the dairy farm, the growth of grade milk production, and the control of tuberculin tested milk from its source to the consumer. Visits will be paid to graded milk producers' farms, to district distributors, and the College Farm and National Institute for Research in Dairying. On the first evening a dinner will be held under the chairmanship of Mr. W. M. Childs, the Principal of University College. Residential accommodation will be available at St. Patrick's Hall. Tickets and further information may be obtained from the honorary secretary, Lieut.-Colonel C. Maddock, C.I.E., M.D., Foxglade House, Shinfeld, Reading.

THE Fellowship of Medicine announces that on February 25th, at 5 p.m., a lecture will be given by Mr. Frank Kidd entitled "Some points in the treatment of tuberculosis of the urogenital tract," at 11, Chandos Street, free to all members of the medical profession. On the same date Mr. L. B. Barrington-Ward will give a special demonstration in clinical surgery at the Royal Northern Hospital at 2 p.m. to members of the Fellowship or holders of its general course tickets. The following courses will be continued through the week: General medicine and surgery at the Queen Mary's Hospital, Stratford; clinical instruction in venereal disease at the London Lock Hospital; and a combined course in diseases of children at the Paddington Green Hospital, Victoria Hospital (Chelsea), and the Children's Clinic. During the first fortnight of March there will be a daily afternoon post-graduate course at the Royal Eye Hospital. In the early part of March the Westminster Hospital will give a special course in bacteriology, during the last three weeks in March the Chelsea Hospital for Women will hold a course in gynaecology, and during the last fortnight the Brompton Hospital will arrange an all-day course in diseases of the chest. The Hampstead

General Hospital will hold a late afternoon course in general medicine and surgery from March 15th to 27th, while the Tropical School will begin a course of two sessions weekly on March 16th. Copies of all syllabuses and of the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

PROFESSOR S. LYLE CUMMINS will hold an intensive post-graduate course on tuberculosis from April 12th to 17th, for medical men and women specially engaged in tuberculosis work. The course will consist of clinical meetings with demonstrations at Glan Ely Hospital, Fairwater, near Cardiff, and at Cefn Mably Hospital, near Cardiff, x-ray demonstration and reading of films at Glan Ely Hospital, and daily lectures and pathological demonstrations at the Welsh National School of Medicine, Cardiff. The fee for the course, which will be limited to ten members, is three guineas. Names should be sent immediately to the Honorary Secretary, Joint Tuberculosis Council Post-Graduate Courses, at 19, Brunswick Square, Cumberwell, S.E.5, from whom particulars can be obtained.

THE Scottish Board of Health has appointed Dr. Thomas Dymock Kennedy to the post of district medical officer (medical referee) in that department. Dr. Kennedy is at present Senior Medical Assessor for Scotland under the Ministry of Pensions, with which department he has served for the past six and a half years.

DR. MIRALLÉ has been nominated professor of clinical medicine, and Dr. Brelet professor of medical pathology, in the Nantes medical school. Dr. Léri has succeeded Professor Guillaïn as President of the Société de Neurologie, and M. Emile Perrot, professor of materia medica in the Paris Faculty of Pharmacy, has succeeded Dr. Gallois as president of the Société de Thérapeutique.

THE Ella Sachs Plotz Foundation, which provides grants in aid of scientific research in different parts of the world, gave thirteen grants in 1925, as compared with eight in the previous year. The United States received nine grants and Strasbourg, Vienna, Estonia, Berlin, and Hungary one each. Applications for grants during the coming year should be sent before May 15th to the secretary of the executive committee, Dr. E. W. Peabody, Boston City Hospital, Boston, Massachusetts. It is announced that researches will be favoured which are directed towards the solution of problems in medicine and surgery. In both 1925 and 1924 four of the investigations aided were related to chronic nephritis.

In a communication on engineering services in hospitals and asylums read before the Institution of Heating and Ventilating Engineers, Mr. H. G. Cathcart gave figures showing the actual amount of fuel and water consumed per annum in different types of institutions. Much economy in fuel was effected by a modern centralized plant as compared with the old-fashioned type of scattered heating and hot-water units. Mr. Cathcart advocated the use of low-pressure hot water, and as simple a plant as possible consistent with efficiency. All pipes and radiators should be accessible for cleaning purposes and the heating surface evenly distributed. He also gave figures as to the consumption of gas and electricity per head per annum in different institutions.

In commemoration of the thirtieth anniversary of his appointment to the Bucarest Faculty of Medicine, Dr. T. Jonnesco will receive on February 21st a presentation volume containing an account of his life, together with a congratulatory address.

DR. DOLÉRIS, ex-president of the Académie de Médecine of Paris, has been nominated Commander of the Legion of Honour. The nomination of Professors T. Madsen and P. Teissier of Paris as honorary foreign members of the Royal Academy of Medicine of Belgium has been approved by royal decree.

DURING the first six months of 1925 small-pox in America and Canadian cities was more than three times as fatal as in 1923, the mortality last year being 3.5 per cent., as compared with 1 per cent. in 1923.

M. RAKOVSKI, the new ambassador of the Soviet Republics in Paris, received a medical training in Paris, Nancy, and Montpellier.

It is announced that under the auspices of the Health Organization of the League of Nations special laboratory courses on malaria will be arranged for medical practitioners in London, Paris, and Hamburg during next summer. Dr. Andrew Balfour will hold a theoretical and laboratory course in London from June 21st to July 24th, and Professor Brumpt and Professor Nocht will arrange similar courses in Paris and Hamburg respectively. Field work, lasting several months, in such infected countries as Spain, Italy, Corsica, Jugo-Slavia, and, possibly, Palestine, will follow the theoretical part. Further information may be obtained from the Health Section of the Secretariat of the League of Nations at Geneva.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9801, 9802, 9803, and 9804** (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

PAGET'S DISEASE.

"M.R.C.S." has the misfortune to suffer from Paget's disease, chiefly affecting the right leg; this has been troublesome for about six months and gets worse. His head is enlarged, but this became quiescent two to three years ago. He asks if there is any treatment likely to do him good. The leg gets very painful after exertion and again at night. He has tried iodides, salicylates, and endocrines, together with various forms of electricity, but without appreciable relief.

* * We are afraid that treatment of this affection can only be palliative. A late distinguished member of our profession found his symptoms alleviated by a protein or meat diet. The pains in the long bones appear to be due to tension, and relief has been experienced after osteotomy, performed to correct deformity and not with the intention of relieving pain. If the pains are severe there could, we think, be little risk in drilling into the bone in various situations, which could be done subcutaneously. Our correspondent appears to have tried the usual internal remedies except mercurials, which he does not mention. They might be given a trial.

PETROLEUM IN THROAT SPRAYS.

"J. M. G." asks whether there is any objection to the constant use of liquid petroleum as a basis for a nose and throat spray, particularly with regard to the possible danger of setting up cancer. He would like to know of a good formula for a spray with either a petroleum or an oil basis, for frequent use as a safeguard against influenza and common colds.

* * The experimental production of cancer by paraffin is believed to be due to impurities in the paraffin; there is no evidence that the Pharmacopoeial paraffinum liquidum produces cancer, and it is commonly used in the manner indicated. The following is a good oil spray: Chloretone, gr. xv; camphor, gr. xl; menthol, gr. xl; olei cinnamoni, m viij; liq. paraffin. ad 3ij.

LEAD SALTS IN CANCER.

Dr. G. C. BELCHER (Birmingham) writes: I would remind Colonel Rowcroft (*JOURNAL*, February 6th, p. 263) that the dose of lead acetate he advocates is the average one. Each case is judged upon its merits; different individuals vary with this drug. Lead in particular affects the individual differently; boys as apprentices to the plumbing trade have a probation for a few weeks to see if they can without danger keep to the trade. So it is in all cases of lead workers. In some of my patients 1/2 grain daily could not be tolerated; in others as much as 5 grains, and in one case 7 grains, was required to produce the well known toxic effects of lead; but the dose I advise is one already stated by me—1½ grains t.d.s., as an average dose.

INCOME TAX.

Allowance for Insurance Premium.

"R. A. D." is converting his life assurance into an endowment policy payable at the age of 65; does this affect his income tax allowance?

* * It is assumed that our correspondent is, in law, discontinuing one policy and entering into a new contract. On that basis he will be entitled to the relief in respect of the premiums paid, at half standard rate if his total income does not exceed

£1,000, three-quarters if not exceeding £2,000, and the full rate if it exceeds that figure—subject to the restriction that the amount of the premium allowed exceeds neither 7 per cent. of the capital sum payable at death or 65, nor one-sixth of his total income, and to the further restriction that the rate at which the allowance is made does not exceed 3s. It is on this last point that "R. A. D." may possibly lose, as that restriction applies only to policies taken out after June 22nd, 1916, and his first policy may have been prior to that date, in which case he may lose if his total income amounts to £2,000.

LETTERS, NOTES, ETC.

OPEN-AIR SHELTERS.

THE "Papworth Industries," Cambridge, which is part of the well known tuberculosis colony, to the work of which we have often referred, is prepared to supply shelters of various types for the home treatment of tuberculosis and other diseases in which sleeping in the air is required. To overcome the difficulty of introducing these shelters into gardens through narrow doors one type—the "County" shelter—can be supplied with a jointed roof and front. Another pattern is arranged to revolve, so as to avoid rain and wind blowing into it; and a third, more elaborate, type is constructed so that air can enter simultaneously through all four sides, any of which can be closed quickly if desired.

GOITRE IN NEW ZEALAND.

Dr. E. H. WILKINS (Birmingham) writes: In the discussion on goitre reported in your issue of February 6th (p. 241) Dr. Cole is reported as saying that in New Zealand goitre is confined to narrow sunless valleys. Having lived in New Zealand ten years I am in a position to say that this is not so. One of the chief goitrous areas, for instance, is on the Canterbury plains. Goitre in New Zealand appears to have a definite relation to water of soil, but not to bacterial infection of the water (see two papers by Hercus and Baker in the *New Zealand Medical Journal* and reports of the Health Department during the last few years).

MEDICAL MISSIONS.

"EXPERIENCED" writes: The article on the needs of medical missions, in the *JOURNAL* of February 6th (p. 255), gave no indication as to the cause of the needs. One is, of course, money. I think only one mission committee has made any arrangement by which a doctor can serve for a period and have a certain sum to start him in practice after. This must affect many men and some women doctors who cannot undertake life service. Another cause is the precise opinion on theological points required by some societies. I believe the Anglicans are the worst offenders. Obviously it is difficult for a committee chiefly composed of good ladies and clergy to realize that points of importance to padres and perhaps teachers are meaningless for doctors and nurses. One could imagine a doctors' missionary society which would supply doctors where needed: theological agreement with the mission concerned being considered desirable but not essential. It would fail under the present system, because committees would rather have hospitals closed and sick people left uncared for than employ practitioners with unorthodox religious views. A possible solution would be that members of missionary committees should be bound to employ for themselves no doctor whom they could not recommend for their mission.

THE HEALTH OF THE JEWISH CHILD.

At a recent meeting organized by the Jewish Health Organization in Whitechapel an address was given by Dr. A. Elchholz, chief inspector of the Board of Education, on the health of the Jewish child. He said that in the Middle Ages, when the greater part of Europe was intellectually dark, Jewish practitioners of medicine in Northern Africa, Western Asia, and Southern Europe kept the traditions of science alive. He had recently found in a rare Italian medical work, published in 1487, copious marginal notes in Hebrew, the work of some ancient Jewish doctor, who had recorded his own observations and compared them with those in the text. The Jewish Health Organization was now actively concerned in investigating the hygienic and medical conditions of Jewish school children, with special reference to defects of vision; these were frequently associated with measles and scarlet fever, which caused weakening of the muscles. Insufficient attention was paid by Jews to the need of recuperation after measles in childhood. It was possible that care in this respect and avoidance of undue fatigue and overwork, especially at night, would protect the children from visual strain. In addition to their school work, Jewish children had to devote time in the evenings to the study of Hebrew and of their religion. On February 27th, under the auspices of the Jewish Health Organization, a lecture on social hygiene and the home will be delivered to women by Professor Winifred Cullis, and on March 6th by Dr. Israel Feldman to men on the perils of ignorance.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 39, 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 44.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 63.

A British Medical Association Lecture ON THE SURGICAL ASPECTS OF CERTAIN DISTURBANCES OF THE INVOLUNTARY NERVOUS SYSTEM MET WITH IN THE ALIMENTARY TRACT.*

BY

JOHN FRASER, M.D., CH.M.,

REGIUS PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY
OF EDINBURGH.

MR. PRESIDENT AND GENTLEMEN,—I thank you for the privilege you have afforded me in asking me to speak to you this afternoon. I am grateful to you for many reasons. I confess I enjoy a visit to London, and as I walked along Piccadilly this morning it seemed to me that George Colman's lines still hold good:

"Oh, London is a fine town,
A very famous city,
Where all the streets are paved with gold,
And all the maidens pretty."

The reputation of 1797 applies to-day, and we country mice from the provinces are enamoured of it all. As I sat just now on the edge of the fountain in the courtyard, before Professor Gask took charge of me, I felt conscious of the privilege of speaking on this historic spot, for, if the walls are modern, the spirit is as old as that of Rahere, the founder and prior of 1123.

It is my intention to speak on a subject which interests me greatly, and I would I could garb it attractively, so that you too might be interested. It is necessary that I introduce the subject with a brief reference to the physiological anatomy of the important body element—the involuntary nervous system.

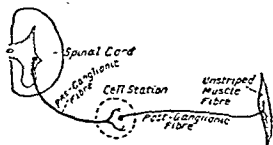


FIG. 1.—Diagram showing relation between pre-ganglionic and post-ganglionic fibres. (From *Essentials of Physiology*, Bainbridge and Menzies.)

Langley in 1898 grouped together the efferent nerve fibres and ganglionic systems which control the unstriated and cardiac muscles and the glandular tissues under the name of "the autonomic nervous system," and this work, together with that of Gaskell, Bayliss, Starling, Langdon Brown, and many others, has put our knowledge of this most interesting though intricate system upon a clear basis.

A GENERAL APPRECIATION OF THE ANATOMY.

It seems to me that we get an interesting appreciation of the peculiar distinctions of the involuntary nervous system if we contrast it with the arrangements which

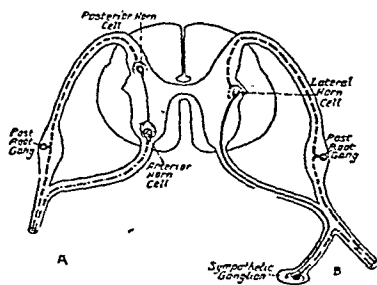


FIG. 2.—The paths of the reflex. A, The path of the ordinary spinal reflex. B, The path of the sympathetic reflex. (From Langdon Brown's *The Sympathetic Nervous System in Disease*.)

pertain in the voluntary. In the voluntary nervous system the motor nerve cell lies in the grey matter of the anterior horn of the spinal cord, and the nerve fibre which arises from it is medullated in structure, efferent in direction, and effector in function. How different is the orientation (if I may use the term in this sense) of the involuntary system! Here the nerve cell occupies a situation which is extracordal and usually localized in a ganglion. The cell is connected with the cord by a fibre which is medullated in structure, pre-ganglionic in position, and yet when considered on a physiological basis connector in function—a link, in other words, which con-

nects the effector cell with an intracordal station. From the ganglionic cell there passes in a peripheral direction a fibre which is non-medullated in structure, post-ganglionic in position, and effector in function. This is a contrast appreciation of the position which I have found most helpful in my own estimation of the relations of these two divisions of the nervous system.

SYMPATHETIC AND PARASYMPATHETIC DIVISIONS.

The physiologist and the anatomist have subdivided the involuntary nervous system into the *sympathetic* and the *parasympathetic* groups, and, in view of certain clinical facts which I shall discuss later, it is well that we should recognize the reasons for which the distinction has been made.

The Distinction of Position.

There is first the distinction of position. The fibres which constitute the sympathetic division leave the spinal cord over a wide level—a level which extends from the first dorsal root to the fourth lumbar root. In contrast to this the parasympathetic outflow lies in relation to the extremities of the cerebro-spinal axis, for its impulses are transmitted from the mid-brain and the medulla through the medium of the oculomotor, the chorda tympani, and the vagus, and from the sacral segments through the pelvic nerves. "Bulbo-sacral" is the term which is sometimes applied to the parasympathetic division, and the description is a convenient one so far as anatomical distribution is concerned. It will be observed that the outflow of the sympathetic nervous system is separated from the points of exit of the parasympathetic system by those areas of the spinal cord which contain the cord innervation centres for the upper and lower limbs—the cervico-dorsal enlargement separates the sympathetic from the bulbar parasympathetic while the lumbo-sacral enlargement exists between the sympathetic and the sacral parasympathetic.

In passing we may note that this orientation of the various portions of the nervous system is of great interest to the phylogenetist and the morphologist, for it is in some respects an indication of the progress of evolution. The development of the extremities and the spinal nerve cell arrangements which their innervation demanded have evidently been later in their formation than the involuntary nervous system, hence the separation of the involuntary segments by the limb related enlargements of the cord.

The Distinction in Function.

Of greater practical importance in our subject, however, is the distinction in function which characterizes the two divisions of the involuntary nervous system. Every student of physiology knows how impressive is the distinction where the heart muscle is concerned between the action of the vagus (parasympathetic) on the one hand and the sympathetic on the other—the one inhibitory and retarding, the other accelerating. Where the enteral or alimentary system is concerned the generalization may be made that the two portions of the involuntary nervous system are to some extent antagonistic the one to the other. If the stimulus of one division results in contraction it follows almost as a matter of course that the activation of the other will induce an inhibition which is virtually a relaxation. It is true that in certain situations a single type of supply, either parasympathetic or sympathetic, is provided, and in such an event it follows that both varieties of impulse are converged by the same channel. Such an arrangement probably applies in the oesophagus and cardiac portions of the stomach, where the parasympathetic is the sole source of supply, and probably in certain sections of the large intestine where the sympathetic is the sole distribution. These facts, however, do not affect the

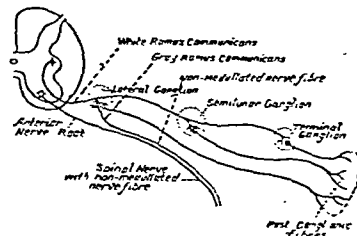


FIG. 3.—The cell stations of the autonomic nervous system. (From Lyle and De Souza's *Physiology*.)

* Delivered before a meeting of the City Division at St. Bartholomew's Hospital, November, 1925.

general consideration that the functions of the two divisions of the involuntary nervous system are antagonistic, and that in health the related exercise of the two types of function is so carefully balanced and adjusted that healthy tone results. I would add that, while the exercise of antagonistic function is general, it is exercised particularly in those regions in which special arrangements of muscular fibres exist—as, for example, in the region of the sphincters of the alimentary canal.

The Distinction of Distribution.

At first sight it would appear as though a distinction existed on the basis of the structural arrangements of the two divisions, and in certain respects this is true. The scheme of the involuntary nervous system is a medullated fibre from the cerebro-spinal axis, a relay ganglion around the cells of which the medullated fibre synapses, and a non-medullated fibre which is continued to the effector organ. The principle of this arrangement is maintained throughout the entire system, and exceptions which appear to exist are more apparent than real. It would seem as though the arrangement of such a parasympathetic nerve as the vagus differs very materially from the average sympathetic fibre, but such is not actually the case—both are arranged and distributed on a common scheme.

It is, I believe, correct to summarize the position as follows. It is characteristic of the sympathetic division to possess a short pre-ganglionic non-medullated fibre and a long post-ganglionic medullated fibre; it is typical of the parasympathetic, on the other hand, to show a long pre-ganglionic fibre and a short post-ganglionic distribution. The ganglion with its cell station is common to both; the distinction, if one may call it so, is in the respective lengths of the pre-ganglionic and post-ganglionic fibres. It is correct, however, to recognize that the effect of this arrangement results in a distinction, for the proximity of the parasympathetic cell station to its organ results in a localized response, while the stimulus of a pre-ganglionic sympathetic fibre is followed by a wide and diffuse reaction.

A Physiological Distinction.

One distinction there is, physiological in type, but a distinction which may have great importance in its influence upon certain chemical and pathological questions. I allude to the close and peculiar relation which the sympathetic division of the involuntary nervous system bears to the adrenals. Phylogenetically, embryologically, and functionally the two are in the closest relation to each other, and interaction of their respective functions must be constantly in evidence. In explanation of this point I quote the words of Gaskell:

"The evidence of embryology and comparative anatomy thus points strongly to the conclusion that the sympathetic nervous system arose from nerve cells containing adrenaline . . . and that when these cells left the central nervous system to become peripheral they left not as single cells, but as two separate cells, one of which contained all the adrenaline and formed the chromaffin system, and the other the nerve cells of the sympathetic system of the vertebrates."

In this we find the explanation of the fact that the nerves of the suprarenal are pre-ganglionic in type, and it makes clear Langley's generalization that the effect of adrenaline on a tissue is similar to a stimulation of its sympathetic nerves. As Langdon Brown expresses it, "the chromaffin cell represents the excitator element."

Psychological and Metabolic Distinctions.

There are yet further distinctions. It is possible to recognize a psychological difference, for the sympathetic is a medium by which the defence mechanism of the body is stimulated while the parasympathetic is the "lotus-eater's friend." Even on a metabolic basis a distinction may be drawn, for the sympathetic is as strongly katabolic in its effects as the parasympathetic is anabolic.

It will be agreed that the distinctions are sufficiently numerous and manifest to justify the subdivision of the involuntary nervous system into two groups—sympathetic on the one hand and parasympathetic on the other.

AN ASPECT OF THE EVOLUTION OF THE INVOLUNTARY NERVOUS SYSTEM.

I confess that it is with some measure of trepidation that I include this aspect of the subject. It may seem scarcely germane to the question under discussion, though I believe I shall be able to dissipate that attitude; my anxiety is rather in embarking upon a subject which remains so controversial. But the lessons I wish to draw are very simple; hypotheses I will undertake to avoid. The principle I desire to follow is one which I believe might well be applied in much of our work—the principle of thinking biologically and of correlating the lessons of biology to the problems of our clinical studies.

In a general sense it is true to state that our nervous system is composed of three elements—receptor, effector, and that important link which connects the two and in one sense makes life possible, the adjustor or connector fibre. The complexity of this arrangement is the result of a long process of evolution, and it is the phases of this process and the lessons I would draw from it that I desire to present.

Let us consider the nervous mechanism of such a simple organism as the sea sponge. A single sponge is a goblet-shaped or finger-shaped animal attached by its base to the sea bed. The ordinary bath sponge is an example of the principle which Fabre has so vividly described, the "community" grouping of the simple types of the natural world, for it is composed of a number of individual finger sponges fused together; it is, in fact, a communistic or gregarious production. The outer surface of the creature is perforated by a series of pores which lead into a system of canals each lined by "lash" cells, the function of which is to propel the water through the canals into a large space in the centre of the sponge, from which the fluid ultimately escapes by a single large opening at the unattached end of the animal. From the current of fluid in circulation the creature extracts the necessary nourishment, and the production and the control of this current are the essential features of its existence. The direction and the degree of the current are controlled by such simple arrangements as a slight contraction and bending of the body as a whole, by the formation of protoplasmic membranes which temporarily close the openings, and by the action of layers of simple muscle cells which surround the pores and the exit openings.

The mechanism is simple, but is none the less vital to the well-being and existence of the individual, and we naturally ask ourselves how it is induced and controlled. The experimental and biological knowledge which we possess has failed to reveal any evidence of nerve mechanism or transmission. The responses are put into operation by direct stimulation without any associated nervous impulse; in fact, the life of the creature is maintained by structures which respond only to direct stimulation, a local response to a local stimulus.

Let us pass higher in the scale of animal life and consider the arrangements which exist in the sea-anemone (*Actinia mesembryanthemum*). The appearance of this creature is well known. The sac-like body is attached by means of the "pedal disc" to rock or stone; the large central cavity, surrounded by its fringe of tentacles, is the space in which digestion proceeds and from which undigested residue is discharged to the exterior. When an expanded sea-anemone is stimulated by contact it responds by a general contraction of its body musculature, and the response follows a stimulus applied to any portion of the body wall. A general and collective response succeeds a local stimulus, a result which is ensured through the medium of a nerve net spreading throughout the body substance, bringing any and every portion of its body surface into association with its entire musculature. The arrangement is an example of direct transference from receptor to effector through the medium of a nerve net, the control organ or adjustor being absent.

It is in the earthworms (Annelida) that the first evidence of an adjustor mechanism becomes apparent. In the anterior extremity of the creature on the dorsal aspect there is a small collection of nervous matter which may be termed a brain, while connected with this and extending along the ventral mid-line is a segmented chain of ganglionic enlargements. Primitive in its arrangement such a central nervous system may be, and yet a very real advance

in the evolutionary trail, for it contains the internuncial neurones which constitute the beginnings of the adjustor or connector mechanism.

In the scheme of evolution muscle first functioned as an independent effector; receptors or triggers for activating the muscles were afterwards developed, the diffuse nerve net acting as the organ of transmission and intercommunication; and finally a central nervous organ was evolved at the site of the adjustor or connector mechanism, a tissue or group of tissues which eventually adopted the function of modifying responses in relation to past influences until it has become a storehouse of experience and the centre of the intellectual life (Parker).

The evolutionary picture which I have drawn would indicate that the involuntary nervous system, and particularly that portion which is grouped as the sympathetic system, is the persistence of an earlier type. The involuntary muscle of the intestine responds to direct stimulus, as does the tissue of the sponge; many of the hollow viscera possess a nerve net which functions as does the parallel system of the sea-anemone, while the nervous system of the earthworm is arranged on a plan strikingly similar to that found in the ganglionic cord of the sympathetic nervous system of man.

If it is correct to consider the sympathetic portion of the involuntary nervous system as the eldest from the phylogenic point of view, it follows that the parasympathetic is a later acquisition, and this would seem to be indicated for several reasons: (1) from its position in relation to the extremities of the cerebro-spinal axis; (2) from its relation, in part at least, to that portion of the cerebro-spinal axis which has been a late acquisition in the phylogenic tree, the mid-brain and medulla; (3) from its great length of medullated nerve structure.

The Acquisition of Contraction and Inhibition.

It is a necessary preliminary for the thesis which I am about to present that I answer a question which may be of great importance in relation to certain pathological features. The question is: "Does the acquisition of the function of motor activity (contraction and relaxation) precede the acquisition of the function of inhibition, or is there a coincident development of both functions?" The answer I venture to give is suggested to me by the results of a simple experiment on the sea-anemone.

When the creature is fed with small particles of meat the food is collected by the tentacles and passed into the central cavity, where it is ultimately digested. If fragments of filter paper soaked in meat juice are alternated with the meat both materials are accepted indiscriminately—but not for long! After some eight or ten experiences the meat is accepted while the filter paper is rejected. Inhibition has been excited, but only as a secondary and subsidiary function. The experiment affords information which enables me to answer the question, for the evidence I have quoted suggests to me that the acquisition of motor activity precedes the acquisition of the function of inhibition.

The information is important for the substantiation of my hypothesis, but for the present it is sufficient to state my belief that in the involuntary nervous system the acquisition of contractive function precedes the inhibitory; in fact it may well be that the exercise of inhibition is at first experimental and selective, and only later becomes a regularized part of the nervous mechanism.

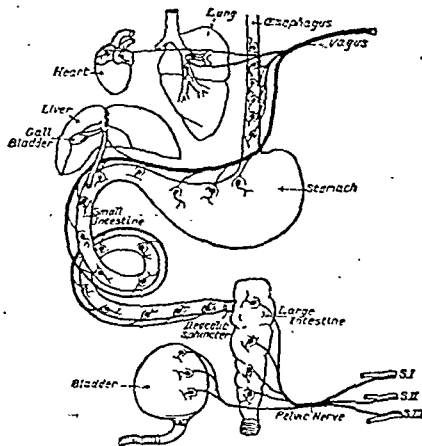


FIG. 4.—The distribution of the parasympathetic or bulbo-sacral (central) system. (From Pottenger's *Symptoms of Visceral Disease*.)

inhibitory on the other, I believe that the motor is the more primitive, and that in the growth and progress of any individual, the motor function takes precedence in its time of acquisition of the more selective inhibitory function.

THE DISTRIBUTION OF THE SYMPATHETIC AND PARASYMPATHETIC NERVOUS SYSTEMS IN RELATION TO FUNCTION.

Authorities differ a good deal in their descriptions of the

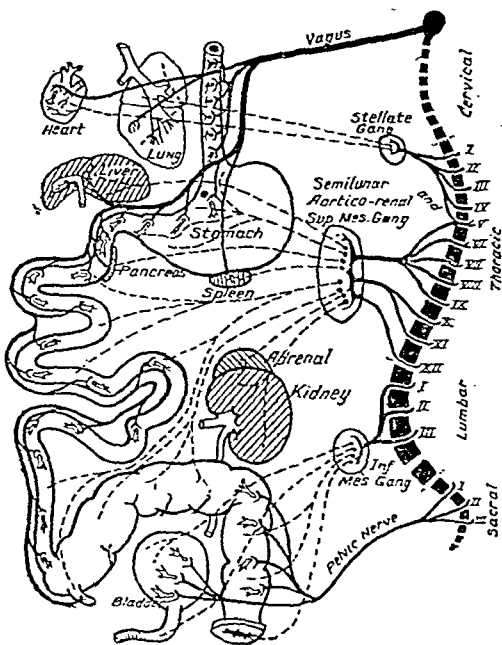


FIG. 5.—Schematic illustration of the double innervation of the central system. (Modified from Pottenger's *Symptoms of Visceral Disease*.)

various types of supply meet or overlap—the pylorus, the ileo-caecal junction, and the lower reaches of the large intestine.

A PATHOLOGICAL APPRECIATION.

Each system has its peculiar pathology, and in common with others there is a pathology of the involuntary nervous system—a state of affairs which differs from the normal,

distribution of the involuntary nerve supply to the respective portions of the alimentary tract, but certain general considerations are accepted (Fig. 5). The oesophagus and the cardiac portion of the stomach are supplied by the parasympathetic, both motor and inhibitory impulses being conveyed along this channel. In the pyloric half of the stomach the sympathetic first becomes evident, and from this point onwards as far as the ileo-caecal region there is a combined distribution of sympathetic and parasympathetic elements, the former motor, the latter inhibitory in its effects. The large intestine as far as the lower end of the pelvic colon is evidently the site of a pure sympathetic distribution, motor and inhibitory functions being distributed along this channel. The remaining portion of the large intestine and the rectum combine a sympathetic and a parasympathetic supply, the former being inhibitory and the latter motor. Particularly important in view of the pathology presently to be discussed are those areas where the

and by doing so results in the various symptoms and physical signs of a clinical picture.

The evolution of clinical knowledge has been, and will continue to be, along certain well defined lines. Anatomy introduces the field, experimental physiology elucidates its functions, symptoms and physical signs denote derangement of these functions, and the picture is completed by the correlation of signs and symptoms with a characteristic pathology. Where the involuntary nervous system is concerned the usual path is being followed, and we are at present in a phase where, thanks to the work of the anatomist and the physiologist, a clinical picture is shaping itself and a pathology is being sought.

That disorders of the involuntary nervous system occur is beyond dispute. In relation to the hollow viscera of the abdomen such disorders may be made manifest at the sphincters or throughout the continuity of the canal. On a hypothetical basis it is possible to conceive four types of derangement:

- (a) Abnormal stimulus of contraction (spasm).
- (b) Persistence of contraction effects (achalasia).
- (c) Persistence of inhibitory effects (atony).
- (d) Irregularity of the normal peristaltic waves (arrhythmia).

It is when we attempt to speak of the pathology that we are met by the difficulty of ignorance. I can tell you the changes which result from the derangements I have outlined (a secondary pathology if you like), but there must be something deeper—original, primary, whatever you care to call it—and it is there that my difficulty lies, because as yet we do not know with any certainty in what this primary change consists, whether it be central, ganglionic, endocrine, or peripheral.

A CLINICAL PATHOLOGY.

As a primary pathology has yet to be discovered, I am driven to consider an aspect which may be described as a clinical pathology—the evidences of disease, the various disorders of the hollow alimentary viscera which in our conception proceed from derangements of the involuntary nervous system. I search through the span of life, I pick out those conditions which at one time or another with a sufficiency of reason have been ascribed to a derangement of the involuntary nervous mechanism, and I plot out in a simple fashion the age periods at which such disturbances occur. The result is interesting.

The Age Incidence.

Within a few weeks or months after birth we meet with certain disturbances which, in the opinion of many, should be included under this heading: hypertrophies of obscure origin affecting local segments of the alimentary canal; hypertrophies occurring with unflinching regularity at the sphincteric regions of the gut (the pylorus, the ileo-caecal sphincter, and the pelvi-rectal or O'Beirne's sphincter)—conditions to which there is no parallel in the later years of life; I allude to congenital hypertrophy of the pylorus, congenital hypertrophy of the ileum, and Hirschsprung's disease. These conditions possess characteristics which justify their inclusion in a special class, and as such they are representative of the early months of life.

The second group of cases which may be considered as being related in their origin to disturbance of the involuntary nervous system appear in the period of infancy. They are distinguished by irregular and abnormal peristaltic rhythms, arrhythmias, exaggerations of a physiological action which by reason of special mechanical conditions gives rise to serious pathological pictures; I allude to the intussusceptions, conditions which Neulinger once described as "uneducated and misguided types of peristalsis," clinical entities of a peculiar type and sufficiently distinctive of a definite age period in the span of life—the period of infancy.

Then follows a phase which extends from the end of infancy to puberty and into the age of adolescence, a phase of life which is remarkably free from the disturbances we have under consideration. Hypertrophies are unknown, the arrhythmias of intussusception are so rare as to be negligible events, and the atonies, the spasms, and the achalias of which I shall speak in a moment have not as yet become manifest. In figurative language it is a period of calm, and, I may add, a calm which precedes the storm, for from

the passing of puberty and the early years of the twenties up to middle life, and particularly the menopause of the female, the incidence of what one may call functional disturbances of the hollow viscera—the spasms, atonies, and achalias—are unusually frequent. It is a period of functional disturbances, of errors which are rarely serious unless it be from a functional or mental point of view, of disturbances in which a primary pathology is difficult to demonstrate, yet in which a real symptomatology is manifest. In contrast, the later decades of life are remarkably free from disturbances, and so the story ends.

The periodicity of events is surely not without significance: the hypertrophies which distinguish the early months, the arrhythmias, the uneducated functions of the early years, the period of calm as though the lesson had been learnt and an adjustment secured, the functional derangement which succeeds adolescence, the freedom from symptoms of the later years.

Let me now consider in a more individual sense the various disturbances which may reasonably be ascribed to influences exerted by the involuntary nervous system. I shall express as far as I am able the impressions which I have of the origin and nature of the various diseases, always in the light of what I have already somewhat generally described.

THE HYPERTROPHIES OF INFANCY.

Congenital Hypertrophy of the Pylorus.

The distinctive features of this condition are well known. The essential lesion is a hypertrophy of the muscular coats of the pyloric canal and antrum and to a slight degree the distal portion of the body of the stomach. The circular fibres of the pyloric sphincter are not affected, and it is a correct summary of the affected area to say that it involves that portion of the stomach musculature which is concerned with the expulsion of contents. Such changes as dilatation of the stomach, catarrh of its mucous lining, and body wasting are obviously secondary features.

The abnormality in function of an organ so affected becomes apparent on x-ray examination. There is an ill timed and abnormal, yet forcible and prolonged, contraction of the stomach muscle, and, because of the very inopportune of the function, contents are prevented from leaving the stomach.

The problem has been to account for the muscular hypertrophy. The theory of the congenital redundancy of growth, as suggested by Hirschsprung, Cantley, and others, finds few supporters, and the view which Thomson first enunciated, "that the muscle is hypertrophied because from an early period in its development it has been worried into overgrowth by constantly recurring overaction such as would result from even a slight degree of habitual inco-ordination," is now in favour. It is apparent that a demonstration of the origin of the disease is, and is likely to remain, a matter of great difficulty, but there are certain facts which help us. We must bear in mind the observation so frequently made that if the body strength can be maintained these cases pass to a natural cure by a disappearance of the hypertrophy. We have the knowledge which John Hunter first gave us, and a knowledge repeatedly confirmed, that the tendency to hypertrophy as the result of repeated forcible contractions is peculiarly well marked in involuntary muscle. We have the observation, which I believe Cameron first made, that the hypertrophy does not affect the circular fibres of the true pyloric sphincter. There is no actual obstruction—a truth which may be confirmed at operation—and it is probably significant that the change occurs at a situation in which a pure parasympathetic nerve supply merges into an area in which a mixed sympathetic and parasympathetic supply exists. Such a combination of events and related conditions suggests a persistence of motor function without the beneficial influence of inhibition, with, it may be, an achalasia or want of relaxation of the circular tissue of the pyloric ring. But my case is not yet complete.

Hypertrophic Iliac Obstruction.

During the thirteen years I was privileged to act as a member of the staff of the Edinburgh Royal Hospital for Sick Children I operated on three obscure and interesting

cases of intestinal obstruction in babies. The history in each case was somewhat similar. At birth the child appeared to be well and meconium was passed, but at a period which varied from four days to three weeks after birth signs of obstruction developed. There was vomiting of bile-stained fluid; the bowels, which had always been constipated, now ceased to act, and the abdomen became distended, a ladder pattern of small intestine being apparent. Repeated enemata usually succeeded in evacuating small amounts of bile-stained faecal matter of a somewhat inspissated type.

Laparotomy showed coils of dilated small intestine, but the lower six inches or thereabouts of the ileum was the site of a most marked hypertrophy, so marked, indeed, that in the first case I saw I mistook the condition for a hypertrophic type of small intestine tuberculosis, though I confess I was at a loss to explain how the infection could have arisen in a child of such tender age. In the two subsequent cases I recognized that the condition was a muscular hypertrophy proceeding from some obscure cause.

In the first case an ileostomy was done—unfortunately, as I now recognize, for the child succumbed—while in the other instances the abdomen was closed and recovery ultimately ensued, though constipation remained a difficulty.

I believe that these cases were examples of a disease similar in pathology and in origin to congenital hypertrophy of the pylorus. Again, it is significant that the lesion occurred where the parasympathetic nerve distribution probably ends and a pure sympathetic supply is continued; as in the pylorus, the segment affected is that immediately proximal to the actual sphincters, and there is the same tendency towards spontaneous recovery. The evidence suggests that we are dealing with the result of a neuro-muscular error, an hypertrophy which has proceeded from uncontrolled contractive impulses in a segment of bowel the muscle of which has not yet acquired the function of inhibition.

Congenital Hypertrophy and Dilatation of the Colon.

Ammon first described the condition in 1842, but the classical account which Hirschsprung gave in 1886 has led us to associate his name with the disease. Its characteristics are dilatation of the colon, most marked at the distal portion and diminishing as the gut is traced centrally, hypertrophy of the muscular coats, both circular and longitudinal, and of the muscularis mucosae. The peritoneum and mesocolon are thickened, and the associated blood vessels, lymphatics, and lymphatic glands are enlarged, and in a well established case the mucous membrane is thickened and often ulcerated. Many of these appearances, however, are secondary in their incidence, and those who have had an opportunity of seeing such cases in babies in the early stages of their development agree that hypertrophy of the muscular coat and dilatation of the colon canal are the original and the primary features. The lower limit of the change is usually at the junction of pelvic colon and rectum (O'Beirne's sphincter), but in a few instances the hypertrophy and dilatation extend downwards to the level of the anal sphincter.

I believe that the condition is of a similar nature to those I have already mentioned. Occurring at a situation where a sympathetic nerve supply comes into contact with a muscular tissue provided with parasympathetic innervation, affecting a segment of gut on the proximal side of a sphincter, associated with hypertrophy of the muscular fibres (though in this instance the gas content of the large bowel produces a coincident dilatation), the disease first becoming evident in the weeks which immediately succeed birth, this combination of circumstances suggests an etiology similar to that of congenital hypertrophy of the pylorus and congenital hypertrophy of the ileum—an uncontrolled contractive function, a delay in the acquisition of the power of inhibition, combined, it may be, with achalasia, an insufficient relaxation of the associated sphincters.

There remains yet another example of an hypertrophy of the alimentary tract ascribable to the influence of the involuntary nervous system—the condition of cardiospasm,

a dilatation of the lower end of the oesophagus with hypertrophy of its walls. I believe that this disease might with reason be included. Fleiner¹ has described examples occurring so early in life that he classified them as congenital; hypertrophy and dilatation characterizing the local pathology, and it may be that one of the nerve junctions which distinguish the disorders I have already described exists here also, for our knowledge of the nerve distribution of the oesophagus is by no means exact. There are, however, aspects in which cardiospasm differs from the aforementioned hypertrophies and dilatations, and therefore I provisionally exclude it. In relation to the other conditions, however, the point I wish to make is that in the early weeks and months of life we find highly distinctive derangements of the non-striated muscle of the alimentary tract, which are characterized by hypertrophy, which occur in situations where different types of nerve supply intermingle, which under certain conditions eventually undergo restoration to normal, and which are without parallel in the later years of life. It has seemed to me that the process which explains these errors is one which in its beginnings is functional, a delay in the acquisition of the power of inhibition by certain segments of the alimentary canal, segments which are proximal to sphincters and which correspond to areas of different nerve type junction.

As I have recalled in the simple experiment of feeding the sea-anemone, the acquisition of inhibition lags behind the functions of contraction and relaxation, and in the disease which we have under review it may well be that an undue delay in the appearance of the function of inhibition will explain the peculiar pathology, an hypertrophy which results from an uncontrolled contraction and relaxation. With the acquisition of the function of inhibition the stimulus is controlled and the hypertrophy disappears.

THE ARRHYTHMIAS OF EARLY CHILDHOOD.

While the distinctive feature of involuntary nerve errors of the early weeks and months of life is localized hypertrophy, the derangements of a later period are characterized by an exaggeration of the normal functions of the muscular coats—the function of peristalsis—and as a result we find that during a period which extends roughly from the sixth month to the end of the second year, intussusceptions, the results of an excessive and misguided peristalsis, are met with. In the last 500 cases of intussusception operated on in the Edinburgh Children's Hospital 295 had their beginnings in the small intestine, in the lower end of the ileum, where after reduction the original point of invagination remained apparent. Now the muscle of the small intestine demonstrates three varieties of activity:

(a) *A Segmentation Movement.*—An example of a local response to stretching by contents, and one independent of the myenteric reflex. The aim of this movement is to break up masses of food and to bring the nutritive material into close association with the absorptive mucosa of the gut. Because of it food passes up and down the gut for a few centimetres only.

(b) *True Peristalsis (Diastalsis).*—In this instance the stimulus is chemical rather than mechanical, and a wave of inhibition always precedes the contraction, which moreover invariably progresses in the distal direction. This movement depends upon the integrity of the nerve net, for, if repeated encircling incisions be made through the musculature of the small intestine so as to interfere with the function of the myenteric nerve plexus lying between the muscular coats, the movement is abolished. The function of this type of peristalsis is to pass the nutritive material on for some considerable distance in order that fresh areas of absorption and digestion may be reached.

(c) *The Peristaltic Rush.*—Under certain conditions the true peristaltic wave may advance at a very rapid rate. This is called "the peristaltic rush," and it is evidently in this way that intussusception is induced. It is a swift wave of peristalsis, which may sweep over the entire length of the small intestine in about one minute, and it was first observed by Van Braam-Houckgeest in rabbits killed by asphyxia. The confused squirming of the coils as the contraction rushes along has caused the phenomenon to be designated the "Rollbewegung," or the vermicular wave.

That the rushing wave is actually peristaltic in character was proved by the observations of Snelitzer and Aner. They showed that it consists of a contraction preceded by a completely relaxed section of the gut, and they were able to evoke the phenomenon in rabbits by intravenous injection of a combination of substances designed to

produce simultaneously stimulation and inhibition of intestinal activity. The most effective pair was ergot (stimulant) and calcium chloride (depressant).

When the phenomenon occurs in man the wave is carried with some degree of violence throughout the length of the small intestine. As long as inhibition precedes contraction no harm results, but when the wave reaches the lower end of the ileum, an area in which a new type of nerve supply is encountered, under certain conditions the preceding phase of inhibition is not transmitted, with the result that the strong contraction of the "peristaltic rush" carries a circular area of the gut into the distal segment as an invagination, and the intussusception has begun. I said that the event was likely to occur only under certain conditions, for every child who evidences the "peristaltic rush" does not develop intussusception; a developmental anomaly is the predisposing feature, for, if the ileo-caecal segment has failed to complete its fixation to the posterior abdominal wall, if, in other words, the third stage of intestinal rotation has not been completed, and the ileo-caecal segment is provided with a loose mesenteric attachment, the occurrence of a peristaltic rush is likely to be followed by the development of intussusception. Why this should be is difficult to explain. The laxity of the attachment offers a mechanical explanation of the migration of the intussuscepting segment, but in all likelihood there is a further influence which concerns the nerve supply of the bowel, and it may be the nodal tissue in the ileo-caecal segment.

It is natural that we should inquire about the origin of the peristaltic rush. In view of the experimental work of Snelzer and Auer we are tempted to imagine that some dietetic error which combines the depressant and the stimulant factors may be the source, but, even so, the original stimulus, whatever it may be, is acting upon an intestine which in some way is predisposed to disturbance of this nature, a bowel the functional education of which is not yet adjusted and stabilized.

The period of the intussusceptions is followed by an interval which is largely free from involuntary nerve disturbance of the alimentary tract. It would seem as though the lesson had been learnt, adjustments made when necessary, and the functional education completed.

THE DISORDERS OF ADULT LIFE.

With the passing of puberty, however, or later it may be, in certain individuals there is another breakdown in the neuro-muscular alimentary arrangements, not immediately serious as are the hypertrophies of the early months and the arrhythmias of the early years, yet ultimately of great importance from various points of view, psychological, diagnostic, and toxicæmic. The disturbances of these later years are most elusive in both their etiology and their pathology. In view of the time period of their manifestation and the response which many cases show to glandular therapy it may well be that a derangement of the glands of the internal secretories is the origin of the nervous disturbance. From what I have seen I am convinced that an imperfect attachment of the caecum and ascending colon to the posterior abdominal wall is a frequent, in fact I would say a constant, accompaniment of the functional disorders—that, in other words, an abnormal type of intestinal arrangement exists to make such disturbance possible. But we must confess that our knowledge of the etiology remains largely hypothetical.

The pathology is as difficult of demonstration as the etiology. Spasms of achalasia or want of relaxation and atonies express the changes which give rise to symptoms, yet, except in the case of the atonies, many of them are as transient as the morning mist: they vanish during anaesthesia and operation, and when life has fled they too have vanished.

But it is in respect of diagnosis that a great interest lies. During six months' work in the Edinburgh Royal Infirmary I have kept a careful record of fifty-eight cases sent to hospital with the diagnosis of appendicitis. Twenty-four of these showed pathological conditions of the appendix, thirty-four were examples of ileo-caecal pain certainly, but the explanation was not an inflammatory lesion of the appendix, but a spasm of the caecum and the

related colon. There was a diagnostic error which exceeded 50 per cent.

I can produce similar figures in relation to the stomach, where gastric and pyloric spasm and achalasia of the pyloric sphincters have closely simulated stomach and duodenal disease. It is true that many of these disturbances are reflex, and in some instances the association is obvious, but in many it is impossible to discover the source from which the derangement is proceeding. Pain and functional derangements are the usual symptomatic evidences of the spasms and the achalias. Gastric spasm and achalasia of the pylorus may closely simulate the symptomatology of serious stomach disease. I have alluded to the frequency with which ileo-caecal and ileo-colic spasm are confused with appendicitis. I have seen a spasmodic contraction of the colon so closely simulate organic colon obstruction that only a laparotomy made the diagnosis clear. In fact, we can rarely afford to neglect the possibility of a functional disorder of the involuntary nervous system simulating the more serious organic lesion.

The atonies constitute a surgical problem of great difficulty, whether they affect stomach, small intestine, or colon. It is unusual to find associated pain, though a painful spasm may occasionally be superadded to the existing atony. It is rather in the functional derangement that the seriousness lies, for it is inevitable that there is delay in the passage of contents, and the results of toxic absorption are therefore superadded to complicate and obscure the original picture.

It is with a purpose that I have avoided any reference to problems of treatment; it has rather been my intention to present to you a general aspect of the disorders of the involuntary nervous system as met with in the intestinal tract, and to attempt to trace what may be described as an evolutionary picture of disease.

REFERENCE.

¹ Fleiner: *Munch. med. Woch.*, 1910, p. 582.

RADIO-DIATHERMY IN THE TREATMENT OF INOPERABLE MALIGNANT DISEASE OF THE UPPER AIR AND FOOD PASSAGES.*

BY

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THE early recognition of malignant disease and its immediate removal by the knife is a counsel of perfection not always attainable. Procrastination is unfortunately inherent in human nature, while other factors, such as fear of operation and the dread of being informed of what actually is wrong, act as deterrents in preventing many patients from seeking advice at that stage when a cancerous growth or ulcer is a strictly localized process and therefore curable.

In my opinion the dissemination of knowledge amongst the public concerning the early symptoms of malignant disease is long overdue, even if it be given at the risk of causing unnecessary alarm to a limited section of the population. The good of the majority should be considered rather than the fears and prejudices of the minority. Educational propaganda would undoubtedly serve a useful purpose, more especially in drawing attention to the possibility of something serious being wrong, and so in gaining that all-important factor—time.

In the fourth quarterly report of the Cancer Survey of San Francisco, Hoffman draws attention to the fact that of 255 deaths of women suffering from cancer of the breast 107 were not operated upon, owing, in all probability, to their having gone to hospital too late, while of 319 deaths from cancer of the uterus 156 were deemed inoperable for similar reasons. The view, so widespread and deep-rooted, that cancer is a disease of later life is mischievous and erroneous, as out of 493 deaths from cancer of the stomach

* A paper read before the Nottingham Medico-Chirurgical Society, January 21st, 1926.

among males the youngest occurred at the age of 23, the oldest at 95, and out of the 255 deaths from cancer of the breast the youngest occurred at the age of 27, the oldest at 85.

When, owing to the situation, size, and extent of a malignant growth, surgical proceedings are contraindicated, great relief, and in a certain proportion of cases apparent cure, may be effected by the employment of surgical diathermy, by the use of radium, or by a combination of these two methods—in other words, by radio-diathermy.

The destruction of the local growth or ulcerated area is naturally the first step in treatment, but equally important is the prevention of cell implantation, so common during surgical manipulations, and the sealing up of the lymphatic tributaries which run into neighbouring glands. In diathermy, or, as it is sometimes called, endothermy or "through-heating," we have a method of attack of great practical importance and utility, in effecting as it does the destruction of a malignant growth by coagulation.

Diathermy, like any other therapeutic agent, has its limitations, and is contraindicated in the case of large adherent growths, growths in the intestinal tract, and when there is marked cachexia. The principle underlying treatment by diathermy or "cold cauterization" is that the tissues against which the active electrode is placed resist the entrance of the high frequency current, a current capable of reversing itself from 500,000 to 1,000,000 times per second, with the result that a degree of heat is generated sufficient to cause complete tissue necrosis. Small and accessible growths are in this way readily destroyed, large growths only as the result of repeated applications.

Many years ago Professor d'Arsonval showed that a high frequency current of 3 amperes could be passed through the body with the production of no other sensation than that of heat, while Nagelschmidt turned the "heating through" of the tissues to practical account in both medical and surgical manipulations. The coagulation of the primary growth is attended frequently by great relief, by freedom from pain and haemorrhage, and serves often to prolong the patient's life in comparative comfort.

In many cases it is possible, by means of a block dissection, to remove all infected glands, and by subsequent irradiation to secure the sealing up of the lymphatic tributaries in the dangerous zone, with the result that what was surgically an inoperable growth becomes an operable possibility. The less the biological involvement of the cell the greater its sensibility. Malignant cells, possessing as they do a lower vitality than the normal cells of the body, are comparatively easily destroyed by coagulation, just as they are also by the beta and gamma rays of radium, hence a combination of the two methods is peculiarly valuable when the pathological area is of considerable dimensions. Speaking generally, the depth of tissue coagulated by any single diathermy application is equal to the diameter of the end-piece used, whether disc or button. When, however, applicators having spikes attached are employed, coagulation extends somewhat deeper, more especially if the tissues are kept moist with a 10 per cent. saline solution.

The great advantage of diathermy over electro-cauterization is that in the former the zone of destructive influence is wide, whereas in the latter it is limited by the formation of a carbon core. The type of active electrode used varies with the size and situation of the growth. Button or disc-shaped electrodes are useful where the growth is large and accessible, the needle electrode when it is small, and electrodes with from three to six prongs when it is of the penetrating and infiltrating type. Knife or saw-shaped electrodes are used by some operators when the growth is one suitable for excision. The indifferent electrode should be a plate of metal 6 to 8 inches square covered with a thick towel or twenty layers of lint soaked in 10 per cent. salt solution, and firmly and evenly fixed to the chest wall, the arm, or the leg by means of a bandage.

To ensure the greatest amount of coagulation the active electrode should be applied firmly to the tissues, and applied cold. The current should then be turned on slowly and allowed to attain its maximum intensity (1 to 2 amperes) in the space of from thirty to forty seconds.

The immediate effect is blanching of the tissues around the terminal, due to the coagulation of their albuminous constituents, followed by bubbles of steam escaping from the burned and now dry area. To obviate steaming and consequent scalding of adjacent tissue the part should be kept moist with saline solution, as when active sparking takes place the diathermy action practically ceases. After the growth has been carefully treated with the active electrode the coagulated tissue should be gently scraped away and the active electrode again applied to the next layer of morbid tissue. In this way the whole growth and the zone of tissue surrounding it is gradually coagulated and got rid of.

The time taken to coagulate and remove a growth will vary with its size and accessibility, but no one application should exceed twenty to twenty-five minutes. The amount of shock following diathermy is practically negligible, and any rise of temperature is seldom more than from one to two degrees, while pain is rarely complained of. The slough resulting from the application takes from ten days to a fortnight to separate; during which time the part should be kept as clean as possible by spraying with hydrogen peroxide. Dusting with powdered charcoal is useful in keeping down the very disagreeable fetor which is so often noticed during the sloughing process.

The effect of diathermy is to sterilize the tissues, and although sepsis may, and does, supervene, it does not do so before a protective barrier has been set up. The resulting scar is soft and pliable and does not form adhesions to surrounding tissues. When coagulation is performed in the neighbourhood of bone, necrosis is practically certain to result, and sequestra may take months to separate.

While the density of the current is sufficient to coagulate fixed tissues and blood circulating in capillaries and small blood vessels, it is quite insufficient to cause coagulation in larger vessels—for example, the lingual artery—with the result that as sloughing takes place subsequently the walls of adjacent blood vessels may give way and severe secondary haemorrhage ensue.

The most brilliant and most lasting results are to be obtained in electro-coagulation of malignant growths or areas of ulceration in the upper pharyngeal cavity—for example, the palate, tonsils, and the base of the tongue. Malignant disease of the palate—from the surgical point of view always very unfavourable—is specially amenable to treatment by the diathermy button, being readily accessible and seldom complicated with glandular involvement. In dealing with such cases free excision or destruction of tissue is essential, regardless of any possible and subsequent deformity.

To estimate the exact extent of infiltration is impossible, and in order to destroy any outposts of disease or, in other words, the zone of attenuated malignancy, it is necessary to coagulate for, if possible, half an inch or thereabout beyond the margins of obvious disease. This often leads to a certain amount of deformity, which later on, however, may be repaired by some form of plastic operation or by the use of some artificial appliance.

The results of electro-coagulation in such cases are frequently brilliant, as is evident from the history of the following case.

H. W., aged 52, consulted his local doctor on account of pain in swallowing, severe and frequently repeated attacks of haemorrhage, and constant pain in his ear. For years he had been a heavy smoker and a heavy drinker of brandy. On examination the left side of the soft palate was seen to be occupied by a large fungating and very vascular ulceration extending beyond the middle line and spreading forwards over the hard palate, with the clinical appearances of an epithelioma, subsequently confirmed by microscopic examination. The affected area was submitted to diathermy treatment and completely removed. Considerable cicatricial contraction resulted, but not sufficient to render the wearing of an obturator necessary. Complete healing took place, with a firm cicatrix. For five and a half years the patient led a normal life; he then again came under observation, complaining of dysphagia. No recurrence of the original disease had taken place, but a new malignant growth was found involving the right arytenoid region and extending along the right ary-epiglottic fold.

Cancer of the floor of the mouth is peculiarly amenable to diathermy, care being taken to coagulate freely around the growth until all indurated tissue has been destroyed.

Malignant growths involving the tonsil and palatine

arches and frequently invading the base of the tongue are by no means uncommon, and from the surgical point of view are more frequently inoperable than operable. In such cases there is almost invariably a considerable amount of infiltration and fixation, with extensive glandular involvement in the superior carotid triangle. Owing to the fact that epithelial growths in this situation are very radio-resistant a combination of diathermy and irradiation is useful, the infected glands being first removed after ligation of the external carotid artery, followed ten days to a fortnight afterwards by ligation of the other external carotid artery and coagulation of the primary seat of disease.

Ligation of the external carotid artery is valuable because (1) it makes removal of the glands an almost bloodless operation, and (2) it depletes the primary growth of blood. To obtain free access to the malignant growth and effect complete removal of enlarged glands may necessitate a subperiosteal resection of the angle of the inferior maxilla. By so doing the growth is made accessible, and may be treated from the inside by coagulation and from the outside by irradiation.

If ultimate success is to be obtained it can only be by employing heroic measures. Such cases are surgically inoperable, are invariably complicated with extensive glandular involvement, and even if the primary growth is successfully diathermized the disease will rapidly reappear unless the lymphatic field is thoroughly drenched with the gamma rays of radium.

Irradiation may be effected either by burying needles along the route of the lymphatic stream leading from the focus of disease, by means of applicators applied around the angle of the jaw, or by a combination of both methods. The results are at times surprisingly good, several of the writer's patients having had complete freedom from symptoms for periods of from three to five years.

LARYNGEAL GROWTHS.

Laryngeal cancer fortunately tends to remain localized for a considerable time, and if diagnosed and operated upon at once affords encouraging results. Unfortunately, from one cause or another an early diagnosis is by no means always made, the psychological moment for active intervention passes, and the case is relegated to the arena of the surgically inoperable. This applies especially to cases of extrinsic origin, whose early progress is often unfortunately painless—I say painless advisedly—and symptomless until the presence of enlarged glands in the neck calls attention to something being wrong. In purely intrinsic cases the early loss of voice, hoarseness or huskiness, acts as a most useful danger signal, as glandular involvement is a very late phenomenon, if it occurs at all.

From a surgical point of view the operative treatment of extrinsic laryngeal cancer is often very disappointing, the necessary mutilation of tissue and loss of function being as alarming to the patient as was the original disease.

Access to a laryngeal growth may be obtained *per vias naturales*, with or without the aid of suspension laryngoscopy or after the performance of a laryngo-fissure. The position of the growth, its size and its anatomical relations, help to determine the particular route of approach. I venture to advocate the more frequent performance of a laryngo-fissure, for the reason that so many growths, both extrinsic and intrinsic, are thereby rendered so much more visible than even when approached through the mouth. Certain extrinsic growths—for example, those springing from the sinus pyriformis, the arytenoid region, and the epiglottis—are, however, particularly suitable for suspension approach, more especially if the patient happens to possess a long thin neck and good teeth. A preliminary tracheotomy should be performed whichever method of approach is adopted, as the effect of electro-coagulation is to produce a marked oedema of the loose cellular tissue of the larynx with consequent risk of asphyxiation.

In the event of glandular enlargement being present, the question arises whether the glands or the primary growth should be attacked first. I am of opinion that the glands should be removed in the first instance, after ligation of the external carotid artery, with the proviso that when

glands are fixed and adherent to the deeper structures, carotid artery, jugular vein, and other pre-vertebral structures, operation should not be proceeded with. There is a very distinct limit, often overlooked, to what electro-coagulation and radium treatment is capable of accomplishing, and these limitations should be recognized. Where glands are, however, non-adherent and can be removed, the lymphatic avenues leading to them should be thoroughly irradiated after coagulation of the primary growth. This is best effected by the insertion of from six to eight tubes, containing from 5 to 10 mg. of radium, along the course of the lymphatic stream. I am now fully persuaded that better results are obtained by implanting radium needles within the tissues than by applying applicators on the surface, the number of milligram hours varying with the extent of the existing disease.

When, however, it is decided to rely on radium alone, a useful plan is to resect a portion or the whole of the thyroid ala and through the fenestration to insert with precision into the growth a varying number of tubes and subsequently to fix a casted radium applicator round the neck.

MALIGNANT GROWTHS OF THE ANTRUM AND ETHMOIDAL LABYRINTH.

The malignancy of antral and ethmoidal growths varies enormously, some running a very virulent course, others, although pathologically malignant, being clinically almost benign. The lymphatic tributaries leading from the antro-ethmoidal region run to the submastoid and carotid glands, which, at a late stage, tend to become much enlarged. In the event of the disease being so advanced as to preclude the advisability of a resection of the upper jaw or its removal by means of a lateral rhinotomy, it may be coagulated and irradiated after exposure. Exposure of the growth is advisable to facilitate the free application of the active electrode, and to minimize subsequent necrosis.

After resection of the anterior wall of the maxillary sinus or opening up of the ethmoidal labyrinth, as much as possible of the growth should be removed with a curette and the cavity thoroughly diathermized with a button or disc-shaped electrode. The application of radium with the aid of a face-mask should subsequently be undertaken. The steps taken in such an operation are therefore as follows:

1. Ligation of external carotid artery.
2. Removal of glands.
3. Exposure of antral or ethmoidal growth by external incision.
4. Curetting of growth.
5. Application of button electrode.
6. Surface application of radium.

Frequent inspection of the cavity should be made after operation in order to detect and to coagulate any suspicious areas.

NASOPHARYNGEAL CARCINOMA.

Malignant growths in the nasopharynx present another problem of great perplexity. Sarcomatous growths yield fairly readily to treatment by means of radium alone, the number of needles and the dosage employed varying with the size and structure of the tumour, whether round-celled or spindle-celled.

True carcinomata—spheroidal-celled, columnar-celled, or epitheliomatous—are unfortunately not so satisfactory, largely owing to the difficulties of adequate approach. Division of the soft palate with removal of a portion of the hard palate, or the slinging forward of the soft palate with rubber bands helps to expose the growth to view, and to make the application of a button or pronged electrode fairly satisfactory. There should be no hesitation in freely removing any tissue, hard or soft, in order to gain proper access to the growth. Several applications may be necessary to coagulate even a small growth owing to the mechanical difficulties involved.

Nasopharyngeal fibromata or fibrosarcomata respond well to coagulation, which probably affords the least dangerous method of attack.

ESOPHAGEAL CARCINOMA.

Of all organs in the body the most disappointing, from the surgical point of view, is probably the oesophagus. The absence of a serous coat combined with a flabby and

lax musculature renders it peculiarly unsuitable for operative procedures. Moreover, the risk of rupture of its walls from ulceration or instrumentation must not be ignored.

Cancer of the hypopharynx—in females a by no means uncommon affection—is amenable to diathermy provided the disease is high up and strictly localized, which it rarely is, however. In such cases the growth may be rendered visible with Seiffert's directoscope.

Access to a malignant growth in the oesophagus situated about the level of the bifurcation of the trachea—a common situation—or at the cardia, is naturally difficult, but is possible with the aid of the oesophagoscope. In this situation diathermy is, however, always dangerous owing to the difficulty of ascertaining the degree of mural involvement and the risks of perforation. In every case an attempt should be made to determine the extent of the tumour. This may be done by the method of "coulée reversée," the patient lying in a reclining position with the head lowermost, thus permitting the opaque meal to run backwards and so to outline the lower edge of the growth. An active electrode is then passed and the growth carefully coagulated. The electrode recently designed by Wright of Bristol renders the application of diathermy easier and safer than with any other, since it coagulates from below upwards, and therefore under the observation of the operator, instead of, as is usual with other instruments, from above downwards. If it is desired to irradiate with radium, an endless thread, to which one, two, or three screened tubes containing radium element are attached, is swallowed and the tubes pulled into position in vertical series. The preliminary coagulation and consequent opening up of the stricture will be found to permit of this being done comparatively easily. In two of my cases a lumen, sufficient to enable solid food to be swallowed was obtained, while in another case coagulation of the growth was followed by complete cicatricial atresia. In all cases the performance of a preliminary gastrostomy is advisable.

Whether it will ever be possible to excise a malignant growth of the thoracic oesophagus after the performance of a thoracotomy is in the lap of the gods. At the moment diathermic coagulation, with or without the subsequent employment of radium, affords a chance, although a very slight one, of eradicating the disease.

The early and more frequent use of the oesophagoscope in all cases with symptoms of even slight dysphagia should be impressed upon the profession as the one and only means of arriving at an exact diagnosis.

Summary of the Advantages of Diathermy.

1. That it is of definite value when ordinary surgical procedures are contraindicated.
2. That it is followed by little, if any, shock.
3. That with reasonable care it is a practically bloodless operation.
4. That besides sterilizing the tissues it blocks the vascular and lymphatic channels leading to and from the growth.
5. That by so doing it tends to prevent dissemination of the cancer cell.
6. That it affords relief from mechanical symptoms such as obstruction, dyspnoea, etc.
7. That it arrests the tendency to spontaneous hæmorrhage.
8. That it relieves pain.
9. That the resulting scar tissue is soft and pliable and does not form adhesions.
10. That septic bronchopneumonia is less frequent than after severe cutting operations.

Disadvantages of Diathermy.

1. That it destroys a certain area of healthy tissue around the original growth.
2. That the walls of blood vessels in the immediate neighbourhood of the growth may become softened and ulcerated, with resulting attacks of severe secondary hæmorrhage.
3. That when the skin is involved keloid cicatrices may develop.

The advantage of combining the application of radium with coagulation by diathermy is that the lymphatic area is thereby irradiated, wandering malignant cells are killed off, and the risk of subsequent metastasis is materially lessened.

The results obtained by radio-diathermy, complicated and tedious as the treatment undoubtedly is, will repay all the trouble taken, the patient frequently taking on a new lease of life, free from pain and hæmorrhage, and in most instances ending it with greater comfort than would otherwise have been the case.

ON THE ACTION OF CERTAIN ALLEGED INTESTINAL ANTISEPTICS.

BY

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THERE are on the market several preparations described as "intestinal antiseptics." To my mind the meaning of the advertisements can only be that the preparations are capable, when taken by the mouth, of destroying at least a proportion of the organisms in the intestinal tract. The total extent of that effect, and its degree in the case of each different type of organism present in the bowel, are not described; it may, in fact, be said that the claims made for these products are, with one exception, unsupported by any evidence, generally known, of their action in the human subject.

The flora of the bowel undergoes very radical changes between the jejunum, where organisms are first found in any considerable numbers, and the rectum.¹ The organisms found in the former situation disappear even before the ileo-caecal valve is reached, and those present in the faeces make their first appearance certainly no higher than the middle of the jejunum. What the action of an alleged intestinal antiseptic may be on the organisms in the upper part of the intestinal tract is almost impossible to ascertain, and the following observations are concerned only with those present in the faeces. These, or certain of them, are the organisms which it is regarded as desirable to destroy when an intestinal antiseptic is employed, and they are those which these drugs are generally understood to be capable of destroying.

The enumeration of living aerobic organisms in the faeces is not a difficult matter. To enumerate living anaerobes with accuracy is almost impossible, and these have therefore to be left out of account, it being assumed that the numbers of coliform bacilli and Gram-positive cocci obtained in aerobic cultures are a sufficient index to the total numbers of living organisms of all kinds in the specimen. Certain factors have, however, to be taken into account which render such an investigation less simple than would at first appear. Of these the principal is that wide variations may occur from day to day in the total numbers of living organisms in the faeces. A fluid stool may contain one hundred times as many living organisms as a scybalous stool from the same subject. It is therefore desirable that the subject of an experiment with one of these drugs should be accustomed to passing daily stools of reasonably uniform character, and further, that the observations should be continued over a considerable period, in order to obtain a reliable average. It is necessary, also, to cultivate the specimen within a few hours of its being passed, or to keep it in the cold, since rapid multiplication of the organisms contained in it will occur at room temperature. Lastly, in view of the well established effect of diet on the bacteriology of the faeces, it is desirable that the subject should remain on a fairly consistent diet throughout the experiment. These precautions were observed in the investigations to be described. The method employed was the following:

Method of Investigation.

About half a gram of faeces is placed in a large sterile tube of known weight and accurately weighed. Sufficient sterile water is added to give a convenient dilution, such as 1 in 50. Complete emulsification is carried out by forcing the fluid in and out of a long syringe with a wide-bore needle (this process will do in

two minutes what will occupy a mechanical shaker half an hour). Decimal or other convenient dilutions are then made from the emulsion, and from each of the last two, three, or four dilutions 0.1 c.cm. is sown on to large plates, previously dried thoroughly (at least 5 per cent. of the water in the medium being evaporated by standing on a 55° C. oven), and spread until the fluid sown has been absorbed by the surface of the medium, leaving it dry. After incubation the colonies are counted, and the results expressed in millions of living organisms of each type per gram of faeces.

Cultures made by this method yield uniformly spaced discrete colonies, and, apart from their value as affording quantitative results, are superior to those made by the ordinary method.

The syringe employed for emulsification and the 0.1 c.cm. pipettes for sowing had to be specially made for the purpose.

That the numerical accuracy of the results can be relied on was shown by duplicating the process, consistent results being obtained.

The procedure followed was to examine daily by this method the faeces of a subject who was either a normal individual or a patient not known to be suffering from any intestinal disorder, for a period of about a fortnight, during one-half of which the drug was administered in what are understood to be adequate doses. The results may be shown in the form of a graph, but they can most concisely be presented as the average numbers of living organisms in the faeces during the two periods. The following table shows the whole of the results obtained by experiments *in vivo*.

TABLE I.—Effect of Intestinal Antiseptics on Total Numbers of Living Organisms in Faeces.

Drug.	Dose.	Before Administration.		During Administration.		Reduction or Increase.
		Days.	Average Number of Living Organisms per Gram in Millions.	Days.	Average Number of Living Organisms per Gram in Millions.	
Dimol ...	gr. 8	21	520	14	416	-20%
Kerol ...	m 12	6	2,050	7	2,061	+0.5%
Yatren ...	0.5 gm.	7	767	5	1,450	+89%
Izal (1922) ...	m 6	10	453	7	44	-90%
Izal (1925) ...	m 6	15	690	7	632	-8%
Izal (1925) ...	m 22	7	40	6	100	+150%

The figures under "Dose" indicate the total quantity given daily. All the drugs, except yatren, were administered three or four times a day.

Of some of these results there is a good deal further to be said in explanation.

The case of dimol and of Kerol is comparatively simple; the change in numbers is so slight (in the former a decrease of 20 per cent., and in the latter an increase of 0.5 per cent.) as to afford no evidence of antiseptic action.

Yatren is a preparation the use of which is advocated in amoebic dysentery²; it claims, in fact, only to be an amoebicide, and its general antiseptic effect was only investigated because it had been supposed to exert a favourable influence on non-dysenteric ulcerative colitis. The actual increase in the number of living organisms in the stools during the administration of this drug is presumably fortuitous.

The case of izal presents a different problem. The capabilities of this preparation were investigated no less than twenty-four years ago by Gordon,³ and his findings represent the single exception referred to in the first paragraph of this article. These were confirmed, as indicated by the figures under "Izal (1922)" in the above table, which show a very great reduction in the number of living organisms in the faeces during its administration. This experiment was repeated in 1925, with entirely negative results, and again in the same year, under the strictest precautions against error which could be devised, including the carrying out of most of the cultures in duplicate throughout, and with the employment of a much larger dose of the preparation. So far from any antiseptic action being demonstrated, the total number of living organisms in the faeces was actually greater during the administration of the drug than before and after it. The purpose of this paper is to record certain results without attempting to draw any but fully warranted conclusions, and it

can therefore only be suggested that the cause of this discrepancy may perhaps be a recent change in the composition of izal; the boxes in which it is now sold are labelled "Improved Izal Perles," and if the "improvement" referred to has had the effect which these results appear to indicate it will be well for its manufacturers to revert to the original process employed in preparing it.

Granting the conclusion suggested by the above results—namely, that three well known "intestinal antiseptics" are incapable of affecting appreciably the numbers of living organisms in the faeces—it may well be asked, What are the ideal requirements for an "intestinal antiseptic," and in which respect do these preparations fail?

Assuming that such a preparation can exist, it should have the following properties:

1. It should not be decomposed by the processes of digestion.
2. It should not combine with, and be rendered inert by, any substance present in the intestinal tract.
3. It should not be absorbed by the intestinal mucous membrane.
4. It should be capable of destroying intestinal organisms even in high dilution.

That certain of these preparations fulfil the last of these requirements is claimed by their manufacturers. But it must be remembered that the usual method of titrating antiseptic power *in vitro* involves exposing a saline suspension of such an organism as *B. coli* to the unhindered action of the antiseptic, a proceeding which takes no account of the first three postulates suggested above. In which of them the truth lies as to the failure of these drugs *in vivo* it is not possible to say, but some indication may be afforded by the following experiments, in which the antiseptic power of these preparations was investigated, not on single organisms, but on the faeces themselves, *in vitro*.

A 1 in 10 emulsion of a specimen of faeces was made. From this emulsion further dilutions were prepared, and cultures sown by the method described above. Another portion of the original emulsion was mixed with an equal amount of a solution of the antiseptic to be investigated at 37° C. for one hour. Decimal dilutions were made immediately, and cultures made in the same manner.

It should be observed that none of the preparations here concerned is readily soluble in water. Izal and kerol are oily substances from which adequate emulsions in water can be prepared only with difficulty. Yatren is very sparingly soluble (its exact solubility was not determined). Dimol (of which a tablet described as containing 1 grain weighs, after removing its sugar coating, about 4 grains, so that it is presumably mixed with some other material) is not completely soluble even in the higher dilution employed. The following table indicates the results obtained.

TABLE II.—Action of Intestinal Antiseptics on Faeces *In Vitro*.

Drug	Total Number in Faeces (millions).		Total Number after 1 hour at 37° C. with Antiseptic (millions).		Reduction or Increase.	
	Streptococci.	Coliform Bacilli.	Streptococci.	Coliform Bacilli.	Streptococci.	Coliform Bacilli.
Izal (1925) 1 in 200	3.6	75	0.66	0	-82%	all killed
Izal (1925) 1 in 2,000	3.6	75	16	10	+344%	-87%
Dimol 1 in 200 ...	10.6	7.4	0.016	0	-99.6%	all killed
Pimol 1 in 2,000	10.6	7.4	10.8	1.5	+2%	-80%
Kerol 1 in 200 ..	10.6	7.4	2.7	0.0002	-75%	-99.99%
Kerol 1 in 2,000	10.6	7.4	12.4	1.46	+17%	-81%
Yatren 1 in 400...	218	3	771	2	+255%	-33%
Yatren 1 in 4,000	218	3	526	2.8	+141%	-6%

In control emulsions incubated and coliform bacilli diminished same as in the tubes containing 3 obtained after admixture with the faecal emulsion.

The interpretation of these results would appear to be as follows.

Yatren has no anti-septic effect whatever; during incubation the organisms in the emulsion multiplied. Since this

drug is claimed only to be an amoebicide, this result is what might be expected. The other three preparations exhibit a common action, varying little in degree, which is of considerable interest. They destroy all *B. coli* in a dilution of 1 in 200, and a large proportion of *B. coli* at 1 in 2,000. On the other hand, they destroy only a proportion of streptococci at 1 in 200, and at 1 in 2,000 streptococci actually multiply. This is a selective action paralleled by the well known property of phenol of inhibiting the growth of *B. coli* in dilution of approximately 1 in 200, at which streptococci will grow vigorously, a property which has been found of considerable use in routine bacteriology. This suggests that all these three preparations are closely allied in action, and presumably in composition, to phenol.

To those who regard the predominance of streptococci in the faeces as accountable for chronic ailments such as arthritis, this action on the part of these drugs will hardly commend itself. But before applying such findings to the presumed effect of these drugs on the human subject, it must be asked in what dilution they were present in the intestinal tract when taken in ordinary doses. This cannot be determined unless it is known whether they are absorbed, combined, or destroyed, or unless a method be devised for estimating them in the faeces themselves. The latter, having in view that their composition is unstated, is hardly feasible. But some indication as to their activity, if any, in the colon may perhaps be obtained by comparing the results of the two above series of experiments *in vivo* and *in vitro* respectively. The latter clearly show that in certain dilutions three of these antiseptics exert a selective action on coliform bacilli.

If, in experiments on the human subject, it were shown that although the total numbers of organisms in the stools were unaffected the proportion of streptococci to coliform bacilli was increased, it might be presumed that this change had been brought about by the action of the antiseptic, and therefore that its dilution in the bowel is something in the neighbourhood of 1 in 2,000. That this is probably not so is shown by the following figures, which refer to the same series of experiments as in Table I.

TABLE III.—Average Percentage of Streptococci in Faeces Before and during Administration of "Intestinal Antiseptics."

Antiseptic.	Average Percentage of Streptococci.	
	Before Administration.	After Administration.
Dimol	34	51
Kerol	4	3.9
Izal (1925)	31	36
Izal (1925)	46	37

In only one case, that of dimol, is there an appreciable increase in the number of streptococci in the stools during treatment, and even this is not sufficient, as an unconfirmed observation, to indicate with certainty that the drug is exerting its selective action *in vivo*, although the fact that it possesses this power *in vitro* to a greater extent than either kerol or izal suggests that this may be the case. Kerol and izal do not appear to affect the relative proportions of the two types of organism at all.

If this comparison is justifiable, therefore, it would appear that these drugs do not reach the colon in an active form and sufficient concentration to exert the effect which they are shown to produce on faecal organisms *in vitro*.

Conclusions.

The only conclusion which can with certainty be drawn from these experiments is that the drugs investigated, when given by the mouth, do not appreciably reduce the total number of living aerobic organisms in the faeces. Whether it can therefore be said that they are therapeutically useless is a matter upon which it would be rash to pronounce an opinion. But it may reasonably be submitted, in view of these findings, that specific and detailed evidence as to the alleged action of these drugs should be published in support of the claims which are constantly made for them. It is possible that data exist upon which these claims are founded, obtained by other methods, which traverse the deductions suggested by the experiments here described. If not—if, in fact, these claims are made without due investigation of the results obtainable in the living

subject by the administration of these drugs—then it may reasonably be asked whether any indication exists for their employment.

Summary.

The experimental results obtained may be summarized as follows:

1. Four preparations, of which three are described as intestinal antiseptics, were found to exert no appreciable effect on the total numbers of living aerobic organisms in the faeces when administered by the mouth in adequate doses.

2. Of the same preparations the three referred to above were found to exert on faeces *in vitro* an antiseptic action much greater for coliform bacilli than for streptococci, the concentration of the drugs being considerably higher than that in the intestinal tract which presumably follows their administration by the mouth. The fourth preparation had no evident action whatever in any dilution employed.

This work formed part of a research undertaken for the Gillson Scholarship of the Society of Apothecaries. I am indebted to them, and to Dr. Geoffrey Evans, whose patients were some of the subjects in the investigations.

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GASTRIC PAIN.*

BY

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NORMAL digestion should be without sensation except for such feelings as those of satisfied hunger and a renewal of energy. Unpleasant sensations such as discomfort and pain after the ingestion and during the digestion of food are symptoms of the abnormal. The abnormality may be in the patient's consciousness in that he is in such a state of nervous sensitiveness that the ordinary actions of digestion are felt by him and are unpleasant. But even in these cases the general condition of debility affects the digestive apparatus and produces faulty working. Gastric pain is associated in our minds with the patient who complains of indigestion because there is something wrong with the stomach.

There is no more difficult task in medicine than to unravel the tangle of symptoms which drive a dyspeptic to consult us. Of these symptoms discomfort and pain are prominent. The investigation of the symptoms—that is, the taking of the history—is of the greatest value as an aid to diagnosis. It is to surgery, and not to physiology and medicine, that the credit is due for elucidating the disorders of digestion. Physicians at one time were content to treat indigestion with alkalis and, if that failed, with acids; since surgical measures have come to the fore our knowledge of gastric disorders has increased and the methods of investigation have become more numerous and more trustworthy.

The tripod on which a gastric diagnosis rests is: (1) the clinical examination, of which the history is by far the more important part; (2) the test meal; (3) the radiological appearances of an opaque meal. Of these the radiological findings can be the most definite. An ulcer can in some cases be demonstrated and we then have direct evidence. But most of the radiological evidence is indirect, and is concerned with the observations of position, filling, emptying, and peristalsis. The test meal is valuable, but is more variable as the gastric secretions may vary from day to day and are subject to influences from outside.

The clinician, therefore, still has work to do in examining the patient. The physical examination in gastric disorders seldom reveals any gross sign. There may be a tumour, or visible peristalsis, or a dilated stomach with a splash; but usually rigidity of the abdominal muscles is the only objective sign. At the same time it must be remembered that a full examination must be made, which includes

* A lecture delivered before the Exeter Branch of the British Medical Association, January 8th, 1926.

the lungs, the nervous system, the urine, and, last but not least, the rectum.

It is well to let the patient say all that he will about his pain after giving him a start. When he has finished his spontaneous account, the examiner can arrange it and amplify it from the answers to leading questions.

Pain must be the subject of many questions. First, its situation is important. Among the organic or surgical dyspepsias left-sided pain suggests gall-bladder trouble or gastric ulcer, and right-sided pain duodenal ulcer. Epigastric pain is a symptom of any gastric disorder.

The next point is severity. Different patients estimate pain in different ways. The robust man who has never been ailing regards any abdominal pain as severe, while a woman, who is used to abdominal pain, will look upon it as a nuisance that will pass away if endured patiently. So, in estimating severity, we must form our opinion of the patient while we listen to the description. A few special questions may help us. Did it make you feel sick? Did it make you sick? Did it make you sweat? Did you faint or feel faint? What are you willing to go through to avoid a recurrence?

Next comes the relation of pain to food. It is well to draw up a time-table of meal times, filling in the usual time of the onset of pain, and to ask also if the pain occurs at night and wakes the patient with any regularity. It is necessary to distinguish the difficulty in getting to sleep, which may be due to flatulence or worry, from the waking up at 2 a.m. on account of pain. It can safely be claimed that freedom from pain between what the patient calls "attacks" is the most important symptom in a gastric or duodenal ulcer, and to a smaller extent of other organic dyspepsias of non-malignant origin.

The patient complains of attacks of indigestion and pain which recur. During the intervals he is fit and has a good appetite. The attacks tend to become more frequent and severe and the intervals shorter and less comfortable. At this stage he stops buying soda-mints and other remedies, and consults his doctor. This condition of periodicity in dyspeptic attacks is the most definite single point in favour of a non-malignant organic lesion. Any patient who gives such an account of his symptoms should go through a complete investigation by test meal and opaque meal. Regularity of pain is a striking feature in some cases. It is greatest in cases of duodenal ulcer, and less in gastric ulcer. It is more changing in its times in dyspepsia due to gall stones, and in its severity in that due to chronic appendicitis. How relief is obtained is important. If vomiting occurs, does it relieve? Has medicine given relief? Does lying down make any difference? Do all measures have apparently no effect?

Before trying to explain the cause and significance of gastric pain, it will be advisable to mention other painful conditions occurring in the dyspeptic.

There is in some cases hyperaesthesia of the skin of which the patient may be conscious. He may say that the touch of the bedclothes gives him a peculiar sensation. But more often this hyperaesthesia is found only on testing the sensibility of the skin. It is a peculiarity of sensation due to the increased sensibility of the spinal segment which innervates both the disordered viscus and the area of skin.

Tenderness is a more definite phenomenon. It is entirely objective and is produced by pressure. The best way to discover tenderness is to palpate the abdomen with varying degrees of pressure and to ask the patient to say at once if the examination of any spot is painful. Tenderness is not of simple origin. It may be due to the irritation of nerve endings in the subperitoneal connective tissue by the action of some irritant process such as inflammation, or by a mechanical factor such as spasm of stomach or intestine, or pressure may be painful when the abdominal muscles or segments of them are in a state of tonic contraction. This rigidity can be regarded as protective, the contracted muscle fibres shielding the troubled organs below. It is obvious that these two causes of tenderness may be present at the same time. But rigidity, and tenderness due to muscular contraction, are the commonest objective signs in the various forms of dyspepsia, the upper segments of the recti muscles being most frequently affected, especially the right. Pain and tenderness may

be due to the irritation of nerve endings when an organic lesion such as ulcer invades neighbouring tissues. But having mentioned these forms of sensation that can be called painful we are still left with the pain of which the patient originally complains.

This pain is the true visceral pain, and may be present in organic and functional disorders of digestion. It is not due to a sore mucous membrane. The sensations of pain, heat, and cold are not referred to consciousness as such from the nerve endings in the mucous membrane of the gastro-intestinal tract, except in a very minor degree. These forms of sensation are only found fully developed in surfaces covered with a stratified epithelium. Columnar and cubical epithelium are without, or almost without, these forms of sensation. This statement can be illustrated by stimulating the mucous membrane in a case of colostomy. Touch, pin-prick, heat, and cold do not impose themselves on the consciousness of the patient. But if it be dragged on gently with forceps the patient will at once tell you that he feels something, and if you drag hard enough he will complain of pain.

Further, in many cases of organic dyspepsia, such as duodenal and gastric ulcer, a notable feature is its periodicity. The ulcer at certain times is not associated with pain. It is reasonable, then, to regard the mucous membrane as not being the sensitive tissue, but to look elsewhere.

It is beyond dispute that when pain is felt nerve units are abnormal or are abnormally stimulated. In gastric visceral pain we have to seek for something which is capable of producing pain and is behaving abnormally. Of the three coats of the stomach the mucous coat is ruled out, and the peritoneal coat is more concerned with tenderness, an ordinary somatic painful sensation which is elicited by palpation. There is left the muscular coat. We have seen that traction on the intestine in colostomy will evoke a painful sensation if sufficiently strong. The bulk of the evidence obtained by radiological examination is the record of the position and the observed movements in stomach and duodenum. It has been shown radiologically that hunger pains coincide with movements of the stomach. We know that stretching and over-contraction of skeletal muscle are painful, and the same is true for smooth muscle.

If we attempt to correlate the pain of dyspepsia with the actions of the muscular coat we get a very reasonable explanation. Take, for example, a case of chronic ulcer of the lesser curvature of the stomach; the usual time for pain is twenty to thirty minutes after food; its arrival in the stomach produces functional activity with a secretion of acid juice. The muscle fibres or the nerve endings of the muscle fibres are stimulated by the contents of the stomach, and a painful contraction takes place. The contraction may be painful either because it is a cramp or because there is a pull on subperitoneal nerves by contracting muscle in the base or edge of the ulcer. When an ulcer is present in the pre-pyloric region the pain will occur later after food, usually one to one and a half hours.

In duodenal ulcer the pain is so late after food that it is dated as being before food; it is relieved by the intake of food, and can rightly be called hunger pain. It is usual for there to be an excessive secretion of acid juice in duodenal ulcer. Hunger pain is a duodenal symptom, not necessarily of ulcer. An explanation of the pain would be that the acid juice in the duodenum causes the pyloric sphincter to contract painfully. It is not an entirely satisfactory explanation, but the hypertonic contraction of the sphincter can be regarded as one cause of pain in duodenal ulcer. This type of pain is a symptom of duodenal trouble, usually associated with hyperchlorhydria. Its repetition after free intervals is the point in favour of duodenal ulcer, especially if haemorrhage has been noticed.

It is obvious that we must seek further to discover why the muscular coat should behave so as to produce pain. Possibly the presence of acid in the stomach is the exciting cause of the abnormal and excessive muscular contraction in gastric and duodenal ulcer. When food is taken into the stomach the resting juice is diluted so that the strength of the acid is lowered. Next the presence of food stimulates a flow of acid juice, and both the amount and the strength of the acid are increased. At the same time the digestive

movements of the stomach have started on their course. This would explain the interval between eating and the onset of pain in gastric ulcers.

In duodenal ulcer the percentage of acid in the gastric juice is nearly always high. The pyloric sphincter relaxes in the presence of acid on its proximal side, and contracts if acid remains unneutralized on its distal side. If the strength of the acid is excessive the contraction of the sphincter is overdone and prolonged. The results of gastro-jejunostomy are said to be the most satisfactory in cases of duodenal ulcer. Perhaps this is because the operation allows a more free regurgitation of alkaline juice into the stomach, and provides an exit that is not guarded by a sphincter.

So that in gastric and duodenal ulcers the explanation of pain and its time-table is the behaviour of the smooth muscle under the influence of acid. In one case the acid stimulates the base of the ulcer, and in the other a highly acid juice produces a cramp of the sphincter.

These symptoms are such as are described by the patient as being characteristic of his trouble in its early days. By the time he presents himself for examination the symptoms are usually more confused, and, during the worst periods, the pain is constant and is bad at all times, soon and late after food. It is necessary, then, to ask the patient to go back and describe the symptoms of the earlier days.

If the ulcer causes a deforming scar, thereby producing either hour-glass stomach or pyloric obstruction, pain will be produced by the stretching of the stomach wall and will only be relieved by vomiting, lavage, or emptying the stomach naturally. A change, therefore, in the character of the pain and other symptoms must be looked for and taken into account. When the history reveals a change of this kind in a case of long duration, the evidence is very strong indeed and a definite diagnosis can be made with great accuracy.

Alteration in the character of the pain will also occur when the base of an ulcer becomes adherent to neighbouring structures, such as pancreas, gall bladder, liver, and crus of the diaphragm. When an ulcer of the lesser curvature becomes adherent to the pancreas, constant pain through to the back will be felt. If the crus of the diaphragm is invaded the pain will be in the shoulder. The same pain will be felt in inflammation of the gall bladder as soon as the diaphragm is affected, though the more constant pain in gall-bladder trouble is through to the scapula.

But these pains are additional and are either referred or due to the implication of subperitoneal nerve endings. The vast majority of dyspeptics, however, have nothing so simple as an ulcer. A very large number complain of pain as soon as food enters the stomach. This may be a temporary affliction or more lasting. It is found in patients who have a tired-out or ill used stomach. At its worst the pain does not go until the patient has vomited. In character the pain is more often a dull aching, and not the violent cramp-like pain such as occurs with duodenal ulcer. It can be regarded as a stretching of atonic muscle fibres. In such patients there is atony of the circular and longitudinal fibres, due either to the general weakly condition of the patient or to some recent misuse of the stomach. The presence of food stretches the muscles and produces discomfort or pain. In the worst cases the strong oblique muscle fibres are also affected and then the symptoms are more lasting. In such cases there is a general dropping of the stomach.

In many of these cases there is a low acidity of the gastric juice. There may also be slow emptying of the stomach. These people may truly be said to have weak digestions. But in some, in which enteroptosis can be demonstrated, there is an increased acidity, and there may be rapid emptying. Here the symptoms may suggest duodenal ulcer, but the absence of the intervals of good digestive health, and the immediate improvement on putting the patient to bed, and other minor points will help to differentiate. It is not necessary for the enteroptotic patient to have indigestion. Many eupeptics have a low-placed stomach. But if some cause of indigestion occurs the presence of ptosis is against the patient's chances of satisfactory relief.

The majority of dyspeptics who seek relief belong to the class of atonics. Very often they are feeble in other ways, and their poor nutrition enhances their general as well as their gastric debility. The surgeons call the condition "medical dyspepsia." They are quite right to avoid operations on such subjects, for they are likely to do them more harm than good. But it is rather sad that the physicians should be left to deal with the most thankless and intractable kind of case. It is still more sad when the physician is called in to make the best of a patient who has had a series of operations, including gastro-jejunostomy, appendicectomy, freeing adhesions, etc. However, a good deal can be done for these atonic patients by putting them in bed with the foot of the bed raised, by giving small feeds frequently, by fitting an abdominal belt, and by massage.

Cancer of the stomach may be productive of pain of the visceral type, but pain must not be regarded as a necessary symptom of cancer. If the cancer cells infiltrate the wall of the stomach, making it stiff and rigid as in the leather-bottle stomach, the capacity of the stomach is incapable of adapting itself to the presence of food. The entry of food may put the wall of the stomach on the stretch and produce instant pain. Or a carcinomatous ulcer may be associated with pain in the same fashion as a non-malignant ulcer by infiltrating neighbouring tissues. But many cases of cancer are painless. Possibly the absence of acidity is responsible for the absence of pain. But the majority of patients who have pain immediately after food have a tired-out or ill used stomach which is in a condition of atony.

Substernal pain, or "pain in the chest"—a symptom of indigestion commonly found in constipated young women and in sufferers from flatulence—is concerned with the cardiac sphincter. Substernal pain may be due to dilatation of the oesophagus because the cardiac sphincter will not relax to allow food to pass into the stomach. In the flatulent, pain is produced by the pressure on the cardiac sphincter until it opens. When the cardiac sphincter opens and the gastric tension is lowered, relief of the pain follows at once. Here again the wrong behaviour of muscle can be blamed for the pain.

In all the cases described it would seem that the visceral pain of indigestion is to be attributed to the condition and the behaviour of the muscular wall of the stomach. If, then, we wish to explain to ourselves the meaning of digestive pain we must express our explanation in terms of muscle. In the disorders of digestion there is infinite variety. A few examples only have been taken to show the significance of the predominant symptom—pain.

In the opinion of the patient pain is of the greatest importance, and if we can understand how the pain is produced we are in a better position to treat it and to prevent a recurrence. We can arrive best at this understanding if we take into consideration the state and behaviour of the smooth muscle of the stomach.

NEPHRECTOMY IN INFANCY.

BY

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ALTHOUGH the removal of a kidney during the first twelve months of life is seldom indicated, nephrectomy may be a life-saving measure. Renal sarcoma in the very young is well known and may produce a tumour of considerable size which is often bilateral. Urinary symptoms are generally absent and attention is first drawn to the lesion by the presence of an abdominal swelling. The general health remains good until pressure of the growth causes obstruction either to the ureter or the adjacent bowel.

Opinions differ as to the origin of these tumours, some holding the view that they are extrinsic to the kidney, while others claim that they are entirely renal. If the latter view is correct, it is strange that haematuria, the common manifestation of all other neoplasms of the kidney, should never be observed, more especially as carcinomatous

elements have been described. This so-called congenital sarcoma is best explained by Wilms's hypothesis, which maintains that it contains three parts—a carcinomatous, a sarcomatous, and a myomatous. All these elements can sometimes be found in the same growth if sections are taken from various portions.

Nephrectomy has been practised for many years with unsatisfactory results, the mortality rate being at least 50 per cent. In those that survive the shock of the operation recurrence is rapid, but from time to time an exception is met with in which clinical evidence is forthcoming that surgery has produced an apparent cure. So long, however, as diagnosis is delayed until pressure symptoms arise, there is more hope for the prolongation of life in the exposure of these tumours to irradiation than in submission to the surgeon's knife.

Experience has shown that if the kidney fails to develop normally during foetal life it is prone to become diseased. All kinds of operations have been devised to restore the kidney to its normal function. Their multiplicity proves that none produce the desired result, and when they are practised nephrectomy is merely delayed. Within the first decade of life hydronephrosis of congenital origin, uncomplicated by infection, causes vague abdominal symptoms which can only be diagnosed accurately by the aid of pyelography. On the other hand, if infection occurs there is little difficulty in determining the site of the lesion. Recently there has come under the care of my colleague, Dr. Adolphe Abrahams, an infant, aged 7 months, suffering from a structural defect of the right kidney.

A child, aged 7 months, healthy and robust-looking, was admitted to hospital on October 10th, 1925, with a history of an attack of diarrhoea and vomiting on October 5th. On October 9th straining and pain during micturition was noticed and the urine was observed to contain a white deposit.

On admission the temperature was 104.2°, pulse 160, respirations 60. The stools were normal. The urine gave an acid reaction, had a smoky appearance and unpleasant odour; specific gravity 1025; microscopically coliform organisms and some pus cells were reported.

The tongue, mouth, and pharynx were clean, and apart from the abdomen being tender and phimosis being present there were no other physical signs.

The alkali treatment of pyelitis was adopted; the temperature and respirations fell steadily, and by October 16th the temperature was normal; urine 30 oz. per diem and alkaline.

On October 29th circumcision was performed. The temperature rose with the onset of bronchitis; a definite deposit of pus appeared in the urine, which had again become acid. The child went off his feeds, and on November 6th the respirations were slow and sighing; temperature 103°, pulse 163.

The urine contained a heavy deposit of pus; no acetone and no diacetic acid present. On November 7th a tender tumour the size of a hen's egg was palpated in the right loin, the bladder was distended, and incontinence with overflow was present. Ten ounces of urine were drawn off by catheter and the bladder washed out with boric acid lotion (half strength), much muco-purulent material being present. On November 8th the above procedure was again attempted, but failed owing to the blocking of the catheter with muco-pus.

Operation.

A small incision was made to the right and above the umbilicus. Intra-peritoneal palpation revealed a right kidney enlarged and cystic and a left kidney normal in consistency and size. This incision was then closed and suprapubic cystostomy performed, a malacot tube being left in the bladder.

The condition of the child improved, and on November 18th the right hydronephrotic kidney with 3 inches of distended and coiled double ureters was removed through a curved lumbar incision; the perirenal tissue was drained by a small tube and a fresh malacot catheter inserted into the bladder.

On November 24th this catheter was removed and the bladder washed out suprapubically. An attempt was then made to cysto-

scope the patient through the suprapubic fistula, but owing to the small size of the bladder and its inability to retain fluid the ureteric orifices could not be seen. The wounds healed rapidly, and though another attack of bronchitis supervened the child is now doing well and gaining weight. This patient has been kept under observation since discharge from hospital. His general state of health is excellent and the urine is normal.

The accompanying illustration demonstrates the chief features of the abnormal kidney. It will be noted that the lower ureter is dilated and opens into a large pelvis and that the calyces are almost entirely absent. The upper ureter is also dilated and opens into an accessory pelvis perched on top of the upper pole. There is no communication between the two pelves. At the operation the two ureters were discovered to unite just before entering the bladder.

In the *Transactions of the Royal Society of Medicine* (vol. xiv, No. iv) Jocelyn Swan records a case of double ureter in a man aged 33, where the accessory duct opened into a cyst at the lower pole of the kidney. I believe that this cyst was really a second pelvis.

It is interesting to inquire why, if the ureteric bud on one side divides to form two ureters and two pelves, the mesonephros on the same side, from which the renal cortex is developed, does not likewise split up into two portions. A case has yet to be recorded of a man with three fully developed kidneys.

I am indebted to Dr. G. L. S. Kohnstam for the compilation of the case notes.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

BROMISM: THE SODIUM CHLORIDE TREATMENT.

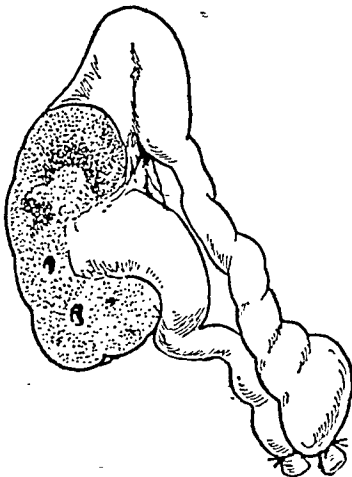
Two types of eruptions due to the administration of bromides are described: (1) an acneform (bromacne), usually seen on the face, chest, or back; and (2) a granulomatous hyperplastic variety which occurs most often on the extremities.

An occasional peculiarity is the relatively long latent period between the last dose of the drug and the appearance of the symptoms, which once they are established may "persist for a considerable time after it has been discontinued." These points were well illustrated by a case to which I was called by Dr. D. H. Fraser on January 7th.

The patient, a lady aged 65, was suffering from a left-sided incomplete hemiplegia with some aphasia—her fourth stroke since 1914. Both bromide and iodide of potassium had been administered, the latter continuously for some weeks, and up to the moment of our consultation. The last dose of bromide, in the form of bromoglidin (gr. 5), was given on December 22nd. Its administration had not been regular, but not more than 125 grains of bromoglidin had been given during the period of her illness—seven weeks. The eruption consisted of (1) Reddish, raised, grouped acneform papules on the front of the chest. They were larger and much brighter in colour than acne vulgaris. There was no tendency to pustulation, and there were no subjective symptoms. The face was not affected. (2) The more typical raised granulomatous, discoid plaques, varying in size from that of a shilling to half a crown, were present on the backs of the hands, the dorsa of the feet, and sides of the little and big toes. The first of them had been noticed by Dr. Fraser on the forefinger of the left hand on December 23rd—that is, a full week after cessation of the bromide. These lesions were of a dull red colour, and discharge was oozing freely from a number of points on the surface of each. Three such lesions were present on the right hand, two on the left, and a larger number of less typical patches on the feet. The temperature was not raised, there was no pain or irritation, and the associated glands were not notably enlarged. The case seemed to me, without any doubt, to be a classical example of bromide eruption as suspected by Dr. Fraser.

The duration of such cases may be prolonged. In one of my own cases—a chronic alcoholic who had taken bromide after an attack of delirium tremens for some months, and had in consequence developed severe granulomatous lesions on both legs—in spite of many different applications, and the internal administration of arsenic, healing did not take place for five weeks. I was therefore glad to have the opportunity of testing the efficacy of the salt treatment devised on an experimental basis by Wile, Wright, and

¹ MacLeod: *Diseases of the Skin*, 1920, p. 718.



Drawing to illustrate abnormal kidney in an infant of 7 months

Smith,¹ and later perfected by Stevenson.² The first named, relying on the principle of "mass action" of salts in solution, administered intravenous injections of decinormal sodium chloride to three cases of bromism. "Bromides were detected in the urine when none had been present before, and rapid regression of the skin lesions and improvement of the nervous symptoms were noted."

Stevenson found that oral administration of the salt in salol-coated tablets was even more effective in both respects. A reference to his urinary observations, which are very convincing, will show that the excretion of bromide occurred most rapidly from the fourth to the eighth hour after taking the tablets. In our case the salt was put up in doses of 10 grains in gelatin capsules, and 20 grains were given thrice daily after food, from the morning of January 8th to the evening of January 11th. On this date I saw the patient again. No ill effects, not even thirst, were complained of, and all the lesions had completely flattened down and dried up. Only scaly, slightly brownish patches remained to show where the protuberant lesions had appeared. The local application used was dermatol, which consists mainly of bismuth tannate. That this could not have caused the involution is evidenced by the fact that there was a simultaneous and equal improvement of the acneform papules on the chest, which had received no local treatment whatever. We were much interested by the nurse's observation that the patient disliked salt, and never took it with any of her food.

Although I have only this one case to report I am satisfied that Drs. Wile and Stevenson have found a specific for the treatment of bromism, which is comparable in the rapidity of its effects to the action of salvarsan in secondary syphilis. Its administration in iodism (which may conceivably have complicated the case here reported) will probably be found equally valuable. Dr. Stevenson states that nephritis is a contraindication to sodium chloride treatment.

London, W.

HENRY C. SEMON, M.D., M.R.C.P.

OPERATIVE TREATMENT OF CANCER OF THE COLON.

SOME two months ago I had occasion to collect statistics of the cases of cancer of the colon upon which I had operated during the past eight years. After reading Professor Pannett's article in the *BRITISH MEDICAL JOURNAL* of January 2nd (p. 1), it occurred to me that the figures might be of sufficient interest to publish. The number of cases is small, but the results are to some extent encouraging.

The series is made up of twenty-five cases of carcinoma and one of sarcoma. The oldest patient, a case of colostomy, was 84 years of age, while three patients were under 30.

OPERATIONS PERFORMED.

Resection.—Fourteen cases, of whom eight were suffering from acute obstruction at time of operation. Of these fourteen cases there were:

- Two cases of primary resection, both for growths of caecum, with no deaths.
- Three cases of axial anastomosis, after preliminary drainage, with one death.
- Nine cases of resection by Paul's two-stage method, with one death.

Lateral Anastomosis.—Seven cases with no death:

- Caecum to transverse colon ... 3 cases.
- Transverse colon to transverse colon ... 2 "
- Transverse colon to sigmoid ... 1 case.
- Ileo-colostomy plus appendicostomy ... 1 "

Colostomy.—Five cases with no death.

Total.—Twenty-six cases with two deaths.

RESULTS.

Resection.—Two died as a result of operation. Five died of recurrence after periods varying from one to four years. Seven are still alive, one after eight years, the others after fifteen months or less. The patient who has survived eight years is a woman, now aged 67. At the time of operation she was suffering from acute obstruction due to a growth in the sigmoid. She is able to get about the house, but has symptoms which suggest secondary deposits.

Anastomosis.—One died after three years, one after eighteen months, two after six months. Three are still alive, one after

seventeen months, one after fourteen months, and one more recent.

Colostomy.—No attempt was made to trace the cases of colostomy. They all left hospital in fair health.

Deaths.—The first case was an army sergeant, aged 23, operated on after acute obstruction had existed for several days. A sigmoid growth was resected and Paul's tubes tied in. He died three days later. A preliminary drainage would have been wiser. The other case was a stout unhealthy man of 50 suffering from acute obstruction due to a growth in the splenic flexure. Caecostomy was performed by invaginating a rubber tube. Eight days later the growth was resected and axial anastomosis performed. Unfortunately the caecostomy ceased to drain and leakage occurred at the suture line. It would have been better to have fixed the caecum to the skin at the first operation so as to ensure adequate and prolonged drainage. The valvular caecostomy tended to close too quickly.

For growths situated in the distal half of the colon I think Paul's operation is still the operation of choice. Its ease and safety more than counterbalance its drawbacks.

The case of sarcoma of the caecum was that of a man of 30; an appendicular abscess had been drained during the war. Lately he had had attacks of pain and vomiting which were thought to be due to the appendix, which had not been removed. On opening the abdomen the caput caeci was found to be thickened and hard and the mesenteric glands enlarged. The caecum, together with the ascending colon and affected glands, was removed. Histological examination showed the growth to be a sarcoma. The patient was alive and at work six months after the operation.

The value of lateral anastomosis does not seem to be sufficiently appreciated. Colostomy was done only in cases of fixed growth low in the sigmoid. I quote cases illustrating the value of lateral anastomosis.

A frail woman, aged 69, had a growth in the hepatic flexure which caused symptoms of obstruction. I anastomosed the caecum to the transverse colon, and her doctor told me that she lived in comfort for three years, taking to her bed only a fortnight before she died.

Within the course of three months I operated on two old ladies, each 77 years of age, and each having a growth in the middle of the transverse colon. In each I anastomosed the bowel on either side of the growth. They are both alive, active, and free from discomfort, one seventeen months and one fourteen months after operation.

In July, 1921, I operated on a man of 49 suffering from acute obstruction due to a growth in the ascending colon. I relieved the obstruction by appendicostomy. Nineteen days later I divided the ileum, 6 inches from the caecum, and inserted the proximal end into the transverse colon. The growth was irremovable and I left the appendicostomy to drain the excluded bowel. He went home weak and emaciated and I thought he would not live long. Nine months later he turned up looking plump and well. He wanted to be relieved of the mucous discharge from the appendicostomy. He seemed so well that I reopened the abdomen in the hope that removal of the growth might be possible. I found it impossible, but he lived another six months.

I hope these somewhat discursive notes may help to prove that surgery may do much to alleviate, if not to cure, even advanced cases of cancer of the colon.

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APPENDIX IN HERNIAL SAC.

A MAN, aged 60, admitted for the radical cure of inguinal hernia to the War Memorial Hospital, Congleton, gave a history of four months' duration. A well defined hernia of about the size of a hen's egg presented at the right external abdominal ring. The hernia could be easily reduced, and evidently contained intestine, from the gurgling sound accompanying reduction. A soft mass which remained behind in the inguinal canal and could not be reduced was taken to be an unusually thick sac or an omental lipoma.

At the operation the inguinal canal was found to contain a fatty lobulated mass rather larger than a duck's egg, and embedded along its lateral border was the appendix, which was firmly adherent to the fatty mass, especially at the tip. Careful examination of the surrounding parts showed that the fatty mass did not arise from the omentum, but was the appendix mesentery in a lipomatous condition. A small portion of the caecum surrounding the base of the appendix could with difficulty be pulled through the internal abdominal ring, and it was just possible to get a purse-string suture in position and invaginate the stump of the appendix after removal. If the caecum could not have been pulled through the internal abdominal ring, thus allowing complete removal of the appendix, it is doubtful if the lipomatous mass could have been returned inside the abdomen.

Congleton: A. J. PIRIE, M.C., M.B., Ch.B.

¹ A Preliminary Study of the Experimental Aspects of Iodide and Bromide Eruptions, *Amer. Arch. Derm. and Syph.*, November 6th, 1922.
² Sodium Chloride in the Treatment of Bromism, *Ibid.*, October 12th, 1923.

A CASE OF PERNICIOUS ANAEMIA.

THE extremely low blood count in this case seems to make it worthy of record. Though several cases have been reported with a lower cell count they are comparatively rare.

A woman, aged 57, was admitted on November 21st, 1925, complaining of jaundice and weakness, which had only commenced twelve weeks before. Previously she had been a healthy woman.

The symptoms were: jaundice, which had never been intense, great weakness and lassitude, severe headaches, no appetite, marked thirst, occasional nausea and vomiting, loss of weight, and troublesome constipation. There was no history of hæmorrhage, and no shortness of breath. The menopause occurred when she was 47 years of age. She had had nine children and five or six miscarriages. She was extremely weak, and seemed to be rather wasted. The tongue was clean and smooth, but not glazed. The mouth was edentulous; all mucous membranes were very pale. The skin was lemon-yellow in colour, and there were no petechial hæmorrhages. The pulse was weak, and the blood pressure 70/38. The heart was not enlarged, and there were no bruits. The edge of the liver was just palpable below the costal margin; the spleen could not be felt. The knee-jerks were present, and were not exaggerated. Other reflexes were normal.

After admission her general condition became rapidly worse. She was delirious, and was incontinent of urine and faeces. Blood transfusion, performed as a last resort, was followed by slight improvement, but she soon collapsed, and died a few hours later, four days after admission. A *post-mortem* examination could not be obtained.

The pathological report on the blood was as follows: Red cells 300,000 per c.mm., white cells 25,200 per c.mm., hæmoglobin 8 per cent., colour index 1.2. Differential count: Polymorphs 46, lymphocytes 51, eosinophils 0, mononuclears 2, myeloblasts 1. The film showed many normoblasts, a fair number of megaloblasts, and a few myeloblasts. Anisocytosis and polychromatophilia were marked, poikilocytosis less marked.

The interesting features in this case were: the short history with final acute exacerbation of symptoms and rapid termination, the low red cell and hæmoglobin percentage, and the absence of many of the classical physical signs.

I am indebted to Dr. Cleveland, to whose ward the patient was admitted, for permission to publish this case.

D. B. SUTTON, M.B., M.R.C.S.,
House-Physician, Norfolk and Norwich Hospital.

BILATERAL RENAL ANEURYSM.

OSLER states that renal aneurysm is not very uncommon, but gives no statistics. In *Allbutt's System of Medicine* the same statement is made. The following case was the only example of renal aneurysm found in a series of 112 consecutive *post-mortem* examinations, and hence deserves mention.

A woman, aged 57, was admitted to hospital on November 22nd, 1925, as a case of dementia. There was a history of her having had a stroke in 1918, with subsequent development of slow, thick speech. On August 13th, 1925, she had an apoplectic seizure with convulsions and tremors of right face, arm, and leg. Blood pressure 240/140. The urine showed a light cloud of albumin and some hyaline casts. Both the blood and cerebro-spinal fluid gave a negative Wassermann reaction. Death occurred in five days from pneumonia.

Post-mortem Examination.

The right renal artery was tortuous and presented a firm swelling, the size of a Tangerine orange, at the entrance to the hilum. Three swellings, the size of peas, were present on subdivisions of the artery. On section the main swelling showed a thickened and calcified wall, with a lumen about the normal size of the artery, and occupied by recent blood clot. The smaller aneurysms also showed calcified walls. The left renal artery had tumours in the same position, but on a slightly smaller scale.

Both kidneys were small, with capsules thickened and densely adherent. The surfaces were coarsely granular and exhibited numerous small clear cysts. Section showed atrophy of the cortex with loss of radial markings, pallor of pyramids, increased hilar fat, and prominent open-mouthed vessels. Microscopic examination showed marked increase of well formed fibrous tissue and degeneration of tubules and epithelium; all vessels showed sclerotic changes. Section of the aneurysmal wall showed proliferation of subintimal connective tissue, with calcareous deposits, thinning of media, and loss of elastic tissue fibres in adventitia. Thus it is evident that the aneurysmal dilatation of the renal vessels was a sequel to arterio-sclerotic changes.

Examination of the heart showed marked concentric hypertrophy of the left ventricle, and atheroma of the coronary arteries. The brain showed sclerosis of all arteries, particularly of the basal. Three hæmorrhagic sites were present: the oldest, the size of a walnut, in the right internal capsule; the intermediate, the size of a Spanish nut, in the left internal capsule; and the most recent, the size of a walnut, just anterior to the genu of the left internal capsule.

I am indebted to Dr. G. Hamilton Grills, medical superintendent, for permission to publish this case.

F. H. HEALEY, M.B., Ch.B.,
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Reports of Societies.

GALL STONES: ETIOLOGY AND DIAGNOSIS.

A MEETING of the Medical Society of London was held on February 22nd, with Sir HOLBURN WARING in the chair, to discuss the etiology and diagnosis of gall stones. The three openers dealt with the subject from the medical, surgical, and radiological aspects respectively.

Sir HUMPHRY ROLLESTON began by remarking that it had been epigrammatically said that gall stones were most often reported in "females over forty, fat, flatulent, and fertile." The reference to fertility was on account of the tendency for pregnancy to produce an increased content of cholesterol in the blood. He did not propose to discuss at any length the two theories of etiology—the infective theory on the one hand, and the metabolic or biochemical theory on the other. Roughly, it might be said that pure cholesterol stones, which were single, and which seldom gave rise to any symptoms except when they happened to be impacted in the cystic duct, were formed metabolically, while the common mixed calculi seemed to depend to a considerable extent—perhaps entirely—upon an inflammatory process. In passing, he mentioned the effect of famine conditions upon gall-stone incidence. Statistics from a hospital in Leningrad showed that in 1914 the incidence of gall stones was 0.47 per cent., and in 1919, as a result, no doubt, of deprivation of food among the population, it had fallen to below 0.1 per cent. The same thing had been observed with regard to other metabolic diseases, such as diabetes. Sir Humphry Rolleston passed on to speak of diagnosis from three points of view: clinical observation, radiological methods, and laboratory methods. Calculi in the gall bladder very seldom set up purely mechanical effects, but the physician had to deal with masked or inaugural symptoms, reflex effects, which only with great difficulty were to be distinguished from dyspepsias due to other causes. It had always been a matter of surprise to him that so few people traced the existence of gall stones to an infection derived from the colon. An American observer, speaking of 400 gall-stone cases, in 170 of which he incriminated the alimentary canal, said that of these 170 no fewer than 100 were to be referred to infection from the colon. With regard to the various migrations of calculi from the gall bladder, giving rise to symptoms more definitely related to irritation of the alimentary canal, the speaker referred to those curious manifestations of biliary colic which might imitate angina pectoris. In some of these cases it was possible that there was a definite cardiac lesion, perhaps secondary to infection absorbed from the gall bladder, which rendered the myocardium more susceptible to referred pain than it otherwise would be. With regard to radiological diagnosis, x-ray examinations were becoming of increasing value in gall stones and gall-bladder disease. The ordinary direct method of showing the gall stone on the plate, which gave positive results in about 50 per cent. of cases, had been progressively improved, and by the use of certain bromine and iodine compounds some still more interesting results had been obtained. The intravenous injection of these drugs, however, had given rise to such severe reactions that he thought it had been abandoned in preference for a method whereby the salts were given orally in the form of a pill. Laboratory tests, he thought, were less helpful in gall-bladder diseases than in many other conditions. The idea that a high cholesterol content of the blood pointed to the presence of gall stones had been recently contested. However this might be, most clinical observers would agree that in a doubtful case if there was a definite increase in the amount of cholesterol this fact would incline them in favour of gall stones as against, perhaps, duodenal or gastric ulcer. He did not think test meals helped very much. It had been stated that the vast majority of cases of gall stones showed a diminished content of hydrochloric acid, but this was not at all a unanimous view.

Mr. R. P. ROWLANDS, speaking as a surgeon who had had many opportunities of confirming or contradicting the diagnosis of gall stones, said that at present the chief

reliance must still be placed on a very careful and painstaking study of the clinical symptoms and ordinary physical signs. Although some of the x-ray and biochemical tests were useful, they did not approach in value the simpler clinical method. Accuracy, however, was to be attained only by tapping every source of information, so that there was much to be said for a complete routine examination in all except urgent cases. The site of the pain and tenderness generally distinguished gall-bladder trouble from appendicitis, though all surgeons were familiar with the difficulty of the misplaced appendix, which might lie quite close to the gall bladder, and then an exploration was the only means of settling the diagnosis. The symptoms of gall-bladder trouble were more vague and capricious than those of duodenal ulcer. The x-ray shadow was often of great value, though he could not subscribe to Sir Humphry Rolleston's estimate. The x rays had not shown the gall stones in anything like 50 per cent. of the cases in which he had removed these concretions. The x rays were useful in distinguishing gall stones from cancer of the stomach, in which, on careful and repeated examination, a characteristic defective filling should be proved. In impaction of the cystic duct severe colic, not associated with jaundice, was the symptom. Obstruction of the cystic duct was not invariably due to the calculus; it might be due to kinking or other causes. In the common bile duct the impactions might not always be stone; he had known a blood clot here to lead to a mistake in diagnosis, also a daughter cyst from a hydatid on the liver. An error in diagnosis had often been caused by the pressure of a growth upon the common bile duct. The diagnosis of gall stones was far from easy, and if the untold misery and pain which they caused were to be relieved exploration of the abdomen was often necessary to establish the diagnosis and bring about the cure. Having opened the abdomen, the surgeon had to confirm, complete, or disprove the diagnosis of gall stones or of cholecystitis, which was just as important. It had to be remembered that although gall stones might be present they might not be the sole cause of the symptoms; hence, as a rule, a careful examination of the whole biliary apparatus was indicated, otherwise stones in the common bile duct were apt to be overlooked. The history of jaundice or its absence was not reliable.

Dr. ROBERT KNOX showed a large number of radiographs in which gall stones were more or less visible. The pictures illustrated the wide area within which such stones might occur, and their striking differences in size, shape, and density. A very striking series of radiographs had been sent to him specially for that meeting by Dr. James Stewart of New York; these illustrated the value of the oral method with tetra-iodo-phenolphthalein for showing up the stones. Dr. Knox said that gall stones were first detected by x rays by Carl Beck, in New York, in 1899. Beck discovered two large stones in the gall bladder, two smaller ones in the liver, and one in the cystic duct. The great work done on the subject in this country by Thurstan Holland began in 1905. The conservative estimate of the Mayo Clinic at present was that gall stones could be demonstrated by x rays in 38 per cent. of the cases in which they occurred; on the other hand, two other American workers, Leonard and George, claimed 80 or 90 per cent., this including, however, not only direct demonstration but indirect—that is, deformities due to pressure. Dr. Knox's own experience pointed to a figure nearer that of the Mayo Clinic, or certainly not higher than 50 per cent. He believed, however, that when the use of tetra-iodo-phenolphthalein became general, with a safe and perfected technique, very few cases of disease of the gall bladder would escape detection. The intravenous injection of these dye substances had proved dangerous in some cases, and an oral method, in which a capsule was administered, had been substituted, but in his own work this had not proved very satisfactory because of the difficulty of getting the capsule to break up and absorb in the small intestine.

Mr. PATRICKSON ROSS said that in the surgical unit at St. Bartholomew's the oral administration of the salts mentioned had been tried and had not proved satisfactory. After the work of Wilkie and Illingworth had been published (JOURNAL, December 5th, 1925, p. 1046) it was determined to make intravenous injections of sodium tetra-iodo-

phenolphthalein. The first case so dealt with turned out a complete success; the definite shadow of the gall bladder was shown, and there was no reaction. The method had been used in five cases, but in the last two there were alarming reactions, and he made up his mind not to attempt the method in any others. The patient felt extremely faint, there was great pallor, sweating, a fall of blood pressure, and a drop of the pulse rate to below 50. The patient became quite unconscious, and it was three hours before he was restored to normal. It had been suggested that these effects might be due to some alteration in the solution, in which apparently the salt was not stable. There was no doubt whatever that the solution became intensely toxic on keeping, even in ampoules. If the experiment was repeated care would be taken to ensure the freshness of the solution and the absence of toxic properties. With regard to cholesterol in the blood, there was one point which might be of assistance in diagnosis. Sometimes it was difficult to determine whether jaundice was due to a stone in the common bile duct or to a growth at the head of the pancreas. He understood from Dr. Mackenzie Wallis that the blood cholesterol was always lowered in the case of new growths. If, therefore, there was a tendency in cases of gall stones for the blood cholesterol to be high, and if it was proved in a long series of cases that malignant disease was associated with a low blood cholesterol, the point might be of considerable value.

Sir CHRIS ENGLISH referred to the sedentary life as a predisposing cause of gall-stone formation. Sir Humphry Rolleston elsewhere had described it as a disease of literary men and of persons confined in gaols. In the speaker's view gall stones were extremely common. Many years ago he analysed the post-mortem records at his hospital for the previous ten years, and out of 4,500 examinations found gall stones noted in 242. He believed that in any average company of, say, fifty individuals two might be expected to have gall stones, though the probability was that in neither case would they present any kind of symptoms. Diagnosis was mainly a matter of hard clinical work; most of the accessory methods at present helped very little.

Dr. F. PARKES WEBER spoke with regard to tests for hepatic efficiency in the diagnosis of cirrhosis of the liver, and the importance of such tests in order to avoid mistaking cirrhosis of the liver for cholelithiasis, which might have disastrous consequences. He knew of cases in which patients who had almost certainly subacute hepatic degeneration had been operated upon on the supposition that they were suffering from cholelithiasis, with the result that the anaesthetic had produced death following from a subacute or acute hepatic atrophy. He insisted strongly that the test for hepatic efficiency ought to be used by surgeons in order to avoid the danger of operating when there was a condition of subacute atrophy of the liver or parenchymatous degeneration.

Dr. LENOX WAINWRIGHT mentioned that the salts used in the method of cholecystography described were very unstable in light, and even in ampoules would probably alter in character.

Sir WILLIAM WILLCOX thought that the chemical analysis of gall stones had not received adequate attention. About two years ago he had a case which showed the gall stones extraordinarily clearly—so clearly that it seemed difficult to believe that what was seen was an ordinary x-ray photograph. The patient was operated on, and the gall stones were found on analysis to contain quite an appreciable amount of copper. He believed that in those cases in which gall stones showed up very clearly indeed an analysis would reveal definite traces of copper. With regard to the intravenous injection of tetra-iodo-phenolphthalein, his attention recently had been called to several cases of severe collapse as a result of this injection. Personally he would advise against intravenous injection for the diagnosis of gall stones; it was undoubtedly a severe operation, though possibly improved technique would in the course of time modify the dangers. At present it was not worth while risking the patient's life in this manner. He had been glad to hear Mr. Rowlands emphasize the importance of clinical examination. One useful observation in cases subject to attacks of pain and colic was obtained by taking

the temperature every four hours. If the gall bladder was involved in such cases a rise of temperature to 100° or thereabouts was nearly always found. The four-hourly record of temperature in attacks of colic was of real value in diagnosis. He did not think the test-meal examination in gall-bladder cases was of much assistance.

Dr. KNYVETT GORDON was of opinion that the *B. coli* had a good deal to do with the etiology, but an abnormal strain and not the ordinary *B. coli* was concerned. Whenever the *B. coli* produced symptoms it was not the ordinary organism. When the *B. coli* was found in the stools it might be subjected to certain tests, including its behaviour on preliminary incubation with normal human serum. One often found in the faeces the abnormal *B. coli*; the normal might be disregarded. Dr. RALPH KNOTT described an analysis, undertaken at Guy's Hospital, of the duodenal contents in a large number of cases of proved or suspected gall-bladder disease. Cholesterol crystals, he thought, had been found in about half the cases. Several of the cases had pathogenic coliform organisms, and in two or three cases typhoid bacilli had been isolated.

Mr. J. B. HUME spoke of the condition known as "strawberry gall bladder," and mentioned gall bladders which were packed entirely with small cholesterol stones. A nucleus became detached in the lumen of the gall bladder, upon which salts were deposited, thus giving rise to mixed or pure cholesterol stones, but such stones must surely be considered as of metabolic rather than infective origin.

Sir HOLBURN WARING asked whether Sir Humphry Rolleston had ever come across a case in which he was able to make out the gall bladder and to feel the gall stones on manipulation crunch together like keys in a bag; he had had experience of that on one occasion. With regard to what Sir William Willcox had said about the four-hourly temperatures, this apparently did not always apply. He had a case recently, an elderly man, with a swelling in the region of the gall bladder, but with no stone demonstrable by x rays. He was in doubt as to whether there was a gall stone in the common bile duct or a carcinoma in connexion with the head of the pancreas. Here the four-hourly temperatures showed nothing abnormal. He operated and found the gall bladder enlarged, but with no evidence of stone, but he discovered a little hard mass at the opening of the common bile duct into the duodenum which proved to be an impacted stone.

Sir HUMPHRY ROLLESTON said that he had never come across the condition of "keys in a bag," such as the President had described, and he would have thought it unlikely to occur, but, of course, he accepted the observation. With regard to increased diastase in the urine which had been mentioned, he would have expected that as pancreatic disease was such a common accompaniment of gall-stone disease, the presence of diastase would not be really of very great use. Mr. ROWLANDS, in his reply, mentioned one or two other sources of error at operations; and Dr. KNOX spoke in answer to what had been said about the dangers of administering the dye solutions. The oral method was not free from danger, but very few unfortunate results had so far been recorded.

X-RAY DIAGNOSIS OF TRIPLET PREGNANCIES.

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on February 4th, the President, Mr. T. G. STEVENS, in the chair, Dr. G. F. ABERCROMBIE reported a case in which triplets had been diagnosed by x rays.

Dr. Abercrombie described the clinical details of the case as follows.

In a woman, pregnant about twenty-eight weeks, it was doubtful whether the child was living; two weeks later the uterus had almost reached the xiphisternum, and twins were suspected. An x-ray examination showed that there were certainly two heads, if not three—one in the left hypochondrium, and one in each iliac fossa. There was no other evidence of multiple pregnancy. Premature labour supervened, and one hour after the membranes had ruptured a male foetus, weighing 3 lb. 3 oz., was born. No placenta followed, and the second bag of membranes was artificially ruptured, during the remainder of that day and the whole of the next, no progress was made. On the following day the uterus was stimulated by castor oil and quinine; labour recommenced at once, and a second child, weighing 3½ lb., was born

by the breech, after a leg had been brought down. The third child lay transversely, and was extracted as a breech case; it weighed 2 lb., and, like the previous two, was a male. All three children were delivered alive, and a single large placenta, with three amniotic cavities and three umbilical cords, was removed manually. The smallest child died on the second day, the next on the fifteenth; the largest regained its birth weight at the end of the fourth week and was doing well.

Dr. Abercrombie showed an x-ray photograph, which clearly revealed two heads, and the third less distinctly.

Mr. W. GILLIATT gave details about the same case, and added that the mother's pelvis was somewhat contracted, the external measurements being 9½ in., 10 in., and 7½ in. The promontory of the sacrum was easily within reach from the vagina at a distance of 4 in. The puerperium was comparatively uneventful, but four hypodermic injections of sensitized streptococcus vaccine were given prophylactically. The case was an admirable example of the great value of x rays in ante-natal work. At a comparatively early stage of pregnancy, when all other diagnostic methods gave no assistance, x rays provided accurate information of the position and of the number of foetuses present. As far as Mr. Gilliatt had been able to ascertain from a search through the literature, triplets had been demonstrated by x-ray examinations on three previous occasions. He added that he had had a similar case of triplets so diagnosed in March, 1925; the three children were delivered by Caesarean section, and all were males. During the previous month he had had a case of hydramnios in which it was impossible to distinguish the foetal parts. An x-ray examination revealed one child presenting by the head, and in three photographs no vault could be seen in the skull. A diagnosis of an anencephalic foetus was made, which proved to be correct.

Late Hydronephrosis.

Mr. HERBERT PATERSON read a short paper on hydronephrosis occurring eight years after ligation of the ureter, and showed a specimen. The clinical details were as follows.

In 1913 he had performed total hysterectomy for a large uterine fibromyoma in a woman aged 43. Part of the tumour had burrowed between the layers of the right broad ligament, and had apparently grown round and underneath the right ureter. Since dissection of the ureter would have been very difficult, if not impossible, the wisest plan appeared to be to divide it and ligature it above and below the fibromyoma. The patient remained quite well for three weeks, when she had a rigor and a temperature of 103° F., followed by several attacks of vomiting, with severe abdominal pain. Four weeks after the operation an elastic swelling was discovered in Douglas's pouch; it was opened through the roof of the vagina, and a large amount of serous alkaline fluid was evacuated, apparently due to a serous perimetritis. The patient made a speedy convalescence, and remained quite well, except for occasional incontinence of urine. Eight years later she began to suffer from pain after food, with a sensation of fullness; the pain was relieved by lying down. A swelling was found in the right lumbar region, and with a cystoscope urine was seen coming from the left ureter. The abdomen was reopened, and it was found that the right kidney had become a large, thin-walled sac, filled with fluid. The right ureter was dilated to the size of the small intestine and could be traced down to the brim of the pelvis. The swelling was removed, together with the ureter; the patient made an uninterrupted recovery and had remained well for four and a half years.

The point of interest in the specimen was that the kidney continued to secrete though the ureter had been ligatured, contrary to statements in the textbooks. A possible explanation was that when the ureter was tied close to the kidney, the back pressure in the kidney caused immediate cessation of secretion; when, however, the ureter was tied nearer to the bladder the pressure of the secreted urine was sufficiently great to distend the thin-walled ureter, which dilated so slowly that the back pressure in the kidney was not high enough to cause total suppression of urine. The slow secretion of the kidney continued consequently, but gradually the renal substance atrophied and was absorbed. The lesson would seem to be that the ureter should have been tied close to the renal pelvis.

Dr. HERBERT SPENCER said he had cut the ureter in performing hysterectomy for large myomata on two occasions. In one case he had brought out the ureter through the flank and drained and subsequently removed the kidney. He thought it likely that a careful examination of cases in

which the ureter had been tied would show that hydronephrosis developed more frequently than was thought by some operators. In the second case he had implanted the upper end of the cut ureter into the lower end by the following method. A long strong black thread transfixed the upper cut end, and one of the free ends of the thread was threaded into an eyed probe and the two ends of the thread tied. The probe was then passed through the lower cut end of the ureter into the bladder. The lower end of the probe was guided by the fingers feeling through the bladder wall into the jaws of forceps introduced through the urethra. The probe and thread were then withdrawn through the urethra. By making traction on the thread the upper end of the ureter was invaginated into the lower and the outer walls were stitched in position with fine silk. The thread was then cut and removed. Both the patients remained well after many years.

Pulmonary Tuberculosis complicated by Pregnancy.

Professor LOUISE McILROY, in a paper on pulmonary tuberculosis complicated by pregnancy, laid stress on the fact that British obstetricians had paid little attention to the subject of tuberculosis complicated by pregnancy; as a consequence, there was little co-ordination between the maternity hospitals and the sanatoriums in the treatment of ante-natal and post-natal cases. Much could be done for patients of the working classes by the provision of special sanatoriums for maternity cases or beds in an obstetric institution. No interruption of sanatorium treatment should be permitted during labour or the puerperium. In the ante-natal clinics the type of disease most frequently met with was that where a tuberculous lesion had started before the onset of pregnancy. Although the patient might appear to be improved because of the pregnancy, this improvement was as a rule only fictitious. Reversion to the original condition usually followed delivery, and, in some instances, the disease might progress, with a fatal ending. Pregnancy was a disaster in the case of a patient with a tuberculous lesion. In the ante-natal clinic symptoms of tuberculosis might easily be overlooked until the lesion was advanced. Induction of therapeutic abortion was the problem of the obstetricians, and opinions were very much divided as to its merits. It should never be a substitute for efficient treatment, and it was very doubtful whether its employment was of much benefit to the patient. The treatment of the disease should be the primary consideration, and the pregnancy be allowed to take care of itself unless the mother's life was in imminent danger from the presence of the ovum in the uterus. Careful consideration must be given to each patient, and the facilities available for satisfactory treatment. If abortion was decided upon it should be induced not later than the twentieth week. Pregnancy should be avoided when any active tuberculous lesion was present in the lungs, and only permitted when the lesion had been healed for a period of two years at least. Patients should be placed under the care of a chest specialist after delivery. The infants of tuberculous mothers were very frequently born in a healthy condition. Breast-feeding should not be employed if there was any active lesion, as there was a danger of exhaustion and infection of the child by direct contact. Professor McIlroy showed charts with the records of cases of tuberculosis and pregnancy and their histories after the confinement.

Dr. HERBERT SPENCER was surprised to hear it suggested that it was only recently that British obstetricians were objecting to the induction of labour. More than thirty-six years ago, in the Obstetrical Society of London, the question "Should pregnancy be terminated prematurely in cases of phthisis?" was raised by the late Dr. William Duncan. A very full discussion followed, in which the operation was condemned (for reasons which remained equally valid to-day) by all the leading obstetricians of the time—Matthews Duncan, Priestley, Playfair, Herman, Cullingworth, Champneys, A. Routh, etc. (*Transactions of the Obstetrical Society of London, 1890, vol. xxxii, p. 7*). The fact that an obstetrician was asked by a general physician to induce abortion was no justification for his doing it. The speaker had been asked to do it

and had always refused, as did Dr. Cullingworth in the case which gave rise to the discussion. It was certain that in some cases the patient's condition improved during pregnancy and that the children were usually strong and healthy; in some cases the condition became worse. No one could say with any certainty that abortion would improve matters, or be justified in deciding that because the mother might be killed by the disease the child should be killed by the doctor. The speaker would regard it as regrettable if there were expressed by that Section a general approval of the induction of abortion in cases of phthisis complicating pregnancy.

PSYCHOLOGICAL MEDICINE.

THE quarterly meeting of the Royal Medico-Psychological Association was held at the House of the British Medical Association on February 16th. The President, Sir FREDERICK MOTT, announced, with great regret, the death of Dr. Henry Rayner, of whom a memoir appeared in our issue of February 20th (p. 351). During his long life Dr. Rayner had been general secretary, president, and editor of the journal of the association, and in many other ways had rendered it great service. Dr. PERCY SMITH spoke of the valuable work of Dr. Rayner, not only for that association, but also for the Mental After-Care Association, of which he was for many years chairman, and to which he had made a donation of £500 three days before his death. Dr. Rayner had started the first out-patient department for mental diseases in association with a general hospital—namely, at St. Thomas's. Reference was also made to the very recent death of Dr. Moore of the Virginia Water Sanatorium, of whom we published an obituary notice on February 20th (p. 353). The PRESIDENT also congratulated Professor G. M. Robertson, a past president of the association, on his election as President of the Royal College of Physicians of Edinburgh.

Haemoclasia in the Psychoses and Encephalitis Lethargica.

Dr. ISABELLA ROBERTSON read a paper on the blood and vascular conditions in psychoses. She described observations on the occurrence of the haemoclastic crisis in psychoses, and investigations as to the effect of hyoscine and adrenaline on the production of that crisis in encephalitis lethargica. She contended that the reaction was a true one, and was not related to such factors as normal variations in the leucocytes. She had shown that reversals of reaction occurred under the influence of sympathetico- and parasympathetico-ministic drugs. This crisis was characterized by leucopenia, fall of blood pressure, inversion of the leucocytic formula, hypercoagulability of the blood, and diminution of the refractive index of the serum. To demonstrate its presence 200 grams of milk was administered to a patient who had fasted since the previous night. The total and differential leucocyte count and the blood pressure were noted before the milk was taken, and at intervals of twenty, forty, and sixty minutes after it. The maximum disturbance occurred generally at the forty-minute interval. In 50 well marked cases of dementia praecox of all types and at all ages, 91 per cent. reacted to the ingestion of milk by a definite haemoclastic crisis. In 70 per cent. of these the leucopenia was accompanied by a fall in blood pressure of from 3 to 12 mm. of mercury. In cases of melancholia, acute and chronic, 75 per cent. definitely showed the crisis, 15 per cent. a normal leucocytosis, 10 per cent. an indeterminate result; 55 per cent. of the mania cases examined showed the haemoclastic crisis, 20 per cent. gave a normal leucocytosis, and 20 per cent. an indecisive result. Dr. Robertson commented on a paper by Dr. A. F. Bernard Shaw (*JOURNAL, May 16th, 1925, p. 914*) in which the crisis was discussed as a test for liver function, with special reference to leucocytic changes. The paradoxical results which Dr. Shaw obtained were, Dr. Robertson said, similar to those which she had obtained and termed intermediate. She found that the general effect of heat in normal subjects was to

cause a leucocytosis, but if the heat was intense a leucopenia was found. Similarly, ordinary cold caused leucopenia, but if prolonged a leucocytosis occurred. The leucocyte count could be affected by psychic and emotional disturbance, and the variations might be both rapid and intense, but with care and proper technique it was possible to obtain leucocytic equilibrium within an hour. Of 275 early psychotic cases investigated, ranging from the milder neuroses to the more acute forms of mental trouble, 49 per cent. showed the haemoclastic crisis, 12.5 per cent. gave an intermediate reaction, and 38.5 per cent. reacted normally by a leucocytosis; 50 per cent. of the intermediate ones showed the haemoclastic crisis later. She gave some tables of results, and said there seemed to be some prognostic value in the presence or absence of the crisis in these cases. Investigations on the ingestion of milk following the administration of adrenaline, atropine, and pilocarpine respectively showed that adrenaline and atropine could convert the leucopenia into a leucocytosis, while neither had any influence on the leucocytosis occurring in the normal subject. The effects of pilocarpine were too varied to permit of a statement being made. Administration of thyroid extract caused a reversal of the reaction; it produced the crisis in a normal subject. Dr. Robertson said that 13 of 15 cases of encephalitis lethargica reacted to ingestion of milk with a definite leucopenia, the other 2 with leucocytosis. Subcutaneous injection of hyoscine in the encephalitic cases caused a leucopenia in all except one. In the cases of chorea the drug was followed by a marked leucocytosis in 4, a slight leucocytosis in 1, and a leucopenia in 1. Thus the tendency was for the effect of hyoscine to resemble that of the response to milk, though this did not hold absolutely. In the investigation of anaphylaxis it had been established that certain phenomena occurred at the time of, or just preceding, the onset of anaphylactic symptoms. The most important were a fall in the leucocyte count, a drop in the arterial blood pressure, a hypercoagulability of the blood, and a diminution of the refractive index of the serum. This crisis was demonstrated in asthma, paroxysmal haemoglobinuria, epilepsy, and other conditions. Anaphylactic shock, Dr. Robertson said, was not due to a specific poison, but could appear as a result of a physical process. Schiff had shown that a marked eosinophilia occurred in the blood during anaphylactic shock. There seemed to be a marked similarity between haemoclasia and anaphylaxis. Gluser had found that after an active dose of adrenaline or atropine the leucopenia following the ingestion of milk could be converted into a leucocytosis, and that in a normal person pilocarpine converted the leucocytosis into a leucopenia; his conclusion from this was that the haemoclastic crisis was a change in the equilibrium between vagus and sympathetic tonus. Haemoclasia occurred after glucose in practically every case of diabetes, but after the ingestion of milk in less than 50 per cent. Summarizing, Dr. Robertson said that haemoclasia occurred in 94 per cent. of cases of dementia praecox, in 85 per cent. of melancholias, in 75 per cent. of manias, and in 88 per cent. of encephalitis. The blood changes were in the venous blood as well as that in the periphery. Her suggestion was that a condition of anaphylaxis existed in cases who showed haemoclasia, and that this condition depended on the condition of the sympathetic nervous system.

Dr. F. L. GOLLA thought Dr. Robertson was correct in saying that the haemoclastic reaction could be obtained with unfailing accuracy when certain precautions were observed, but those who hoped to discover by this reaction some form of mental or nervous disease were doomed to disappointment. It was a simple phenomenon, uncomplicated by the ingestion or absorption of foreign proteins. In one case Dr. Robertson had found that there was a different reaction according to whether the patient was standing up or lying down, and reversals could be obtained by administering adrenaline or thyroid extract. The bronchi and the musculature of the lungs were also involved in the reaction. If the bronchi were contracted, as in asthma, there was one type of reaction; if they were dilated, the type was reversed, and the same was true of the sympathetic nervous system elsewhere. A minute dose of adrenaline caused relaxation, a larger dose was

followed by constriction, and the reactions depended also on the state of the receptive organ. The reaction was not diagnostic, but it showed that an organ was in a certain state of either equilibrium or dysequilibrium. It also seemed that the test would be of value in prognosis. At the bottom of nervous conditions there seemed to be a maldisposition of the vegetative nervous system.

Dr. A. A. W. PETRIE said that many anxiety cases gave a positive reaction, perhaps largely because these patients returned to the Maudsley Hospital after a trying time at home, so that they came in a state of exacerbation. A very high proportion of cases of dementia praecox gave the reaction. He agreed with Dr. Golla that the test promised to be of great assistance in the matter of prognosis; it might show with fair truth what cases were likely to pass into the certifiable stage.

The PRESIDENT said this was a very important study, indicating the dysequilibrium of the vegetative nervous system which was common to all cases of psychosis. Owing to a change in the hydrogen ion content of the blood, he thought the surface tension of the fluid might be altered, so that the leucocytes adhered more to the sides of the vessels.

SARCOMA OF THE UTERUS.

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on February 5th, the President, Dr. D. G. MADILL, in the chair, Dr. GIBBON FITZGIBBON showed three specimens, one of which was a sarcoma of the body of the uterus.

Dr. FitzGibbon stated that these specimens had been removed from patients aged 45, 43, and 44 respectively. The sarcoma specimen had been removed from a patient married for twenty years, with two children aged 19 and 10 years; she had been a widow for the past ten years. The other uteri were from women, one married twenty years with one child aged 18, the other woman married a few years and with no children. The symptom in each case was profuse haemorrhage for a few months at intervals suggestive of irregular menstruation, which they had all ascribed to the onset of the menopause. None of the patients suffered any pain, but all had been debilitated by the haemorrhages. The specimen of sarcoma showed a large nodule projecting into the uterine cavity from the fundus, and the growth had invaded the uterine wall deeply. Microscopically the tumour was a round-celled sarcoma; in some places the cells were very diffuse, in others relatively compact. It was difficult to say whether the growth originated from the uterine wall or the endometrium. The whole uterus was enlarged, with a thickened wall, and considerably softened.

The interest in the three cases was the close resemblance of clinical symptoms and the almost identical physical signs obtained by vaginal examination. There was nothing to distinguish the sarcomatous case from the others until the uterus had been removed and examined histologically. The cases illustrated the necessity of looking upon all cases of severe bleeding at the time of the menopause with suspicion and not temporizing in treatment.

The PRESIDENT said that sarcoma of the uterus was rare compared with carcinoma of the uterus, and he had only seen a few cases of sarcoma. In one case the growth looked like an ordinary fibroid polypus, but when removed it was found to be fibrosarcoma. A second case was practically identical, and in both a radical operation was performed; both patients did very well. Sarcoma was supposed to be a rare condition, but he thought that if every fibroid was examined the percentage of sarcomata would probably be higher than was generally thought.

Dr. BETHEL SOLOMONS said he had removed a uterus ten days previously which resembled the uterus under discussion. The patient, aged 50, had been seen by him in November; she had suffered from haemorrhage and had been curetted for diagnosis; further operation or treatment was at the time refused. She returned later, however, and asked for further treatment. She measured 60 inches round the abdomen and the vagina was very narrow. Vaginal operation was impossible, not only on account of this, but because of the size of the uterus. The growth seemed to

be too extensive for radiation, and the operative results and prognosis in body cancers were excellent. He had decided to perform a total hysterectomy through a Pfannenstiel incision; the operation had been difficult, but was brought to a successful conclusion. He did not think a Wertheim operation was at all necessary in this type of case. In his experience sarcoma of the uterus was a disease of the menopause.

Dr. FITZGIBBON, replying, said that possibly a small number of fibroids were sarcomatous, but he did not think that many were. He never thought of doing Wertheim's operation; he always did complete hysterectomy. He looked upon Wertheim's procedure as unnecessarily severe, and believed that as good results were obtained from hysterectomy. He would never advise radiation in these cases as he did not see how radium could get to the tumour if this had penetrated the uterine wall and invaded the perimetrium.

ULSTER MEDICAL SOCIETY.

At a meeting of the Ulster Medical Society, held in the pathological laboratory of the Queen's University on February 18th, with Dr. DARLING, ex-president, in the chair, Professor SYMMERS showed a large number of pathological specimens, among which was a brain tumour, the size of a Tangerine orange, found in the right frontal region of a girl who presented no symptoms except headache. Professor T. H. MILROD explained some researches which he had been carrying out in his laboratory on the influences of phosphates on carbohydrate metabolism. Dr. T. HOUSTON demonstrated: (a) phagocytosis of red blood cells, and (b) Sir Almoth Wright's slide cell technique. Dr. V. D. ALLISON showed: (a) section of actinomycosis of chest wall, and (b) slides of Ducey's bacillus, *B. welchii*, *B. tetani*, Vincent's angina, and rat leprosy. Dr. R. H. HUNTER showed some modern histological methods for nerve tissue. Dr. SIMMS showed a specimen of cirrhosis of the liver found in a child aged 9; microscopic slides showed intercellular cirrhosis, and Professor SYMMERS said that the case was undoubtedly syphilitic. Dr. I. H. McCRAW showed slides and culture of ringworm fungi. Dr. J. W. ORR related some experiments as to the cause of cholelithiasis, and exhibited preparations showing lipid deposits in human and animal gall bladders under normal and experimental conditions, and also inflammatory margination of leucocytes. Dr. A. E. CAMPBELL exhibited sections of liver and kidney showing fat changes in diabetes mellitus; with the administration of insulin the fat had practically disappeared from the liver, but the kidney was still filled with it. Mr. J. S. CAMPBELL showed an ovum of *Trichocephalus dispar*, and films from bone marrow in a case of aplastic anaemia. Dr. LOUGHRIDGE made some observations on recent work on the removal of parathyroid glands and treatment; dogs suffering from the symptoms of parathyroid removal were immediately cured by a parathyroid extract—as dramatically as comatose diabetic patients were by injection of insulin—and these dogs could be kept alive and well for months by repeated injections.

After the formal papers and remarks, Professor SYMMERS praised the research work which had been demonstrated, and the various exhibitors then personally explained the preparations to a succession of small audiences.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

At a meeting of the Nottingham Medico-Chirurgical Society on January 21st, Mr. H. BELL TAWSE, the President, in the chair, Sir WILLIAM MILLIGAN read a paper on radio-diathermy in the treatment of inoperable malignant diseases of the upper air and food passages. The paper is published in full this week at page 364.

In the subsequent discussion, the PRESIDENT suggested that in many of the cases considered operable a better result would be obtained from diathermy than from surgery; an operation often revealed extensions which placed the cases in the inoperable category. Even though in rare

cases, for some unknown reason, both radium and diathermy seemed to stimulate the growth of malignant disease, yet the excellent results were numerous enough to overshadow this completely. He advised a preliminary gastrostomy when dealing with malignant oesophageal stricture and in diathermy of hypopharyngeal growths if these were considered worth treating, which he doubted.

Mr. F. CROOKS discussed the application of diathermy to malignant disease of the skin, and mentioned difficulties he had encountered with necrotic bone underlying extensive rodent ulcers. Mr. R. G. HOGARTH raised the question why diathermy was not more frequently used in malignant disease elsewhere if it was so useful in this locality. Dr. F. H. JACOB commented on the "cancer phobia" likely to be produced if cancer weeks were established. Mr. A. R. TWEEDIE drew attention to the length of time necessary for the separation of sequestra. Dr. STANLEY GREEN believed that there was a great future for radium and diathermy, both separately and combined.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

VITAL ACTIVITIES IN THE HUMAN BODY.

CONTINUING the consideration of Sir James Mackenzie's recent work, Professor DAVID WATERSTON opened a discussion at the James Mackenzie Institute for Clinical Research, St. Andrews, on the vital activities of the human body. The biological principle postulated was that a living cell was never at rest, but was engaged either in discharging energy, in the shape of its function, or in renewing its energy. Modifications of the activity of cells—increased or decreased activity—depended upon the rate of the renewal of energy, which could be accelerated or retarded, while the time occupied by the discharge probably remained constant. Contractile tissues such as muscle, the walls of capillaries, and the genetic tissue of the heart, contracted only in response to impulses from other structures. Thus voluntary muscles contracted in three different ways: first, from impulses from parts of the central nervous system; secondly, by impulses from other sources when it was quiescent, giving rise to that form of contraction termed "tone"; thirdly, by impulses reaching the muscle from other sources when it was severed from its nerve connexions, giving rise to the form termed "fibrillation." In nerve cells there were specially developed the functions of impulse production and conduction. The afferent fibres or dendrites of such cells received the impulses which act upon the cell, hastening or delaying the renewal of its energy, and so hastening or retarding the production by the cell of an impulse which travelled away from the cell by the axon fibre. Further, the impulse received from the discharging fibrils the quality which either hastened or delayed the recovery of the cells with which it was in contact. It could be shown that atropine, for example, acted by paralysing the terminal discharging fibrils of the vagus, which ordinarily retarded the renewal of energy in the cells of the *s-a* node, and so atropine increased the rate of the heart beat. Digitalis, on the other hand, acted upon those receiving fibrils which accelerated the activity of the vagus cells. Digitalis thus increased the activity of the vagus, and so slowed the heart rate.

Finally, the activity termed "control" was discussed. This (Professor Waterston said) was an influence exercised by cells of "higher" type upon other cells or tissues, whose presence was realized only when it was withdrawn. Apart from the "control" exercised by nerves over the organs with which they were connected, control was well illustrated in the heart. The *s-a* node controlled the *a-r* node. When its control was removed the *a-r* node was rendered more sensitive to other impulses. Hence, in auricular fibrillation, when the *s-a* node was out of action, there was a disproportionate increase of the heart rate on effort, and undue retardation by digitalis from excessive alterations in the activity of the *a-r* node. The genetic tissue controlled the ventricular muscle. When its influence was lost the ventricles passed into fibrillation.

Reviews.

THE TREATMENT OF DIABETES.

MANY articles and books have been published dealing with the treatment of diabetes since insulin was first discovered in Toronto. But the work of Banting and his colleagues was so well and carefully carried out that other writers have really little to say except to admit that when they follow Banting's advice they can reproduce Banting's happy results. The literature that has come from Toronto dealing with insulin has been remarkable throughout for clarity and brevity. CAMPBELL and MACLEOD have published a monograph of 200 pages, *Insulin and its Use in the Treatment of Diabetes*,¹ giving an adequate account of the experimental work which led up to the preparation of insulin, together with a clinical section that presents to practitioners the best guide to the therapeutic administration of insulin that we have seen.

The first seven chapters deal with the physiology of the subject and such aspects of the experimental work as bear directly on the clinical use of insulin. These chapters are full of interest even to readers who have forgotten most of their physiology. The remaining nine chapters contain in the small space of 138 pages a little gold mine of practical information in most readable form.

The authors lay stress once again on the futility of all methods of administering insulin except by hypodermic or intravenous injections. They further observe that when the insulin requirement exceeds 40 to 50 units, as may happen, it is usually better to divide the day's allowance into three or more doses. This is a suggestion of the greatest possible value, which seems scarcely well enough known. When the daily requirement exceeds 10 units they found the single dose method unsatisfactory. On the subject of undernutrition, Dr. Campbell is arrestingly explicit: "that marked undernutrition possesses any mysterious benefits for the patient who has sufficient tolerance . . . I frankly do not believe." He lays down as one of the Toronto principles of treatment, "adequate nutrition and sufficient food on which to do light work."

Another dictum worth remembering is "that glycosuria in diabetes is a failure in treatment," and, according to Toronto teaching, it should be avoided: in this connexion Joslin is quoted—"a sugar-free urine is just as necessary with diabetics treated with insulin as diabetic cases treated without insulin."

Campbell insists that in treating diabetes it is hyperglycaemia, not glycosuria, that is the enemy to be combated. He speaks scornfully of those whose convictions permit glycosuria in the diabetic as naturally having no trouble about maintaining normal blood sugars. It is hyperglycaemia which overstimulates the pancreas and, as Campbell believes, diminishes the prospect of permanent improvement under insulin treatment. Many doctors, and patients too, are afraid that the continuous use of insulin may lead to an impairment of its value so that the dosage may need to be constantly raised. Three years of experience shows this to be entirely fallacious.

The short chapter on ketosis, acidosis, and coma explains the part played by accurately balanced diet in preventing these accidents. Insulin does not cure coma—it enables coma to be cured by carbohydrate; or in Campbell's words, "carbohydrate must be available . . . to burn up the ketones." "This is provided by giving the patient 1 gram of sugar for each unit of insulin." It might be more correct to say, 1 unit of insulin for each gram of sugar.

On dietetic methods the Toronto General Hospital scheme is given in full detail. The plan is based on providing a patient from the outset with an adequate minimal diet for maintenance. There is no question of starvation, of fast days, or "ladder" diets. Just enough food, with the fat, carbohydrate, and protein properly balanced, and then—

the insulin has to be made to fit the diet. The superiority of this plan over all others cannot be too widely acknowledged.

This book will rank as the standard work on the treatment of diabetes by means of insulin, and should be read by every practitioner in the English-speaking world.

The concise and practical manual by Dr. R. D. LAWRENCE entitled *The Diabetic Life*² aims at bringing the modern treatment of diabetes within the scope of the general practitioner. We are not quite convinced that its claim to enable the busiest doctor to start accurate treatment without any elaborate calculation of diets and food values is well advised. In our experience it is far wiser that the medical profession should realize once and for all that if insulin is to be used successfully the principles underlying the calculation of diets and food values have got to be understood. Even Dr. Lawrence's "explanation to doctors" of his "line-ration" diet scheme on page 41 demands some knowledge of the principles at least on which the calculations are based. The author is not quite in agreement with those authorities who advocate putting the patient at once on a permanent maintenance diet; he prefers, as he says, "to obtain the beneficial effect of slight undernutrition." It is true that he does not pursue this plan if the patient is seriously emaciated. We are not at all persuaded of the beneficial effect of slight undernutrition except in cases that do not really require insulin at all.

Moreover, on analysing the "line-ration" method ration by ration it appears that the fat allowed is rather higher than Woodyatt's formula of $F = 2C + \frac{P}{2}$, since with a diet of 1,900 calories we find that he counterbalances 150 grams of fat by only 50 grams of carbohydrate and 75 grams of protein. This excess of fat may in some diabetics be sufficient to cause ketosis. It is fair, however, to add that in the "explanation to doctors" the advice given is "if acidosis is severe the fats can be cut out." This is referred to in further detail on page 56, but the reduction of fat is not put on a sufficiently scientific basis for the delicate metabolism of a severe diabetic. The author remarks here that "fat is the most economical foodstuff in its insulin requirements"; he does not, we venture to suggest, lay enough stress on the fact that it is the most exacting in its glucose requirements. The "5-gram" system possesses many advantages over the "line ration," chiefly because of the greater choice of food it allows. It is really simple enough to be used from the outset. But it would be still further simplified if the patient bought a machine that weighed the food in grams, as advised on page 113. Half the troubles of diabetic diet arise from retaining ounces in our diet tables. Dr. Lawrence is generous in his protein allowance for diabetics, as he permits 100 grams of protein in a diet of 2,040 calories given in example 1 on page 131.

The best chapters in the book are those which deal with complications, pregnancy, and operations. As suggested in Professor Nixon's lecture and a leading article published a few weeks ago (*BRITISH MEDICAL JOURNAL*, January 16th) the practical importance of these subjects makes them worthy of careful clinical study, and Dr. Lawrence is to be congratulated on the concise and valuable advice he gives upon them. He does not perhaps lay sufficient stress on the need of increasing the carbohydrate intake when tiding a diabetic through an operation. When all is said and done it is sugar that a diabetic needs, and insulin is only the means whereby he is enabled to make use of it.

The food tables given at the end of the book are full, varied, and excellently set out. The tables of average weight at given heights and ages will be found most helpful. It is better to diet a diabetic according to some ideal weight than to diet him according to his present state, which may be grossly fat or miserably thin.

The book is well written and well printed, while its price is commendably small in these days.

² *The Diabetic Life*. By R. D. Lawrence, M.A., M.D. London: J. and A. Churchill. 1925. (Extra post 8vo, pp. vi + 161; 7 figures. 7s. 6d. net.)

¹ *Medicine Monographs*, Vol. VI: *Insulin and its Use in the Treatment of Diabetes*. Part I, Physiology; by J. J. R. Macleod. Part II, Clinical Section; by D. R. Campbell. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1925. (Roy. 8vo, pp. 242; 5 figs. 2s. net.)

INCAPACITY IN ITS MEDICAL ASPECT.

It is becoming almost a trite observation in the law courts, especially in those dealing with cases under the Workmen's Compensation and Employers' Liability Acts, that doctors can always be got to support either side on medical questions. This by no means always insinuates anything more than honest differences of opinion, and though these differences will never be entirely removed it is clear that books written by men of wide experience, such as Dr. BROCKBANK'S *Incapacity or Disablement in its Medical Aspect*,³ have a wide scope of utility. In the National Health Insurance medical service also differences of opinion are constantly arising between approved societies and panel doctors as to whether insured persons claiming sickness benefit are or are not incapable of work. This is shown by the fact, quoted by Dr. Brockbank, that in the year 1924 the cases of doubtful incapacity for work referred to the regional medical officers for decision numbered 186,115. Of this number, 81,250 individuals failed to attend for examination and were struck off the funds, and of the 102,596 actually examined 77,935 were found incapable of work and 24,661 not incapable of work; presumably all the 24,660 had been certified as incapable; in some cases it is possible that the certificates had been given without proper examination, but no one who has not had to deal with the insured can imagine how extremely difficult it often is to decide whether a patient is or is not incapable of work. The certificate required to entitle to sickness benefit simply states that the person is "incapable of work," not that he is incapable of following his usual work; and though the Minister of Health gives no legal definition of incapacity, the approved societies generally agree that for sickness benefit it is not essential that the insured person should be totally incapable of doing any work of any kind. "Continuation certificates" have to be provided at fixed intervals during incapacity, but one of Dr. Brockbank's statements needs some modification—namely, that when a doctor considers that the patient is fit for work he does not say so on the certificate, but simply ceases to give any certificate, and benefit then automatically stops. Now, though it is quite true that benefit stops when certificates are not produced, the panel doctor is instructed that, as soon as he finds the person is fit for work he must issue what is known as the "final certificate," which states that the patient "will be fit to resume work after to-day" (or on a date not later than the third day after examination); and insured persons are definitely ordered "to be careful to obtain a final certificate before resuming work."

A specially interesting part of the book is a description of the different points of view as to partial or total incapacity taken by workmen on the one part and employers or insurance societies on the other. The definition and implications of the term "accident" as understood under the Workmen's Compensation Act and the Employers' Liability Act are fully discussed, and numerous decisions of the courts, remarkable for their curious inconsistency, are quoted. A useful classification is given of the different forms of labour according to the different degrees of effort and endurance required, and the term "fit for light work only" is considered.

The second section begins with brief indications of the value to be attached to subjective as contrasted with objective signs and the effects of pre-existing disease in causing disablement after accidents. The remainder of the book discusses in alphabetical order all the ordinary medical and surgical diseases so far as they affect incapacity for work, and special attention is devoted to heart diseases, high blood pressure, and arterio-sclerosis. The reputation of the author, not only as honorary physician of the Manchester Royal Infirmary, but as a recognized expert in life assurance examination, is in itself a guarantee of the soundness of the opinions expressed, and an added value is given by the frequent quotation of decisions of the law courts already mentioned, which, though not always in strict accordance with the best medical evidence, must needs be accepted as reflecting the overruling public opinion

as to the effects of accidents and diseases on incapacity for work.

There is a serious economic—or shall we call it an ethical?—aspect of the decisions of the courts. It is commonly believed, rightly or wrongly, that there is some tendency generally to favour the claims of the workmen under the Compensation and Liability Acts. Will this not inevitably drive insurance societies to reject or only to accept with an almost prohibitive premium men suffering from even slight disabilities? It is saddening to note how frequently war pensioners complain that they are refused work when it is known that they have a pension for even small disabilities, such as slight D.A.H., myalgia, or slight rheumatism, and especially neurasthenia. The mere fact that a medical board has decided to recommend them for a pension, though it may be on the "less than 20 per cent. scale," is sufficient to ensure their rejection by employers of labour, who fear loss of time or claims for deterioration through work which would not affect an ordinary man. Whether we like it or not, it is a fact that patriotism is very often outweighed by balance sheets. The problem is increasingly difficult, and Dr. Brockbank begins at the foundation by attempting from a medical point of view, and with a considerable degree of success, to show how far the various forms of medical and surgical disabilities really do cause or tend to cause total or partial incapacity for work.

OBSTETRICS AND GYNAECOLOGY.

Books of the type of *Recent Advances in Obstetrics and Gynaecology*⁴ are of periodical use and value to all interested in the subjects, and Mr. A. W. BOURNE'S volume will repay perusal. In the first portion of the book, devoted to obstetrics, pride of place is rightly given to ante-natal care. Then follows a chapter in which the persistence of the maternal mortality of childbirth is considered. The basis of this is Dr. Janet Campbell's report on the subject to the Ministry of Health, and it would appear that the editor has either not read or not taken into consideration the report of the Scottish Commission which investigated the same subjects. This omission decidedly diminishes the value of the chapter, as the Scottish Commission's report contained several suggestions of positive value in regard to the prevention of mortality. The interim report of the committee of the British Medical Association was, of course, issued too late (SUPPLEMENT, January 9th) to be noticed in this volume. The causation of stillbirth is considered in the light, mainly, of the work embodied in the reports of Dr. Holland and Dr. F. J. Browne to the Medical Research Council. Following this there is a chapter which summarizes clearly much of the work of the last few years on the chemistry of the blood and urine in pregnancy. The pathology and treatment of ante-partum haemorrhage, the prognosis and treatment of eclampsia, and the scope, results, and risks of Caesarean section are all adequately discussed. The chapter on puerperal sepsis which closes the obstetrical portion of the book is largely based on the material which came before the Obstetrical and Gynaecological Congress last year, but this is competently analysed.

The gynaecological section of the book opens with a chapter on prolapse, for the treatment of which the author favours the Fothergill operation. Myomectomy, ovarian grafting and conservative operations upon the ovary, varicocoele of the broad ligament, and retroversion are all discussed, and the author speaks of the "more rational attitude now manifested to the curette." In dealing with so-called "functional menorrhagia" the influence of the endocrine glands upon gynaecological conditions is discussed. The section upon sterility is mainly concerned with the inflation of the tubes. A chapter on endometrioma of the ovary was inevitable, and it summarizes our present knowledge of the subject. Dr. J. H. Douglas Webster has contributed a most admirable chapter upon the use of x rays in obstetrics and gynaecology, which will be read with interest and appreciation by all gynaecologists. Dr. Justina Wilson supplies a suggestive chapter on electro-

³ *Incapacity or Disablement in its Medical Aspect*. By E. M. Brockbank, M.B.E., M.D., F.R.C.P. London: H. K. Lewis and Co., Ltd. 1925. (Demy 8vo, pp. viii + 120. 7s. 6d. net.)

⁴ *Recent Advances in Obstetrics and Gynaecology*. By Aleck W. Bourne, B.A., M.B., B.Ch.Camb., F.R.C.S. Eng. London: J. and A. Churchill. 1926. (Extra post 8vo, pp. vii + 344; 58 figures. 12s. 6d. net.)

therapeutics in gynaecology, and Mr. Malcolm Donaldson discusses radium in the treatment of carcinoma of the cervix, a matter to which he has devoted very close attention and study. Here the question may arise in some minds whether the intra-abdominal application of radium by Daels's chains should strictly be described as an "advance." The book finishes with a short appendix illustrating some of the gynaecological instruments which have been put on the market in the last few years—some of them constitute advances, but others scarcely come into that category.

The book is on the whole useful and readable, and Mr. Bourne will receive the thanks of many of his colleagues for the work which he has put into it.

Dr. WANLESS DICKSON'S *Rational Gland Therapy for Women*¹ is a small, pleasantly and plausibly written monograph of 96 pages, in which is presented much of what passes current for knowledge of the influence of the ductless glands in pregnancy and in gynaecological conditions. The bulk of this so-called knowledge is, of course, purely speculative, but the trend of the teaching in this book is to speculate first and watch the results. "The writer, all through his searchings after truth in the realm of organic therapy, has followed the advice of the great John Hunter—'Don't think—try.' " This somewhat ambiguous confession will be interpreted differently by different readers. The writer's credulity and enthusiasm seem to be boundless, as witness a case of membranous dysmenorrhoea "seen by the writer during the paroxysm of pain during an attack. Before the membrane was expelled, she was given by the mouth five grains of corpus luteum. Within ten minutes there set in a violent uterine haemorrhage. This was controlled by the exhibition of twenty grains of mammary substance." The italics are the reviewer's.

PRACTICAL PATHOLOGY.

ONE of the most popular books in the Edinburgh Medical Series has always been Dr. MILLER'S *Practical Pathology*, and we are glad to see that a second edition² has been issued. Two special characteristics of this book—its brief, easily memorized descriptions and the rich store of practical detail it contains—have endeared it to two different classes of readers, the student preparing for examinations and the working pathologist looking for advice in the technicalities of morbid anatomy and post-mortem work. Student readers have found the lavish collection of photographs bound together at the end of the book a particularly helpful feature. The other class of reader has turned more frequently to the appendix or to Chapters III and XV, which deal respectively with the removal of the different organs in post-mortem examinations and the examination of cases with a medico-legal aspect. The general arrangement of the book and sensible use of different types enable the student who is beginning his pathological studies to distinguish the less from the more important.

The *Handbook of Pathology*,³ by Dr. C. Y. WANG, professor of pathology in the University of Hong-Kong, is an examination textbook for medical students. The first impression received on turning over the pages is that this comparatively short book is designed on the synopsis plan, for which certain types of students have a preference, but which to the more leisurely reader is a defect. This impression is removed on systematic reading: the descriptions are brief and concise, but embodied in properly formed sentences. Students will probably agree that the author's object has been achieved and that they possess in this book a convenient collection of facts required on the examination day. As to its general plan, the book is not separated into the customary divisions of general and special pathology, but is divided into chapters based on etiology, or on the character of tissue changes. Thus, lesions of similar or

allied nature are grouped together, their anatomical position being a secondary consideration. Great stress is laid on morbid anatomy throughout, and the 282 illustrations, most of them photographs, are a valuable supplement to the descriptions of naked eye and microscopic characters.

Some additions have been made to the second edition of Professor N. PH. TENDELOO'S textbook of general pathology,⁴ but it is not substantially altered thereby. The author takes a broad view of pathological problems, and his book affords evidence of experience gained in clinical practice as well as in laboratory work. He has succeeded in interpreting the science of pathology without dividing the subject into the customary general and special sections, and by means of cross-references and an exceptionally efficient index avoided the repetition and overlapping which the conventional method of division too often entails. Every pathological phenomenon has both a special and a general significance. Its special significance it owes to its difference from other more or less similar phenomena. Its general significance depends on its accord or its similarity with other phenomena from which it differs in certain particulars. Thus special pathology should seek to establish the special significance of pathological phenomena, and general pathology should look for the general significance and discover the laws by which events are governed. To succeed in expounding the doctrines in this unified form each subject must be viewed as a part of a larger, and its position as well as its character considered. From the educational point of view this method of treatment is undoubtedly the best, though such a book does not become a useful source for reference until the reader has learnt his way in it, and it will be chiefly in this capacity that this exposition of the science of pathology will be used in English-speaking countries. The book is well illustrated and has a respectable list of references.

"FAMOUS MEN AND OUR FATHERS. . ."

SIR OLIVER LODGE in his appreciative introduction to the Rev. ROBERT H. MURRAY'S *Science and Scientists in the Nineteenth Century*⁵ remarks: "It is not often that men of science are looked at with the eye of an historian, and their merits and demerits parcelled out with an impartial hand." This statement will perhaps startle those who are interested in the history of medicine, especially students of the late Sir Clifford Allbutt's and Sir William Osler's works on this subject. But perhaps this is only a method of recommending this scholarly work, which indeed is an extremely valuable and admirably written review, and full of stimulating suggestions. It is surprising to find such exact knowledge of medicine and science in a writer who is neither a professional scientist nor a member of our profession. Nettled by the assumption of some scientific writers that theologians are moved by preconceived ideas, whereas men of science are concerned only to find the truth, the author confesses in the preface that one of the main objects of the book is to show that there are as many preconceptions in science as there are in theology. Though the motive may be disappointing the information contained is none the less attractively set out, and there is not any undue emphasis of the preconceived notions of our profession. In successive chapters the great scientific figures, mainly in this country, are brought before the reader's eyes, but the accounts of the individuals stop ten years after the appearance of their chief contribution to knowledge. Jenner and vaccination, Simpson and chloroform, Sir Charles Lyell and uniformitarianism, Helmholtz, Joule and the conservation of energy, the precursors of Darwin, Darwin and evolution, and Pasteur and microbes are discussed in turn. The chapter on the precursors of Darwin gives the history of evolution, and, in passing, commendation to the work of Lamarck, whose career is described as one of the most remarkable in the whole

¹ *Rational Gland Therapy for Women, particularly in Relation to Menstruation*. By I. Wanless Dickson, M.B., F.R.C.S. London: H. K. Lewis and Co., Ltd. 1925. (Cr. 8vo, pp. viii + 96. 4s. 6d. net.)

² *Practical Pathology, including Morbid Anatomy and Post-mortem Technique*. By James Miller, M.D., D.Sc., F.R.C.P.E., F.R.S.C. London: A. and C. Black, Ltd. 1925. (Cr. 8vo, pp. xvii + 523: 112 figures. 15s. net.)

³ *Handbook of Pathology*. By C. Y. Wang, M.D. (Edin.), B.Sc. (Viet.). F.R.C.P. (Edn.). London: J. Bale, Sons and Danielsson, Ltd. 1925. (Demy 8vo, pp. xii + 513: 282 figures. 21s. net.)

⁴ *Allgemeine Pathologie*. Von Dr. N. Ph. Tondelon. Zweite verbesserte und vermehrte Auflage. Berlin: Julius Springer, 1925. (Sup. 10s. 8vo, pp. xii + 1040: 368 figures. M.66; bound, M.65.)

⁵ *Science and Scientists in the Nineteenth Century*. By Rev. Robert H. Murray, Litt.D. With an introduction by Sir Oliver Lodge, F.R.S., D.Sc. London: The Sheldon Press. (Demy 8vo, pp. xvii + 450. 12s. 6d.)

history of science in that, except for Kant, he is the sole example of a man whose leading contribution was brought out after the age of 50. The chapter on forgotten scientists contains much that is rather melancholy in its record of the struggles against the hostile opposition encountered by those fighting for the truth, and in the story of the bitterness of scientific controversies in the nineteenth century. Many examples are given of men who came before their time: Thomas Young, James Hutton, Kant who said so himself, William Smith the father of British geology, von Baer, Fabre, Mendel, and Marcus Antoninus Plencz, who prophesied the germ theory of disease a century before Pasteur. Although the author sighs at "the striking results of investigator after investigator washed in the waters of Lethe," he fears that even now a research work of the highest class may fail to secure recognition.

The Conquest of Disease,¹⁰ by Mr. DAVID MASTERS, also a layman, is written in a different style, more as a popular lecture or light journalistic contribution. It is introduced by Sir JAMES CANTLIE, who records the circumstances in which he left Charing Cross Hospital and London in 1887 to join Sir (then Dr.) Patrick Manson, whose portrait forms the frontispiece, to practise in Hong-Kong, where he had experience of a plague epidemic. Well illustrated and containing portraits of many famous men, such as Edward Jenner, Sir James Y. Simpson, Lister, Roux, Metchnikoff, and Shiga, as well as pathological conditions and means for preventing infection, this work delivers a sound message on a wide range of subjects and is well up to date.

THE HEART IN THORACOPAGI.

YSANDER's inaugural dissertation on double monsters,¹¹ at the University of Upsala, which is written in English, can hardly be expected to appeal to any but professed teratologists; they, however, will find that it embodies an excellent piece of original research. Having the opportunity of examining a human thoracopagus in an early stage of development (24 mm.), the author proposed to utilize it with a view merely of contributing to general knowledge of double monsters, but in the course of his investigations he found that certain morphological details did not agree with accepted ideas as to the formation of the organs involved in the anomaly—ideas based on the examination of full-term specimens. He was thus induced to give special attention to the thoracopagi in an endeavour to trace back the anomaly to its source, so far as that was possible in the human subject; he was fortunate enough to obtain three further specimens in early stages, one 8 mm. in length.

The point to which Ysander chiefly directed his attention was the structure of the compound heart usually found in these monsters. It will be remembered that double monsters are considered to result from a twofold process of fusion—a primary fusion depending as to its extent on the degree of fission of the embryo, and a secondary, mechanical fusion of certain of the organs of the two foetuses, due to their close proximity. It was held by Schwalbe, an authority on these deformities, that the compound heart of thoracopagi is produced by the secondary fusion of the normally developed hearts of the two foetuses. Ysander's researches lead him to dissent from this view, and he places the fusion at a much earlier period of development—previous, in fact, to the formation of the primitive tubular organ. Normally the primitive tubular heart is formed by the union of two tubes, placed symmetrically one on each side of the median plane. In the thoracopagus the two pairs of tubes face each other, and, according to Ysander, each tube fuses with the tube facing it in the opposite foetus, thus forming two primitive tubular hearts, each of which is derived from both foetuses—an anterior receiving the blood from an anterior part of the whole monster, and a posterior from the posterior part. The definitive compound heart results from the union of these two, already composite, tubular hearts.

¹⁰ *The Conquest of Disease*. By David Masters. With an introduction by Sir James Cantlie, K.B.E., F.R.C.S. London: John Lane, The Bodley Head, Ltd. 1925. (Cr. 8vo, pp. xvi + 314; 63 illustrations. 8s. 6d. net.)

¹¹ *Studies on the Morphology and Morphogenesis of Human Thoracopagic Monsters*. By Fredrik Ysander, Lic. Med., Göteborg. Upsala: Almqvist and Wiksell. 1924. (Med. 8vo, pp. 226; 11 plates.)

NOTES ON BOOKS.

It is only for the pleasant and witty style of it, anything that comes from the pen of Dr. LEONARD WILLIAMS is usually worth reading. But when he writes a book with the title *Middle Age and Old Age*¹² the curiosity of the elderly traveller in this vale of tears is inevitably aroused. Is our author able to save us from anxiety as to whether our chest or waist measurement will bear the palm next time we face our tailor? Can he help us to postpone the later stage of the lean and slippered pantaloons? For although we are told proverbially—and it is needless to say that the adage applies only to the laity—that a man of 40 is either his own physician or a fool, all of us know many in the circle of our lay acquaintance who manage quite successfully to be both. And the advice of cheerful centenarians to the multitude who aspire to follow in their footsteps is, as gathered from the contemporary daily press, somewhat contradictory. One old gentleman assured us lately (with the aid of a local reporter) that he attributed his healthy and lengthy years to the free and constant consumption of beer and black twist; another to the fact that he did not use (and never had used) either; and we are thus faced with a nasty *plus* and *minus* effect which is distinctly disquieting. A book such as this can be of advantage, not merely to the medical profession, but also to untrained entrants for the patriarchal stakes. Throughout Dr. Williams's advice is sane and sound, pleasant to read, and (granted the necessary will power) easy to follow. In seven chapters and less than 300 pages he deals with the fundamental errors that tend to prevent us attaining a ripe old age. "The endocrinology of the plateau" and "Red lights" are, perhaps, the two most interesting and instructive chapters in the book. "The summit plateau" is defined—*chen! fugaces*—as extending from the ages of 50 to 45, and in dealing with its endocrinology a large number of hints are given for the benefit of those who are not beyond the stage of benefiting by them; while others must be content to be warned by the danger signals, or exercise a Napoleonic stoicism in "the last phase." This is undeniably a book that should be on the shelves of every general practitioner.

Whenever the question of communicable disease in the tropics is dealt with we are sure to find among the preventive measures proposed a suggestion to the effect that "educational and propaganda work should also be undertaken," but we are rarely told how this should be done, the statement being left more or less vague. The native, up to the age of puberty at least, is bright and learns readily, and the value of *An Elementary Course in Tropical Hygiene*¹³ for children at the receptive age is considerable, in that the lessons inculcated at such a time will probably have a lasting effect. Dr. MARY BLACKLOCK has written such a course, dealing in simple language with the harmfulness of dirt, mosquitos, flies, rats, and so forth, and driving home to the child's mind by means of a story with several morals the lessons of the beauty of cleanliness, the advantages of exercise, pure food and water supply, of antimosquito measures, and rat prevention. The children in the story were unusually fortunate in possessing complacent parents ready to comply without demur with the hygienic demands of their offspring. The primer has a brief foreword by Dr. ANDREW BALFOUR, and it certainly appears eminently suitable for implanting elementary principles in the minds of native children in all parts of the tropics.

In his book on *Scoliosis*¹⁴ Dr. SAMUEL KLEINBERG of New York gives to the medical and nursing world the fruits of his considerable experience. He states in the preface that the book is intended primarily for orthopaedic surgeons and secondarily for general practitioners and nurses and educators. It is for the last class no doubt that it has been thought advisable to include a pretty full and well illustrated section on the anatomy of the normal spine, thus saving reference to anatomical textbooks. There is little to be said that is new on the treatment of scoliosis, but what Dr. Kleinberg says is sound and the outcome of wide experience. He recognizes, as do all orthopaedic surgeons of experience, that little can be done in the direction of cure for cases with bony deformity, and he holds forth no extravagant prospects of improvement. The operative procedures which have been devised and practised for the fixation of the spine or the removal of unsightly

¹² *Middle Age and Old Age*. By Leonard Williams, M.D. Oxford Medical Publications. London: H. Milford, Oxford University Press. 1925. (Demy 8vo, pp. ix + 296. 10s. 6d. net.)

¹³ *An Elementary Course in Tropical Hygiene*. Part I. By Mary G. Blacklock, M.B., B.Sc., D.T.M. Preface by Andrew Balfour, C.B., C.M.G., M.D., B.Sc., F.R.C.P. London: J. Eale, Sons and Danielsson, Ltd. 1926. (Cr. 8vo, pp. 47. 1s. net.)

¹⁴ *Scoliosis: Rotary Lateral Curvature of the Spine*. By Samuel Kleinberg, M.D., F.A.C.S. New York: Paul B. Hoeber, Inc. 1926. (Med. 8vo, pp. xvi + 311; 140 figures. 6 dols. net.)

prominences are described and discussed, and the book may be taken as a safe guide to practice by both general practitioners and specialists. Whether it is so well fitted for the instruction of those who have not had a complete medical education must be doubtful. The technical merit of the illustrations is great, and the paper and printing leave nothing to be desired.

PREPARATIONS AND APPLIANCES.

Isacen.

Isacen (diacetyl-dihydroxyphenylisatine) is a new synthetic purgative prepared by Messrs. Hoffmann-La Roche (7 and 8, Idol Lane, London, E.C.3). The anthracene group of purgatives and phenolphthalein and its derivatives, which have a similar action, form the most widely used group of purgatives, but all of these drugs, both natural and synthetic, have certain disadvantages attending their use. The action of a series of phenolphthalein derivatives was investigated in the Roche research laboratories, and the compound isacen was found to be the most efficient derivative obtainable from phenolphthalein or allied compounds. The manufacturers state that isacen is an insoluble, odourless, and tasteless powder, which passes through the stomach unchanged, but that in the alkaline medium of the small intestine the acetyl groups slowly break away, and a slightly soluble compound is formed which produces a mild irritant action on the large intestine, thus producing purgation. Clinical tests have proved satisfactory, since none of the drug appears to be absorbed, and therefore no irritant action is produced on the kidneys, an effect which is liable to follow the administration of many of the purified active principles of the anthracene purgatives. The drug was found to be a reliable purgative and not to produce any intestinal pain or discomfort. From the reports by the manufacturers it appears that isacen is distinctly superior to other purgatives of this same class. The dose is 1/6 to 1/3 gr. to be taken at night.

VENTILATION AND ITS EFFECTS.

METHODS OF MEASUREMENT.

THE recently issued report on methods of investigating ventilation and its effects, by Dr. H. M. Vernon and others,¹ carries one step farther an inquiry initiated by the Medical Research Council into the principles of ventilation, the previous results of which have been published in the *Science of Ventilation and Open-air Treatment* by Leonard Hill and in the *Kata-thermometer in Studies of Body-Heat and Efficiency*.

The "kata-thermometer" (for short the "kata") was invented by Professor Leonard Hill "as an instrument designed primarily for the measurement of its own rate of cooling when its temperature approximates to that of the human body." To be more precise, it is a thermometer raised to a temperature of 100° F. and then allowed to fall to 95° F., the time of such fall being accurately observed. The kata-thermometer may be used either as a dry-bulb or a wet-bulb instrument. As a dry-bulb thermometer it indicates the rate of heat loss by radiation and convection, as a wet-bulb by radiation, convection, and evaporation; the difference, therefore, between the two readings indicates the rate of cooling due to evaporation alone.

The sheltering effect of clothing on the body may be imitated by enclosing the kata in a wool finger-stall and comparing the cooling due to evaporation in the covered and in the uncovered condition respectively. When the heat loss from the uncovered kata promoted by fanning was increased by 146 per cent., the loss from a covered kata was increased by only 46 per cent.

The science of ventilation is one in which pre-eminently the comfort of the body is studied, for there is little use in supplying people with pure air if its temperature and its motion are such as to make them uncomfortable: they will not long endure a draught, however scientifically produced it may be. The comfort of the air of a room or of the atmosphere of any region depends very directly on the rate at which the heat leaves the body, whether too fast or not fast enough. Our own previous sensations as regards the rate of this heat loss must determine our opinion, for if we are already very hot, then the more rapidly our heat leaves us the more comfortable we shall feel; but, on the contrary, the colder we are already the more uncomfortable we shall feel. Clearly, the lower the temperature of the air, the damper this air, and the faster it moves, the more rapidly shall we lose heat. The report

before us is an attempt to bring to bear on these factors and their relationship to our sensations the accurate methods of modern physical measurement.

The report is divided into four parts, dealing respectively with the measurements of variations in the velocity and temperature of air currents; the calibration of the kata-thermometer; the influence of cooling power and of variability of air currents on sensations of air movements; and lastly, the influence of temperature, air velocity, and clothing on the rate of cooling of the human body.

A special form of thermopile and galvanometer, which responds more rapidly to changes of air temperature than does the mercury or the spirit thermometer, was devised. The workers found that many air currents were local, of short duration, and frequently vertical in direction. Neither the ordinary anemometers nor the kata-thermometer can register these brief, local currents; the kata is unsuitable because it takes at least a minute to fall through its prescribed range of temperature. The instrument devised was a hot wire, air-current detector on the following principle—namely, that "the convection loss from a heated wire is proportional to the square root of the velocity of the air current moving against it." The wire is electrically heated and is used in conjunction with a galvanometer from which all but 2 per cent. of the current is diverted. The details of this method of measuring air velocity are given on page 10 of the report. By the combined use of the thermopile and the hot wire detector much additional light has been thrown on the relative importance of temperature and of the movement of the air in the problem of ventilation.

In Part II Dr. Vernon records his studies of the calibration of the kata-thermometer, the report on which occupies ten pages. This involved calculating "the factor" of the kata, which, though theoretically constant during all ranges of temperature, is not actually so. The formula relating the factor (K) to the variables is—

$$K = 0.27 (36.5 - t) \phi;$$

where ϕ is the time in seconds required by the kata to cool from 100° to 95° F. in a still air chamber at a temperature t °. The factor represents the number of millicalories of heat given out by the kata in cooling from 100° to 95° F. divided by the surface area of the bulb expressed in square centimetres. Dr. Vernon found that the formula did not hold equally good through all the ranges of temperature commonly met with in factories. An "electric kata" shows a gradual rise in its factor at all temperatures. It was found that the factor varied by ± 0.34 per cent. for each degree above or below 57° F.

In Part III, which attempts to correlate cooling power and the variability of air currents with sensations, a classification of sensations had to be devised. The following was the ninefold scheme adopted: very stagnant; very stagnant to stagnant; stagnant; stagnant to medium; medium; medium to fresh; fresh; fresh to very fresh; very fresh. It was found that the various degrees of stagnation experienced in factory air were due entirely to differences of temperature, but that the degrees of freshness were due chiefly to variations in air velocity.

The cooling power of the kata combines these two variables better than any other device for measuring. A large number of factories were investigated. Some 229 observations were made in summer, and about 203 in winter, the mean results of which show that to produce a given sensation of air movement in winter required a cooling power about one unit higher than in summer. This difference is due to acclimatization; and the mean cooling power was found to change gradually from month to month as the mean temperature changed.

In Part IV the effects of temperature, air velocity, and clothing on the rate of cooling of the human body were worked out. It was found that the unclothed body would remain in temperature equilibrium at an air temperature of 81° to 83° F., whereas the warmly clad body would do so at 59° to 60° F.

The report concludes thus: "In order to induce an actual cooling of the overheated body of a man engaged in hot and heavy work, it is of most importance to reduce the temperature, and next in importance to reduce the clothing, whilst an increase of air velocity has but little effect."

¹ Prices Council: Medical Research Council, Special Report Series No. 100. London: H.M. Stationery Office, 1926. 2s. net.

British Medical Journal.

SATURDAY, FEBRUARY 27TH, 1926.

HOSPITALS FOR THE MIDDLE CLASSES.

A SERIES of letters of exceptional interest, on nursing homes and private hospitals for the middle classes, has been published in the *Times* in recent weeks. The statements and opinions brought to light in this correspondence show that there is a good deal of dissatisfaction in the minds of all who are concerned in the existing provision for middle-class patients. The patients, the proprietors of the homes, and the medical profession, each complain. The patients (or their friends) complain because at a time of sickness, when income may be reduced, such heavy charges must be met. The proprietors of the homes complain that the criticisms directed against their charges are unjust, for these take no cognizance of the heavy costs of maintenance. The doctors complain that the equipment they need for their work, which is always at hand in the voluntary hospitals, cannot be got in the nursing homes. The complaints are just. They are not complaints against persons, but against a system—or, rather, a lack of system. Patients do find the charges of nursing homes heavy, and just when they are least able to bear them. The costs of nursing homes conveniently placed for doctors and patients are high, and must be high in order to maintain any fair standard of efficiency. They will be higher, as doctors insist on an equipment proper to their work. But even at these high levels they compare not unfavourably with the costs of well equipped hospitals when all fabric and establishment charges are properly included within their costs.

The trouble arises from natural causes: they are growing pains. A generation or so ago the middle-class patients—indeed, all except the poor—received medical and surgical treatment in their own homes. Domestic difficulties and surgical emergencies made "homes from home" necessities. The nursing home stepped into the breach. It was no more than a boarding-house or small hotel. Comforts were few. The heaviest charge, over and above the household cost, arose from the additional nursing staff, though this, save for a well trained and devoted hospital sister, was often amateur. The costs were then but little more than those of a hotel of similar class. But even so these weighed heavily upon patients, for illness comes unexpectedly, and is not, like holidays, well prepared for. In those days the nurses were untrained and had their quarters in the servants' rooms; now trained nurses are essential and they require their own rooms. Then operating theatres were unknown; now they are indispensable. Lifts and male porters were rarities; now they are commonplace. From all these causes charges have mounted, and will mount, for there are many necessities that have yet to come. To cite but two of these necessities: What place for modern treatment can be held complete that has no x-ray equipment? What surgeon feels content to leave a patient after operation within a home a mile away without a resident medical officer? These difficulties are inherent in the gradual adaptation of homely conditions to those required for quite other purposes. The problem at issue is how to meet these difficulties, how to provide these necessities, yet keep

the provision—nursing home or private hospital—within the means of those for whom it is intended.

In several of the letters published there are indications of the tendency of growth in middle-class provision. Larger nursing homes are displacing the smaller. Private hospitals, fully equipped, are being established on a co-operative basis, as at St. Chad's in Birmingham, or by means of private munificence, as at St. Thomas's, Guy's, the West London, and other hospitals; these again owe their formation to liberal benefactions. Such private wards meet many of the difficulties. Fabric charges do not appear, the cost of maintenance is reduced by combination with the larger and its resident staff are available. Thus charges are less and the service is of the highest. This development of private wards is comparatively new in this country, but it is the usual arrangement in the United States of America, where hospital practice most conforms to ours. The supporters of this development are many and increasing; but it has some antagonists, notably Lord Knutsford, who asserts that the voluntary hospitals are for the "sick poor," but even he concedes that the term is elastic. We may take it, then, that the voluntary hospitals are certainly being called upon to do more than they have done in the past, either as part of their ordinary work or by special arrangement.

It may be, however, that in the near future great changes are in store. New conditions are adumbrated in the administration of the Poor Law. It is possible that the infirmaries controlled by the guardians of the poor—who now, it should be said, for the most part work admirably—may be transferred to larger civic authorities that are free from taint of a long-past but cruel history. In such an eventuality it is almost certain that the municipal, or county, or State hospital will advance in status and in the confidence of both the public and the profession. Thus the call on the voluntary hospital for the treatment of the "sick poor" may be lessened. If events should so turn out, the natural corollary will be the further widening of the ambit of the voluntary hospitals, so as to admit in larger numbers middle-class patients who will pay for their maintenance and treatment. If this should come about it would be according to precedent. In other fields—notably education—private benefaction has shown the way to the State, and with development of State-aided provision the early benefactions have reverted to the use of the middle classes whence they originally came. Moreover, backed by the saying is, the middle classes are in truth the backbone of the country, and a provision that will meet the needs of these classes, and for which they are ready to pay, would be just.

Finally, the correspondence in the *Times* suggests means whereby payment may be made before the certainty of illness renders it imperative. Insurance is advocated. Trial has been made through the British Provident Association for Hospital and Additional Services, which owes its initiation to the work of the late Dr. Gordon Dill. Most citizens are familiar with the principles of insurance, and not least the middle classes. We insure our houses, and our furniture, our servants, ourselves against accident, and not lives for our dependants, and our car when we own one. Why not insure against the incidence of illness and its special costs? This is done to some extent. That it is so little done is because there is no sufficient

provision for any treatment beyond home treatment. If anything like the possibilities of a wider hospital treatment hinted at should come to pass, it is likely also that side by side with that growth the field would be explored by insurance companies, who know better than most the risks of sickness among their clientele.

Many questions of intricacy are involved in such propositions. One, and that not the least startling, would be the possible inclusion in the terms of any such insurance policy of a proviso that the insured shall submit to periodic medical examination, and to immediate treatment of any condition found likely to lead to illness, or the suppression of any habit or indulgence equally dangerous. This, however, would lead to a control, or limitation of liberty, which many freedom-loving Britons would resent and oppose to the last, even though it were consistent with the highest policy of preventive medicine.

DISTURBANCE OF THE PYLORIC MECHANISM.

THE control of the neuro-muscular mechanism of the alimentary canal is so complex, and the precise details are so little understood even by those who have concerned themselves more particularly with its study, that others may be forgiven for paying scant attention to a subject on which any hypotheses they might form would rest on so slender a basis of known facts. But in the British Medical Association Lecture published to-day at page 359 Professor John Fraser takes the general medical reader by the hand, so to speak, and leads him through such knowledge as we have about the distribution of the sympathetic and parasympathetic systems, and then brings forward evidence in support of the hypothesis that certain abdominal conditions of doubtful etiology, such as hypertrophic stenosis of the pylorus, Hirschsprung's disease, and the intussusceptions, are really due to a muscular hypertrophy produced by motor impulses beyond the control of the normal inhibitory mechanism.

Following this line of thought it may be profitable to draw attention to one example of disturbances of the neuro-muscular mechanism which, even if still wrapped in mystery so far as the method of its production is concerned, is yet of serious importance in the elucidation of otherwise obscure clinical problems. The controlling action of the pylorus has been the subject of much experimental work, and although certain elementary facts about it are fairly clear, they are perhaps by no means generally appreciated, and are often wholly misunderstood. The introduction of the stomach tube by Kussnaul as a clinical method of investigating disturbance of gastric function focused the attention of physicians more particularly on the secretory aspect of these problems, and for many years but little real attention was paid to any muscular derangement. With the advent of x-ray examination the position changed; a method was now available by which the movements could be seen and studied, and Cannon, in his classical work on the acid control of the pylorus, gave clear experimental evidence of factors operating at the pyloric sphincter. Since then increasing attention has been paid to the musculature of the alimentary canal, with a general tendency to ascribe particular importance to derangements in the neighbourhood of the sphincters.

With regard to the pyloric sphincter, Boldyreff proved conclusively by experimental methods that one of the chief functions of the pylorus was, not only to regulate the passage of chyme from the stomach to the

intestine, but also to permit the regurgitation of alkaline fluid from the duodenum into the stomach, and in this way to regulate the acidity of the gastric contents. Unfortunately the arrival of yet another method of clinical study of gastric function, in the shape of fractional test-meal examinations, directed attention once more to the secretory theories, largely owing to a lack of appreciation of the fundamental facts that Boldyreff had established, and a consequent misconception of the factors on which variations in the acid curves depended. Applying Boldyreff's observations to clinical problems, Dr. Charles Bolton has shown that the highly acid gastric contents which in former times were supposed to denote a dyspepsia dependent upon hypersecretion are in reality due to defective pyloric function, which does not permit adequate regurgitation of the alkaline duodenal fluid to neutralize the gastric contents; and conversely, that low gastric acidities are often due to an abnormally free regurgitation, and by no means necessarily denote a deficient secretion. Cases of true hypersecretion, or true achylia, are, indeed, comparatively rare, but cases of defective pyloric function, permitting on the one hand an excessively high and on the other an abnormally low gastric acidity, are extremely common.

We thus see that the estimation of the gastric acidity by the fractional method gives, as Dr. Bolton has insisted, no accurate picture of the gastric secretion; but it does give a very suggestive idea as to the vagaries of the neuro-muscular apparatus controlling the pyloric sphincter. The evidence obtained by test-meal examination is confirmed by that from x-ray observation, but both methods are open to serious objection when we come to apply them to clinical problems. In each case we are introducing into the stomach a bland non-irritating meal which cannot in any sense be expected to reproduce the same response to the very mixed diet to which patients are ordinarily accustomed. Still, so far as they go, both methods agree in suggesting that a defective pyloric mechanism is a fairly common event, and is indeed by no means incompatible with normal health. Moreover, they show quite clearly that the same defect may be present in a number of entirely dissimilar pathological conditions. A spasm or achalasia of the pylorus may be associated with a pyloric or duodenal ulcer, equally with these functional disturbances; an unduly free regurgitation may be allowed in cases of ulcer of the body, in carcinoma, or in functional disorder. At first sight this seems to suggest that the detection of such a defect in the harmonious working of the neuro-muscular mechanism can be of little value in the elucidation of clinical problems. But a more critical consideration will show that it may in reality provide the key to much that is puzzling in the wonderful variations of symptoms associated with gastric disorders; for the suggestion seems clear that, given an underlying defect in the pyloric mechanism, the local symptoms of any superimposed gastric disorder will depend in the main not so much on the gastric lesion itself as on the response of the pylorus thereto.

Full appreciation of disturbances of the neuro-muscular control of the pylorus affords also a comparatively simple explanation of those cases, to which Professor Fraser refers, in which lesions of the abdominal viscera far removed from the stomach give rise to symptoms indistinguishable from the symptoms of these gastric lesions, even though we are as yet far from understanding the actual nervous mechanism responsible for them.

THE MEDICAL PUNDITS.

ONE of the curious phenomena of our present-day social life—at any rate in the South of England—is the amount of space the newspapers give to medical pronouncements on everyday matters. Why do they do this? The explanation must be that their readers like it. And why do some of our eminent colleagues scatter these gems of wisdom at public and semi-public gatherings and in the course of interviews with reporters? It must be from a high sense of duty. They feel they have a message to deliver. In their hearts they hate publicity; but they know the truth about such things as rubber corsets, shingled hair, high heels, and cocktails, and (like brave fellows) they are determined to speak out for England's sake. The popular newspapers, we suppose, are no better than they should be; their public dotes on titbits and must be fed; and if highly decorative members of our profession are so obliging as to furnish "good copy," why not make the most of it with the aid of headlines and portraits? Thus lip service is paid to Hygeia, and a million blameless citizens are entertained at small cost, as they go to and fro in trams and trains. And the medical pundits, for their part, have also a double reward: the consciousness of duty done, and (deep in the subconscious) a feeling that it is not altogether a disadvantage to keep on good terms with the press in these censorious days.

Now, every reader of the *BRITISH MEDICAL JOURNAL* has not the time to read all that appears in the morning and evening newspapers; yet if oracular sayings about health are good for the public to hear, it surely follows that the medical profession ought to hear them too. It may well be that some of us, no less than our patients, need instruction on these matters. Here, then, are a few gleanings from the harvest of the past fortnight's *obiter dicta medica*.

On February 13th an audience in the East End of London was entreated by a physician not to let their daughters and nieces cultivate "that willowy figure," because it leads to digestive troubles and a greater risk of consumption. The craze, he said, won't last, and it does not make for a happy old age. But if it won't last, does it matter very much? Apparently, however, it does matter, because a no less eminent surgeon, in an interview granted next day to a reporter, declared that it is the weedy women of to-day who are producing the weedy young men. They cut their hair, shorten their skirts, and flatten their figures, so that it is at times difficult to tell a boy from a girl. We should have none of the diseases common to civilization (he added) if women were normal. How many of our readers, we wonder, have thought to matter out like that, and got to the core of the problem? Hard upon these tremendous maxims there appeared the report of a lecture given by a neurologist to an audience at the other end of London. The girl of the present day, he said, even when in her teens, has a freedom of action which is fraught with more than one danger. But these dangers—in the West End—do not, it seems, include the willowy figure. Here the trouble arises from restaurants, dances, night clubs, cinemas, cocktails, champagne, liqueurs, whiskies and sodas, tobacco, and drugs; in short, the modern girl "has become quite out of hand." What is the remedy? The neurologist, with his special opportunities, can and will help us: "Hygiene of body and mind are much needed in these days." The newspaper in which we saw this report gave it no more than three headlines, phrased (like the lecture) with commendable

restraint: "Girls' Cocktails and Drugs. Wrinkled Faces at Twenty. Doctor on Lack of Discipline." In a future issue, if this form of public education goes on, we may give our readers some more examples of how it is done.

CARBON DIOXIDE CONTROL OF ANAESTHESIA.

THE administration of an anaesthetic is not infrequently one of the most exacting experiences of general practice, and Professor Yandell Henderson has insisted, in a lecture published recently in our columns,¹ that ignorance of the physiology of anaesthesia and a crude administrative technique must be held jointly responsible for this. In the course of his lecture he emphasized particularly the value of carbon dioxide in controlling the subsequent discomforts and the danger of acidosis. Dr. J. S. Lundy has recently reported² the results of using carbon dioxide in almost the entire field of general surgery. In contrast with Professor Henderson, who mentioned that the percentage of carbon dioxide found most effective was as high as 25; Dr. Lundy believes that the right percentage varies for different patients and in different stages of the operation, but should in no case exceed 5. The anaesthetic is thus rendered safer and its administration easier. Dr. Lundy found that the special carbon dioxide-attachments for the ordinary gas apparatus did not prove satisfactory, and he has been using, therefore, a four-control modification of the results enumerated by Professor Henderson, and refers particularly to the value of increasing the ether absorption rate, diminishing the struggling and cyanosis, quickening the revival of the patient and his elimination of the anaesthetic, and improving the prognosis in bad cases. Dr. Lundy reports also that carbon dioxide may be added with advantage to a light anaesthetic mixture in obstetrical cases at the time when the child's head presses against the perineum and begins to dilate the external outlet; the mother's tendency to hold her breath and to bear down, in spite of all remonstrances, is thereby abolished. In dental anaesthesia also it has been found very useful in children, diminishing the struggling and cyanosis. The signs of overdose are said to be coughing, abdominal and thoracic movements, and holding the breath.

WILLIAM WITHERING, M.D., F.R.S.

IN the first number of the new series of the *Birmingham Medical Review* Dr. W. H. Wynn appropriately recounts the life-history of William Withering (1741-1799), who is the most notable of his predecessors on the physicians' side of the General Hospital, Birmingham. Withering came of an old Shropshire and medical family, for his father was in busy practice and his mother was a sister of Dr. Brooke Hector of Lichfield, a family with which Samuel Johnson was much in touch. William Withering went to Edinburgh to whose "affable disposition" and "modesty" he subsequently paid a tribute, took the M.D. in 1766. On one of his journeys to Edinburgh he made the acquaintance of Thomas Fowler (1736-1801), then an apothecary at York, who qualified later at Edinburgh in 1778, and, succeeding Withering at Stafford, published in 1786 his treatise "Medical Reports on the Effects of Arsenic in the Cure of Agues, remitting Fevers, and periodic Headaches," and with the help of Hughes, the apothecary there, compounded a substitute—liquor arsenicalis (Fowler's solution)—for the quack remedy then known as "Tasteless

¹ *BRITISH MEDICAL JOURNAL*, December 19th, 1925, p. 1170.
² *Journ. Amer. Med. Assoc.*, December 19th, 1925.

ague and fever drops." In 1795 Withering was consulted by letter by Fowler, who thought that he had angina pectoris, described by William Heberden the elder in 1768, but altered the diagnosis to spasmodic asthma. About 1766 Withering settled at Stafford, where he became sole physician to the hospital, which still has the Withering Samaritan Fund, and soon became popular for his musical talents and proficiency in private theatricals. Among his first patients was his future wife, whom after curing medically he continued to educate in literary and artistic taste, and it is said that his first researches on the British flora were the outcome of his anxiety to supply her with subjects to draw. Marriage in 1772 made his responsibilities greater, and three years later, in the hope of correspondingly increasing his income, he moved, on the advice of Dr. Erasmus Darwin, to Birmingham. At first he lived in a house previously occupied by Wyatt, the inventor of the first cotton-spinning machine, and also for a short time by Dr. Robert James, so well known for his fever powder, imitated by the *British Pharmacopoeia's* pulvis antimonialis. He at once became very active in chemical and physical work, published "A Botanical Arrangement of all the Vegetables growing in Great Britain, according to the System of the Celebrated Linnæus," and was elected a member of the famous Lunar Society, which included Joseph Priestley, James Watt, and Josiah Wedgwood. This hard work was followed by evidence of tuberculosis in 1776, the symptoms of which recurred in 1783, and in 1790 and 1791 caused attacks of pleurisy. The riots in July, 1791, when Joseph Priestley's house was burnt and his own threatened, had an evil influence on his health, and, resigning his hospital appointment in June, 1792, he went abroad; bearing his cross with fortitude, he fought the disease, which did not carry him off till October 6th, 1799. He was elected physician to the General Hospital in 1779; but the year before he investigated a severe epidemic of scarlet fever, and at first drew a distinction, which he afterwards abandoned, between scarlatina anginosa and angina gangraenosa; Dr. Wynn, however, considers that probably his first impression was correct, and that the ulcerated sore throat was what would now be called Vincent's angina. His work "An Account of the Fox-glove, and some of its Medical Uses: with practical remarks on Dropsy and other Diseases" (1785) was the result of ten years' careful observation of its administration; indeed, in 1776 his medical friends were using it mainly as a diuretic and for dropsy, though he recognized its influence on the heart. It is noteworthy that little improvement on his general directions for its use was made for a hundred years. Dr. Wynn rightly goes into Withering's work on digitalis in some detail, and further shows that he was a really great man as well as a distinguished physician and botanist. It is to be hoped that he will similarly describe the lives of other great Birmingham men, such as Joseph Hodgson (1788-1869) of Hodgson's disease, and John Ash, founder and first physician of the General Hospital, to whom he refers in this interesting and well written article.

PHYSIOTHERAPY CLINICS IN AMERICA.

IN an address to the Electro-Therapeutics Section of the Royal Society of Medicine on February 18th, Dr. E. P. Cumberbatch related his experiences of a tour in the United States and Canada, during which he visited seventeen cities, including six universities and more than forty hospitals and clinics. He found our colleagues across the Atlantic pursuing physiotherapy with great energy and resource, and he described the American practice in respect of four treatments—diathermy, sinusoidal currents, radiant heat or light, and ultra-violet radiation. Diathermy is

the most widely used treatment of this order, and the American apparatus differs much from that in use here. The spark-gaps attached to the diathermy machines in America are, it appears, all of the open type and multiple, six, eight, or ten spark-gaps being used. Some machines are without spark-gaps, and a three-plate thermionic valve is employed so that a current of sustained oscillations is produced. Excision of malignant growths is carried out in several clinics by a diathermic method which amounts to a form of surgical operation. The electrode is an ordinary thin steel needle, three or four inches long, fixed to a holder and attached to the terminal of an apparatus giving these sustained oscillations. When this needle is drawn across the tissues the tissues appear to "fly open before it," and coagulation is produced on each side to a depth of about 0.1 mm., so that lymphatic oozing and capillary bleeding are stopped. Dr. Cumberbatch saw this demonstrated at Baltimore by Dr. Howard Kelly, who called the instrument the "aigusector." It was stated that the tissues cut by this "aigusector" could heal by primary intention; a certain amount of shock, however, is not uncommon. In America diathermy is applied to a malignant growth at a much earlier stage than is customary here. It is also used extensively in the treatment of enlarged tonsils; under superficial anaesthesia the tonsils are fulgurated, but several applications are necessary, spaced by intervals of days, before treatment is completed. Haemorrhoids are very generally subjected to surgical diathermy, the treatment being by fulguration or, as the Americans prefer to call it, "desiccation." A further employment of diathermy is in the treatment of acute lobar pneumonia, and Dr. Cumberbatch was informed that the temperature begins to drop by lysis soon after the application. An apparatus widely used in the United States is a wave generator, originated by Dr. Morse of Boston, which gives a galvanic (direct) current, a sinusoidal current, and a sine wave or pulsating current, and each of these currents is made to surge—that is, to alternate rhythmically between the minimum and maximum many times a minute. With sinusoidal currents of higher frequencies than are customary here it is said to be possible to secure more even contraction of muscles between electrodes. Dr. Morse himself had used the current with success in enteroptosis with stagnation of the colon. Two kinds of lamps are used for radiant heat or light treatment, one giving a larger and the other a smaller proportion of heat. This method is used for the relief of deep-seated pain. For ultra-violet treatment the mercury vapour lamp is almost universally employed: Dr. Cumberbatch only saw one carbon arc in use. With regard to teaching in physiotherapy, many of the medical schools have courses, but these are optional except in the University of Pennsylvania, where Dr. Tait McKenzie, professor of physical education, takes the students through a compulsory course after they have completed their anatomy and physiology. Another point brought out in the address was that the practice of physiotherapy in America depends largely on the employment of "aides." The doctor in charge makes the examination and diagnosis and prescribes the treatment, which is undertaken by the "aide." Facilities for training these "aides" exist at many schools, but there is nothing in America to correspond with the diploma in medical radiology and electrology of Cambridge. Dr. Cumberbatch attended the fourth annual physiotherapy convention in Chicago, a gathering of 750 members. The curious thing about this successful convention was that it was organized entirely by a firm of manufacturers of electro-medical apparatus. The programme was left to a medical committee, and the firm obtruded itself only to the extent of putting a selection of its apparatus in an adjoining room. Dr. Cumberbatch ended with an amusing account of a

demonstration of the "Abrams box," by a gentleman who had come all the way from California to Montreal for the purpose. Following the address an American visitor, Dr. J. H. Kellogg, who for more than fifty years has been superintendent and surgeon of the Battle Creek Sanatorium at Michigan, remarked that America looked to England, and especially to London, for a lead in medical progress. This was his own seventh visit to learn what he could from his British colleagues. He described the great institution at Battle Creek, with its medical staff of fifty, and claimed that it was the first to inaugurate team work. He gave an account of the physiotherapeutic equipment, the diet, exercises, and general regimen, and mentioned the ban upon exciting foods, alcohol, and tobacco. Dr. A. E. Barclay, who also recently visited Battle Creek, while joining in its praises, spoke of the joy with which he stole out at night, to the most secluded quarter of the grounds, to indulge in the forbidden pipe.

RECENTLY DEVELOPED METHODS FOR MEASLES PROPHYLAXIS.

THE prevention and treatment of measles by injection of serum of convalescent cases is being tested at several centres in France, Germany, and America, and though the work is still in the experimental stage the results so far obtained sound promising. We have not heard of any similarly organized centre for the sero-prophylaxis of measles in this country, but Dr. W. S. C. Copeman has given a good account of the Continental methods in a recent article,¹ and supplemented this with some notes on personal experience during the epidemic of measles in Paris in the first half of 1925. Though the causative microbe in measles remains undiscovered, there is ample evidence to show that the serum or whole blood of persons who are either convalescent from, or who have in the past suffered from, measles has a definite value in the prophylaxis of this disease. If such protective serum be injected in sufficient dose during the first five or six days after infection it can produce a complete passive immunity which lasts for about one to two months, while if it be injected in small doses after the fifth day a modified form of the disease will result, leading to active immunity of uncertain duration, but which many observers consider to be permanent. In order to give the methods of sero-prophylaxis a satisfactory trial, centres have been established for collecting, preparing, testing, and storing the serum: to such centres institutions and general medical practitioners may apply for supplies. The measles donor from whom the blood is obtained should be an adult or a child over the age of 10, who must have had a typical and unmistakable attack of measles. He must be tested for freedom from tuberculosis, syphilis, and malaria, and observed for several days after the blood has been taken to make sure he was not in the invasion period of some disease due to a blood-borne virus. The blood should be allowed to coagulate at room temperature; later the serum can be aseptically decanted, tested for sterility, pooled with the serums from at least two other subjects, and placed in ampoules of 3 to 5 c.cm. ready for use. Such protective serum is employed on different occasions with different objects in view. If injected into a normal person passive immunity results which lasts about one month. If injected during the first five days of the incubation period of measles a complete passive immunity will be established and the patient will not develop measles. After the fifth or sixth day, however, no amount of injected serum will do more than modify the case. There are other ways in which the serum has been used—for instance, in some cases the serum has been injected into a healthy subject who has been later inoculated with infective material from a case of measles. By

this means it is claimed that an attenuated infection occurs which results in active immunity. A great defect in the methods described is the lack of any satisfactory means of standardizing the protective substances, and until this is devised it is unlikely that those methods will inspire much confidence. Still, they will be watched with considerable interest, and may develop from this experimental stage to provide a remedy for this very serious infection among children.

MISTAKEN IDENTITY.

UNDER this heading more than a year ago¹ we noticed Mr. Eric Watson's book on the notorious case of Adolf Beck, who was twice convicted and suffered more than five years' imprisonment from this cause. We then referred to the very unsatisfactory methods of police identifications, by which the accused person is paraded among a number of others, who may or may not resemble him in feature, stature, or dress. The average witness probably regards this test as a kind of "where to find the cat" puzzle, in which he assumes that the culprit is certainly present and he is expected to pick him out. It is to be feared that only too often he or she picks out the person who seems most to resemble the offender, without being really convinced of his identity. We pointed out the risk of mis carriage of justice in such cases as those of Beck and Stinnie Morrison, and urged that personal identification of this sort, unless supported by weighty evidence of another kind, ought not to be enough to secure a conviction. Recently Mr. Clifford Sully has reprinted with additions a paper on this subject which he contributed to *Hedrick* in 1912.² After giving various instances of illusions, which challenge the evidence of the senses and are familiar to every student of physiology, Mr. Sully goes on to analyse and discuss the mental processes which lead to identification. He suggests that this proceeding should form part of the trial, and that the would-be identifiers should be put upon oath, with the intention of impressing upon them the seriousness of the occasion. As things are now conducted it may happen, as he says, that the accused is really condemned by the identification before the trial in court has begun. If a witness picks out a man whom he thinks the most like his remembrance of the culprit, he is very apt to think that he has picked out the man remembered, and to say forthwith, "That is the man!" whereas, as Mr. Sully says, he is really recognizing because he picks out and not picking out because he recognizes. Before one of his trials Beck was identified by ten witnesses, although there were marked differences in personal detail between him and the culprit. But it is significant that six witnesses failed to identify him, and that one said that she was quite certain that he was *not* the man. Yet very little weight appears to be given to such important, although negative, evidence. The fact is that in this matter, as in many others, quality is of greater value than quantity, and in the Beck case it turned out that the evidence of the six witnesses who failed to identify was of more importance than that of the other ten. It is well known that individuals differ enormously as regards their susceptibility to suggestion, and perhaps even more so as to their quickness of perception and their visual memories. There is a parlour game in which the competitors are allowed to look for a short period at a number of miscellaneous articles spread out on a tray. At the end of the allotted period the tray is withdrawn, and the competitors are asked to make out a list of the articles they remember to have seen. A wide range of powers of visual memory will be thereby revealed in any company on which this experiment is tried. A more elaborate test (quoted by Mr. Sully) took place in Germany, where during the meeting of a scientific society

¹ BRITISH MEDICAL JOURNAL, December 6th, 1924, p. 1058.

² *Mistaken Identity*. By Clifford Sully. London: Longmans, Green and Co. 1925. (Cr. 8vo, pp. 15. 6d. net.)

¹ *Journ. of Hygiene*, vol. xxiv, Nos. 3 and 4, December 17th, 1925.

in carnival time a clown pursued by a negro with a revolver rushed into the hall. There was a struggle, a shot, and the couple rushed out again. Thereupon the president, who alone knew that the incident had been prearranged and photographed, requested every member to write a report of what had occurred. Of this select audience only one omitted from his report less than 20 per cent. of the characteristic events of the scene, and one-quarter of the reports contained 10 per cent. of imaginary occurrences. If men of scientific training fail thus, what is to be hoped of the average man or woman? In cases of identification of a prisoner or suspect it should be possible by a few simple tests such as are well known to anthropologists to estimate the relative value of each witness's evidence, by ascertaining his or her susceptibility to suggestion and powers of perception and memory, just as the credibility and character of a witness may be tested in open court. We are disposed to agree with Mr. Sully in his opinion that the process of identification should form part of the trial, although it probably could not be carried out in the actual court-room.

NEOPLASMS OF THE TESTICLE.

In a Hunterian Lecture delivered before the Royal College of Surgeons of England on February 12th, Mr. H. W. B. Cairns of the London Hospital gave an account of the nature, diagnosis, and treatment of various testicular new growths, paying particular attention to the teratomata. He pointed out that since the classic paper of Wilms in 1896 it had been generally recognized that the mixed tumours of the testicle were teratomata. Data had slowly accumulated to show that, with the single exception of the rare testicular "dermoid," the teratomata of the testicle were extremely malignant. The malignancy of these tumours had been held to be a carcinomatous or sarcomatous degeneration of a previously benign tumour, but the study of some ninety-five tumours of the testicle at the London Hospital had shown that this view was incorrect. Both primary tumour and metastases exhibited the same remarkable power of differentiating to form histologically benign tissues, exactly similar in structure to the tissues of the normal foetus. Thus the teratoma retained its biological characters in its metastases, and was, therefore, inherently malignant. Evidence of the foetal nature of teratomata of the testicle was afforded by the occasional discovery of chorionic elements in the tumours, and also by the observation of true hypertrophy of the breasts in some cases. Three cases were recorded in the literature in which such breast changes were noted, and three further cases were now added from the London Hospital. Considerable controversy had raged as to the nature of the common spheroidal-celled tumour of the testis, variously described as alveolar sarcoma, carcinoma, or séminome. In 1911 Ewing had claimed that this tumour was teratomatous, but his view had not been generally accepted either in this country or in France. The London Hospital cases, however, provided overwhelming evidence that the spheroidal-celled tumour belonged to the teratoma group. Cells morphologically identical with the spheroidal cells were found in great profusion in almost every teratoma of the testis, and tumours occurred which were, even to the naked eye, mixtures of teratoma and spheroidal-celled tumour. The exact position of the spheroidal-celled tumour in the teratoma group was not quite clear. Ewing had contended that the spheroidal-celled tumour was formed by overgrowth of one element of a pre-existing teratoma, but his view received no support from the present series of cases. On the contrary, the evidence from the London Hospital cases suggested that the cells of the spheroidal-celled tumour were totipotent, and that they arose in the seminiferous tubules. Professor Cairns thought that the London Hospital cases threw suggestive light on the much

discussed relation of injury to tumours of the testicle. It was highly probable that the part played by injury was not to initiate the neoplastic process, but rather to stimulate the more rapid growth of a pre-existing but hitherto unobserved tumour. Approximately one-third of the cases were cured by operation. The figures of the London Hospital cases, Mr. Cairns added, were slightly favourable to the radical operation as compared with the more simple operation of orchidectomy.

AMONG those recommended on February 18th for election to the Fellowship of the Royal Society were four members of the medical profession. Dr. Joseph Arthur Arkwright, assistant bacteriologist to the Lister Institute, has made a profound study of infectious diseases, in particular of typhus and trench fever, and of the serological classification of bacteria. Dr. Edwin John Butler has been director of the Imperial Bureau of Mycology at Kew since 1920, and before that held appointments under the Government of India. Lieut.-Colonel Samuel Rickard Christophers, C.I.E., was a member of the Malaria Commission of the Royal Society and the Colonial Office from 1898 to 1902, and has been working at the Central Research Institute in Kasauli. Dr. Hamilton Hartridge is a Fellow of King's College, Cambridge, lecturer in special senses and senior demonstrator of physiology in the University; during the war he was experimental officer at the Kingsnorth station of the Royal Air Force.

A FURTHER report on cancer of the breast, with special reference to its associated antecedent conditions, by Dr. Janet E. Lane-Clayton, has been issued this week by the Ministry of Health as No. 32 of its series of Reports on Public Health and Medical Subjects. Dr. Lane-Clayton's previous report, in which she presented a thorough review of the literature of this form of cancer in its relation to surgical treatment, was discussed in a leading article in our issue of October 4th, 1924 (p. 628). We shall consider her present findings and conclusions in an early issue.

WE much regret to announce the death, in Dublin on February 20th, of the Right Hon. Michael Francis Cox, M.D., LL.D., a former President of the Royal College of Physicians of Ireland and Chairman of Convocation in the National University of Ireland. We regret also to learn of the death of another distinguished member of the Irish medical profession, Mr. John Benjamin Story, honorary surgeon oculist to the King in Ireland, and a past President of the Royal College of Surgeons in Ireland and of the Ophthalmological Society of the United Kingdom. We hope to publish obituary notices shortly.

THE Executive Committee of the General Medical Council, at its meeting on February 22nd, had before it a request to call a special meeting of the Council to consider the application of Dr. F. W. Axham for the restoration of his name to the *Medical Register*. The Executive Committee decided against the proposed special meeting, and the application will accordingly come before the Council during its next session, which opens on Tuesday, June 1st. On January 14th, 1926, the Council of the Royal College of Surgeons of England considered Dr. Axham's application for restoration to membership, but did not see fit to rescind its resolution of July 13th, 1911, removing him from membership of the College. At a special meeting of the Royal College of Physicians of Edinburgh, held on January 19th, the suspension of Dr. Axham's licence, which had been imposed on May 7th, 1912, was removed. Dr. Axham obtained the M.R.C.S. diploma in 1861 and the L.R.C.P. Edin. in 1867. His name was erased from the *Medical Register* by direction of the General Medical Council on May 24th, 1911.

MORPHINE AND HEROIN ADDICTION.

DEPARTMENTAL COMMITTEE'S REPORT.

THE Ministry of Health issued at the close of last week the report¹ of the Departmental Committee on Morphine and Heroin Addiction, which was set up in September, 1924, by Mr. John Wheatley, when Minister of Health, with the following reference:

To consider and advise as to the circumstances, if any, in which the supply of morphine and heroin (including preparations containing morphine and heroin) to persons suffering from addiction to those drugs may be regarded as medically advisable, and as to the precautions which it is desirable that medical practitioners administering or prescribing morphine or heroin should adopt for the avoidance of abuse, and to suggest any administrative measures that seem expedient for securing observance of such precautions.

The chairman of the committee was Sir Humphry Rolleston, Bt., and the other members were Sir William Willcox, Dr. John W. Bone, Dr. R. W. Branthwaite, Dr. G. Matheson Cullen, Professor W. E. Dixon, F.R.S., Dr. John Fawcett, Dr. Adam Fulton, and Dr. J. Smith Whitaker. It will thus be seen that the committee was wholly medical in constitution. The secretaries, whose services are acknowledged at the end of the report, were Dr. E. W. Adams and Mr. R. H. Crooke, of the Ministry of Health.

In the following February, acting upon a suggestion by the committee, Mr. Wheatley's successor, Mr. Neville Chamberlain, extended its terms of reference as follows:

To consider and advise whether it is expedient that any or all preparations which contain morphine or heroin of a percentage lower than that specified in the Dangerous Drugs Acts should be brought within the provisions of the Acts and Regulations and, if so, under what conditions.

The committee held twenty-three meetings and took the oral evidence of thirty-five witnesses, of whom twenty-four were medical men. Four witnesses represented the British Medical Association, three the Pharmaceutical Society of Great Britain, and several others gave evidence on behalf of wholesale and retail pharmacists. The medical evidence included that by consulting physicians of wide experience in the treatment of nervous and mental disorders, by medical men having special experience in the treatment of addiction, by medical officers of prisons, and by representative general practitioners from various parts of the country. Further information regarding the prevalence of addiction was obtained through the regional medical officers of the Ministry of Health from general practitioners of wide experience.

The matters referred to the committee for its consideration fell under four main heads:

- (i) The circumstances, if any, in which it may be medically advisable to administer morphine or heroin to a person known to be suffering from addiction to these drugs;
- (ii) The precautions which medical practitioners ought to adopt in administering these drugs, both generally and with particular reference to persons suffering from such addiction;
- (iii) The administrative measures, if any, which we might think it advisable to recommend to secure due observance of such precautions;
- (iv) The advisability or otherwise of bringing within the scope of the Dangerous Drugs Acts preparations of morphine or heroin containing percentages of the drugs lower than are at present included.

The report is divided into six sections; the first contains some preliminary observations, which include a summary of the provisions of the Dangerous Drugs Acts and the Regulations made thereunder, and of the present system of administration, followed by a statement of certain difficulties said to have been experienced in the course of administration.

Under these Acts, it will be remembered, possession of the specified drugs is restricted to persons licensed or authorized for such purposes. A registered medical practi-

tioner is authorized to be in possession of the drugs, and to supply them, "so far only as is necessary for the practice of his profession." All persons authorized to supply the drugs, including medical practitioners who dispense medicines for their patients, are required to keep records of drugs purchased and issued, but this requirement does not apply to drugs administered by doctors personally, or under their immediate supervision. Practitioners who do not dispense, and therefore do not supply drugs otherwise than by way of personal administration, are not at present required to keep a record even of their purchases. Records kept by medical practitioners are inspected on behalf of the Home Office by the regional medical staff of the Ministry of Health in England and Wales, and by the corresponding medical staff of the Board of Health in Scotland.

Cases are from time to time brought to the notice of the Home Office in which exceptionally large quantities of these drugs have been supplied to particular practitioners, or in which individual patients have received unusually large quantities on medical prescriptions. The results of inquiries into cases of this kind are indicated in the report, also the difficulties that at present lie in the way of appropriate action in order to secure better observance of the law. Whether the law has been broken turns in such cases usually on whether the drugs were supplied for purposes of medical treatment only.

Prolonged Administration.

In considering this matter, the question arose whether it was medically necessary that in any circumstances morphine or heroin should be supplied continuously for long periods to persons not suffering from any organic disease for the relief of which such drugs were essential. This in turn raised the question, to which the committee addressed itself with much pains, whether abrupt withdrawal of the drugs is feasible, more particularly under the conditions of ordinary private practice. Careful collation of the literature led to the conclusion that the practicability of the method of sudden deprivation depends on the possibility of inducing patients to enter an institution. In view of the risk of intense suffering and even fatal collapse, this method calls for close supervision under expert judgement and skill and trained nursing; moreover, there is a relative dearth of appropriate institutional accommodation in Great Britain as compared with the United States, where some authorities favour sudden withdrawal under proper precautions.

Assuming abrupt withdrawal to be impracticable, even if thought advisable, in a large proportion of the cases of addiction in this country, the question arose whether this would justify the practice of administering "maintenance" doses of morphine or heroin for however long periods. Inquiry showed that some physicians of great experience hold the view that there are two classes of persons from whom—at all events under the conditions of ordinary private practice—the drugs could not be entirely withdrawn. In one class the attempt at complete withdrawal produces severe distress and even risk of life; in the other, experience shows that a certain minimum dose is necessary to enable the patient to lead an ordinary and relatively normal life, and that if deprived of this non-progressive dose he becomes incapable of work. The fact that this view is held by some eminent authorities made it difficult to base action on the assumption that continuous administration of non-diminishing doses, for however long a period, is necessarily inconsistent with bona-fide medical treatment.

Another question studied by the committee was the cases in which a doctor supplies or orders dangerous drugs for persons whom he sees infrequently, or for persons whom he sees for the first time and respecting whom he has no communication from the patient's ordinary medical adviser. A further question, even more difficult, was the case of doctors who are themselves addicts. Owing to the authority possessed by medical practitioners to obtain the drugs, they do not encounter the same obstacles in getting excessive supplies as an ordinary member of the community, who can only get them from a doctor or on a prescription. These and the other matters mentioned above were those in regard to which the Home Office sought the committee's advice.

¹ London: H.M. Stationery Office. 1926. To be purchased through any bookseller, price 1s. net.

Medical Aspects of Addiction.

Section II summarizes the results of the committee's inquiries into certain medical aspects of the problem of addiction—its nature, causation, and prognosis. The term "addict" is defined as follows:

"A person who, not requiring the continued use of a drug for the relief of the symptoms of organic disease, has acquired, as a result of repeated administration, an overpowering desire for its continuance, and in whom withdrawal of the drug leads to definite symptoms of mental or physical distress or disorder."

In regard to the prevalence of addiction the evidence all tended in the same direction, and its collective effect supports very strongly the conclusion that in this country addiction to morphine or heroin is rare. There was also a general concurrence of testimony to the effect that addiction has diminished in recent years, most of the witnesses attributing this to the operation of the Dangerous Drugs Acts, which have made it difficult to obtain these drugs otherwise than from or through medical men. On the one hand, those who were already addicts when the restrictions came into operation have been driven to placing themselves under medical care or overcoming their infirmity for themselves; on the other hand, new addicts are not being created as they were under former conditions. From all this the committee points the moral that "the prevention and control of addiction must now rest mainly in the hands of the medical profession, since, in the main, it is through them alone that the drug can be obtained."

Of the two forms of addiction morphine in any of its forms is much the commoner, but the addiction produced by heroin is the more disastrous in its physical and mental results, and more difficult to cure. In the case of morphine the evidence showed that hypodermic injection is much more likely than other methods of administration to lead to addiction and that addiction so arising is harder to cure. The nature and causation of morphine and heroin addiction are, however, so closely associated that the committee considered them together. All the evidence tended to show that in the great majority of cases the drug, whether morphine or heroin, is taken, not for the purpose of obtaining positive pleasure, but to relieve a morbid and overpowering craving. "The only immediate cause of addiction is the use of the drug for a sufficient time to produce the constitutional condition that is manifested in the overpowering craving and the occurrence of withdrawal symptoms when use is discontinued." The following specific events were regarded by medical witnesses as having led to the development of addiction in different cases, and the committee discusses them separately. These are: (1) use of the drugs in medical treatment; (2) self-treatment for the relief of chronic or recurrent painful or distressing physical conditions, or for the relief of emotional distress; (3) example or influence of others; (4) curiosity, bravado, and search for pleasurable experience.

The committee next discusses the three methods of treatment—abrupt withdrawal, rapid withdrawal, and gradual withdrawal—and their relative value. The opinion of the witnesses who appeared before it was for the most part strongly in favour of the gradual withdrawal method. Treatment, after-care, and prognosis are then reviewed. Section III considers the circumstances in which it might be medically advisable to administer morphine and heroin to persons known to be suffering from addiction to these drugs, and Section IV the precautions to be observed in their administration. Section V discusses the administrative proposals to which the Home Office invited attention, and others which witnesses suggested or which occurred to the committee during its deliberations. In Section VI the committee, in accordance with its supplementary reference, considers certain preparations at present excluded from the scope of the Dangerous Drugs Acts.

The whole report is a document of great medical interest and should be read by all practitioners whose work brings them in contact with these distressing cases of drug addiction. It has also sociological aspects which deserve close study. The general tenor of the report will be gathered from the committee's carefully summarized conclusions and recommendations, which are printed together at the end. In view of their importance we reproduce them substantially in the committee's own words.

CONCLUSIONS AND RECOMMENDATIONS.

The first group of these relates to medical questions, some of which have been briefly mentioned above.

Prevalence of Addiction.—Addiction to morphine or heroin is rare in this country, and has diminished in recent years. Cases are proportionately more frequent in the great urban centres, among persons who handle these drugs for professional or business reasons, and among those specially liable to nervous and mental strain. Addiction is more readily produced by heroin than by morphine, and addiction to heroin is more difficult to cure. Facility of access is an important factor in the production of addiction.

Nature and Causation of Addiction.—With few exceptions addiction to morphine and heroin should be regarded as a manifestation of a morbid state, and not as a mere form of vicious indulgence. The immediate cause of addiction is the use of a drug for a period sufficient to produce the constitutional condition manifested by "craving," and the occurrence of withdrawal symptoms when the drug is discontinued. Addiction is more readily induced in some persons than in others, the most important predisposing cause being an inherent mental or nervous instability. There is evidence, however, that addiction may be induced by injudicious use of the drug in a person apparently free from any manifestation of nervous or mental instability, and, conversely, that due care in administration may avert this result even in the unstable. Other predisposing causes are chronic pain or distress, insomnia, overwork, and anxiety. In a considerable proportion of cases the circumstance which has immediately led to addiction has been the previous use of the drug in medical treatment. Other circumstances noted have been self-treatment for relief of pain, recourse to drugs in emotional distress, influence of other addicts, and indulgence for the sake of curiosity or the experience of pleasurable sensations. Cases of addiction originating in use of the drugs otherwise than under medical orders must be expected in future to diminish.

Treatment and After-Care.—While authorities differ as to the relative value of abrupt or rapid withdrawal of the drug and gradual withdrawal in the cure of addiction, the committee draws the following conclusions from the evidence:

(a) Abrupt or rapid withdrawal cannot be carried out safely except under conditions which afford complete control of the patient's access to the drugs, and close and continuous observation of the effects of the treatment, such as are usually to be found only in special institutions or nursing homes.

(b) Gradual withdrawal will, therefore, with rare exceptions, be the only practical method under the ordinary conditions of private practice, and the only one applicable to patients who cannot afford or are, for other reasons, unwilling to enter institutions or nursing homes.

(c) Abrupt withdrawal may be advisable for young otherwise healthy adults in whom the addiction is of recent date, and so far has entailed moderate doses only; in other cases gradual withdrawal is on the whole to be preferred even under institutional conditions.

(d) Abrupt withdrawal is specially dangerous in old or seriously debilitated persons, patients with well marked organic disease, and those taking exceptionally large doses.

(e) Institutional treatment, while with rare exceptions indispensable for the abrupt method, also affords the best hope of cure by the gradual method, and patients should always, if possible, be induced to undergo treatment in an institution or nursing home.

(f) Success in enabling any patient, by either method, to become (for the time being) independent of the drug must be regarded as the completion of the first stage of treatment only. For permanent cure a prolonged period of after-care is necessary in order to educate the patient's will-power and to change his mental outlook. For this part of the treatment information should be obtained by a close investigation, during the first stage, of the conditions which brought about the addiction, and if a factor, such as pain or insomnia, contributed to the causation, every effort must be made to remove or cure this before the patient is released from observation. Attention must also be paid to the possibility of improvement in the patient's social conditions.

Prognosis.—Estimates of the proportion of complete cures of cases treated vary from 15 or 20 per cent. to 60 or 70 per cent., the highest percentages being claimed by practitioners adopting the abrupt method, who had carried this out in institutions or homes.

Legitimate Administration to Addicts.

There are two groups of persons suffering from addiction to whom administration of morphine or heroin may be regarded as legitimate medical treatment—namely, those who are undergoing treatment for cure of the addiction by the gradual withdrawal method; and persons for whom, after every effort

has been made for the cure of the addiction, the drug cannot be completely withdrawn, either because complete withdrawal produces serious symptoms which cannot be satisfactorily treated under the ordinary conditions of private practice, or because the patient, while capable of leading a useful and fairly normal life so long as he takes a certain non-progressive quantity, usually small, ceases to be able to do so when the regular allowance is withdrawn.

Precautions in Administration to Addicts.—Under treatment by the gradual withdrawal method the addict should, if possible, be induced to enter a suitable institution or nursing home. If this is not feasible, the practitioner must attempt to cure the condition by a steady judicious reduction of the dose, with a view to ultimate complete withdrawal. The patient should be kept under close observation by the practitioner, should be in the care of a capable and efficient nurse, and under sufficient control to preclude any possibility of obtaining supplies of the drug other than those medically ordered. If the practitioner finds that he is losing the requisite control, or the course of the case indicates a probability that complete cure cannot be effected, he will be well advised to obtain a second opinion before assuming the responsibility of indefinitely prolonged administration. Where indefinitely prolonged administration appears to be needed, the main object must be to keep the supply of the drug within the limits of what is necessary. The practitioner should be satisfied as to urgency before ordering or supplying morphine or heroin to a patient concerning whom he has no previous knowledge, and careful inquiries should be made from the patient, at the beginning, as to the previous or concurrent sources of supply. The minimum dose necessary should be administered and (unless organic disease is present) repetition withheld until the practitioner has obtained details of the case from the previous medical attendant.

Precautions in the use of Morphine and Heroin in Ordinary Medical Practice.

The committee advises that regard should be paid at all stages of the case to the possibility of substituting for morphine or heroin, either temporarily or permanently, drugs which do not involve the risk of addiction. If morphine or heroin is essential, care should be taken not to give larger or more frequent doses than are strictly requisite to achieve the object in view. Cases requiring daily administration should be seen as often as the doctor feels to be necessary, and the amount ordered or supplied should not exceed that required until the patient is seen again. Discretion to nurses as to administration of the drug should be strictly limited by prescription, and any change made in the treatment should be stated in writing. The patient should not be informed either of the name or dose of the drug administered. Whenever other methods of administration will produce the desired effect, hypodermic injections should be avoided. In no circumstances should the patient be allowed to administer the drug to himself hypodermically. The drug should be discontinued immediately it is no longer needed. Should a craving result, close supervision and appropriate treatment must be maintained until the medical attendant is satisfied that the patient has been rendered independent of the drug.

Valuable results, the committee believes, might accrue from the judicious instruction of medical students in the precautions necessary to avoid the production of addiction to morphine and certain other drugs. Medical men already in practice should welcome the issue of some authoritative memorandum affording guidance upon this difficult and important subject, and the issue of such a memorandum is therefore recommended.

Administrative Measures.

Withdrawal of Authorization.—The present position under which a doctor's authorization to possess and supply the drugs can only be withdrawn after a conviction under the Dangerous Drugs Acts is not satisfactory, either administratively or from the point of view of the medical profession. Accordingly, the committee recommends that the Home Secretary should have power to withdraw the authorization without conviction in the courts, if so advised by a suitably constituted medical tribunal. Tribunals should be constituted whose function it would be to consider whether or not there were sufficient medical grounds for the administration of the drugs by the doctor concerned, either to a patient or to himself, and they should advise the Home Secretary whether the doctor's right to be in possession, to administer, and to supply the drugs should be withdrawn. There should be separate tribunals for England and Wales, and for Scotland, and each should be composed of one member nominated by the General Medical Council, one by the appropriate College of Physicians, and one by the British Medical Association, with a legal assessor.

Control of Prescribing.—The committee advises that any doubt as to the power of the Home Secretary under the present Regulations to control the prescribing of dangerous drugs should be removed by a suitable amendment to the Regulations. The Home Secretary should also have power, after the conviction of a doctor in the courts for an offence under these Acts, or on the advice of a medical tribunal, to withdraw the practitioner's authorization to prescribe dangerous drugs.

Second Opinions.—In the interests of patients and of practitioners themselves, it is held to be desirable that the practice should be generally followed of obtaining second opinions before undertaking the responsibility of continuing to administer drugs in cases in which there is no medical reason for doing so, other than treatment of the addiction. This applies also to the patient who needs indefinite administration of the drug for the purpose of enabling him to lead a normal and useful life. The Regulations should not, however, require a practitioner to obtain a second opinion, but it should be regarded as a professional obligation, such as is already generally recognized in respect of the decision to carry out certain other forms of treatment.

Record of Purchases by Non-dispensing Doctors.—In the committee's opinion doctors who do not dispense should be required to keep a simple record of their purchases of dangerous drugs, and this could most easily be done if the invoices of purchases were pasted in a book.

Preparations at Present Excluded from the Acts.

With the possible exception of chlorodyne, there is little, if any, abuse or danger of addiction arising from any preparations at present excluded from the scope of the Dangerous Drugs Acts. As regards chlorodyne there was considerable difference of opinion, but it appeared that its free sale as a common domestic remedy has given, and does give, rise to certain risks of addiction. In the committee's view there is no present need, for the prevention of addiction, to lower the limit of morphine content now fixed by the Acts. The position as regards chlorodyne would, it suggests, be met if no preparation were allowed to be sold under the name of "chlorodyne" which contained more than 0.1 per cent. of morphine.

Globa et Vetera.

GLISSON AS AN ORTHOPAEDIC SURGEON.*

In the last century it was by many thought odd that the senior physician to one of the great general hospitals should practise orthopaedic surgery, but two hundred years ago it would not probably have excited criticism, for medicine and surgery were not then completely divorced. Sir D'Arcy Power has told us how surgeons as late as the seventeenth century struggled in vain to free themselves from the control of the physicians. And only a few weeks ago a hospital physician, writing in the *BRITISH MEDICAL JOURNAL* (January 2nd, p. 36), claimed "that except in cases of trauma no laparotomy should be performed save with the sanction of the physician." But nearly a century before Glisson's great treatise on rickets appeared, Ambroise Paré had shown that there was at least one surgeon who needed no physician to tell him what to do.

Glisson describes surgical apparatus and treatment just as a surgeon might have done and without any hint that he employed a surgeon to carry out his directions. Although I am only dealing with one aspect of his activity, I may fitly remind you of some facts of his life, referring you for more details to the writings of Sir Norman Moore in the *St. Bartholomew's Hospital Reports* and the *Dictionary of National Biography*.

He was born in Dorsetshire in 1597, became M.D. Cantab. in 1634, and F.R.C.P. Lond. in 1635. He was Censor in 1656 and President in 1667, 1668, and 1669. He was Regius Professor of Physic at Cambridge for more than forty years. He died, aged 80, in 1677. His published works are: "*De Rachitide sive morbo puerili Tractatus*"

* Abstract of a paper read before the History of Medicine Section of the Royal Society of Medicine, February 17th, 1926, by E. Muirhead Little, F.R.C.S.

(1650), "Anatomia Hepatis" (1654), in which Glisson's capsule is described, "Tractatus de Natura Substantiae energeticae, seu de vita naturae ejusque tribus primis facultatibus" (1672), and "Tractatus de Ventriculo et Intestinis" (1677).

The "Treatise of the Rickets," as Phil. Armin, its translator in 1651, called it, was ostensibly the work of a number of physicians, of whom three, Drs. Glisson, Bate, and Regemorter, were finally responsible for its publication, which was licensed by the censors. In the preface, however, it is stated that Dr. Glisson found out the essence of the disease, and that they "committed the first stuff of the whole work to be woven by him alone," and that it "should presently undergo the examination and judgement of the rest, as if it had been fashioned by their hands."

The first mention of rickets is to be found in the Bills of Mortality of the City of London for 1634 (Granger 5.2.3. Bills of Mortality 1602-1666. Library of the Corporation of the City of London), in which year there were about fourteen deaths attributed to the disease. In 1659 the number had increased to 476. Obviously the diagnosis was very much haphazard.

Glisson's description of the naked-eye morbid anatomy is wonderfully complete. Scarcely one of the usual symptoms of the disease escaped his notice. But he was a thorough-going Galenist, and a large part of the book consists in speculations about elements, humours, constitutions, and vital, animal, and natural spirits. He maintains that it is not a cold, but a moist distemper, and "this disease consisteth in the stupefaction of the spirits." He gives quite a luscious account of the loves of vital and natural spirits. As for internal remedies, they were copious, and include such things as worm-oil, woodlice, frog's and raven's livers, stone-horse-dung in a clyster, and such-like.

The surgical pathology and treatment is more reasonable. With the help of a number of woodcuts he explains his theory of the production of deformity by overgrowth of

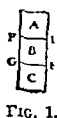


FIG. 1.



FIG. 2.



FIG. 3.

one side or part of a bone. (Figs. 1 and 2.) He says: "We compare the bones therefore, in which this crookedness useth to happen, to a Pillar." Then he goes on to show how if you add material between the elements of the pillar on one side only it becomes bent as in the second figure. If you add still more and in more places it becomes a bow. (Fig. 3.)

As regards rachitic knee deformities, he argues rightly that the tibia is more in fault than the femur, and shows this by woodcuts (Fig. 4), of which he says:

"In the joynt of the knee A.B., that part of the Shank bone B. [tibia in the original] in the two first figures, is higher than the other part of the same appendance, whereupon the bone of the thigh C. is inwardly bowed, and so likewise is the shin bone D., but the joynt A.B. is thrust somewhat outwardly. But in the two

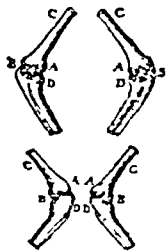


FIG. 4.

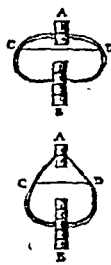


FIG. 5.

last figures all the contrary things may be observed. The Joynt A.B. is inwardly, because that part of the shin bone A. is higher than the other part of it B. Whereupon it must needs lift up the inner and lower top of the Thigh-bone, so that the Thigh-bone will be bent outwardly, and the Joynt inwardly."

This fact was only rediscovered some forty years ago, and is undoubtedly correct in most cases. He extols the value of rubbing, and says that it increases nutrition and therefore should be confined to the concave side of the deformity, thus anticipating the modern theory of massage. He denied, however, that the bones are abnormally soft in rickets, and therefore did not recognize the influence of the body weight and of muscular contraction and tone acting upon too soft bones. A number of woodcuts are devoted to demonstration of the production of chest deformities; as, for instance, in Fig. 5, in which A is the sternum and B the spinal column. He argues that if the part behind the line CD is unaltered and the part in front overgrows it must push the sternum forward as in the lower figure, thus producing a pigeon breast.

In Chapter XXIX he comes to surgical matters. He thought that there might be something in the treatment by scarification of the veins in the hollow of the ear (which proceeding seems to have been popular), by its effect through the fifth cranial nerve on the spinal marrow. Ligatures are recommended "to retard the overslippery return of the blood in those parts." Does not this foreshadow Bier's hyperaemic treatment? As regards appliances, he recommends buttoned boots stiffened with splints or pieces of whalebone on the convex side. In two woodcuts a jointed splint for the knee is represented in considerable detail, according to which I have had one made. But that the thigh and leg part are much too short, these would be

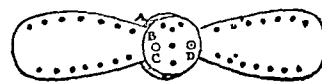


FIG. 6.

quite efficient. As he gives no measurements of length it seems likely that the drawings have been modified to suit the small size of the page. (Fig. 6.) There are two joints, which allow flexion and extension at A and B—surely a peculiar and unnecessary arrangement. No doubt bandages were used to fix these splints to the limbs. Modern surgeons would place them on the concave side, whereas Glisson preferred the convex, guided, no doubt, by his theory of unequal growth and of the advantage of pressure on the overgrown part. There must, however, have been considerable risk of pressure sores. Among external remedies for spinal deformity he recommends recumbency with pillows under the prominence. He here cautions the reader against allowing patients to stand or walk too soon: "for walking rather confirmeth than cureth the bended joynts."

Then he describes what has since been widely known as Glisson's sling, by means of which the patient is hung up by the head and shoulders and to be swung to and fro. This, he says, is a pleasure to the spectators and "rather a pleasure than a trouble to the child." I have myself slung up many children, but none of them seemed to enjoy the process. The object of this suspension was "to restore the crooked bones, to erect the bended joynts and to lengthen the short stature of the body. Moreover it exciteth the vital heat and withal allureth a plentiful distribution of the Nourishment to the external and first affected part." Besides these measures frictions and abdominal massage of a quite vigorous sort are advocated. Plasters to the loins and sacrum are recommended, the shape of which seems to have been important, for a figure is given to show that which is preferred.

I hope that I have said enough to justify my title and to show that there are at least grounds for the claim that the President of the Royal College of Physicians in 1667, 1668, and 1669 was an orthopaedic surgeon as well as a physician. Indeed, I think that he is as much entitled to be called the father of orthopaedic surgery as Dr. Andry of Paris, although he did not invent a name for this branch of surgery.

I have pleasure in acknowledging my debt to Dr. Arnold Chaplin, who has kindly lent a copy of the first edition of the "Treatise" from the Library of the Royal College of Physicians, and also to Mr. H. E. Powell, the librarian of this society, for much valuable help in the preparation of this paper.

STATUS LYMPHATICUS.

COMMITTEE FOR COLLECTIVE INVESTIGATION.

IN view of the importance of the question of "status lymphaticus," particularly in regard to the exact part, if any, which it plays in the causation of sudden death, the Medical Research Council and the Pathological Society of Great Britain and Ireland are desirous of collecting information on the weights and measurements of the thymus gland on a large scale.

The investigation was originally begun just before the war, but first the war and afterwards the death of the secretary and organizer, Professor Emrys Roberts of Cardiff, seriously militated against the success of the scheme. A certain amount of material was collected and a short interim report was published in the *Journal of Pathology and Bacteriology* in April, 1925. The number of records, however, was far too small to permit of any authoritative conclusions, and the present scheme aims at the collection of a much larger mass of material.

The special objects of the investigation at present are:

1. To establish, by means of a large series of weights and measurements, the standards of weight for age, and the proportion to body weight of the normal thymus at all ages.

2. To investigate closely the precise cause of death in persons dying suddenly from unexplained and trivial causes, where the only apparent abnormality is the presence of a large thymus.

To promote these objects the following committee has been formed:

Sir Frederick Andrewes, St. Bartholomew's Hospital.
Professor J. S. Dunn, University of Manchester.
Professor J. S. C. Douglas, University of Sheffield.
Professor Leonard Findlay, University of Glasgow.
Professor E. E. Glynn, University of Liverpool.
Professor E. H. Kettle, University of Wales, Cardiff.
Professor Robert Muir, University of Glasgow.
Dr. A. F. B. Shaw, College of Medicine, Newcastle-on-Tyne.
Professor J. Lorrain Smith, University of Edinburgh.
Professor M. J. Stewart, University of Leeds.
Professor J. H. Teacher, University of Glasgow.
Professor H. M. Turnbull, London Hospital.
Professor G. Haswell Wilson, University of Birmingham.
Dr. Matthew Young, Medical Research Council.
Dr. W. Howel Evans, University of Liverpool (*Secretary*).

Part of the scheme evolved by this committee is the appointment of a number of investigators in large centres to collect detailed records. But, in addition, the committee earnestly invites all other pathologists and practitioners who perform *post-mortem* examinations to co-operate. The categories of cases in which information is especially desired are:

(a) Cases of sudden death in apparently healthy persons of any age, including deaths from accident.

(b) All cases of death in persons of 15 years or over who have an apparently glandular thymus.

For this purpose record cards have been prepared, and the secretary will send a supply to those who apply for them. Realizing that many workers have not the time or facilities for such full investigation as will be carried out by the special investigators, two types of record cards have been prepared: *Record Card I* provides space for full details, *Record Card II* provides space for brief details. The details mentioned on the first card include the body weight and length, the weight of the kidneys and spleen, the dimensions and weight of the thymus, the proportions of the fatty and glandular tissue in it, and its anatomical relation to the trachea. Details of the faucial and lingual tonsils; the cervical, coeliac, and mesenteric glands; the Peyer's patches, and solitary follicles of the intestine; and the diameter of the Malpighian bodies of the spleen are also desired. The state of nutrition, the cause of death, and any evidence of feminism in males are to be recorded. The second card contains headings for the length and weight of the body, the thymus weight, cause of death, and major pathological conditions. On the reverse of both cards further investigations are suggested in cases in which the cause of death is not obvious at the *post-mortem* examination. These include blood culture from the cerebral sinuses for evidence of septicaemia, microscopic sections

of the left ventricle wall, lung, suprarenals, parathyroids, brain, spinal cord, kidneys, liver, spleen, and the bones for rickets, with sections of the costo-chondral junction if rickets is not demonstrable elsewhere.

The committee earnestly hopes that a large number of workers will send for a supply of these cards and return such information as may be possible to it.

Applications should be made to the Secretary of the Committee, Dr. Howel Evans, Pathological Department, the University, Liverpool.

Ireland.

MEDICAL REGISTRATION IN THE FREE STATE.

THE position of medical registration in the Irish Free State was referred to in our issue of January 23rd (p. 156). Mr. R. C. B. Maunsell, President of the Royal College of Surgeons, at the annual meeting of the Incorporated Orthopaedic Hospital of Ireland, in the course of his address said that two years ago a committee was formed to bring about the amalgamation of at least five of the city hospitals. The initial cost of the scheme appeared to be prohibitive, but after negotiations the committee had almost concluded arrangements for a gift of a large sum of money from the Rockefeller Foundation, when the Rockefeller authorities broke off negotiations until such time as the vexed question of medical registration should be settled satisfactorily. What had happened about medical registration? asked Mr. Maunsell. On December 21st last the committee of medical men who were negotiating with the Government were received most courteously, cordially, and sympathetically by President Cosgrave and Mr. McGilligan. "Two very important things happened at that conference. We were informed that a bill would be introduced extending the existing system for six months or more, in order to give time for the discussion of a permanent arrangement. This has been done, and, as you are all aware, the present system can be continued until the end of the year. Suggestions for a permanent arrangement, which should be satisfactory to both sides, were submitted by the committee. These suggestions were received sympathetically, and three medical men were chosen as a subcommittee, at the request of President Cosgrave, to discuss details with the Ministers and lawyers who would frame the bill. Since the date of that conference, December 21st, 1925, these three medical men have not been consulted in any way about this vitally important matter. Meanwhile, our medical students continue to stray to other seats of learning, and in all probability the Rockefeller money will be applied to public health matters in China or some other enlightened country. We are deeply grateful to the Government for renewing the old system and so preventing chaos, but I for one would like the details of the permanent arrangement thrashed out, as promised by the President. No medical man will deny intervals of sleep to hard-worked Ministers and lawyers, but to sleep, apparently continuously, from December 21st to February 17th is perilously near to sleeping sickness." Mr. Maunsell added that he had raised his voice that day in the hope that it might be wafted across Merriem Street, into the Local Government Board office.

HOSPITAL PATIENT AND DOCTOR: ACTION FOR ASSAULT.

A recent action in the Dublin High Court, in which one of the most distinguished and most highly respected of Irish physicians was sued for assault by a hospital patient, has aroused great interest, both in professional and other circles.

The plaintiff alleged that on October 3rd, 1924, when she was a patient in Monk-town Hospital suffering from severe spinal injury and fracture, the defendant, Dr. T. Gillman Moorhead (now Regius Professor of Physic in Dublin University), entered the private ward in which she was and, despite her protests, assaulted her, whereby she was seriously injured in her health. She claimed £1,000 damages. The defence traversed the alleged cause of action, and the defendant said the acts complained of by the plaintiff were performed by him in the course of

a proper medical examination, which was carried out by the authority of the plaintiff and with her leave and consent. Counsel for the plaintiff said she joined a V.A.D. in 1914, and worked in King George V Hospital in Dublin. In June, 1916, she met with an accident in that hospital whilst attending a wounded soldier, when her back was crushed against the ironwork of the bed. Plaintiff was attended by many doctors in Dublin from time to time, and ultimately obtained a pension of £90 from the War Office. In September, 1924, she came under the care of Dr. de Courcy Wheeler, and entered the Monkstown Hospital. The plaintiff, having giving evidence in support of her claim, stated, in cross-examination on commission, that before she joined a V.A.D. she had been a militant suffragette, and had undergone imprisonment for her exertions on behalf of that cause. She admitted that she brought an action in 1913 against the Irish Women's Franchise League to restrain them from expelling her, and that the action was dismissed by the Master of the Rolls. In 1923 she brought an unsuccessful action against the Young Women's Christian Association, because, as she alleged, they unlocked her box and took things out of it. Three doctors were subpoenaed on behalf of the plaintiff, but declined to give evidence, as in each case the subpoena was only accompanied by a "viaticum" of half a crown. Mr. Justice Hanna remarked that it was extraordinary that proper arrangements had not been made for the attendance of medical witnesses, instead of tendering half-crown fees in court, and added that, having regard to the position of medical witnesses, the fee of ten guineas was reasonable remuneration. A professional man was entitled to, and could insist upon being paid, compensation for loss of time, and he therefore considered the fee demanded was reasonable having regard to the fees paid to other professional people in Dublin. Dr. T. G. Moorhead, the defendant, in the course of his examination, said he was consulting physician to the Monkstown Hospital. He was asked by Dr. Wheeler to see the plaintiff, to whom he mentioned that Dr. Wheeler had told him about her symptoms, and he would commence by examining her reflexes, which he did, and the plaintiff made no remonstrance. The matron had prepared her for examination, covering her with a towel in the usual way. Dr. Wheeler was in the room all the time, and the plaintiff co-operated with the defendant during his examination. Dr. Moorhead stated that he heard that the plaintiff, after a few days, left the hospital because her sister had objected to his examination. Dr. Moorhead added that it was his deliberate opinion that the plaintiff was suffering from hysteria, and that there was no evidence of any injury at any time to her back; he had examined an x-ray photograph of the plaintiff's spinal column, and believed the spine to be absolutely normal. Dr. K. E. L. G. Gunn, surgeon to the Adelaide Hospital, stated in his evidence that the plaintiff was admitted to the Adelaide Hospital as a patient from the Ministry of Pensions; he examined her on different occasions, but could find no trace of any disease or abnormality of her spinal column. He came to the conclusion that she was a case of hysteria, and that she showed no desire to get better. As to the statement of the plaintiff that they had "broken her back" in the Adelaide Hospital, Dr. Gunn said that was the first he had heard of it. Drs. Purser, Beckett, Hardman, and Harvey also gave evidence on behalf of the defendant, and stated that the x-ray photographs which were taken by them showed no abnormality or injury to the spine of the plaintiff. In his charge to the jury, Mr. Justice Hanna first stated the law as regards the rights of patients and medical men in an examination. The legal basis, said his lordship, was the consent of the patient. When a patient called in a doctor there was either an implied or an expressed consent that the doctor should be entitled to do all such acts as he considered reasonably necessary in his opinion, having regard to the state of medical knowledge and his own experience, to discharge his duty in making a diagnosis. But it was always subject to this—that, if he proposed to do any act dangerous or painful to the patient, he should give the patient such information as would enable the patient to give or withhold consent. The plaintiff's contention was

that, without her leave, Dr. Moorhead was forced upon her, scandalously and needlessly exposed her, hit her on the back with a stethoscope, injuring her, and dragged her up and down the room. That brought them to the consideration of the characters and personality of the two persons. The plaintiff should not be decided against because she was a suffragette, had been in prison, and had brought several unsuccessful actions. But, said his lordship, these facts were relevant in considering the type of woman that she was; whether she would be scrupulous about bringing unfounded charges, or, on the other hand, prone to do so. Dr. Moorhead should not be believed merely because he was an eminent doctor, but his counsel were entitled to say that the plaintiff's contention would not be true unless not only Dr. Moorhead, but also Dr. Wheeler and the matron, had all gone mad on that morning, or had conspired to adopt "shock tactics" in examining the plaintiff. The jury, after an absence of ten minutes, brought in a verdict that no assault had been committed. His lordship entered judgement for the defendant, with costs.

The *Irish Times*, in a leading article, congratulated Dr. Moorhead on the happy issue of his extremely unpleasant ordeal, and went on to say that the public should realize the serious risks to which doctors were exposed in the exercise of their profession. They had virtually no protection against frivolous or malicious charges, and Dr. Moorhead's case was typical of many others in which medical men of the highest personal and professional integrity had been compelled to defend their reputations in public. The relations between a doctor and his patients were so intimate that he might be said to deliver his good name into their hands at every visit. Fortunately Dr. Moorhead had had unimpeachable witnesses of his actions on the occasion which led to the charge against him; but every day he and his colleagues examined patients in privacy. It was therefore essential that the medical profession should be governed by a body which exercised the strictest control over the professional attainments and moral characters of its members. Many criticisms (the article added) had been made recently against the General Medical Council; but its very conservatism in the matter of professional qualifications and etiquette saved the public from undesirable doctors. To this expression of opinion by a responsible lay newspaper we may add, in the name of the medical profession, an expression of sympathy with Professor Moorhead and of congratulation on the successful outcome of his ordeal.

Scotland.

EDINBURGH UNIVERSITY: NEW SURGICAL DEPARTMENT.
The buildings and equipment in connexion with the chair of surgery at Edinburgh University, provided out of funds supplied by the Rockefeller Foundation, are now practically completed. Some two years ago a grant was given in aid of research work, of which part was set aside as a supplement of the salary of the university chair of surgery now held by Professor Wilkie, in order that this department might be conducted on a modified full-time basis; part was devoted to equipment of the surgical department for research purposes, and part still remains to be expended in connexion with a clinical research laboratory in the Royal Infirmary. Students of a past generation will remember the surgical theatre in the university as one of great height provided with a gallery. This has now been remodelled, and the theatre has been divided horizontally by the introduction of a new floor. There is ample accommodation for the students, whose numbers are now considerably diminished below those of the period succeeding the war, and by the abolition of the gallery the students are brought nearer the lecturer. The lower half of the old theatre has been arranged as a series of practical rooms, in which microscopic demonstrations can be given and operative surgery be taught to small groups of students. One of the rooms has been fitted up as a museum of surgical pathology. An electric lift

communicates with the lecture theatre above, and facilitates the conveyance of material required for lectures. The new research department is situated in an adjoining building, which was previously set apart for women students, and this building is connected with the lecture theatre by a passage. It has been partitioned into a series of rooms for experimental research work. Adjoining this are an office for the laboratory assistant, a small common room for the research workers, the professor's room, secretary's room, and other accommodation. Each research worker's bench is provided with electric light, electric power, hot and cold water vacuum suction, and taps from which air under pressure is drawn. The operating theatres have double glass roofs, of which the inner one is provided with pipes to spray the glass and carry away dust; the rooms are equipped with a dust-clearing steam arrangement by which, before an operation, the room is filled with steam, which condenses and carries down the suspended dust. The floors are laid with rubber so that they can be easily flushed. Adjoining the operating room is an x-ray room, with the most recent equipment for taking photographs during an operation. A side room is set apart for anaesthetizing animals before they are operated upon, and there are also recovery rooms with heating pipes and electrically heated mats. The animal house adjoining the research house has been enlarged by the addition of another story.

GLASGOW WESTERN INFIRMARY.

The fifty-first annual meeting of the subscribers to the Western Infirmary of Glasgow was held on February 17th, when the Lord Provost, Sir M. W. Montgomery, presided. He congratulated the directors on the finance report, which showed that the income was greater than in the previous year. The David Elder Infirmary at Govan, to be opened this year, would form a very valuable adjunct to the Western Infirmary, and be a means of reducing the long waiting-list of patients. The report submitted to the meeting showed that the total revenue of £91,981, including legacies, exceeded the total expenditure of £91,510, thus enabling the managers to carry to capital account £471; the ordinary expenditure, however, still exceeded the ordinary income by £6,956. The number of patients treated in the wards during the past year was 10,287, and of out-patients 33,214. The average daily number of in-patients had been 556, and the average cost per patient per day was 7s. 8d. The total number of persons on the staff of the infirmary was 514. The David Elder Infirmary at Govan, subject to a satisfactory adjustment of details between the managers of the infirmary and the trustees, was to be administered by the managers of the Western Infirmary, and the buildings would have 42 beds for patients, with possibility of extensions from time to time as funds were provided by the public, without interference with the present structure. The report of the Lady Hozier Convalescent Home, Lanark, showed that the treatment of convalescent patients from the Western Infirmary continued as formerly; 446 patients had been admitted during the course of last year, and, on an average, retained for three weeks.

GLASGOW ROYAL CANCER HOSPITAL.

A reception was held on February 17th in connexion with the installation of a modern electrotherapeutic department in the Glasgow Royal Cancer Hospital. The new addition has been built of brick and has been heavily protected so as to minimize the danger of the rays used in the deep Erlangen treatment to which one room is devoted. A second room is used for taking skiagrams and for barium meals, and a third room is equipped with two Westminster arc lamps for ultra-violet ray therapy. At the junction of the first two rooms is a room for an operator, heavily protected with lead, its windows opening into the treatment room being constructed of specially prepared glass, with protective power equal to 8 mm. of lead. A portable x-ray apparatus has been provided for use in the wards in the case of a patient who cannot be moved. Sir George Beatson, surgeon to the hospital, announced that the directors were now in a position to capitalize the sum of £20,000 to provide an income for research work. It was hoped that one gram of radium might be obtained before long.

EDINBURGH EYE INFIRMARY.

At the annual meeting of the Eye, Ear, and Throat Infirmary of Edinburgh Mr. J. P. Watson, honorary secretary and treasurer, submitted the report for 1925, which showed that the number of eye patients treated as out-patients was 3,838, while the ear, nose, and throat out-patients numbered 1,633. In the wards 297 patients had been accommodated, and there had been 637 operations. The ordinary income was £1,023, and the ordinary expenditure £866, leaving a credit balance of £157. The chairman, in moving the adoption of the report, said the institution was a notable example of the success of the voluntary principle in connexion with hospital finance.

INDUSTRIAL HEALTH.

The first annual report of the Industrial Health Education Council was presented on February 10th at a meeting of the council in Edinburgh; Lord Salvesen, president of the council, took the chair. In the latter half of 1924 an intensive programme had been planned and active efforts made to obtain the goodwill and support of workers' organizations. The Scottish Trades Union Congress Council had approved the Education Council's policy, and had circularized its branches in favour of the work. The educational programme began on January 22nd, 1925, and the workers' organizations had taken full advantage of the health talks which were offered, doctors giving their services gratuitously. Occupational sicknesses and diseases, the care of the teeth, food, and nutrition had been dealt with. In the spring and autumn of 1925, 74 health talks had been given, and the number arranged during the first three months of 1926 is 57, making in all 131 for Scotland. The council had given attention to the extension of the work in England, and meetings had been held with the Miners' Union in Northumberland and with the Miners' Association in Durham County, both of which bodies were taking steps to secure grants from the Miners' Welfare Fund to cover programmes in these counties. It was expected that Cumberland and South and West Yorkshire would also join. It was intended later to create executives in the Midlands, London, the West of England and Wales. Much encouragement in this work had been given to the council by the Ministry of Health. The expenses for meetings for miners had been met out of a grant of £400 by the Miners' Welfare Fund; other grants had been received, such as £500 from the Carnegie Trust, £100 from the Dental Board, and £105 from the Prudential Insurance Company.

At a meeting of the Edinburgh Chamber of Commerce and Manufactures on February 10th Sir Thomas Oliver of Newcastle-on-Tyne delivered an address on health problems and industrial amelioration. With regard to the eight-hour day, the lecturer said there were trades where it might be too short and trades where it might be too long, and it should be recognized that if work was carried to the extent of fatigue the best possible was not obtained from the workers. Work produced under the influence of fatigue was costly. Efficiency, however, was not a question entirely of the number of hours spent in a factory. It had been found in the North of England that the coal miners who had hobbies were, as a rule, far better workers than those who lounged about in the village street. It was believed that a working man starting at the age of 20 had the prospect of an average duration of life of 42 years—that is, he would probably reach the age of 62. But in the non-industrial classes the average longevity was eight years greater. The difference was not altogether a question of occupation. Food was an important consideration, for the wives of many working men did not make the best of the money available. The working man was also exposed to risks of accident, which were two and a half times greater than those of men in the non-industrial classes. In addition to this, there was an increased liability to certain diseases, and cancer was cited as a possible example of industrial disease. In the aniline dye works in Switzerland the workers were liable to contract cancer in the bladder, apparently owing to the dye being absorbed into the body and excreted into the bladder, where it caused the disease. As an example of what preventive medicine had done, the lecturer said that

when white phosphorus was used for matches many of the workers were attacked by disease. A substitute for this material was found which had no harmful influence, and there were then no further cases of the disease. As another example, he instanced the good results achieved by the use of aniline dye instead of arsenic in the manufacture of wallpaper, so that the number of cases of disease due to arsenic had been reduced from 358 in 1900 to 22 in 1923. Sir Thomas Oliver also spoke of the value of periodic medical examination, and concluded with an appeal for support for the Industrial Health Education Council.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

The examination of the Board, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, has just concluded with the following results. Out of 136 candidates who entered for the examination 118 passed. Of the successful candidates, 29 were trained at the Royal Maternity Hospital, Edinburgh, 28 at the Royal Maternity Hospital, Glasgow, 7 at the Maternity Hospital, Aberdeen, 12 at the Maternity Hospital, Dundee, 18 at the Queen Victoria Jubilee Institute, Edinburgh, and the remainder at other recognized institutions in various parts of Scotland.

HERRING CURING IN SCOTLAND.

The Home Secretary has issued the draft of an Order proposed to apply to all factories and workshops in Scotland in which the various processes of curing herrings are carried on. The terms of the Order follow approximately the conclusions reached by a conference held between representatives of the Home Office and the Scottish Fish Curers' Association at the end of 1923, and require the provision of cleansing facilities for employees, the maintenance of a first-aid box or cupboard on the factory premises, and the establishment of a first-aid dressing station. It is interesting to note that a Scottish M.P. has this week spoken of the herring as "the backbone of Scotland's economic life."

England and Wales.

WELSH NATIONAL SCHOOL OF MEDICINE.

THE building of the new Institute of Preventive Medicine, which is only one of the generous benefactions of Sir William James Thomas to the Welsh National School of Medicine, makes good progress, and, it is confidently hoped, will be ready for occupation in the autumn. The ground floor is to be given over to the city and county laboratories, and Dr. E. L. Collis, Mansel Talbot professor of preventive medicine, and his staff, will occupy the first floor. It is proposed that the second floor shall be lent to the department of pathology and bacteriology for the time being, since the pathological block at the Cardiff Royal Infirmary is adapted only for routine work. Similar hospitality is to be offered to the department of tuberculosis on the top floor, which also contains the lecture theatre and animal houses of the institute.

The laboratories given by the Rockefeller Trust to the medical unit of the school are shortly to be erected, the final plans for the building and equipment being now under consideration. Indeed, nothing impedes the progress of this national medical school but the delay in ratifying the decisions of the Privy Council, the Royal Commission, and the University of Wales to make it a separate school of the university. Even the strongest opponents of the scheme, such as Principal Trow of Cardiff College, seem to have accepted, though not with a very good grace, the fact that separation must come. According to the reports of a recent meeting of the College Court of Governors, the point at issue between the University of Wales and its recalcitrant college is the future of the two departments of anatomy and physiology. The university—very properly, in our opinion—considers that a separate medical school means a complete school, including all the subjects in the curriculum. It is at the point between physics, chemistry, and biology, now definitely regarded everywhere as pre-medical studies, that the logical division must come. While

all must admire the sturdy spirit which refuses to recognize defeat and fights a losing battle to the last trench, there comes a time when mere stubbornness ceases to be a virtue. By its reactionary policy Cardiff College is impeding the progress which it cannot itself bring about; indeed, its action has already resulted in serious financial loss to the school. It is to be hoped that the college will be public-spirited enough to acknowledge this, and that no further hindrance will be put in the way of the development on national lines of the only national medical school in the United Kingdom.

THE MINISTER OF HEALTH ON VOLUNTARY HOSPITALS.

The Middlesex Hospital annexe, in Cleveland Street, 250 yards away from the main hospital, opened on February 23rd by Mr. Neville Chamberlain, Minister of Health. The annexe was formerly a workhouse infirmary, but has been derelict for some time, and £40,000 has been spent on reconditioning it for use during the rebuilding of the hospital itself. About a hundred patients formerly occupying the condemned wards have been moved into these new quarters, so that the empty block is now ready for the housebreakers as soon as the funds justify a start. For the rebuilding of the Middlesex half a million had to be raised, and rather more than half this sum is in hand. Prince Arthur of Connaught, chairman of the hospital, who presided over the ceremony, stated that the acquirement of this new building would not only ensure during the reconstruction of the hospital the maintenance of the full number of beds and of the hospital's services to the public as a treatment centre and a centre for medical education and research, but would afterwards remain, with some further structural alterations, as an ideal out-patient department—superior, he thought, to any other in London in floor space and in other respects. Mr. Chamberlain reminded the company that the old block of the Middlesex, built in the middle of the eighteenth century, was quite literally "falling down," but in due course the new hospital would rise, phoenix-like, from the ashes of the old. During the period of rebuilding, the simplest, easiest, and certainly the cheapest course would have been to accept no new patients, so that the number of beds would have been gradually reduced and the wards closed. But the board regarded the Middlesex as a necessary unit in the great voluntary system of London, and with courage and wisdom acquired the annexe to serve as temporary wards and eventually, when no longer needed for that purpose, to be a worthy out-patient department. An out-patient department might not seem as interesting or important as an in-patient department, but it represented the preventive side of a hospital's work, for there the physicians and surgeons saw the beginnings of disease and saved many patients from having to go into the wards. The opening of this building (the Minister continued) was a striking testimony to the vitality of the long-threatened but apparently unconquerable voluntary system. The voluntary hospitals of this country were unique in the world. They discharged three great functions: the provision of treatment for disease and accidents, the training of future practitioners (and it was significant that every teaching hospital, without exception, was on the voluntary principle), and the prosecution of research. Although research was now recognized and endowed by the State, and the great universities took their share in its development, the voluntary hospitals were the pioneers and were still carrying it on. Admittedly the voluntary system had its defects and gaps, and some would urge that the hospitals should be turned over to the State, and that use should be made of the boundless resources of the national exchequer. Whether those resources were in fact boundless the forthcoming budget would show. To his mind the destruction of the voluntary hospitals would be a disaster of the first magnitude, not on financial grounds alone. The nation for more than one reason could not afford to dispense with the voluntary sacrifice which the hospitals represented.

"It may be (Mr. Chamberlain said) that some day we shall succeed in so developing our health services as to come nearer to the ideal to which, I think, we all ought to look—to a plan under which there will be no unnecessary duplication, no waste,

no overlapping, and yet which shall offer to every citizen not merely the highest professional skill, but the use of all that wonderful apparatus and equipment which modern science has put at our disposal. Even to get an approximation to such an ideal means that we have got to co-ordinate every agency which is now working for the prevention and cure of disease. It may be necessary to ask our voluntary institutions to yield up something of the complete independence they enjoy to-day, but I feel convinced of this, that the changes must be so contrived as not to impair those great qualities which have made our voluntary hospitals the pride of this country—their individuality, their elasticity, and the personal sympathy and devotion which have characterized them ever since they have been in existence.”

PUBLIC EDUCATION IN HEALTH.

It is gratifying to learn that the people of this country are now not only willing to read public health literature provided for them by the Ministry of Health, but that their appetite grows by what it feeds on—they not merely accept instruction, they demand it. In July, 1924, the Ministry issued a memorandum by Sir George Newman on *Public Education in Health*, and now, only a year and a half afterwards, “this memorandum is reprinted to meet the exceptional demand for it.”¹ As was indicated in a full notice of the first edition,² the pamphlet is only thirty-five pages long; but in that brief space the author succeeds in presenting a remarkably comprehensive survey of the whole subject with which he deals. It is now brought up to date by including reference to the new Public Health Act of 1925, which fully empowers local authorities to undertake health education by the publication of information, the delivery of lectures, the display of pictures, etc. The price, as was the case in the original issue, is only sixpence, and we venture to suggest that not only should public health officials take an interest in its wide circulation, but that busy practitioners, besides reading it for themselves, should, when opportunity offers, bring it under the notice both of friends and of patients.

THE OPTICAL CONVENTION: LONDON, APRIL, 1926.

A programme of business has been issued for the Optical Convention which is to be held in London, at the Imperial College of Science and Technology, from April 12th to 17th. Two previous meetings of the kind have been held in London—one in 1905 and the other in 1912, under the presidencies respectively of Sir Richard Glazebrook and the late Professor Silvanus P. Thompson. Both were extremely successful, as the bulky volumes of their proceedings bear witness, but much molten glass has passed through the crucible since the second of these occasions. Progress has been made in optical theory, in the many sciences which make use of optical methods, and, most markedly perhaps, in the manufacture of optical elements and instruments. The British optical industry has made remarkable strides, a position of national independence has been reached with regard to optical materials, and the instruments now turned out from the benches of this country make it possible to say that most of the physical research which is proceeding in any part of the world is being aided by optical devices from British laboratories and workshops. All these circumstances make the time fully ripe for another convention which should be a means of bringing together various separated researches, and of acquainting those engaged in optical manufacture with the specific requirements of the users of optical instruments. The president of the convention is Sir Frank Dyson, the Astronomer Royal, and there are about sixty vice-presidents, including Sir Oliver Lodge, Sir Ernest Rutherford, and Sir William Bragg, together with the presidents of many scientific and technological bodies. The medical men whose names figure in the list of vice-presidents are Sir John Herbert Parsons, president of the Ophthalmological Society of the United Kingdom, Sir StClair Thomson, president of the Royal Society of Medicine, Sir Charles Sherrington, lately president of the Royal Society, Dr. James A. Murray, president of the Royal Microscopical Society, and Sir Ronald Ross. We understand that a very large number of papers have been

promised already, covering the subjects of optical theory, optical history and education, and the various applications of optics, from astronomy to microscopy, and from spectacle manufacture to aerial surveying. These papers and the discussions upon them will be embodied later in a volume of proceedings. An exhibition has also been arranged in three sections—one to illustrate research, a second to comprise objects of historical interest and the reproduction of famous experiments, and the third to be a commercial exhibit of British manufacturing firms. If the experience of the previous conventions is repeated, the catalogue of this exhibition, in spite of its commercial character, should prove quite a valuable work of reference for some time to come, giving as it will an adequate report on the condition of the British optical industry and full specifications of the various optical appliances shown. From this exhibition or even from its catalogue one may expect to gather for the first time in a comprehensive way what really has been done in British optics, partly under the stimulus of war, during the fourteen years since the last convention. So far as ophthalmic progress is concerned, this has gone much deeper than the mere provision of more ingenious and comfortable glasses and of frames more pleasing in appearance, and in ophthalmology, from the point of view of instrumentation alone, new fields have been opened out with the introduction, for instance, of the slit-lamp and the corneal microscope. The slit-lamp, although it had actually been invented just before the last convention, was not known to ophthalmologists generally until long afterwards. The subscription for membership of the convention is 15s. or £1 11s. 6d., the latter sum to include a copy of the proceedings, and the offices of the secretary are at 1, Lowther Gardens, Exhibition Road, London, S.W.7.

MANCHESTER POST-GRADUATE COURSE.

The Manchester Royal Infirmary post-graduate courses for the second half of the year 1925-26 will take the same form as in the previous year. On Tuesday afternoons, at 4.15, free lectures will be given each week from March 2nd until May 18th, with the exception of April 16th. The subjects dealt with during March include the diagnosis of nephritis, criminal abortion, haemorrhage about the menopause, atypical forms of acute appendicitis, and ectopic pregnancy. On Friday afternoons at the same time free demonstrations will be given on clinical cases and methods in the wards, special departments, and the laboratory. These demonstrations will be continued until May 21st, with the exceptions of April 2nd and 9th. Although there has been no co-ordination hitherto between the courses of the various Manchester hospitals since the war, it is hoped that before long some central scheme of training may be started, to take the form perhaps of a definite post-graduate school.

JOINT TUBERCULOSIS MEETING. AT CAMBRIDGE.

A combined meeting of the Tuberculosis Society and the Society of Superintendents of Tuberculosis Institutions will be held in Cambridge from March 25th to 27th inclusive. On the first day lectures will be given by Dr. James Crockett, medical superintendent of consumption sanatoriums in Scotland, on ultra-violet rays and tuberculosis, and by Dr. G. Marshall, assistant physician to the tuberculosis department at Guy's Hospital, on tuberculosis and pregnancy. A discussion on catarrhopyogenic and tuberculous infection of the lower respiratory tract will be introduced on the second day by Sir Humphry Rolleston, Bt., and Sir StClair Thomson will lecture on the indications, technique, and results of the galvano-cautery treatment of laryngeal tuberculosis. Professor Edgar Collis will speak on industrial fatigue in connexion with tuberculosis, and Professor Lyle Cummins will discuss sanocrysin, with special reference to the clinical point of view, technique, and selection of patients. On the last day a demonstration of apparatus for inducing artificial pneumothorax will be opened by Dr. H. de Carle Woodcock. A limited number of rooms are available at St. Catharine's College for those attending the meeting. Further information may be obtained from the joint

¹ *Public Education in Health*. A Memorandum addressed to the Minister of Health by Sir George Newman, K.C.B., M.D., F.R.C.P. Revised 1925. London: H.M. Stationery Office, or through any bookseller. 6d. net.

² BRITISH MEDICAL JOURNAL, vol. II, 1924, p. 580.

honorary secretaries, Dr. F. J. C. Blackmore, the Tuberculosis Dispensary, Plumstead, S.E.18, and Dr. J. R. Dingley, Darvell Hall Sanatorium, Robertsbridge, Sussex.

L.C.C. PART-TIME MEDICAL OFFICERS.

The public health department of the London County Council has hitherto employed forty-four part-time medical officers on yearly engagements, fifteen of whom have been employed for six half-days a week and twenty-nine for three half-days. The appointments of these officers expire on March 31st. Four of them are over 60 years of age, and it is not proposed to renew their appointments, and four others do not offer themselves for reappointment. The appointments of the remaining thirty-six officers, all of whom have rendered efficient service, are to be renewed for a further period of one year, and nine new appointments are being made. With these appointments the part-time medical staff will consist of twenty men and twenty-five women doctors, fourteen being employed for six half-days a week and thirty-one for three half-days. The salary for six half-days a week is £360 a year inclusive, and for three half-days £180 a year. The department has also twenty-nine full-time assistant medical officers.

Correspondence.

OPERATIVE TREATMENT OF PERFORATED GASTRIC AND DUODENAL ULCER.

SIR,—I have hesitated to enter into the discussion on the treatment of acute perforating ulcers of the duodenum and stomach, because I consider that it is useless to argue for or against gastro-enterostomy without a searching inquiry into the end-results.

It was my intention to await a period of two years after completing my first hundred cases before committing anything to print, but as I have already operated on over one hundred cases with only four deaths perhaps I may be excused for recording the general impression which I have formed.

Being assistant surgeon to two sets of wards (90 beds), I have to perform between twenty and thirty operations for perforations of the stomach and duodenum every year. The four deaths which I have had occurred before the first hundred series of cases was completed, so that my operative mortality rate is 4 per cent. for that series. As yet there are no deaths in the second series. Three of the four patients who died came from the country and travelled long distances. The other case had pulmonary and abdominal tubercle, and although he had been going about he died three months afterwards while still under my care. In each of the deaths a full *post-mortem* examination was performed. Only four of the perforations were gastric; the others were all beyond the pylorus. There was one case of recurrent duodenal perforation.

On twelve occasions at least the perforation was diagnosed as a case of acute appendicitis. The local treatment varied, but was either (1) simple suture, (2) excision of the indurated area with scissors and suture of the mucous membrane separately from the sero-muscular layer, or (3) cauterization of the indurated area, and in some cases so widely as to allow the mucous membrane to be thoroughly freed. In one case I burned right through the pylorus and did a pyloroplasty.

The infolding sutures are Lembert's, introduced transversely to the long axis of the duodenum, taking a good grip of the bowel wall and beginning distally, and working successively towards the pylorus. All four sutures are inserted before tying is commenced, and then omentum is sutured over all.

Fortunately, all the cases on which I did a gastro-enterostomy recovered. Comparing them with those of "local suture" only, I can definitely say that the cases with a gastro-enterostomy made a better immediate recovery from the actual operation, and I always felt happier about them. On the other hand, some seventy odd consecutive "local suture" cases recovered from this operation, so is there much danger, then, in not doing a gastro-enterostomy?

A gastro-enterostomy does lengthen the operation, but is this additional risk of time worth the more rapid immediate recovery? I cannot say. I am happier about the case where I have been able to do a gastro-enterostomy, but if I am in any doubt I do not do a gastro-enterostomy.

Now, to take the patient three months to a year after operation: I have a bigger percentage of cases returning with ulcer symptoms when a gastro-enterostomy has been performed. The cauterized cases without a gastro-enterostomy are a long way ahead of all the others. The ulcer, as it were, has been completely removed, and two sterilized edges are sewn together and infolded. Why need one do an additional and unphysiological operation in such cases?

These are questions which cannot be answered without careful scrutiny of end-results of many series of cases. My two chiefs will complete reviews of my end-results, so that the question of any bias cannot arise. But there is one point on which I have formed a definite opinion: I consider it practically impossible to narrow the duodenum in juxtapyloric ulcers. As long as the lumen of the duodenum is as big as the pyloric lumen there can be no obstruction. The pylorus itself limits the amount of infolding which can be produced, and a too tightly tied suture very soon cuts out.—I am, etc.,

Dundee, Feb. 18th.

JOHN TAYLOR, Ch.M.

THE STATISTICAL STUDY OF CANCER.

SIR,—Two questions have been raised, one of only personal, the other of general interest.

With regard to the former, I still think that a reader of Dr. Cramer's lecture, having no independent knowledge of the facts, might have inferred that the League of Nations Committee paid no attention to any statistics save those of cancer of the breast and uterus in England and Wales and Holland, an inference unjust to the statisticians concerned. I did not suppose that Dr. Cramer intended to misrepresent the position, and am sure that the point has now been made clear. The other question is of much more importance, and I must ask your permission to discuss it because, in my opinion, Dr. Cramer, in his letter of February 16th (p. 346), draws an incorrect particular conclusion from a general principle which is not only sound but of great importance.

The general principle—if I may be allowed to restate it in my own words—is this. No statistical investigation of cancer conducted, as it were, *in vacuo* will really advance our knowledge of etiology. It is true that the great majority of the "proofs" that cancer is "caused" by intestinal stasis, by eating meat, by the use of common salt, and so on, through the whole gamut of theories which so grievously waste the time of busy men, are rendered worthless by patent violations of the canons of statistical inference. But I believe it is also true that even a well trained statistician who acts on the principle that all he needs, in addition to his statistical equipment, is the stock of vague ideas respecting cancer possessed by, say, the average medical man without special laboratory experience, will not achieve anything of value. One reason is this. Incomplete as is our statistical literature of cancer, it is absolutely very large. If all the statisticians of the world were to set about testing the associations between variables which a loose general theorizing might suggest to be possibly relevant, they would be all dead before they had made any serious impression upon the data. Attention must, therefore, be concentrated upon associations which special researches have indicated as likely to be of importance, and the decision as to which come within this category is not wholly, not even mainly, a statistical question. The role of the statistician is to test, on the data available to him, hypotheses which, in his quality of technical statistician, he has not originated. He has, of course, like other men, the right to frame hypotheses, but his technical knowledge does not give them any special value.

So far Dr. Cramer and I are in complete agreement. Where we part company is in the particular application of the principle. Dr. Cramer said in his lecture, and virtually reiterates, that if statisticians had grasped the importance of the experimental evidence that the development of cancer in one organ inhibits its independent develop-

ment in another organ, they would not have overlooked a "very curious fact." Now what is this "very curious fact"? As I said before, the direct logical inference from the experimental work would be that the concurrence of cancer of two primary sites in the lifetime of an individual should be much rarer than would, on the average, be the case if the two events were independent. But this is a "fact" which statisticians cannot possibly overlook because they are not in the possession of any data adequate to reveal it. One cannot overlook the existence of the most curious phenomena on the dark side of the moon. If we had data of a large number of persons, hundreds of thousands, kept under skilled medical observation from puberty to death, we could solve the problem. We have no such data. Official statistics provide us with more or less accurate specifications of the causes of death. With the help of these we can calculate, more or less accurately; the probability that a person aged x will be certified to have died of cancer of the uterus or other form of cancer, and we can do no more. Suppose a woman, aged 40, had been successfully operated upon for cancer of the breast, and at the age of 75 developed, and died of, a cancer of the rectum. I see no reason why the certifying practitioner should make any reference to a condition which he might deem to have had neither directly nor indirectly any relation to the cause of death. We have, in a word, no reason to suppose that death certificates are exhaustive records of the whole previous medical histories of the decedents.

From the data of hospitals and the case-books of surgeons we can, indeed, extract particulars of the frequency of concurrence of multiple primary cancers in these special samples, but from such data we cannot determine whether the frequency is or is not less than "chance" might account for. An essential datum is lacking. Hence, in my opinion, statisticians should not be accused of overlooking a curious fact. The truth is that they are not in a position to say whether the fact is a fact.

So far I have discussed only what I take to be a direct inference from the experimental work, and have submitted that the statisticians, from lack of data, are unable to confirm or refute it. The suggestion that factors favourable to the development of cancer of one site may be unfavourable to the development of cancer in another site is surely not a direct inference from the experimental work, although inherently reasonable; up to a point, it can be tested statistically. I indicated in my last letter one of the lines upon which we have attempted to deal with the question, and more work remains to be done. This we shall hope to carry out, although I am under no illusions as to the difficulty of the task.

I must apologize to you, Sir, for the length of this letter; but it is right that the profession should understand that the statistical investigation of cancer is a laborious task, and those who pursue it have not the comfort of supposing that some brilliant stroke will put them in possession of an important and unsuspected truth. But the work must be done, and (like our experimental colleagues) we often have to waste time in blind alleys which we could not prove to be blind without visiting them.—I am, etc.,

Loughton, Feb. 20th.

MAJOR GREENWOOD.

UNQUALIFIED MEDICAL PRACTICE.

SIR,—The profession owes a debt of gratitude to Dr. Graham Little, not only for his courage and initiative in bringing forward his motion on unqualified practice in the House of Commons, but for his able and extensive writings combating the claims of the osteopaths in the *Times* and the *Spectator*.

Single-handed he has succeeded in giving a set-back to the osteopaths and their supporters, but this endeavour has involved him in some odium with the press. Surely the Council of the Association cannot allow such work to pass without notice, nor should the Divisions ignore the warning in your leading article (February 20th, p. 337) that the osteopaths will try again.

Their supporters are evidently wealthy and influential,

and many adherents have been gained by the recent press agitation, so that the next attempt will be vigorous and well designed, and will require the whole force of the profession to back Dr. Little, able and energetic though he be.—I am, etc.,

Warrington, Feb. 21st.

J. S. MANSON.

COMMON SENSE IN RELATION TO DOUBTFUL TUBERCULOSIS.

SIR,—In Dr. L. G. J. Mackey's admirable paper on "Common sense," published in the *BRITISH MEDICAL JOURNAL* of January 30th (p. 211), there is one passage to which, as one who has been concerned with tuberculosis for many years, I would venture to demur. Dr. Mackey says:

"But suppose we have made a mistake and labelled a man tuberculous who has nothing the matter with him except hæmoptysis from some unknown cause, have we done him any harm? No; a restful fresh-air holiday, a period of careful observation cannot do harm, and if we have tackled him properly he will not be alarmed or depressed."

Unfortunately this does not express the whole truth. Once a definite diagnosis of tuberculosis is made, the practitioner is under statutory obligation to notify the case, and this leads to official investigations. Apart from this, the "restful fresh-air holiday" under careful observation, prescribed for the patient, would generally connote a period of treatment at a sanatorium, which would proclaim the patient a "consumptive."

It would be possible to give many instances of cases in which very considerable harm had been done by a mistaken diagnosis of pulmonary tuberculosis. As a result of having labelled a man tuberculous a series of unhappy consequences may ensue. First, he may lose his employment; next, he may have to turn out of his house or room, because first his employer and then his landlord or landlady hear that he is "consumptive." These things have actually happened. At some subsequent period, though in good health, he may perhaps have difficulty in getting an insurance society to accept him. In truth, at the end of "a restful fresh-air holiday" he may find only too much cause to be alarmed or depressed.

With the well-to-do it may be different, but where we are dealing with persons who have to earn their own living—and they form the major part of the ordinary practice—I am confident that the better course to follow in all cases of doubtful pulmonary tuberculosis is to suspend judgement, keeping the patient meanwhile under most careful observation, until one can come to a definite diagnosis on reasonably sure grounds. I am glad to say that this is the view which is held by the chief medical officer of the Ministry of Health. In his annual report for 1920 (p. 89) Sir George Newman says: "The diagnosis of tuberculosis should be made by the tuberculosis officer with a due sense of the responsibility of his decision. . . . In doubtful cases he should lean rather to a negative than to a positive opinion, keeping the patient at the same time under careful observation."

Dr. Mackey's paper is most interesting, and his examples of the need of common sense in the various circumstances with which the general practitioner may be confronted will appeal to all, and I trust that he will not resent my venturing to draw attention to this one point where, in my opinion, he errs in the advice he gives the practitioner.

As regards the particular instance discussed by Dr. Mackey—namely, a slight hæmoptysis in a young person—we agree, of course, that in a very large proportion of cases the diagnosis would prove to be pulmonary tuberculosis. But, in common with many others, I have met with several cases of this sort, in which the hæmoptysis is unaccompanied by any other symptoms or physical signs, and in which nothing further has developed, and the patient has been known to be in perfect health some years later.—I am, etc.,

E. WEATHERHEAD, M.B.,

Alderley Edge, Cheshire,
Feb. 16th.

Tuberculosis Officer, North-East
Division of Cheshire.

FOCAL SEPSIS.

A Correction.

SIR,—May I correct a serious misstatement in the abridged report of my share in the discussion of this subject, which appears in the current number of the JOURNAL? In describing what might be considered as the pathological test of a "septic tonsil," the report states—

"Septic tonsils were associated with excess of polymorphonuclear leucocytes on the surface or in the substance of the gland, the presence of bacteria or debris in the gland not being of such great importance."

What I did state—and I quote from the typed copy of my remarks—was to the following effect:

"A tonsil is of pathological significance when one or more of its crypts contain an excess of polymorphonuclear cells, or when these are found making their way between the epithelial cells which line the crypts. The mere presence of bacteria in these recesses is no evidence of disease, but if and when such organisms pass through the epithelium into the lymphoid follicles of the glands then morbid conditions may arise, productive of local or systemic symptoms."

And again:

"... the small plugs of epithelial debris which can generally be squeezed from a tonsillar crypt have no pathological significance, although they may be of importance in that they provide a suitable medium for bacterial growth. Only when this assumes such a proportion as to destroy the normal epithelium and induces excessive polymorphonuclear migration will the portal be thrown open to invasion of the lymphoid tissue by the organisms and their toxins."

I think you will agree that these statements give an entirely different view of the matter from the inaccurate and distorted one which appears on page 324 of the JOURNAL, wherein no mention is made of the essential site and method by which infection enters the gland tissue of the tonsil.—I am, etc.,

London, W.1, Feb. 22nd.

HERBERT TILLEY.

* Peccavimus! It is sometimes possible to give the gist of sixteen lines in four, but here the attempt failed, and Mr. Tilley has not let us off.

COCCIDIA OF FISH IN HUMAN FAECES.

SIR,—I fear that in my letter which appeared in your last issue (February 20th, p. 347) my meaning may be subject to misinterpretation. When I wrote that I had pointed out to Dr. Thomson that I had suggested, in the manuscript of my forthcoming book, that the coccidia in question might be merely coccidia of fish I did not intend to imply that his work had been undertaken in consequence of this. As a matter of fact it was only after his work had been commenced and the significance of it realized by him that I told him my views on the subject. It is clear that the view as to the possible origin of these coccidia had occurred to both Drs. Thomson and Robertson and myself independently.—I am, etc.,

C. M. WENYON,

London, W.C.1, Feb. 19th.

Wellcome Bureau of Scientific Research.

SIR,—My attention has been called to the article by Drs. J. G. Thomson and A. Robertson regarding coccidia in fish, and, while their findings are very interesting, I protest strongly against their statement that "systematic zoologists" adopt "an attitude of superiority" towards medical men.

Anyone acquainted with the works of the zoologists Schaudinn, Grassi, Minchin, Doflein, etc., would not accuse such of neglecting or unduly criticizing the findings of medical men, and such statements are liable to have a bad effect on the workers in both medicine and pure science.

The one case which Drs. Thomson and Robertson refer to rather cryptically appears, illogically enough, to concern a worker who is engaged, not in systematic zoology, but in medical research, and in any case they might reflect that one does not condemn the whole race of birds for one butcher-bird.—I am, etc.,

J. S. DUNKERLY,

Lecturer in Protozoology and Helminthology,
University of Glasgow.

February 22nd.

CYESOEDEMA.

SIR,—The condition of eyesoedema described by Dr. A. Lendon in the BRITISH MEDICAL JOURNAL of December 19th, 1925 (p. 1179), is not of such rare occurrence as would appear from reading his article.

This general thickening of the cutis of the pregnant female, as already pointed out by me some time ago,¹ is, as a matter of fact, a common accompaniment in all pregnancies. But while it is well marked in some cases, especially in primiparae, it is in others of so slight a nature as almost to pass unnoticed.

According to Tandler and Grosz this "coarsening of the facial features and the thickening of the skin is due to a proliferation of the subcutaneous tissues." This is in keeping with the general proliferation and overgrowth in other tissues of the female during pregnancy—for example, thickening of the mucous membrane of the respiratory tract, which is probably responsible for the huskiness of voice and intractable coughs which are often met with in pregnancy. These proliferative changes are brought about by the functional increase in the physiological activity of the "hormone of growth" (anterior pituitary), obviously necessary at that period. It is therefore not surprising to find that, when the increased functional activity of the anterior lobe of the pituitary becomes excessive, as evidenced by a marked eyesoedema, the foetus should in such cases also be of greater weight than usual. This coincides with Dr. Lendon's observations on the cases he reported.

Dr. Lendon also states that eyesoedema did not recur in subsequent pregnancies which came under his notice. My experience is, however, that it does recur, though but rarely, and in such cases we get the condition known as progressive enlargement of the foetus.—I am, etc.,

S. E. KARK.

Capetown, Jan. 26th.

INDIVIDUAL OVERDOSE OF ULTRA-VIOLET RAYS.

SIR,—With reference to Dr. Paige Arnold's interesting letter in the JOURNAL of February 13th (p. 304), I must state that I have noticed the symptoms he describes in many patients treated during the last eighteen months with the quartz mercury vapour lamp. Such untoward symptoms—lassitude, depression, headache, etc.—I have always found to be associated with low blood pressure readings. Given an unduly low blood pressure one must expect such a patient to be intolerant to ordinary doses of ultra-violet rays.

By giving subminimal doses, possibly exposing only the face and forearms to the rays, with several days' intervals between the doses, these patients will often respond as to ordinary individual doses, and show increased energy, appetite, and a feeling of *bien-être*. There is a very definite "critical point" in the dosage of such cases, and this must not be passed.

Babies and toddlers who are thus sensitive often become irritable, sleepy during the day but restless at night, and begin to lose weight.

Dr. Arnold wonders whether ultra-violet radiation is as innocuous as is generally supposed, and suggests the possibility of untoward results such as followed on the pioneer use of x rays. We have it on the authority of Drs. Sequeira, Axel Reyn, and others with over twenty years' experience of the rays that no such dangers exist. I would, however, suggest one possible danger—that of cataract such as is met with in glass workers, tin-plate workers, chain-makers, and iron-smelters. Here cataract probably arises from insufficient protection against ultra-violet rays emitted from these molten substances affecting the worker improperly protected, and is not due to heat waves, as formerly supposed. It is known that coagulation of the crystalline lens occurs with exposure to ultra-violet rays even with wave-lengths of 2,800 to 3,220 A.U. This coagulation is only made evident in the presence of calcium chloride solution. These facts are significant, and at any rate strongly suggest that operators of ultra-violet lamps

¹ The Toxæmias of Pregnancy, South African Medical Record, April 8th, 1922.

—particularly the modern unhooded quartz mercury burners—should exercise great care in the protection of their eyes by really efficient goggles, lest in years to come “ultra-violet ray cataract” should claim its victims as did x-ray dermatitis in the past.—I am, etc.,

J. BELL FERGUSON, M.D., D.P.H.

Smethwick, Feb. 18th.

PREVENTION OF PUERPERAL FEVER.

SIR,—In the correspondence on puerperal fever I am surprised to see no mention of the large tracts of country which are without a district nurse. I have one district nurse in my practice, and she can only cover half the area, hence for the remaining half (which fortunately contains less than one-quarter of the population) I am dependent on the assistance of village women. This renders my work more arduous and infinitely more tedious, and yet I cannot claim even the paltry two guineas.

Could not the doctor's word be taken that medical assistance was required for a confinement without the production of a slip of paper from a person having the C.M.B., if such were not available? To cite one example: my car was out of order one day and I had to hire a car to attend a confinement six miles from my house; for this I was charged 30s. (including time waiting); I had the expense of subsequent visits; and for it all I received exactly nothing.

On the subject of puerperal fever generally I am glad to say that in six years' experience here I have not had a single morbid case, though I have had my share of placenta praevia, breech and transverse presentations, etc. I attribute this to good luck and the excellent experience I gained as house-surgeon to the Birmingham Maternity Hospital in 1917.

My procedure is as follows:

1. Ante-natal supervision and vaginal douching in cases of gross discharge.
2. When called to the confinement I make a very thorough first examination, and then never put a finger in again until I consider forceps or other intervention is required—if ever. The character of the pains and the condition of the patient, including her abdomen, usually give all the necessary information.
3. To avoid tears, as soon as the head is in the vagina I remove the forceps, and deliver very slowly by pressure on abdomen with left hand, and flexion and traction on head with right hand. It is almost always possible to deliver a primipara thus, without any lacerations.

The above remarks seem absolute platitudes, but it is evident from the statistics that some practitioners employ less successful methods.—I am, etc.,

ALETHEA J. EAMES, M.B., B.S.Lond.

Glynceiriog, Wrexham, Feb. 8th.

FINAL NURSING EXAMINATION.

SIR,—As one who has for many years been keenly interested in the training of nurses, and taken an active part in this most important work, I wish to add my support to the criticisms of Dr. Bradley and Mr. Morton in the last two issues of the *BRITISH MEDICAL JOURNAL* on the questions frequently set in examinations for nurses.

I would go further and criticize the majority of so-called “nursing” books on the market. Their number is legion, and I have taken the trouble to peruse a great number of them, and have in most cases been struck by the absence of reference to nursing from cover to cover. They are quite frequently little more than anatomy, physiology, medicine, and surgery dished up in “potted” form, and a vast amount of the information can be of no value at all from the nursing point of view and useful only for examination purposes.

The *Handbook for Mental Nurses*, the book officially recognized by the Royal Medico-Psychological Association for training nurses for this association's nursing certificate, although recently revised and containing much more useful information with regard to points on nursing than any former edition, is still, in my opinion, a serious offender by devoting space to a description of the five types of nerve cell found in different layers of the cerebral cortex and a diagram showing the same. What useful purpose can this serve?

At a recent General Nursing Council examination, at which one of my nurses sat and passed, one of the questions

asked by the nurse examiner in the oral part of the examination was, “How to render water from a pond polluted by typhoid fit for drinking purposes.” This surely should not be a matter for a nurse and should never be left in her hands even under war conditions; therefore why examine her on such subjects? Now we have a General Nursing Council it cannot be too strongly insisted upon that questions set in its examinations must have some practical bearing on nursing and not merely a test of the candidate's knowledge of medicine, surgery, or public health.—I am, etc.,

R. EAGER,

Medical Superintendent, Devon
Mental Hospital.

Exminster, Feb. 21st.

SIR,—I am in complete agreement with Dr. Bradley's letter (February 13th, p. 305). I was present at a meeting in London at which the syllabus was discussed, and was able to produce letters from would-be probationers which proved clearly that the general standard of education was distinctly below par. Dr. Bradley writes: “The matter is a serious one for small provincial hospitals”; I should like to add, and far more serious for the general public. I know a nurse who is in great demand who could not even attempt an answer to the questions quoted by Dr. Bradley, but who can move a patient without causing pain or discomfort, who can carefully attend to a patient's back and prevent bedsores, who never talks of wonderful cases she has nursed and saved from the jaws of death; but who carries out the instructions of the medical man attending the case to the letter. We are bringing up a new type of nurse who uses words which she cannot spell correctly (as I know too well, having read many nurses' notes), and the meaning of which is as intelligible to her as if you placed the *Medea* before her and asked her to translate it. I am really sorry for the nurses, because we shall ere long have a profession to which Pope's lines will assuredly apply:

The bookish blockhead, ignorantly read,
With loads of learned lumber in his head.

If Pope had lived to-day he would not have objected to the change of “his” to “her.”—I am, etc.,

S. J. ROSS,

February 14th.

Honorary Surgeon, Bedford County Hospital.

LORD LISTER'S BIOGRAPHY.

SIR,—A German translation of Sir Rickman Godlee's biography of Lord Lister has been published, which claims to be “the only authorized translation.” It was only “authorized” on condition that it should be approved by him before publication, and this condition was not fulfilled. As his executrix I desire it to be known that neither he nor his representatives are in any way responsible for the accuracy of it.—I am, etc.,

Whitchurch, Oxon., Feb. 16th.

JULIET M. GODLEE.

Obituary.

CHARLES DORRINGTON BATT, M.B., M.R.C.S.,
Witney, Oxon.

THE death of Dr. C. Dorrington Batt on February 14th has removed a fine representative of the older school of country general practitioner. He was born at Witney in 1845, and on leaving Epsom College served a year's apprenticeship to a doctor at Guildford. In 1863 he entered St. Bartholomew's Hospital, and obtained the diplomas of M.R.C.S.Eng. and L.S.A. in 1867, graduating M.B.Lond. with first-class honours in 1868. For the next three years he held the post of house-surgeon to the Sheffield General Infirmary; then, owing to a breakdown in health, he sailed twice to New Zealand as a ship surgeon. In 1872 he settled in practice at Witney, and for thirty-one years, until his retirement from active work in 1903, he was a valued friend and medical adviser to many families in the town and neighbourhood.

Besides his professional duties Dr. Batt found time for many other activities. He had been chairman of the urban district council, churchwarden, and on two occasions

bailliff, and for many years his counsel and co-operation could be depended on in everything that concerned the welfare of the district. In 1893 he was made a justice of the peace for the county of Oxford. In his younger days he held a commission in the Volunteers, and looked forward with delight to the annual training in camp. He was keenly interested, too, in the work of the St. John Ambulance Association, and took infinite pains to make his first-aid classes practical and interesting. Outside his professional and public work he had many interests and pleasures. He loved his home and his children, and the outdoor life of the country; he swam in the river every summer morning, was a keen cyclist, an enthusiastic horseman, and a well known figure in the hunting field. His wife's death in 1905 was a blow from which he never fully recovered, and thenceforward gradually failing health limited his activities. During the early days of the war he was, however, able to act as commandant of the local Red Cross V.A.D., and assisted in the maintenance of the Belgian refugees sheltered in the town. In 1919 he was extremely ill, and had a severe operation, and the remaining years of his life were passed as an invalid.

Dr. Batt's death, after a long and full life of service to his fellow-men, breaks a professional connexion between his family and Witney which had lasted for nearly two centuries. The practice was started by Augustine Batt, apothecary, who was born in Wiltshire in 1713 and was buried at Witney in 1779; it passed to his son Edward (1742-99), who had studied medicine at St. George's Hospital. An old ledger covering the years 1774 to 1778 contains many interesting entries, among others a list of "inoculations," presumably direct inoculations with lymph from small-pox vesicles. Edward was succeeded by Augustine William Batt (1774-1847), who seems to have joined his father in partnership, for a ledger dated 1795 is headed "Batt & Son." In the next generation, Edward Augustine (1801-53) carried on the practice, and was the father of a family of seventeen, of whom three sons became doctors and practised at Witney. Edward Batt succeeded to the family practice, and in 1854 entered into partnership with his brother Augustine. The third son, Charles Dorrington Batt, the subject of this memoir, was in partnership with Augustine until the latter's death in 1883. He himself, the last of this large family, had eight children, of whom two (Dr. Bernard Batt of Bury St. Edmunds and Dr. J. D. Batt, M.C., of Wickhambrook) are members of the medical profession.

M. B. R. SWANN, M.D., D.P.H.,

Demonstrator in Pathology, University of Cambridge, and Fellow of Caius College.

We regret to record the death, on February 16th, of Dr. Meredith Blake Robson Swann, as the result of a streptococcal septicaemia contracted while making a *post-mortem* examination. He was the son of Mr. Frederic Swann, at one time headmaster of Ilkley Grammar School, and subsequently a member of the staff of the *Times*. On leaving Dulwich College, Meredith Swann was elected to a scholarship at Caius College, and matriculated in October, 1912. He was placed in the first class in the Natural Sciences Tripos in 1914, and proceeded to King's College Hospital. He obtained the diplomas M.R.C.S., L.R.C.P.: in 1917, the D.P.H. in 1920, and graduated M.B., B.Ch.Camb. in 1921, proceeding M.D. in 1924. After holding the posts of house-physician in the children's department and assistant casualty officer at King's College Hospital, he was gazetted as surgeon lieutenant to H.M.S. *Bacchante*, when she was stationed in the Atlantic and off the West Coast of Africa. In 1919 he returned to Cambridge, and was shortly afterwards appointed demonstrator in pathology. In 1923 he was elected to a Fellowship at Caius College, and was awarded the Raymond Horton Smith prize for the best M.D. thesis. He married in 1917 Marjorie, daughter of Mr. Alfred H. Dykes of Beckenham.

His colleagues in the department of pathology and the medical school have lost a friend who was very dear to them. His pupils have lost a teacher who has had a great influence on the students of Cambridge University during the years which have followed the war. Swann took a deep

and varied interest in the experimental side of pathology and had published papers on the germination period of mortality of anthrax spores, and on the effects of γ ray on the functional activity of various organs. His interest in morbid histology and histological methods was very keen and during the last twelve months he was engaged on a very complete and careful study of the microscopic changes associated with an epizootic disease of rabbits. As a teacher Swann's success was beyond question, and he was never more at home than in the classroom or happier than when surrounded by a group of students who had left their places to hear what he had to say about some specimen or experiment. He was keenly interested in teaching, and always determined to make every class a success. He had a great capacity for organization, and found full opportunity for the exercise of his powers in the arrangement of the class work in general pathology for Part II of the Natural Sciences Tripos. The planning of a course in experimental morbid histology for the Tripos was just the kind of work which appealed to him, and he devoted himself with great enthusiasm and success to the task. Swann's influence on medical students was not limited to his work in the department of pathology; a supervisor of medical studies at Caius College he came into contact with a large number of men who were reading for the medical degree. In college, as in the laboratory, his popularity was the result of the genuine and untiring interest which he took in his pupils. His advice was readily sought and as readily obeyed, and lost nothing of its effect from the vigorous brevity with which it was often delivered.

His death, at the early age of 32, is a grievous loss to his college, the department of pathology, and to the university. The funeral service was held on February 19th at Cambridge; the first part was conducted in Caius College Chapel by the Dean, assisted by Canon E. S. Woods, and the Master, Sir Hugh Anderson, M.D., read the lesson many members of the university attended. The burial followed at Trumpington. H. R. DEN.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

SIR HUMPHRY ROLLESTON, Bt., Regius Professor of Physics, has been appointed to represent the University on the general council of the Fellowship of Medicine.

At a congregation held on February 19th the degree of B.Ch. was conferred on J. C. Hogg and R. L. Rhodes.

UNIVERSITY OF BRISTOL.

THE dissertation on "Primitive instincts in insanity," submitted by Elizabeth Casson, M.B., Ch.B., has been approved by the examiners.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

DIVISION OF TROPICAL MEDICINE AND HYGIENE.

THE following passed the school examination at the termination of the seventy-ninth session (October, 1925, to February, 1926):

*B. M. Morris (Duncan medal). *W. A. Young, *H. L. Batra, *T. Y. L. *T. P. Noble, *A. K. El Shurbagi, *M. A. H. Attia, *J. C. P. *A. G. ... Abdel-Khalik, S. C. G. ... W. H. ... Mosteri, E. A. Penny, E. F. ... B. N. ... E. K. Will, E. Strathern ... Claxton ... and M. A. H. Azim, A. S. ... M. B. I ... J. Woodhouse, B. E. Khoo ... Douglas ... J. D. L. Perera, K. W. Todd, E. Burke, H. W. Brassington, D. W. G. Faris, R. McEagans, M. Rustonjee, J. J. O'Grady, C. M. Churches ... Sherwood Hall, J. J. Keevil, G. D. Gordon, C. S. Wyde, T. V. FitzPatrick, Y. N. Lal, W. L. Gopsill, C. R. Subryan, T. James ... R. A. Heatley, R. Huey, V. F. Dougherty, P. L. Gray.

* With distinction.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

Surgeons—J. Dywien, V. Escovar, A. C. Hill, J. E. Howard, J. Mindess, L. A. Rostant, J. Shibko, Y. R. Smith, ... W. Hayward, W. Johnson, ... Weeber, J. M. T. Whitby, ... H. St. Johnston, G. H. Pereira, J. Shibko, J. W. Whitney, ... N. H. C. Allen, F. W. Barton, V. G. Crowley, M. Escovar, ... H. I. Jones, D. P. Mitra, G. H. Pereira.

The diploma of the Society has been granted to Messrs. T. F. Clifford, V. G. Crowley, E. W. Hayward, J. Mindess, G. H. Pereira, L. A. Rostant.

Medical Notes in Parliament.
[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has this week been again chiefly occupied with Supplementary Estimates. In addition the Estimates for the Air Force have been introduced. An Adoption of Children Bill was the business for February 26th. On a private member's motion war pensions administration, including the medical side, was debated on February 23rd, and the House rejected a proposal to set up a Select Committee on the subject.

General Medical Council.

The Minister of Health, replying to a question by Mr. Storry Deans, said he had considered the suggestion that the General Medical Council ought to contain a lay representative, and that the power of nomination conferred on the Crown by the Medical Act of 1886 should be exercised by appointment of laymen as and when vacancies arose. Mr. Chamberlain added that he would take an early opportunity of consulting the Earl of Balfour, Lord President of the Council, on this matter.

Parliamentary Medical Committee.

The Parliamentary Medical Committee, at its meeting on February 17th, decided to give a general invitation to Peers and members of the House of Commons to attend a meeting on February 24th at which Lord Dawson of Penn would speak on the relations of the medical practitioner, the General Medical Council, and the public. The Medical Committee received a deputation from the Medical Practitioners' Union on the Coroners Bill, which the Government has introduced into the House of Lords this session. The deputation suggested amendments in the 1925 text of the bill. The Committee took no decision pending the introduction of the bill. Dr. Harry Roberts brought forward certain criticisms of the proposals for reform of the Poor Law which the Ministry of Health has circulated. He suggested an extension of the National Health Insurance system to cover the needs of those persons not in institutions for whom provision is now made by the Poor Law medical service. The Medical Committee also discussed the Opticians Bill, of which a draft has lately been issued, and considered it as it would affect the ordinary general practitioner. The Committee felt that considerable amendment would be required before the bill could obtain the support of medical men, but the subject was left for further consideration, in view of the fact that the British Medical Association was preparing a memorandum on the bill, and also to await the opinion of the Council of British Ophthalmologists.

Indian Medical Service.

On February 22nd Colonel Applin asked the number of Indian subordinate medical officers qualified for promotion to commissioned rank in the Indian Medical Service awaiting gazette; and whether the Under Secretary for India could expedite the gazetting of these officers at an early date. Earl Winterton replied that he was not precisely aware to what class Colonel Applin referred. If he would supply further particulars the case should be examined.

Lord Winterton, answering Mr. R. Richardson, said the proposals made by the Government of India with a view to reserving the civil posts of the Indian Medical Service for Europeans were still under consideration and he could make no statement. No final orders had yet been issued on the recommendations of the Lee Commission regarding this service.

Maternal Mortality.

Answering Mr. Groves, Sir Kingsley Wood said there were 758,131 births in England and Wales in 1923 and 729,923 in 1924. He gave the following statistics of maternal mortality for the same years:

	1923.		1924.	
	No.	Rate per 1,000 births registered.	No.	Rate per 1,000 births registered.
Deaths of women classed to pregnancy and child-bearing	2,892	3.81	2,847	3.95
Deaths of women not classed to pregnancy and child-bearing but returned as associated therewith	754	1.01	851	1.17
Total	3,656	4.82	3,698	5.07

Sir Kingsley Wood further said that the Minister of Health was unable to say there had as yet been any general improvement in the maternal mortality in rural, textile, and coal-mining areas, but the figure for 1925 was not available. Mr. Groves asked whether it was the custom of all medical officers of health to investigate all maternal deaths due to childbirth and all cases of puerperal fever, whether fatal or not. Sir Kingsley Wood replied that a circular issued by the Ministry of Health in June, 1924, impressed on local authorities conducting maternity and child welfare schemes the desirability of competent medical investigation into both. The extent to which this was adopted varied in different areas.

Small-pox.

Mr. Chamberlain, answering Major MacAndrew, said that in areas invaded by small-pox the usual practice of local authorities was to urge the importance of vaccination, and to announce the facilities available for vaccination free of cost to all who desired it, but there was no statutory provision for compulsory vaccination except in the case of children whose parents had not made declarations of conscientious objection. Answering Mr. Whiteley, Mr. Chamberlain said there was no present intention of amending the vaccination laws. Answering Mr. H. Williams, he said that, according to information available, 2,006 cases of small-pox were notified in the county of Durham from January 1st, 1925, to February 12th, 1926, of which 1,970 had so far been classified by vaccinal condition. At the time of infection 1,528 were unvaccinated, 429 had been vaccinated at some time, and the condition of 13 was doubtful. Of the 429, none was under 15, and only one had been revaccinated—namely, a man aged 51, who had been vaccinated in infancy and again at the age of 14.

Mr. Lansbury, on February 22nd, asked the Minister of Health whether he was aware that the outbreak of small-pox in the years 1901-02 coincided with an increase in the number of vaccinations performed in consequence of the passing of the Vaccination Act, 1898; and whether he would state the number of cases of small-pox notified in the years 1897, 1898, 1899, 1900, 1901, 1902, 1903, and 1904, and the number of infants vaccinated out of every hundred born in each of those years. Sir Kingsley Wood replied that it was the fact that the total numbers of vaccinations and revaccinations performed during 1901 and 1922, at the cost of the rates, was considerably in excess of the numbers in previous years. But, as the primary object of the Vaccination Act, 1898, was to exempt from penalties parents who obtained certificates of conscientious objection to vaccination, this increase could not, in the opinion of the Minister of Health, be attributed to the passing of that Act, but rather to the fact that when small-pox was prevalent, as in 1901-02, it was usually found that large numbers of persons sought the protection afforded by vaccination. As regarded the last part of the question, figures were not available showing the number of cases of small-pox notified during the years in question, but the following statement gave the percentage of vaccinations to births in each of these cases.

Year.	Percentage.	Year.	Percentage.
1897	62.4	1901	71.4
1898	61.0	1902	74.8
1899	65.4	1903	75.4
1900	68.7	1904	75.3

Sir Kingsley Wood informed Mr. Groves, on February 22nd, that the Minister of Health would communicate to the Committee on Vaccination for their consideration the following suggestions made by the hon. member: The precise nature of the disease from which vaccine lymph was derived and how its nature was determined; what was a successful and efficient vaccination and for how long it could be guaranteed to remain so; how frequently it had been found possible to repeat vaccination on the same person; the relation of the possibility of frequently repeating vaccination to the question of immunity; and the means recommended for ascertaining whether the immunity afforded by vaccination had lapsed.

On February 22nd Mr. Charles Williams asked the Minister of Health what steps he was taking to inform the public of the efficiency of vaccination against small-pox, particularly in those areas where there was any sign of the disease. Sir Kingsley Wood replied that it was the duty of the local authorities of areas in which any case of small-pox occurred to urge the importance of vaccination and the efficiency of this method of protection against small-pox; and it was the usual practice of the local authorities to take these steps. Mr. Lansbury asked whether it was not a fact that some medical men in the two districts in the North, where it was suggested that small-pox was prevalent, disagreed entirely, and thought that it was not small-pox at all. Sir Kingsley Wood replied that notice had better be given of that question. As Mr. Lansbury knew, in the particular area where there was an industrial dispute the outbreak of small-pox was not so severe as in adjoining areas.

Answering Mr. Trevelyan Thomson, on February 22nd, Mr. Neville Chamberlain said he was aware that the disease which was being diagnosed as small-pox in Northumberland and Durham, when not complicated with any other disease, was not causing any deaths at all. In view of the fact that the majority of the cases were unvaccinated persons, his medical advisers were certain that the disease was small-pox. He referred Mr. Thomson to paragraph 62 and following paragraphs of the annual report of the chief medical officer for 1924.

Foot-and-Mouth Disease.

On a Supplementary Estimate for the Ministry of Agriculture, Mr. Guinness (Minister of Agriculture) said that imported hay and straw might be a source of infection of foot-and-mouth disease, but the Ministry had strong evidence against migratory birds, and even stronger against vegetables brought from the Continent and meat from the Continent and the Argentine. Outbreaks

had been traced to the feeding of pigs with swill made from unboiled vegetables of foreign origin or parings of imported meat. Sir Stewart Stockman was on his way to the Argentine to see whether effective steps were being taken to prevent carcasses in the infective stage being brought into this country. There was evidence of two strains of infection, and animals which were immune to one strain were not necessarily immune to the other. All this was being inquired into by the Leishman Committee. The developments under the Tuberculosis Order had been satisfactory. Local authorities had taken it up energetically, and more cattle had been slaughtered than was anticipated. They had reason to believe that the worst had been dealt with first. The measures were only aimed at stamping out the actively infectious cases—cattle which fell into emaciation and cattle suffering from tuberculosis of the udder.

Mr. Runciman complained that the Ministry of Agriculture's new laboratory had been starved of money. They had hoped to recruit for it, not only those skilled in veterinary science, but some young men trained in human medicine.

Replying to the debate, Mr. Guinness said that Dr. Shaw's preventive for foot-and-mouth disease had been tested after he had been given fair facilities to assist in it. The farmers for whom the test was made were satisfied that the substance was not really a preventive.

Pensions.

On February 23rd Mr. Stephen Walsh moved that a Select Committee of the House of Commons be appointed to inquire into the general administration and practice of the Ministry of Pensions, with special reference, among other subjects, to final and erroneous awards and the advisability of appointing an independent court of medical appeal for the hearing of appeals against decisions of the entitlement and assessment appeals tribunals. He said that the Labour Government would have set up such an inquiry if it had been longer in office. Colonel Assheton Pownall moved an amendment declaring that such reopening of the settled principles of war pensions administration would be undesirable. He advocated a reduction in the number of medical boards.

Dr. Drummond Shiels condemned the removal of the Scottish Regional Headquarters from Edinburgh to London, on the ground of administrative efficiency and economy, and also on the analogy of Scottish autonomy in health, education, agriculture, etc. He asked for that proposal to be abandoned. He said that there was much dissatisfaction throughout the country with the administration of pensions. He condemned the rigidity of final awards, and said that no medical man could say that in twenty-six weeks, or a hundred and four weeks, a sick or injured man would be exactly and entirely restored to health. The principle of final awards was bad, and the ex-service man should be able to have his case reassessed at any time on his own application. The clause in the warrant dealing with the definition of "widow" was intended to be a safeguard against designing females marrying dying ex-service men, but was being used to deprive bona-fide widows and their children of their just due. If the disability from which an ex-soldier died could be shown, after much legal and medical consultation, to have possibly started before he married, there was no pension. That was not what the public would wish. Tuberculous ex-service men needed more care. He advocated the restoration of the special diet allowance and development of special industrial colonies. A select committee could do no harm, and it would satisfy public opinion.

Major Tryon, replying to the debate, said the most frequent complaints were from pensioned men, who said they wished to have no more medical boards and to have their pensions settled for life. The Ministry was prepared to deal with hard cases even beyond the seven years' limit. He saw no need for a select committee.

Mr. Walsh's resolution was rejected by 256 to 161.

Major Tryon, Minister of Pensions, told Major Cohen that in 1925 1,274 applications for sickness grants were made by widows or orphans, and 230 awards were made. He was issuing fuller information for the guidance of such applicants.

Tuberculosis in the Services.—In reply to Dr. Davies, Sir L. Worthington-Evans, Secretary for War, said the number of soldiers invalided from the army on account of pulmonary tuberculosis during 1923 was 218, during 1924 174, and during 1925 approximately 203. The number of cases not attributable to military service could not be stated, nor were figures available in regard to officers. In reply to Captain Fairfax, Mr. J. C. Davidson, Secretary of the Admiralty, said the ratio per 1,000 of men invalided from the navy for tuberculosis was 1.96 in 1922, 1.61 in 1923, 1.57 in 1924, and 2.29 in 1925. He was satisfied that all reasonable precautions were enforced to prevent the spread of this disease in the navy.

Tuberculin-tested Cows.—On February 22nd Dr. Fremantle asked the Minister of Agriculture if he could give figures showing the number of milch cattle subjected to the tuberculin test within the past year, and the number that had reacted. Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, said that he had been asked to reply, since there were very few official records of tuberculin tests other than those carried out for the purpose of the Milk (Special Regulations) Order. The number of cows tested for the purpose in 1924 was about 6,000, the majority of which had already passed the test on one or more previous occasions, and the number which reacted

in that year was 732. In 1925 the number tested and reacted was nearly 7,500, but he was not yet able to state the number of reactors.

Inquests after Operations.—Mr. Ellis Davies asked the Secretary of State for the Home Department what was the rule with regard to holding inquests on persons dying following an operation; whether inquests were confined to cases where the person died under the operation; and, if so, whether he would consider the desirability of providing, in view of the increased number of operations, that inquests should be held in all cases where a person died within, say, twenty-four hours of an operation. The Home Secretary replied that the circumstances in which it was obligatory upon a coroner to hold an inquest were indicated in Section 3 (1) of the Coroners Act, 1887. It was for the coroner concerned to decide whether the obligation applied to any particular case. Registrars of deaths had been advised by the Registrar-General that the attention of coroners should be called to any death which was shown by the certificate, or by information given, to have occurred under or in immediate connection with an operation, or before recovery from the effects of an anaesthetic, or after an operation necessitated by injury. Mr. Chamberlain informed Mr. Ellis Davies that information was not available giving the number of persons who died as a result of the following medical operations.

Insect Bites.—Mr. Neville Chamberlain, in reply to Mr. Herbert Williams, said the number of deaths in England and Wales from insect bites during 1925 was not available. He was advised that so far as could be ascertained the number of insects whose bites were deleterious to health was not increasing. In reply to Mr. Forrest, Mr. Chamberlain said he had received a suggestion that an Order should be made that all mosquito-infested ponds and stagnant waters should be deemed a common nuisance. He had no power to make such an Order. The question whether a pond was a nuisance was one to be determined by the court in any proceedings instituted by the local authority.

Coal-Gas Poisoning.—On February 23rd Sir Burton Chadwick, Parliamentary Secretary to the Board of Trade, informed Mr. Scurr that special provision was made for recording particulars of deaths attributed to poisoning by gas supplied for use by the public. During 1925, in the areas supplied by the three London gas companies, there were 27 such deaths, in which either an error of verdict or a verdict of accidental death was returned. He was aware that the use of water gas in towns' gas increased the proportion of carbon monoxide beyond that found in ordinary coal gas. The matter was reported upon in great detail in 1921 and the Government was watching the position most carefully and closely, but at present it was not considered that a further inquiry would be useful.

Training of Scottish Midwives.—On February 23rd Dr. Shiels asked the Secretary for Scotland, in view of the new regulations for the training of midwives coming into force in May of this year and the difficulty of meeting the full extra costs by increased fees to pupil nurses in the Scottish maternity hospitals, if he would try to secure for Scotland the same grants-in-aid as were promised for similar hospitals in England and Wales. Sir J. Gilmour, Secretary for Scotland, said he regretted that he was unable to take the action proposed. In view of the interest of members in the subject and the difficulty of dealing adequately with it by the method of question and answer, he had had an explanatory memorandum prepared which he was forwarding to Dr. Shiels, and which he would make available to members interested. At the same time, he fully appreciated the special difficulty with which the maternity hospitals might be faced, and was keeping it in view in considering the report of the departmental committee on the hospital position in Scotland.

Physique of Country Children.—In reply to Mr. Scurr, the Duchess of Atholl said the report of the Chief Medical Officer to the Board of Education, while stating that there was a substantial degree of physical impairment among rural children, added there were good grounds for believing that on the whole there was improvement, and in some areas great improvement. Perseverance was needed along the lines on which the Board had worked in the past, especially in replacement of unhealthy school buildings, rather than in any new departure of policy. The Minister for Education was considering whether he could usefully tender any advice to local authorities as regards the Chief Medical Officer's recommendation that children under 6 years of age in rural areas should be discouraged from attendance at school in certain circumstances.

Women in Industry.—Mr. McLean asked the Minister of Labour whether a number of women who were signing at Govan Employment Exchange had been called upon to undergo a medical examination by doctors at the exchange; what were the reasons for this and its purpose; whether the medical examination was compulsory; if not, whether women so called upon could refuse without prejudice to their claims for benefit, and under what statute the Ministry of Labour was acting. Sir Arthur Steel Maitland, Minister of Labour, said Mr. McLean referred to a trial which was being carried out with his consent by the Industrial Fatigue Research Board. Acceptance of the test, which was made by a woman doctor and a woman assistant, was voluntary, and did not affect benefit in any way. The proposal of the Board had been considered by a conference in Glasgow of women representatives of local employment committees, who thought that it would be useful. Mr. McLean asked whether women who went to the exchange were told that they would be examined by a woman doctor.

without being told that it was voluntary and were led to assume that if they did not undergo medical examination their claim to benefit would be prejudiced, and whether the Minister would withdraw his consent to the experiment. Sir A. Steel-Maitland said Mr. McLean must not infer that women were led to undergo examination without being told that it was voluntary. He would send to Govan to ensure that the fact should be made clear that the experiment was voluntary and unconnected with benefit. On the other hand, he said willingly that inquiries by the Fatigue Research Board were for the general good, and he would be very sorry to stop them. These answers were received with protests from the Labour benches, and Mr. McLean demanded to know by what right the Minister asked women to undergo, even voluntarily, this examination in a Government office set aside as an employment exchange. He asked leave to move the adjournment of the House to call attention to "the illegal action of the Minister of Labour in placing the employment exchanges at the service of the Industrial Fatigue Research Board, and in asking unemployed women to undergo medical examination in a manner which leads these women to believe they would lose benefit if they refused." The Speaker would not accept the motion, and informed Mr. McLean that if there had been any illegal action the courts were open.

Social Hygiene.—A memorandum on the imperial aspect of social hygiene, signed, among others, by Dr. Vernon Davies, Dr. Fremantle, Dr. Thomas Watts, Dr. Haden Guest, and Sir Richard Luce, has been considered by the Parliamentary Medical Committee and circulated to members of Parliament. It urges members to keep before the Government the importance of allocating a percentage of the East African Development Loan to enable adequate medical measures to be taken in areas where development work is undertaken; the importance of immediate action for the improvement of the medical service in the West Indies; the need for adequate measures against venereal disease there and in the Straits Settlements; and the need for contributions from the Imperial Government towards the cost of port clinics when the Colonial Governments cannot adequately provide these.

Notes in Brief.

The anomaly whereby graduates of the University of London who are women are debarred from the parliamentary franchise until they attain the age of 30 can, the Home Secretary informed Dr. Little, be considered by the proposed conference on the general question of the franchise of women.

Reports of medical officers of health for 1923 show that 14,367 houses in England and Wales were reported during that year as unfit for human habitation. The number condemned but still occupied cannot be given.

No conference has been called of countries within the British Empire to decide a united policy on anthrax. The question cannot come up for discussion at the next International Labour Conference.

Between November 1st, 1925, and February 17th, 1926, 172 outbreaks of foot-and-mouth disease were confirmed in England and Wales.

In England 35 institutions provide full-time courses of trade instruction for the blind, and in Wales 3. Eight institutions in England provide part-time courses for the blind.

During the last week of 1925, 206,800 persons, excluding casuals, were receiving relief in institutions under Poor Law authorities in England and Wales.

There were in Glasgow on April 1st, 1925, 1,517 blind persons, exclusive of 96 of school age. The present numbers probably exceed this total.

There were 1,048 fatal accidents in the coal and iron mines of the United Kingdom in 1925, and 1,134 persons lost their lives.

The Services.

HONORARY SURGEON TO THE KING.

COLONEL A. N. FLEMING, D.S.O., I.M.S., has been appointed Honorary Surgeon to the King, with effect from June 9th, 1925, in succession to Colonel P. Dee, I.M.S., who has retired.

PROMOTION EXAMINATIONS IN THE R.A.M.C.

THE following campaign has been selected for examinations of officers for promotion in 1927: For majors of the Royal Army Medical Corps (March and October examinations), the Great War on the Western Front from the beginning of the Somme battles, 1916, to the end of the operations at Cambrai in 1917, as covered by the official history of the war, *Medical Services—General History*, vol. ii.

Surgeon Vice-Admiral Sir Robert Hill, K.C.B., K.C.M.G., who retired from the post of Medical Director-General of the Navy in 1923, has been awarded the Good Service Pension of £100 a year, in succession to the late Inspector-General, Sir Henry Norbury, K.C.B.

Medical News.

THE anniversary dinner of the Medical Society of London will be held at the Grand Hotel, Trafalgar Square, W.C., on Friday, March 12th, at 7.30 p.m.

ON May 20th Professor A. V. Hill, Sc.D., F.R.S., will deliver the Croonian Lecture before the Royal Society on the laws of muscular motion.

THE ninth Silvanus Thompson Memorial Lecture will be delivered by Sir John Thomson-Walker, F.R.C.S., on radiology in urinary surgery, at a general meeting of the Röntgen Society to be held in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole Street, W.1, on Tuesday, March 30th.

THE Overseas Medical Officers' annual reunion dinner will be held at the Exchange Hotel, Liverpool, on Thursday, March 4th, at 7.30 p.m. Tickets, price 12s. 6d., may be obtained from the honorary secretary, Dr. John William Burns, 49, Rodney Street, Liverpool.

UNDER the auspices of the British Institute of Philosophical Studies a lecture will be delivered at the Royal Anthropological Institute, 52, Upper Bedford Place, W.C., on March 5th, at 5.30 p.m., by Professor T. H. Pear, on the concept of the unconscious.

THE Fellowship of Medicine announces that on March 4th, at 5 p.m., a lecture will be given on dyspepsia by Dr. E. P. Poulton, at 11, Chandos Street, W.1; this lecture is free to all members of the medical profession. Beginning on March 1st there will be a special series of demonstrations on the diagnosis and treatment of disease of the eye at the Royal Eye Hospital, Southwark, at 3 p.m. daily, for a fortnight. On Tuesdays and Thursdays throughout the month there will be a special course in bacteriology at the Westminster Hospital, and on March 8th the Chelsea Hospital for Women will commence a three weeks' daily course in gynaecology. From March 15th to 27th the Brompton Hospital will hold an all-day course in diseases of the chest; and beginning on March 16th the London School of Tropical Medicine will give a series of eight clinical demonstrations, extending over four consecutive weeks, on Tuesdays and Thursdays at 2 p.m. The Hampstead General Hospital is holding a special post-graduate course for practitioners from March 15th to 26th with daily sessions from 4.30 to 6 p.m. Copies of all syllabuses and of the general course programme may be had from the secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE King has granted to Dr. Arthur E. Scott, assistant medical officer in the Egyptian Ministry of Public Health, authority to wear the Insignia of the Fourth Class of the Order of Ismail conferred upon him by the King of Egypt in recognition of valuable services rendered.

DR. W. NORWOOD EAST has been appointed inspector of retreats under the Inebriates Acts.

THE January number of the *Kenya Medical Journal* is almost entirely taken up with a report on the mosquito breeding areas within the Nairobi municipality, compiled by Mr. V. G. L. van Someren and Dr. H. S. de Boer, medical officer of health for the district.

AT the University of Geneva 819 students have been enrolled this winter session. Of these 77 were Germans, 33 Poles, 23 French, 18 Russians, 17 Jugo-Slavs, 15 Hungarians, 13 Bulgarians, and 13 Egyptians.

THE late Dr. William Frank Colclough of Sidmouth has left estate valued at £32,174, with net personalty £26,439. In his will he stated that he desired his body to be sent to the pathological department of Guy's Hospital for a pathological investigation, because, when 9 years of age, he was trephined for middle meningeal haemorrhage, and he thought his skull and brain might be of interest for the museum. He bequeathed £50 to the pathological department for this purpose and £200 to the anatomical department. Sidmouth Cottage Hospital receives under his will £250, in addition to his microscope and instruments; his medical books he bequeathed to the Devon and Exeter Medico-Chirurgical Society.

MR. G. BUCKSTON BROWNE has presented to the Manchester University a bust of his father, Dr. Henry Browne, for many years a teacher in the Pine Street and Faulkner Street Royal School of Medicine, and physician to the Manchester Royal Infirmary.

THE infantile mortality in Holland was 5.7 per cent. in 1919-23, as compared with 12.5 per cent. in the previous fifteen years.

PROFESSOR LÜHE has been elected successor to Professor Wechoelmann as director of the department for skin diseases at the Rudolf-Virchow Hospital, Berlin.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS.

"**PUZZLED**" asks for suggestions for treatment in the following case: A lady, over 60 years of age, with both aortic and mitral stenosis, who has had many years, months ago, which necessitated increasing doses, in order to keep the pain under, as it was not considered advisable to submit the patient to operation. At least 4 grains of morphine hypodermically are now required in the twenty-four hours to give the patient any ease. Any attempt at reducing the dose or withdrawing the drug by substituting hyoscine, etc., is followed by an alarming condition of collapse. The use of strychnine raising the blood pressure the morphine in such

Some light on this question will be found in the report of the Departmental Committee on Morphine and Heroin Addiction, of which an account appears in our present issue (p. 391).

PAGET'S DISEASE.

DR. W. JENNER (Muswell Hill, N.10) writes in reply to "M.R.C.S.": I would suggest three months' treatment at Dr. Rollier's clinics at Leyrin. If that is impracticable, treatment at home by the quartz lamp would be an alternative. There is, however, no substitute for Alpine air. If "M.R.C.S." will communicate with me I will tell him of a visit recently made to these clinics.

SCARS.

DR. D. J. JACKSON (Catford) asks for advice with regard to the treatment of a young lady vaccinated four years ago on the arm, who has now four raised scirrhous masses.

Previous answers to a similar question appeared in the **JOURNAL** in 1924, vol. ii, pp. 1086, 1144, and 1184. Both fibrolysin injections and the use of a compound resorcin ointment have been found effective in removing the fibrous tissue.

"**D. M. B.**" asks for suggestions for the effective removal of scars of boils left on the neck and face.

INCOME TAX.

Renewal of Motor Car.

"**J. A. S.**" and "**A. M. I.**"—These correspondents have raised the same question of principle. They have each replaced a car by another of superior grade, etc., but, owing to the fall in motor prices during the past few years, at a cost to themselves less than the cost of replacing the car by one of similar grade. For instance, suppose it would have cost £200 (net) to replace an "O" car by another similar car, and actually £250 was expended to replace it by a better "A" car; can the whole of the £250 be allowed so long as it does not exceed the cost of the original "O" car?

In equity we are clear that the £250 should be allowed. The renewal cost basis is an alternative method to the depreciation or gradual writing down basis, and the professional man should not be made to suffer because at one time the latter basis could not be claimed by him. From the legal standpoint the relevant provision appears to be Rule 3 (g), applicable to Cases I and II, Schedule D: "no sum shall be deducted in respect of . . . any sum employed or intended to be employed as capital

in such . . . profession." The argument of the Revenue officers concerned seems to be that because the replacement involves an improvement in the standard of the car, to that extent there is a further employment of capital. In our view there was an employment of capital when the original car was purchased, and no doubt the transaction was treated, and so long as no further sum is invested in the equipment, then any exchange of one car for another does not imply a further employment of capital, even though a superior car be obtained by the exchange. Before proceeding to a formal appeal, it might be advisable for our correspondents to place the full facts before the Board of Inland Revenue (Somer House, W.C.2) and inquire whether they cannot authorize the officers to withdraw their objection to the allowances claimed.

"**T. G.**" bought a car in 1921 for £425, and explains that a similar car can be bought now for £182 10s. (What depreciation allowance etc., can he claim?)

For 1926-27 he can claim the depreciation allowance on the written-down value of the car; for instance, on the basis of a 20 per cent. allowance he could claim £85—that is, 20 per cent. on £174, the written-down value after four years' life of the car. The renewal allowance will be the net cost of replacement less (if it has been claimed) the total depreciation allowance given against past assessments. As to the question that might arise with the Revenue authorities if an improved car is bought, see the reply to "**J. A. S.**" and "**A. M. I.**" above.

LETTERS, NOTES, ETC.

ARSENIC IN AMERICAN APPLES.

DR. T. B. WATSON (Woldingham, Surrey) writes: In your issue of February 13th (p. 297) I read the paragraph "Contamination of apples by arsenic"—those imported from abroad, I presume. As I understand that the statement is in regard to American apples, and not those from British Columbia, I am strongly of the opinion that a word to this effect should have been inserted, as, naturally, the public will not discriminate between the two unless distinctly informed. The British Columbia fruit growers have been seriously suffering for some years from very hard times, so any deleterious statement regarding imported apples generally will most certainly have a very disastrous effect on them now, just when a better prospect and a brighter outlook had, apparently, set in.

CIVILIAN MOTOR AMBULANCES.

MESSRS. MANN, EGBERTON AND CO. of Norwich designed and built last year an ambulance body for Daimler Hire Limited, London. The ambulance is a most luxurious vehicle, having the appearance of a limousine car, and rendering the conveyance of patients over long distances most comfortable. The body is mounted on a 45-h.p. Daimler chassis. The interior is paneled with light and dark mahogany. The stretcher is carried on Carter's Rastilon spring-balanced frame, mounted on a swivelling carrier. The stretcher supports a Vi-spring mattress, and nickel-plated rail runs along the unprotected side of the bed. The ambulance is fitted with two chairs, which can easily be removed; with a tip-up basin, the water being supplied from a tank fitted to the central pillar of the front compartment of the car; and with cabinets for a thermos flask, glasses, and medical accessories. Below the ambulance a sloping gangway is shown which gives easy access, when pulled out, to the wide door at the rear. The charge for so much comfort does not seem excessively working out, we understand, at about 2s. a mile, with a minimum of 2 guineas.

Of a different type is the special ambulance body built for the Sheffield Joint Hospitals Council by Messrs. E. I. Pickford, and exhibited last year at the Commercial Vehicle Show. It is designed for the transportation of both lying down and sitting patients. The equipment can be rapidly adjusted, so that the ambulance can be used either for ten sitting patients or for lying, or for two lying and five sitting patients. Moreover, the whole of the equipment can be removed in a very short time for the purpose of cleaning and disinfection. The ambulance seen very suitable for industrial districts, where many casualties may require attention at the same time, for pit accidents, or for railway disasters.

TRANSFERABLE NUMBER PLATES FOR MOTOR CARS.

DR. J. B. GARMAN (Great Barr, near Birmingham) writes to call attention to the hardship inflicted on a medical practitioner who hires a motor car or taking out a second licence during repair to his own car. He suggests that doctors should be allowed to pay for one professional transferable number plate, analogous to those issued to the motor trade, and hopes that the Medical Parliamentary Committee may interest itself in the matter.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 45, 46, 47, 53, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 71.

A Clinical Lecture ON DIAGNOSIS BY PYELOGRAPHY.*

(With Special Plate.)

BY

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PYELOGRAPHY (*πύελος*, the pelvis; *γραφή*, a delineation) is the radiographic outline of the hollow part of the kidney, after it has been distended by means of a ureter catheter, with a solution opaque to x rays. Its field of usefulness has been widened to such a degree that its aid must be often invoked if an exact diagnosis is to be arrived at, not only for numerous lesions of the urinary tract, but also in some obscure abdominal lesions.

Pyelography dates from 1906, when Voelcker and von Lichtenberg first demonstrated the outlines of the renal pelvis and calyces. For several years, however, the value of this diagnostic aid was unrecognized, and its popularization has been largely due to the outstanding work of W. F. Braasch of the Mayo Clinic. Perhaps more difficult than the making of a pyelogram is its interpretation, and it is for our knowledge of the interpretation that urologists are so particularly indebted to Braasch. His book on the subject is monumental.

It is now possible to diagnose by pyelography conditions such as pyelitis, pyelonephritis, hydronephrosis, renal ptosis, tubercle, and growth, together with congenital cystic kidneys and ureteral stricture. It is also valuable as a means of diagnosis in essential haematuria, in renal and ureteral calculus, and in cases of obscure extra-urinary tumour, or in which unusual shadows are seen on radiography.

The principles in the interpretation of typical conditions which it is possible to recognize by pyelography will first be given; later, brief descriptions of the history of representative clinical cases will be given, each case being illustrated by its pyelogram, and in some instances accompanied by a photograph of the pathological specimen removed at operation.

A good x-ray plant is indispensable, and the best results are obtained when the combined measures of ureter catheterization, followed by radiography, can be carried out on the same couch without moving the patient. Voelcker used a solution of collargol which gave a good shadow, but occasionally it damaged the kidneys; therefore thorium nitrate was substituted, but this sometimes had the same deleterious effect, though to a lesser degree. Sodium bromide, 25 per cent. solution, was found by Weld to give an excellent shadow; it was cheap, and did not cause any real damage. It, however, in some cases caused an acute temporary irritation of the mucous membrane of the urinary tract. I now use a 13½ per cent. solution of sodium iodide, as recommended by Cameron; I have never known it cause inconvenience, either local or general, to the patient, and it is easily sterilized.

The sterilized solution can be run into the renal pelvis either by gravity or by means of a syringe. It must be done carefully, so as to avoid overdistension with the resultant renal colic; at the same time sufficient distension must be achieved, otherwise an incompletely filled pelvis or calyces may give a misleading picture. Wherever possible ureters should be catheterized without a general anaesthetic; a pyelogram should never be made when the patient is unconscious, for to do so invites disaster by rupturing the renal pelvis from overdistension.

Anatomical Points.

To appreciate a pyelogram the gross elementary anatomy of the kidney must be borne in mind—namely, that the kidney comprises solid and hollow portions.

The *hollow part* of the kidney consists of the funnel-shaped pelvis, into which drain the cylindrical-shaped

calyces. The calyces are usually grouped into three main divisions, named upper, middle, and lower (see Fig. 15, left side). Into each main calyx drain the minor calyces, which vary in number. Although this is the usual grouping of the calyces, there are many variations of the normal which require experience for their recognition. For variations of the normal see Figs. 6, 10, and 12 (all left side), and 13 (right side).

The *solid part* of the kidney is made up of the surrounding outer cortical portion, enclosing an inner medullary part. The cortical portion does not immediately concern us. The medullary part is an aggregation of cone-shaped masses, each mass having its base towards the cortex and each apex projecting into a calyx (see Fig. 1).

The *normal position* of the kidney must be kept in mind: it roughly corresponds to the last dorsal and upper three lumbar vertebrae.

The *size* of the kidney can be approximately gauged by building an imaginary solid portion around the renal pelvis and calyces, as demonstrated on the pyelogram.

Interpretation of Pyelograms.

The interpretation of the pyelogram depends primarily on understanding (1) that the solid medullary apex projects into the outer end of the tube-shaped calyx (see Fig. 9), and (2) that if this tube-shaped calyx is distended with fluid such fluid surrounds the solid medullary apex which is projecting into that calyx (see Fig. 1).

Normal Pyelogram.—Fig. 5 is reproduced from a normal pyelogram. If the individual calyces are observed they will be seen to have cup-shaped outer ends; these show that the sodium iodide has surrounded the normally projecting apex of the solid renal medullary cone. Normal pyelograms will be seen also in Figs. 7, 10, and 13 (all left side).

Pyelonephritis and Hydronephrosis.—Compare the diagrams (Figs. 1 and 2). Fig. 4 is from an abnormal pyelogram, where there has been absorption of the solid apex of the renal pyramids. It will be seen that the outer ends of the calyces (instead of being cup-shaped as in the normal) are “knobbed.” This alteration is due to the absence of a projecting solid apex (see Fig. 2). Such rounding is indicative of inflammation, and indicates pyelonephritis with destruction of some portion of the solid renal tissue; an advanced stage of this “knobbing” is seen in hydronephrosis (see Fig. 6).

Ptosis of Kidneys.—Patients suffering from renal ptosis commonly complain of vague, long-standing abdominal pains. In these chronic cases a combination of the separate results of pyelography and a barium enema will make the diagnosis of general visceroptosis. Kinks and twists in the ureter are common in renal ptosis (see Fig. 13). Their discovery by pyelography may or may not be of moment; it entirely depends on the presence of “cupping” or “knobbing” in the minor calyces. “Cupping” indicates medical treatment, for there is no back pressure; “knobbing” means back pressure due to obstruction, and nephroproxy may be required to straighten out the ureter and ensure a free onward flow of the urine.

Congenital Cystic Kidneys.—In a congenital cystic kidney there is a general enlargement of the organ, which is shared by the hollow part—that is, the pelvis and calyces (see Fig. 5). The knowledge is used in diagnosing this condition by pyelography. The disease is always bilateral, but one kidney is in a more advanced stage of disease than the other—that is, one is usually the larger. When only one enlarged kidney is felt, it might be mistaken for growth or hydronephrosis; and the surgical removal of a congenital cystic kidney is usually fatal from uraemia. Recently a patient was sent to me with two enormous tumours occupying the whole abdomen. It was thought to be possibly a case of malignant ovarian cysts, and operation was desired. Fortunately pyelography provided a definite diagnosis of congenital cystic kidneys, and a useless risky laparotomy was avoided.

Tuberculosis.—The characteristic tendency of tubercle anywhere in the body is for it to undergo caseation and disintegration, when the contents are discharged, thus leaving a cavity. In the case of a disintegrating kidney focus the tuberculous debris escapes into the nearest calyx and is voided down the ureter with the urine. Therefore,

* Given to the students at the Royal Victoria Infirmary, Newcastle-on-Tyne, on December 9th, 1925.

when making a pyelogram, the sodium iodide injected through the ureteral catheter escapes from the calyx into the disintegrated tuberculous cavity situated in the solid part of the kidney; the sodium iodide has escaped the normal confines of the hollow calyx and has "run amok" in the solid part of the kidney. A tuberculous pyelogram shows, therefore, a blurring in connexion with one or more calyces, according to the extent of the tuberculous disintegration (see Fig. 8).

Hypernephroma.—A hypernephroma usually invades one or other pole of the kidney when it involves at least one main calyx. Depending on the extent of the lesion, the resultant pyelogram may show one or two normal calyces only, while the third main calyx is absent; and the pyelogram has the appearance as if the calyx had been amputated (see Fig. 10).

Essential Haematuria.—From time to time a surgeon is asked to see a case of painless haematuria. Where the physical signs, apart from the non-purulent haematuria, are negative, the case may be one of considerable anxiety. Cystoscopy may disclose a normal bladder, also evidence from which kidney the patient is bleeding. Among other things, the bleeding may proceed from a malignant kidney, or it may be a case of essential haematuria. The fact that the patient is bleeding from a kidney does not necessarily demand exploration or nephrectomy, for pyelography will help in a diagnosis. If the urinary tract x-ray shadows and pyelogram are normal; if the ureteral catheter end is in the renal pelvis of the affected side and the urine withdrawn contains blood; if the blood pressure is normal; if the urine is free from pus and renal casts; and if the painless haematuria has been continuing for some time, the diagnosis of essential haematuria is probably correct. Such a diagnosis can only be arrived at by pyelography. If the pyelogram is at all suspicious it should be repeated after an interval, when a careful comparison of the two pictures should be made.

Urinary Calculus.—A uric acid calculus which may not throw an x-ray shadow will sometimes do so after distending the renal pelvis and allowing part of the opaque solution to drain away; some of the solution may adhere to the calculus and cast a shadow.

Shadows near the Line of the Ureter.—Extraureteral shadows can be differentiated by ureterography during pyelography, owing to the presence of some sodium iodide in the lumen of the ureter.

ILLUSTRATIVE CLINICAL CASES.

CASE I.—*Pyelonephritis.*

M. W., aged 30, had right flank pain for ten years and occasionally it was accompanied by vomiting. Nine months earlier the appendix had been removed without giving relief to symptoms. Physical examination showed a tender spot behind the right kidney and the urine contained pus cells microscopically.

Pyelography (see Fig. 4) showed "knobbing" of the calyces of the right kidney without dilatation of the pelvis or calyces, enabling a diagnosis of chronic pyelonephritis to be made. A bacteriological examination of the urine gave a pure culture of staphylococcus, and vaccine treatment was recommended.

CASE II.—*Hydronephrosis.*

Annie L., aged 15, for some years had attacks of right-sided renal colic, associated with increased frequency of micturition. On one occasion only had there been haematuria. Her urine contained pus and albumin. There was tenderness behind the right kidney, but neither kidney was palpable. Nothing abnormal was disclosed in the rest of the abdomen or on rectal examination.

The double pyelogram (see Fig. 6) shows a normal left renal pelvis and calyces, and an enlargement of this (see Fig. 3) is used as my example of a normal pyelogram. It also shows marked hydronephrosis on the right side, both pelvis and calyces being involved. If it is carefully observed the grouping into the three typical main calyces can be seen—namely, upper, middle, and lower; further, there is an advanced degree of "knobbing" of the minor calyces, due to the atrophy of the solid part of the renal tissue. This is a further stage of pyelonephritis (see Fig. 4). If the photograph of the cut surface of the removed kidney (see Fig. 7) be compared with the pyelogram the points mentioned can be confirmed—namely, the dilatation of the pelvis and calyces; the arrangement of the three main calyces (each marked by a short piece of wire); and the marked thinning of the solid part of the renal tissue, with the disappearance of the apex of all renal pyramids. The hydronephrosis was due to a stricture at the outlet of the renal pelvis. The patient made a good recovery after nephrectomy.

CASE III.—*Congenital Cystic Kidneys.*

H. S., male, aged 23, for some months had been suffering from typical attacks of right-sided renal colic. There had been polyuria

with slight haematuria. Recently he had had rigors, intense thirst, frontal headaches on awakening in the morning, and lost weight. On examination both kidneys were enlarged, more and tuberoso, especially the left-sided one. The urine was of specific gravity and contained pus.

Pyelography (see Fig. 5) showed general uniform enlargement of the pelvis and calyces of both kidneys, particularly the right. The clear definition of the pelvis and calyces outlines exclude tuberculosis, growth, and hydronephrosis, and confirmed diagnosis of congenital cystic kidneys.

CASE IV.—*Example of Tuberculous Kidney.*

Mary K., aged 20, for some years had occasional pain below the left kidney. Six months prior to admission she began to have mild attacks of renal colic associated with strangury, but with haematuria on one occasion only. She had lost weight and was troubled with night sweats. Examination disclosed tenderness and rigidity over the left kidney, but neither kidney could be palpated. On vaginal examination the thickened terminal portion of the left ureter could be felt in the left lateral fornix. Cystoscopy showed ulceration around the left ureteric orifice, which masked the opening so much that its catheterization was a matter of considerable difficulty.

Pyelography showed a typical tuberculous left kidney: a definite diagnosis of tubercle limited to the upper half of the kidney was made, and a nephrectomy was done on February 12th, 1925. The patient made an uninterrupted recovery. The pyelogram (see Fig. 8) shows a normal main lower calyx; the upper and middle calyces, however, have lost their definition and have a "huffy" appearance. This made possible the diagnosis of tubercle limited to the upper half of the kidney. On reference to the cut surface of the removed specimen (see Fig. 9) the tuberculous ulceration and cavitation is seen in the upper half of the kidney and is particularly in communication with the upper main calyx. The lower normal main calyx can be seen, and into it projects the normal apex of a medullary cone.

CASE V.—*Example of Malignant Growth.*

T. G., aged 59, male. Six weeks before admission there was profuse painless haematuria immediately after having lifted a heavy weight; there were no clots. This painless bleeding was the only symptom; it was intermittent, and occurred on six occasions prior to admission. Except for this the patient was in excellent health in every way. On admission his urine contained bright red blood, no other abnormal physical sign could be elicited, but cystoscopy showed blood trickling out of the right ureteric orifice.

Pyelography disclosed a normal left-sided pyelogram with an abnormal right-sided one. A definite diagnosis of malignant right kidney was made and a nephrectomy was done. The patient made an uninterrupted recovery and has now returned to his work as a coal miner. The abnormal pyelogram (see Fig. 10) is hooked at its upper end with a large oval shadow at the extremity, the oval shadow corresponding to a calyx. The absence of the other calyces (they had been cut off) with the renal distortion sufficed to convince me that I was dealing with a hypernephroma which had destroyed at least half of the kidney. The cut surface of the specimen removed at operation (see Fig. 11) shows that the lower two-thirds of the kidney has been replaced by growth, and that the dilated renal pelvis was also occupied by malignant growth. The injected sodium iodide had tracked up between the growth and the upper margin of the pelvis, to reach the normal calyx in the upper pole of the kidney.

Microscopically, Professor Stuart McDonald reports: "This is typical hypernephroma, portions of which are distinctly adenomatous. There is extensive necrosis of the tumour growth, which is of definite infiltrating type."

CASE VI.—*Example of Abdominal Tumour.*

Mrs. W., aged 42, was sent to me for pain in her left side which limited full inspiration; she had had haematuria of slight degree, but without frequency. A large tumour occupied her left ilio-costal space, which was justifiably taken to be an enlarged kidney. Her bowels were regular and she was not losing weight. A large tumour could be felt in the upper part of the space; it was dull on percussion, and this was posteriorly to the middle line. The urine contained pus and blood; the blood examination showed a lymphocyte leucocytosis. Cystoscopy revealed an acute cystitis.

Pyelography (see Fig. 12) demonstrated that the left kidney had been displaced downwards so that the hilum of the organ, instead of pointing medially, was pointing towards the iliac fossa. The upper part of the ureter forms an acute angle with the lower portion. If an imaginary line be drawn above the shadow thrown by the renal pelvis and upper part of the ureter, the size of the splenic tumour can be gauged.

CASE VII.—*Ureter Kink.*

Janet R., aged 30, complained of haematuria on a single occasion, followed by acute pain behind the right kidney, but without increased frequency of micturition. When seen there were no abnormal physical signs. Cystoscopy showed a normal bladder.

Pyelography showed a psoed kidney with a knot in the upper part of the ureter (see Fig. 13). The renal pelvis and calyces were normal, which is a definite indication that there was no obstruction to the onward flow of urine. The haematuria remained unaccounted for. A year later the patient was well and had had no return of her symptoms.

Some of the pyelograms reproduced with this paper were made in a private hospital. I am indebted for the others to the physician in charge of the radiography department of the Royal Victoria Infirmary, Newcastle-on-Tyne.

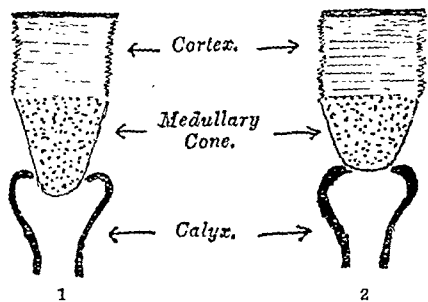


FIG. 1.—Diagram of section of normal kidney. Note the conical apex projecting into the calyx, producing the normal "cupping" of the calyx in a pyelogram.

FIG. 2.—Diagram representing pyelonephritis. Note the disappearance of the conical apex, thereby producing "knobbing" of the calyx in a pyelogram.

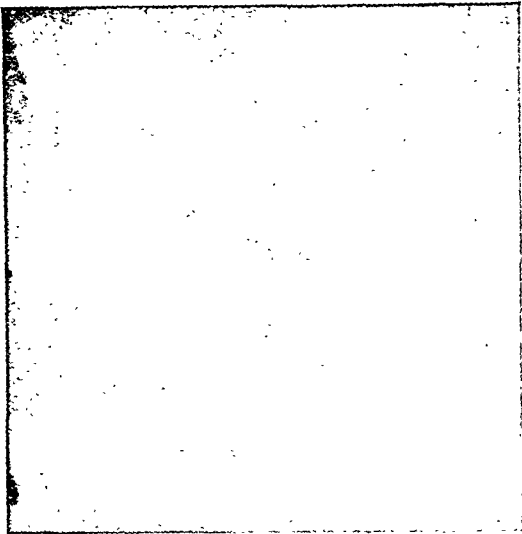


FIG. 3.—Normal Pyelogram. To illustrate the "cupping" on the minor calyces.

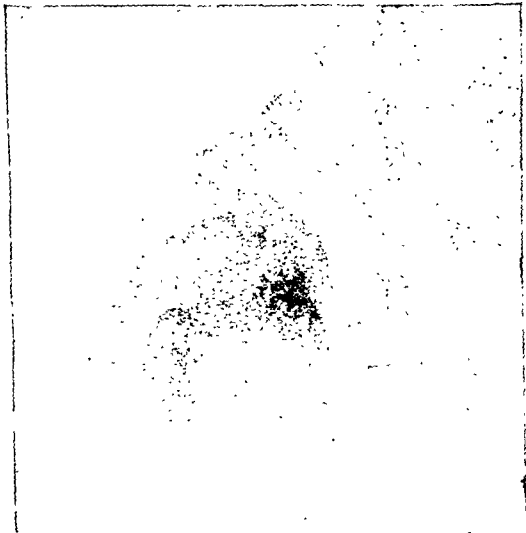


FIG. 4.—Pyelonephritis Pyelogram. Shows the "knobbing" of the minor calyces due to absorption of the renal pyramid apices.



FIG. 5.—Congenital Cystic Kidneys (double). Note each renal pelvis and each calyx are proportionately enlarged. The right kidney is the larger tumour. The size of each kidney can be gauged by filling in an imaginary solid portion around the pyelogram.



FIG. 6.—Hydronephrotic Kidney. See dilatation of the three main calyces, and calyces. Fig. 7 is the specimen.

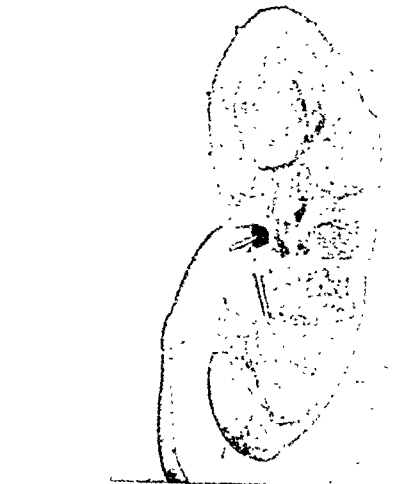


FIG. 7.—Hydronephrotic Kidney. See thinning of the solid pyramid apices; stricture of the p calyces are each indicated by pieces of wire. (cf. fig. 6.)

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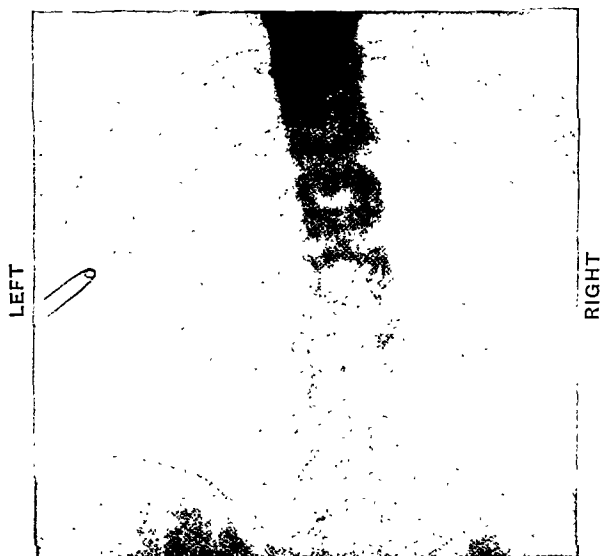


FIG. 8.—Tuberculous Kidney Pyelogram. Note lack of all definition of the upper and middle main calyces; the lower main calyx is normal. Fig. 9 is the specimen relating to the pyelogram.

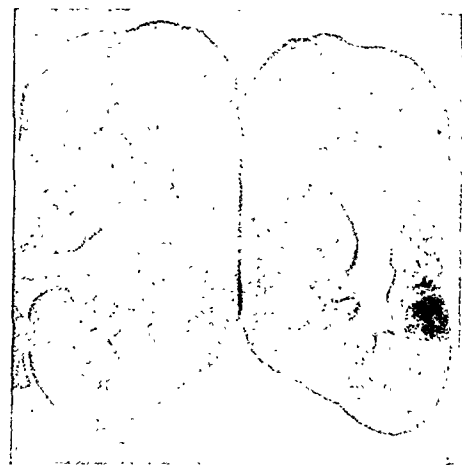


FIG. 9.—Tuberculous Kidney. Note tuberculous ulceration and cavitation in upper half of the kidney, also lack of outline of the upper and middle calyces. Note also normal lower main calyx, with a pyramid apex projecting into a calyx. (Cf. Fig. 8.)

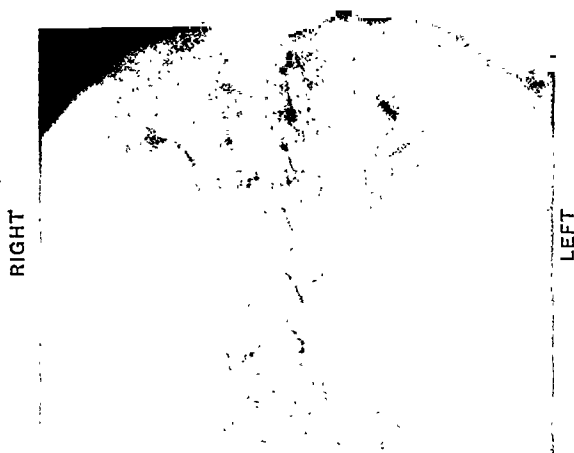


FIG. 10.—Malignant Kidney Pyelogram. Note normal left pyelogram with filling defect right side, where only one main calyx can be recognized, and that indistinctly. Fig. 11 relates to the removed specimen.



FIG. 11.—Malignant Kidney Section. The upper main calyx is the only one to be seen; the others have been "amputated" by growth. Note growth in renal pelvis, also in lower two-thirds of the kidney. (Cf. Fig. 10.)

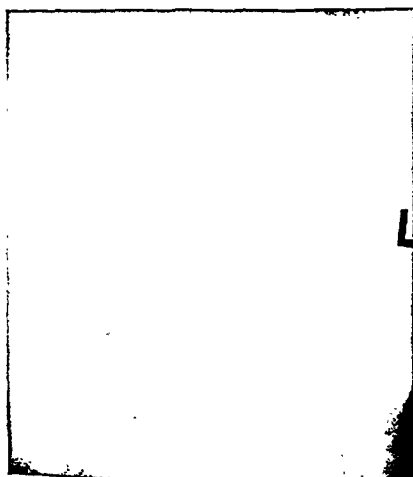


FIG. 12.—Kidney displaced by Splenic Tumour. There is an accumulation of the ureter, the horizontal part of which, together with the kidney, is displaced downwards by a splenic tumour. The convexity of the kidney is displaced towards the left iliac fossa.

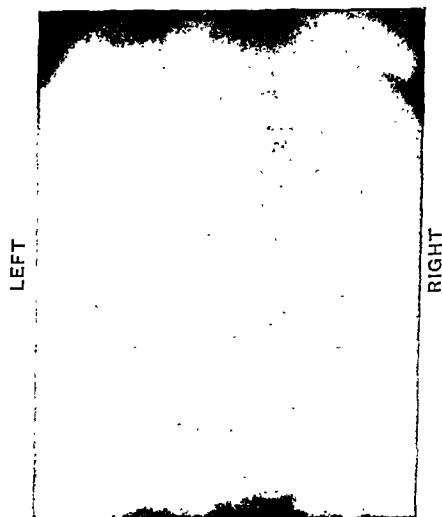


FIG. 13.—Ureter Knot. Shows a knot in the upper end of the ureter in a ptosed kidney. There is no "knobbing" of the calyces—that is, there is no obstruction to the urine flow.

SPLENIC ANAEMIA OF YOUNG CHILDREN TREATED BY SPLENECTOMY.

BY

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THE ROYAL MANCHESTER CHILDREN'S HOSPITAL.

We wish to draw attention to the possibility of treating cases of splenic anaemia in young children by the removal of the spleen, and to record three cases treated by splenectomy with successful results.

Splenic anaemia of young children, or, as it is sometimes called, von Jaksch's anaemia, is a disease which occurs during the first three years of life and is characterized by marked anaemia, great enlargement of the spleen, and much general debility. The disease is essentially chronic and continues for many months, or even years. The prognosis in advanced cases is unfavourable, though some do undoubtedly improve and recover after prolonged treatment. Many are carried off by an intercurrent disease, such as bronchopneumonia, to which they are very liable.

Splenic anaemia of young children has no relation to the splenic anaemia of adults, and it is probably a disease *sui generis*, though the exact cause is not yet known. Some observers are of opinion that it is an extreme form of rickets with anaemia. Most cases of splenic anaemia of young children do show some signs of rickets, but this is not always well marked. The disease may occur in twins; of this we have seen two instances.

The symptoms are insidious, accompanied by indigestion, and it is impossible to say exactly when the disease actually begins, but the child gradually becomes pale and wasted and the enlarged spleen is then detected. The pallor is marked and the colour is often pale lemon. The red blood corpuscles are much diminished in number in a severe case and may fall to just over 1,000,000 per c.mm.; they vary in size and shape and there are many nucleated red corpuscles; the haemoglobin is much reduced. There is a moderate increase in the white cells, with a preponderance of lymphocytes and a few myelocytes. In a severe case the spleen reaches down to the pelvis and stretches across the middle line; it is hard and the notch is well felt. The liver is increased in size. The lymphatic glands are not enlarged. There is generally pyrexia, mild but prolonged.

TREATMENT.

The treatment is on general lines, with proper feeding combined with arsenic and iron. X-ray treatment has been of little value in our hands and has seldom influenced the course of the disease or the size of the spleen. Owing to the uncertain results obtained with medical treatment in advanced cases, and the fact that these cases often do not improve but rather tend to grow worse, we decided to try the effect of removal of the spleen, and have performed this operation on three occasions during the past year. Splenectomy was only undertaken after medical treatment had failed to give relief and after careful consideration.

It seems that the spleen in these cases is a diseased organ, and that the child will be better without it if it can be removed with a reasonable degree of safety. Splenectomy is now recognized as a definite surgical procedure, and the operation has in recent years largely increased its scope. Until fairly recently surgical removal of the spleen was limited to cases of injury, torsion, or where it was the seat of a new growth; now, however, it is performed in certain cases of anaemia, cirrhosis, and acholuric jaundice, and appears to give excellent results in suitable cases.

It is well established that the spleen is not essential for the carrying on of life, and little harm seems to come to the

individual after its removal. In those cases of splenomegaly the etiology of which is at present unknown, splenectomy appears to be a procedure of distinct clinical value. Before undertaking it every effort must be made by the careful preparation of the patient to reduce the risk of the operation as far as possible. Owing to the extreme degree of anaemia from which these patients may be suffering, their condition can be much improved and the blood count correspondingly raised by preliminary transfusions of blood. In addition, when the spleen is considerably enlarged, the re-transfusion of the blood it contains, after the spleen has been removed, is a procedure worthy of consideration. The blood so obtained is unaltered in character, and there appears to be little risk in this simple method of auto-infusion. Further, the application of a massive dose of x rays over the spleen shortly before operation, as advised by Moynihan,¹ may lead to shrinkage of the organ and render the operation more simple to carry out. In one of our cases the reduction in the size of the spleen under the influence of x rays was marked.

In performing splenectomy a left-sided paramedian incision, with outward displacement of the rectus muscle, was used, and this gave ready access to the organ. Adhesions were troublesome in two of the cases, but with careful clamping the spleen was removed without difficulty and with very little haemorrhage. The absence of post-operative shock in such young children was very noticeable and was largely due to the careful preliminary treatment of the patients. The following are the notes of the cases.

CASE I.

A boy, aged 1 year and 11 months, was sent to the hospital from an infant welfare clinic on account of anaemia. The child had been breast-fed for the normal time, but since the age of 1 year he had not been well. For the five months previous to coming to hospital there had been difficulty with his feeding, some vomiting, and a marked loss of weight. There had been no cough, no abdominal pain, and the bowels were regular. The spleen was very large, reaching well down into the pelvis and across the middle line of the abdomen. It was hard and the notch was easily palpated. The child was of a pale lemon colour and the blood count was:

Red blood corpuscles	...	...	...	1,360,000
White blood corpuscles	...	...	...	31,200
Polymorphonuclears...	...	...	...	26 per cent.
Lymphocytes	...	...	...	71 "
Haemoglobin	...	...	...	30 "

A fair number of nucleated red corpuscles and a few myelocytes were seen. The blood platelets were increased. The Wassermann reaction was negative and there were no haemorrhages.

He was admitted to hospital on April 22nd, 1925, where he was kept for a month. He was properly dieted, had a course of arsenic and iron, and also x-ray treatment to the spleen. He improved only slightly and was sent home, where the same treatment was continued. He became rather worse, and was readmitted to hospital on June 17th, 1925. The spleen was causing trouble because of its great bulk, and the child could hardly bend forward. He seemed to us as likely not to recover, and it was decided to remove the spleen. The blood count at this time was practically the same as when admitted to hospital on the first occasion. He was slightly rickety.

On July 2nd, as the father proved to be a suitable donor, the child was given a transfusion of 40 c.cm. of blood into the external jugular vein. Blood examination a week later showed that the red blood corpuscles numbered 1,420,000 per cubic millimetre. Two subsequent transfusions from the father of 60 c.cm. each were given on July 11th and July 17th, and the blood count showed that the red cells had risen to two and a half millions. On July 19th he received a massive dose of x rays over the enlarged spleen.

On July 20th splenectomy was carried out. The spleen, which appeared to occupy about half the abdomen, was easily delivered and adhesions caused little trouble. The pedicle was divided between clamps and the organ handed to an assistant. By squeezing the organ 40 c.cm. of blood were obtained from the splenic vessels, and this was run into citrate solution and returned into the external jugular vein of the child. There was no free fluid in the abdominal cavity, and the liver, which was slightly enlarged, appeared smooth and normal in colour and consistence.

The spleen, after removal, weighed 540 grams (18 oz.), and it was then devoid of blood. The length was 15 cm. and the width 10 cm. It had preserved its normal form; it was fairly firm and

- 1 Moynihan: BRITISH MEDICAL JOURNAL, July 11th, 1925, p. 47.
2 Von Jaksch: *Prag. med. Woch.*, 1890, xv.
3 Aschenheim and Benjamin: *Deut. Arch. f. klin. Med.*, 1912, C.V. 470.
4 Thursfield: *Diseases of Children* (Garrod, Batten, and Thursfield).
5 Rolleston: BRITISH MEDICAL JOURNAL, December 12th, 1925, p. 1101.
6 Stillman: *Amer. Journ. Med. Sci.*, vol. ccliii, 1917.

OSTEOMALACIA IN KASHMIR.

BY

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OSTEOMALACIA is extremely common in Kashmir. I was for nearly three years medical superintendent of the Maharajah's Zenana Hospital in Srinagar, the chief city, and out of twenty-nine Caesarean sections performed by me during my first year there at least twenty-five were due to pelvic deformity caused by osteomalacia. Of the total 120 midwifery cases admitted to hospital in the year none presented themselves until they had had all the advice available at home, and, with the exception of two, after rupture of the membranes. The number of Caesarean operations increases yearly in Srinagar as the women gain confidence in the hospitals, and their relations take a larger proportion of them for relief rather than allow them to die at home, which was formerly their fate.

Almost all Kashmiri women who have borne children are affected in some degree, with the exception of the *manji* (boatman) class. Dr. Ernest Neve, who has worked in Kashmir for over twenty-five years, tells me that he does not remember having seen a case of osteomalacia among the boat women, and I too have never seen a case among them. These women live in the open air on the large boats used for carrying rice, wood, etc., on the great Kashmir highway, the Jhelum river; and besides the men, women, and children, fowls, goats, and sometimes a cow with her calf, are on board. These women work hard, and feed with the men. They are too poor to cook their food much, and eat raw cucumber, tomatoes, etc., with their rice, which they husk by hand. They pole and paddle the boats like the men, and are out in all weathers. Their milk supply is provided by their goat or cow, and one may be fairly certain it is not boiled, but consumed as soon as drawn. The disease is unknown among men in any part of the world, and Kashmir is no exception.

The ordinary Kashmiri woman who lives on land, especially the city dwellers, have the disease—sometimes slightly, when there is tenderness of the pelvic bones and the antero-posterior curve of the sacrum is exaggerated, or so acutely that the sufferers can only crawl by means of their arms and legs, the legs being flexed at the knees and the knees drawn up to the shoulders. The worst cases are seen in the houses of the wealthy, who keep their women in seclusion, and among those of the poorer classes who do the same.

There is a marked seasonal incidence; the disease is worse in winter and early spring, during and after confinement to the house in the cold weather, and improves markedly during summer and autumn. A common history is that of confinement to the house at 8 or 9 years of age, marriage at 10 or 11, menstruation at 12 or 13, and close confinement in the husband's house until after the first child is born; in the most high-class families the women hardly leave the house till they die. The ordinary woman has more freedom, and when she has borne two or three children she goes out with other women.

Anaemia and debility characterize pregnancy, with vague pains in the ribs, back, and legs, increasing until walking is difficult or impossible at term. The earliest pains complained of are in the lower ribs, about the centre of the bone, and tenderness on vaginal examination may be the first complaint to arouse suspicion of the disease; the pain on pressure is found to be at some spot on the bony wall, not at the symphysis. Backache is a constant complaint, as it is with many pregnant women, but the typical pelvic deformity eventually produced in an acute case which has been going on for years is the tri-radiate pelvis, the pubic bones being pressed together and giving the familiar rostrated appearance—the acetabula pressed in towards one another, the sacrum tilted forward, and the coccyx bent forward: the sacral curve is then more concave than normal, and the foetus at full term may rest on a bony

shelf formed by the crumpled-up bones of the maternal pelvis. The following are sample measurements:

Mohammedan, aged 30; purdah, married two years before menstruation began: Interspino 16 cm., intercrystal 19 cm., intertrochanteric 18 cm., external conjugate 15 cm., bi-ischial 5 cm.

A woman aged 28; purdah on marriage two years before menstruation began; her mother also suffered from osteomalacia: Interspino 17½ cm., intercrystal 22 cm., intertrochanteric 23½ cm., external conjugate 17 cm., bi-ischial 4 cm.

In a few of our cases it was difficult, if not impossible, to reach the os or rupture the membranes; in others the pubic rami were so close together that a finger could with difficulty be inserted sideways. Tetany is a common accompaniment of osteomalacia; women are brought to the hospital with their thumbs flexed in the palms of their hands and the whole hand flexed at the wrist. It is not a hysterical manifestation, as experience shows its close connexion with osteomalacia and probably with thyroid and parathyroid deficiency. In many of these cases the thyroid is smaller than normal, and the neck seems wasted on inspection.

Toothache is a common complaint, and pyorrhoea is often present; but the most obvious symptoms are the pains in the bones, in the ribs, pelvis, and the shafts of the long bones, especially the tibia and ulna, which are tender on pressure about the centre. No tenderness or change is to be observed at the joints. The epiphyseal lines seem to me quite unaffected, thus differentiating the condition from rickets.

There may be improvement after confinement, and when lactation ceases. Lactation only ceases when the child dies, otherwise it is continued for from two to four years, and the osteomalacia becomes more acute when the woman again becomes pregnant. Many when pregnant are suckling one or two previous children. A man in Srinagar once said to me: "The reason I am so small is that when I was a baby my elder brother took all my mother's milk because he was a strong boy; and then my mother had another baby and gave her milk to him, so I got none"—a common history.

The acute pains are usually better after delivery, but recur in the second and later pregnancies. The third confinement results in more crippling, and by the fifth month the patient cannot sit or stand or walk without severe pain. She gets up from the ground or from a chair by pressing her hands on her legs as she straightens them and the feet are turned in to keep the balance. This is the earliest symptom noticeable in the street in walking behind such a woman, who looks as if she was going to fall over her big toes, and the gait has a well marked waddling character. Many suffer from phthisis and tuberculous glands, and many of the men of the families in which there is osteomalacia suffer from tuberculosis. It is too constant a relationship to be mere chance.

Anaemia is always present, and unfortunately is admired, as a fair complexion is considered a sign of being well bred. The Kashmiri of pure Aryan parentage is fair, and some of the men carry umbrellas to guard their complexions from the sun. The pale hue so much sought after is increased by the seclusion of the women, not only from the outside world but from sun and air. The better-class women when they go out wear, from the age of 10, a "burka"—a cloak covering the head and body, with two lattice-work holes for the eyes.

Palpitation and breathlessness, the usual accompaniments of anaemia, are present, and a dilated heart is not uncommon. In a well marked case the pulse is always rapid, and may rise to 120 or 140 on the least exertion.

The temperature is not raised. Oral sepsis, indigestion, and intestinal worms are common.

Some apparently impossible midwifery cases terminate spontaneously after several days in labour—provided, of course, the deformity is not such as to prevent the head engaging in the superior strait of the pelvis; the pressure of the head may be sufficient to make the softened bones yield, but as the woman gets older the bones ossify in faulty positions and the crumpled pelvis becomes unyielding.

Many deaths take place in childbirth owing to conditions consequent upon osteomalacia, and as skilled

assistance is not available mother and child are often lost. The native midwife, who has no training but tradition (the trade is hereditary), performs a rough craniotomy with the sharp end of a spindle, removes the infant's brains, places a loop of string round the neck, and extracts. In a difficult case she may pierce the mother's uterus, and the mother frequently dies of septicaemia. A native midwife will "clean" her hands before making an examination by rubbing them on the mud floor. She frequently completes her attentions to the patient by rubbing salt or mustard oil into the lacerated vagina. Atresia of the vagina caused by such measures is fairly common. A natural cure of the pains and softness of the bones occurs at the menopause.

One of the most remarkable things where Caesarean section is done for these women is the size and healthiness of the child. The women are thin, anaemic, and deformed; their offspring at birth are often extremely fine, healthy, heavy specimens, and later show no sign of rickets. All the mothers suckle their offspring. Rickets is not common in Kashmir. The few cases I have seen were in female children who had lost their mothers in infancy, belonged to wealthy Kashmiri families, and had been kept indoors with the women. Usually even infants go out, and male infants are taken out by the men and boys to show to their friends when very young. A girl child is never made so much of.

There are three indigenous Kashmiri cures for "trouble in the bones": (1) a special clay called baramulla earth; (2) pills made of fish liver; (3) rubbing with mustard oil and exposing to sunlight.

1. Baramulla earth is a greyish-white fire-clay used for making fireplaces in wooden boats, and for portable fire-pots on which to cook food. A lump of this earth taken from a patient with osteomalacia, who ate pieces of it, was analysed for me by the Clinical Research Association, which reported that it was a ferruginous clay containing a fairly high percentage of calcium phosphate (calcium phosphate 16.2 per cent., ferric oxide 11.8 per cent., hydrated aluminium silicate (in clay) 71.2 per cent., and undetermined residue 0.8 per cent.). Sulphates were present to a very small extent. The radio-activity of the sample was not more than is usually found in any natural earth; arsenic and similar metals were not detected.

2. The fish-liver pills are sold by a Panditani (Hindu woman) living at the city fish market. She makes them herself. The analogy with cod-liver oil is interesting.

3. The mustard oil and sunlight cure is chiefly used by the men for their rheumatic pains.

At the Zenana Hospital we prescribed cod-liver oil and phosphorus oil in 3-minim doses, and considered it did good. Calcium lactate in 10-grain doses seemed to slow the heart and relieve the pains in acute cases. Hypodermic injections of sodium morrhuate seemed to give good results, but we found that the one patient cured had been sitting in the sun all day in order to get tea from the kitchen. I am inclined to think the same of cases said to improve when admitted to hospital, as the light in the wards is better than anything they have at home. Out-patients given cod-liver oil and ordered to go out on the lake in open boats improved rapidly.

Good results have been reported from excision or resection of the ovaries. It must, however, be remembered that once a woman ceases to menstruate she is no longer guarded with the same care, and will have more chance to go out in the sun. This may account for the marked improvement at the menopause seen in all cases.

Various theories have been put forward as regards this disease and its frequency in Kashmir.

Diets.

The richer classes cook all their food. The milk is boiled and reboiled. The city dwellers who keep their own cows have them in dark stables or in the courtyard and send them out daily to graze. In some cases they are fed on dry food and rarely go out. Sheep and goat's milk is used, generally when prescribed as medicine by the Kashmiri practitioner. Vegetable oil, either mustard or sesamum, is used for cooking. The oil is heated to boiling point first. The women eat no raw vegetable or fruit; they think anything uncooked un-

wholesome, and in a place decimated by cholera every few years it probably is. The rich eat rice husked by machinery, which removes the pink pericarp and the germ. The bran which is thus produced is given to the cattle, and is, of course, rich in phosphates. The women eat after the men, and therefore get less meat and milk, both considered luxuries, but otherwise their diet is the same as that of their menfolk.

The drinking water in the city comes from two sources—the river Jhelum and the tap water. The tap supply is often contaminated by the breaking of the lids of the wooden troughs which convey it to the city from a valley three or four miles away. When broken the nearest inhabitants drink and wash themselves at the break, so that last year warning had to be given to consumers that the water should be boiled before use as it was probably infected with cholera. Both rich and poor drink water, but tea is the favourite beverage for all. The better kinds come from Tibet in bricks, from which shavings are made and boiled up with salt and spices.

The natural supply from the river is preferred by the most religious, as the water of the Jhelum is sacred. The river is also the natural sewer of the town. One encounters corpses in it—from those of rats and fowls to those of drowned sheep and cattle, bodies of unwanted babies, and of persons drowned by accident. In addition to this the Hindus attend to the calls of Nature, wash themselves, and drink of its waters at the steps leading to it, and the Mohammedans have boxes in the stream for washing and sanitary needs. Persons may thus be seen drinking water from the river a yard or two lower down from those passing their urine and faeces into the same stream. The water of the river is considered so sacred that it cannot be defiled. It can hardly be matter for surprise that everyone suffers from intestinal worms. Large round white ones are the commonest, and their leaving the body is often a sign of the impending death of a patient, as a house-surgeon with long Indian experience once pointed out to me.

Social Customs.

Purdah, which means a curtain, is used of the system which ensures the seclusion of the woman from all men except her husband and her brothers. It varies in strictness, and is much less strict in Kashmir than in India. In Kashmir it really only affects the women of marriageable and child-bearing age. Among the better classes they are more or less confined to the house.

Girls of 8 are not allowed out alone, and if brought to hospital are often closely veiled. The Hindus, who in theory do not observe this custom, do so in practice. The young girls from 8 or 10 to 15 rarely go out until married, and then not till after the birth of one or two children. Marriage takes place before puberty in many cases, because in order to ensure early marriage the younger the bride the less are the fees to the priests. One of the greatest sins a father can commit is not to have married his daughter at puberty. After marriage she is confined to her husband's house, and her food and happiness depend entirely upon her mother-in-law, who often keeps her short of food, from an idea that she will have an easier confinement if the foetus is kept small by spare diet. It has been pointed out by other observers that much tuberculosis originates in these girls during the first year of married life owing to these miserable conditions.

At childbirth the woman is confined in a dark unventilated room, often with no window at all, no fireplace, but a charcoal brazier or the fire basket. Forty days is not an uncommon time for the young mother to be in this unventilated place, and she emerges weak and ill. Osteomalacia usually begins with the first pregnancy or soon after marriage.

Hereditry.—Mothers with old osteomalacia will bring daughters or daughters-in-law to hospital, and are anxious to say that the disease is *not* in their family, but is hereditary in some other family with whom marriages have been made. One finds they belong to one social caste whose rules require seclusion of girls from 8 or 10 years of age until after marriage and when they have borne several children.

Climatic Conditions.

Kashmir lies between 32° and 36° latitude, and is roughly at the same distance from the equator as Southern Spain or Morocco. The city of Srinagar lies in the valley through which the River Jhelum flows, and the town is built on each side of the river. The valley lies at an altitude of 5,000 feet. The hills round this valley are 7,000 or 8,000 feet in height; further away are hills of 12,000 to 13,000 feet, and still higher peaks overtop these in the distance.

All English flowers and fruit grow well. The temperature may rise to 90° or over in the hottest days of July and August; and again in winter the thermometer falls 10° and more below zero; yet on the whole it is a temperate and equable climate for eight months of the year. In the winter months osteomalacia becomes much worse. Wood is the fuel burnt, and during the four winter months a thick pall of fog and smoke hangs over the city in the early morning and evening.

The streets leading from the river are narrow and tortuous, and the houses, which are of wood, are high and built round small courtyards, where in the winter the sun never shines. Nor does it reach the ground of many of the streets where the aspect faces north. Icicles ten feet and more in length hang for weeks in such places from the roof, and snow to a depth of four or five feet lies in the streets. The roofs have to be cleared of snow or they would give way under the weight; men shovel it off, and it lies in the streets until spring comes. Owing to reflection there is some slight improvement in the light in the dwellings when the snow comes.

The women wear but one garment and go out in the winter as little as possible. They live in the lowest rooms of the high wooden houses in the winter, so as to be on the same floor as the water supply and the fire. The ground floor is the warmest. The windows are sometimes less than half a yard square, and protected against thieves by being near the ceiling and closed by wooden lattice-work. All windows are so made, but on the upper floors are larger. In winter they are covered with oiled paper to keep out the cold. The minimum of available light is thus admitted, and some rooms, specially liked for warmth, have no windows at all.

That the light supply is sufficient for health in all ordinary life is proved by the rarity of rickets and the healthiness of the boat women and the country women working in the fields, but a degree of seclusion which would have little effect on the plains of India produces osteomalacia in Kashmir. A photographer who lived for many years in Kashmir said that he always gave twice the exposure he would in England to get a good result in Kashmir, which looks as if the actinic rays might be deficient. Most of the oblique rays of the sun in mid-winter are cut off by the mountains encircling the valley.

Sunlight alone can cure the disease, and cod-liver oil without sunshine is of very little use. The seasonal incidence above described points to the same cause—absence of sunlight. In spring and summer the women go out and improve in health. The disease only occurs in those deprived of sunlight, and one meets women walking about who have evidently had the disease, and who will tell you they were shut up as young women, but on the death of the husband were free to go out. One woman told me she only began to suffer in her later confinements when her husband had moved from a house facing an open space to the crowded quarters of the city. The fact that the men of the families where the women have osteomalacia are so often tuberculous points to the same thing.

Reports from places in India where cases of osteomalacia occur would indicate lack of sunlight as the cause.

At Islamabad; higher up the valley than Srinagar, the doctor tells me that wherever she goes she sees cases, especially among the wives of priests, shopkeepers, and butchers—all men having some means and able to keep their young wives in seclusion during their early married life. At Ladakh, 11,000 feet, with long cold winters, it is unknown, except for one case in a Kashmiri woman. The women there go out freely. At Peshawar among the Afghan women, who go out freely and live an open-air life, none were known; the only cases reported were in Hindu shopkeepers' wives, who married young and were kept

in purdah. In Lahore the disease is uncommon; the worst cases occur among those who seclude their women and are rich enough to have glass windows, sometimes made so that they cannot be opened.

The most instructive notes come from Bombay, where the Parsee women are completely free from it, and yet the women of the weaver class have it, and were they not recruited from the outside country villages would die out in a generation. A Parsee doctor tells me that out of 25,000 deliveries he did not encounter one case of osteomalacia among Parsees. They have great freedom, and do not marry until about 20 or 22. The weaver class, on the other hand, living in the same town are almost all affected. The superintendent of the Cama hospital tells me they suspect osteomalacia in every weaver woman coming for her confinement. These women live in buildings eight stories high. The loom is on the ground floor in the room facing the street, because all available light is needed for the work, and the women live in dark rooms behind that; the mortality rate is 678 per 1,000 infants under 1 year.

In Chamba, in the Himalayas, the village women do not suffer, but in the hill town there is "hardly any sunlight" in their houses, and those in purdah, the richer women, suffer badly. In Hyderabad the disease is very rare, but cases are known in Hindu women, who eat fuller's earth to cure it.

I also have some notes of the occurrence of the disease in cows in places as distant from one another as Norway, New Zealand, and Australia. I have never seen a case in cattle in Kashmir, but there the cows living in the city are turned out to pick up any garbage they can find in the streets. They thus get any sunlight and air available. In Norway fractures of the bones of affected cattle were reported. Its occurrence in male animals, and its appearance after drought when artificial dry feeding had to be resorted to; the absence of the disease in cows at the sea where they consume fish, and in the extreme north where there is darkness for several months in winter, are all points of interest. Professor Per Tuff of Aas, Norway, says the disease, which led to fractures of bones, is much less common than it was fifty years ago, and he attributes this to the better lighting and hygiene of cattle sheds.

My best thanks are due to those who have so kindly answered my inquiries during the past few years as to the conditions in their districts where osteomalacia occurs either among the women or the cattle.

These rough notes are published in the hope that something may be done in Kashmir to investigate still further the conditions of the sunlight there, with a view to the prevention of this disease, to which the lives of hundreds of women and children are sacrificed every year.

NOTES ON THE USE OF LEAD COLLOIDS IN THE TREATMENT OF CANCER.

BY

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THE question of the treatment of cancer by lead is now so much before the profession that our experiences with this metal may be of interest.

For some years past we have independently tested new cancer cures as they have appeared in the *English* and foreign journals. The article by Professor Blair Bell in the *Lancet* of 1922 (vol. ii, p. 1005) seemed to be of such importance and to stand on such a rational basis as to invite an early trial of the effect of lead on cases of inoperable cancer. As we did not find it possible to obtain information from Dr. Blair Bell beyond that which had appeared in his articles, a convenient source of lead had to be secured. The aim has been to find a combination of lead with a suitable radicle, the latter, if possible, assisting the absorption or adsorption of the lead. One of the chief difficulties was to obtain a colloidal suspension of the

dispersed lead compound capable of remaining dispersed long enough for general use and of the correct composition for intravenous injection.

The first colloid used was lead oleate. This was freshly made for us at frequent intervals, as it did not keep dispersed very long. It was given intramuscularly. The results gave little encouragement, except that one man with cancer of the fauces seemed to remain stationary; he was neither better nor worse a year afterwards. He died eventually, but the probability seemed that he would have died more quickly without the lead injections. It must, of course, be noted that when first we used these lead compounds we were giving them in very small doses.

The second compound tried was a lead nitro-benzoate, referred to in what follows as "lead N." The use of this was discontinued because we were not able to give any but very small doses without causing some discomfort, chiefly gastric, during the day after the injection.

Next a combination of lead with a very complex radicle of high molecular weight was made. This contained mercury in the same proportion as the lead, but in a non-ionized form. As it was thought that the mercury

might add some antiseptic properties if liberated amongst dead cancer cells, it was retained in the compound. A colloidal suspension of these drugs has been used, and will be referred to as "lead M.A.," the M denoting mercury and the A an amino group. It has been found convenient to refer to these complex bodies by such simple terminology. These colloids have been fully tested on animals as to their immediate toxicity, and found to be harmless. The colloidal suspension of lead M.A. contains 0.1 per cent. of mercury and 0.1 per cent. of lead—that is, one-tenth of a gram, or $\frac{1}{12}$ grains of lead per 100 c.cm., and similar quantities of mercury.

Some twenty cases of cancer have been treated. All of these were naturally inoperable, either from the magnitude of the growth or from its position. Cases were selected in which the cancer was on the surface in some easily observable position. In none of them could the diagnosis be doubted, whilst most had had operations performed on them and the diagnosis confirmed histologically. The results can be divided into four groups.

In the first group of patients are those on whom the lead does not appear to have made the slightest difference, many of them so desperately ill or so full of enormous masses of cancer that no drug could have been expected to influence them, added to which many of them had very small doses.

In the second group temporary improvement was shown. This was manifest by the patients' weight, which had been falling, remaining stationary over a period of many months, or even improving to the extent of a few pounds. The growths often showed considerable decrease in size, firm masses of glands becoming smaller, each gland becoming discrete and freely movable on its fellows. This was due, perhaps, as much to a subsidence of the surrounding inflammation as to any effect upon the growth itself. We may briefly consider five such cases.

1. In an old lady of 76 a hard ulcer firmly adherent to the ribs healed over fairly quickly, and she put on a good deal of weight. She died some months later from hemiplegia; 30 c.cm. of lead N. and lead M.A. were given in twelve doses.

2. A lady with very extensive cancer *en cuirasse*, with many glands in the neck, lost the whole of the hard oedema of the skin. The glands became discrete and freely movable in all directions. For six months she was able to lead a normal life, and took a holiday abroad of seven weeks' duration. During this time she lost ground, which subsequent injections failed to regain; possibly the interval was too long. The cancer cells may have some power of protecting themselves against the lead if

given time to do so. In all, 195 c.cm. of lead N. and lead M.A. were given in forty-two doses.

3. A man with cancer of the larynx, who was given three months to live, and in fact died fifteen months later, showed marked improvement during the first few months and maintained his weight for six months; 216 c.cm. of lead N. and lead M.A. were given in forty-one doses.

4. A very emaciated man who had had his upper maxilla removed at St. Mary's Hospital for a squamous-celled carcinoma showed every sign of healing. Red spots on his face began to disappear and pucker. The stench from his mouth lessened markedly after large pieces had sloughed away. He showed some slight gain in weight, but died suddenly without any very apparent cause. He received 16 c.cm. of lead N. in ten doses.

5. An old lady with a growth in the breast showed a diminution in size of the growth at the end of a year. At one place where it looked very red, like an abscess pointing, the skin became darkened, then almost stained black, and soft as though subsiding. She died from bronchitis. She had had 18 c.cm. of lead N. in seven doses, and 178 c.cm. of lead M.A. in thirty doses.

In the third group are two rather peculiar cases, in which the cancer seemed to abort, the whole of the growth apparently falling out.

The first of these was a woman with a growth springing from the lower jaw involving the cheek and neck. After a few days' apparent improvement the whole cancerous area sloughed out, leaving the bare ends of the lower jaw-bone and a huge fistula opening into the mouth. She received 33 c.cm. of lead N. in ten doses.

The second was a man with a hard, brawny growth filling in the area under the lower jaw-bone. He was getting about the ward, and was not in any way in extremis. There was no breaking of the skin. After a few doses of the lead colloid the whole of this area sloughed away, leaving a huge gaping "cut-throat" wound. The edges were thickened, inflamed, and oedematous, and his face swelled above it, possibly from interference with the lymphatics. He had had 29 c.cm. of lead M.A. in five doses.

Both of these patients died from sepsis soon after the abortion of the growths brought about by the lead.

In the fourth group is the case of a patient whose history and treatment will be considered in some detail. This was a man, 56 years of age in 1925, a worker in a railway electrical department.

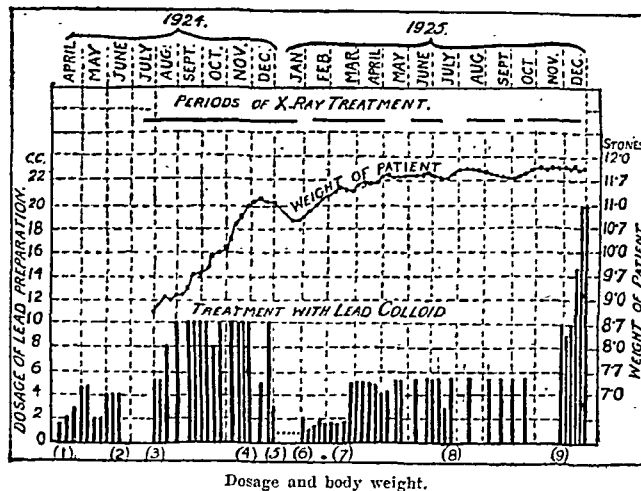
Previously to 1920 for many years he had had a wart or mole on the side of his head. This became very sore and somewhat enlarged; it bled slightly at first, then very profusely. He ceased work in 1921. The growth increased continuously. He had no treatment except medicine until 1924, when he came into hospital.

When first seen he was a thin, emaciated, poisoned-looking man, very anaemic, with the skin and sclerotics of a lemon-yellow tint. On the left side of his head, above the ear, he had a huge cauliflower growth, protruding about two inches above the level of the scalp, covered with pus, and very foul-smelling. No glands or metastases were to be found. To-day he is a strong, well nourished man, wishing to leave the hospital and return to work. The growth on his head is not healed and much is still present, but it has become progressively smaller and smaller. It disappeared by minute portions at the periphery, turning to black points and sloughing off.

During the early part of his treatment the growth, after becoming less septic and cleaning up, poured with exudation; later it became quite dry. About this time he also had considerable oedema of the legs and some albuminuria, both of which were considered to be symptoms due to the lead.

The chart reproduced herewith has marked on it this man's progress over many months. The top black line shows those times at which he was receiving doses of x rays. This treatment was given to him by Dr. D. Arthur, radiologist to the West Middlesex Hospital, who has kindly supplied the following details.

"A Sabouraud and Noiré's pastille dose with a water-cooled x-ray tube of 44 inch equivalent spark-gap has been given once or more usually twice a week during those times marked on the chart by the top black line. The rays were filtered through 2 mm. aluminium filter and the growth treated from different aspects (multiple port of entry), no area being treated twice in succession."



Dosage and body weight.

We consider it difficult to apportion the exact amount of credit due to this treatment and to the lead injections, though each may well have assisted the effects caused by the other.

Below this runs a graph of his weight, conforming to the scale on the right-hand side. Taking 12 st. as his normal weight when well, it will be seen that he had lost over 3 st. before treatment commenced; that he rose in weight steadily until he had regained his normal weight, and that he has remained at this for the last nine months.

The vertical lines rising from the base of the chart denote the weekly doses in numbers of cubic centimetres of the lead colloid in use at that time. Weekly intervals on these lines are dated by the months and years at the top of the chart. The numbers underneath the chart are used for reference to this article.

The injections given between (1) and (2) were of lead N. From (3) onwards he was having weekly doses of 10 c.cm. of lead M.A. pretty regularly, and he was putting on weight at a great pace. Part of this increase was due to the very considerable oedema of the feet and legs, as already mentioned, and at (5) he appeared to be suffering from early symptoms of lead poisoning. The injections were therefore discontinued for a short time. At (6) the lead M.A. was recommenced. From there till (7) doses were given intramuscularly; from (7) onwards the intravenous route was used. Owing to the fact that he appeared to be doing quite well as he was, doses were given less frequently from (8) to (9). He was having doses of α rays regularly at this time, but the growth showed signs of increasing in size rather than diminishing, and he was not feeling quite so well. At (9), therefore, full treatment was commenced again, and he at once became better in every respect.

On November 14th, 1924, he gave a *plus* two Wassermann reaction. On November 7th, 1924, Dr. Fletcher examined a portion of the growth, and reported as follows:

"This is undoubtedly squamous-celled carcinoma. The cancer cells are arranged in solid masses, freely infiltrating the sub-epithelial tissue. There are no cell nests."

This man has had up to the present 368 c.cm. of colloidal lead containing 0.36 gram, or $5\frac{1}{2}$ grains, of lead.

The condition of his blood has been extremely interesting. At the commencement of treatment the blood counts, taken several times, showed an average red count of 2,500,000 and a white count of 12,000. The blood on withdrawal looked like thin washy damson juice of a peculiar purplish colour. No normal red cells were to be seen, extreme poikilocytosis being present. His red cell count has increased to 3,600,000 and the white count is 10,000 odd. The differential white count is normal. The freshly shed blood is bright red, and the red cells are remarkably even and regular, though somewhat oval. It is noteworthy that, in spite of the large amount of lead which he has received, his red cells have increased in number and become normal in shape. No stippled cells have been found in his blood.

Full blood counts must be made in all cases, and stippled cells must be frequently sought for. They are quite common, together with polychromasia, in the blood of many cases, often after quite small doses of lead. We are accustomed to record them as the number of stippled cells counted over the number of fields examined, using a 1/12 oil-immersion and a No. 3 eyepiece. Urinalysis is essential when giving full doses.

Occasionally some protein shock has occurred a few hours after an injection—slight shivering, sweating, some rise of temperature, and more rarely some vomiting.

During the cold weather the preparation of lead M.A. is liable to form a gel, but in any case it should always be thoroughly warmed before being injected intravenously.

The injections have all been made with Record syringes of convenient capacity and No. 17 needles. The syringes can be boiled and used immediately while still hot.

No special technique is necessary, but in comparison with similar injections in the case of asthmatics and other patients the giving of an intravenous injection to a cancer patient is often a matter of extreme difficulty. The veins become much shrunken as the patient wastes, and there is a shortage of blood to distend them; they sometimes become hardened pipes of greater substance than an ordinary artery. The lack of supporting fat allows the vein to roll away from the needle as it attempts to pierce the vessel through the leathery skin.

In the series of cases here dealt with the dosage has on the whole been small, and we consider that there is a large margin of safety within which injections of lead can be increased in size and frequency before toxic symptoms from the lead need be expected. But the dosing of any particular case will depend upon a great many different

factors. Patients of large weight with no cachexia will call for large doses. Males will take larger doses than females. Emaciated patients and those with growths which have ulcerated to the surface will require small doses, at any rate to commence with. As any growth may abort, special care must be taken to make such abortion as aseptic as possible. In this connexion the blood supply to the part is probably an important factor. In growths of the gut abortion must be particularly guarded against.

Summary.

We are using a very stable colloidal suspension of lead and mercury (lead M.A.). This can be injected intravenously with the minimum danger of immediate shock or toxicity from the lead. It has undoubtedly had a beneficial effect upon the patient whose case is reported in full in this paper.

We now have a series of cases under treatment with much heavier doses, and the results obtained will be published at a later date.

Arrangements are now being made whereby a supply of lead M.A. will shortly be available for general use.

THE SURGICAL TREATMENT OF TIC-DOULOUREUX.*

BY

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Of the various procedures which have been devised for the cure of this most distressing malady two only have stood the test of experience. They are: (1) Some form of alcohol injection. (2) Operation on the Gasserian ganglion by the Hartley-Krause method of approach.

Injection treatment has obvious advantages: it is a minor operation which involves no long convalescence, there is no risk to life, and serious complications are very rare. On the other hand, it is always more or less uncertain in its effects, and the relief from pain is often only temporary.

Open operation on the ganglion has one advantage only, but an important one—with the rarest exceptions it cures the patient, and cures him permanently. My own practice has been to try injection first, and, if this proves unsatisfactory, to operate. During the last five years I have performed fifty-two injections and thirteen operations. In most of the operation cases I had tried injection previously, but in a few cases the patients had been injected elsewhere and refused to have any more. Consequently it would appear that, out of every four cases, three have been reasonably comfortable with injection and one has needed open operation.

TECHNIQUE OF INJECTION.

There are two distinct routes of approach in attempting to inject the Gasserian ganglion—from the front and from the side. From the front it is rather difficult to find the foramen ovale, but, when found, the needle enters easily. It tends, however, at this angle to enter the subarachnoid space rather than the ganglion, and at least one serious disaster has followed injection by this route. The alcohol was evidently injected into this space, and paralysis of a number of important cranial nerves followed.

From the side it is easier to find the foramen ovale, but, on account of the obliquity of approach, the needle tends to stick in the orifice. In some skulls, even with the soft parts removed, it is impossible to pass a needle through the foramen. I believe, however, that alcohol injected into the mouth of the foramen infiltrates through into the ganglion, for after such injections anaesthesia has occurred in the first and second divisions as well as in the third.

I have confined myself to lateral injections, largely on account of the serious disaster already referred to as following an anterior injection. A local anaesthetic is employed so that the sensations of the patient may be

* Abbreviated from a paper read before the Midland Medical Society on November 25th, 1925.

used as a guide. This merely anaesthetizes the skin at the site of puncture, and the patient feels no pain till the point of the needle strikes the third division as it emerges from the foramen ovale. If at the same moment the needle is felt to enter a narrow cavity it is probably in correct position. The syringe is then attached and a few drops of alcohol injected to test the degree of resistance. If the piston slides down without effort the needle has passed to one or other side of the nerve, and the alcohol is not entering the ganglion. The needle is withdrawn a few millimetres and reinserted until a position is found in which there is a definite resistance felt on pushing down the piston. After a few drops have been injected sensation is tested by pricking the skin of the face with a fine needle. The development of numbness confirms the position, and the injection is then completed. I am satisfied if I get anaesthesia of the second and third divisions with numbness of the first, and many cases have been relieved of their pain in which I obtained numbness of the second and third divisions only. Of fifty-two injections I failed in eleven to get satisfactory lasting anaesthesia. This is roughly one case in five. In some of these I reinjected successfully and in the others I operated. I was guided in my choice by the difficulty experienced in injecting, and to some extent by the wishes of the patient.

Results.

Taking cases which were injected at least a year ago, twenty-five have been traced and eleven of these are still free from recurrence. The periods since the injection of these eleven are 12 months, 15 months, 17 months (2), 18 months, 2 years, 2 years and 3 months, 3 years (2), 3 years and 8 months, and 5 years respectively. Cases in which recurrence is known to have taken place are fourteen in number, and the average period of relief was one year and nine months. This hardly gives a fair estimate of the benefit conferred on the patient, for it has frequently happened that the recurrence of pain has been slight and temporary, so that further treatment has not been necessary. For example, a patient reported that she had been quite free from pain except for an attack a year ago, which lasted only a fortnight; this patient regards herself as cured, and is very grateful, but she appears in my statistics as having only one year's relief. It may fairly be said, therefore, of injections that four out of five are successful in giving relief for an average period of twenty-one months, and that there is quite a reasonable chance of the relief being permanent. How great this chance is can hardly be estimated from so small a number of cases, but a rough idea may be obtained by considering the figures quoted above. Of twenty-five cases traced, eleven have remained free, the average time since injection being twenty-eight months. As the cases which recur do so on an average in twenty-one months, it is not unreasonable to hope that most of these will be permanently cured. The only complications experienced in these cases treated by injection were that two patients complained of partial deafness, one in the same and one in the opposite ear. There were no cases of conjunctivitis.

OPERATION.

Operation was reserved for patients whom I failed to relieve by injection, or who had had repeated injections elsewhere and desired more radical treatment. The Hartley-Krause method of approach was used, and in the first few cases I contented myself with dividing the second and third divisions of the nerve inside the skull and injecting alcohol under direct vision into the ganglion. The recurrence of pain in a case treated on these lines by another surgeon led me to doubt the reliability of this procedure, and in subsequent cases two-thirds of the ganglion was removed. The method of dealing with the middle meningeal artery advocated by Jordan Lloyd was adopted, the artery being plugged in the foramen spinosum with a suitable peg (Lloyd used a match), and consequently only needing to be tied in one place instead of two. This makes its division much easier, so long as the peg does not come out.

Results.

I have performed this operation on thirteen occasions, and though some of the patients were over 70 years of age there has been no mortality. Not only was there no mortality, but in only one case was there any cause for anxiety. This was a case in which the peg came out of the foramen spinosum. I had found Jordan Lloyd's matches too soft and had tried an oak peg. This must have been too hard to fit snugly, for violent haemorrhage occurred on the following day, and in my absence from Birmingham my colleague Mr. Rose very kindly tied the external carotid, with an entirely satisfactory result. With this exception, all the cases had a good convalescence. There was a remarkable freedom from ophthalmic complications, and only one case of conjunctivitis has to be recorded. This, however, was severe, and, owing to the patient's refusal of treatment, resulted eventually in loss of vision in that eye. Other complications experienced were a seventh nerve paralysis, due, I think, to forcible retraction of the flap, and a temporary third nerve paralysis which I cannot explain.

All these cases were relieved of their pain with a single exception, but, as my first operation was only done two years ago, I can produce no evidence of permanent cure from my own experience. It is, however, well recognized that in all but the rarest cases removal of the ganglion cures the condition permanently. In fact, I have felt justified in telling my patients that, though the operation is severe, the cure is certain. This confidence was rudely shaken a few months ago by the last case I operated upon. The operation proved exceptionally easy, and I had such a perfect exposure of the ganglion and its roots that I was led to try the operation of division of the sensory root instead of resection of the ganglion. The patient had absolutely no relief whatever. As this was my first failure I naturally attributed it to the different operation I had performed, and said hard words to myself for trying to paint the lily. I explained the position, and suggested that I should make sure of relief by removing the ganglion. I then removed the lower two-thirds of the ganglion with a part of the mandibular and maxillary nerves, and had the removed tissue microscopically demonstrated the ganglion cells. There was not the slightest relief from pain! This was either a case in which the lesion was on the central side of the ganglion or one of purely subjective pain. The patient showed obvious signs of mental derangement, but these had naturally been attributed to the severity of her suffering.

Of the remaining eleven cases the pain has recurred in one. This was one of the earliest operations in which the ganglion was injected and not removed, and occurred in the patient who developed conjunctivitis. It has finally destroyed any hope I had that injection of alcohol under direct vision might prove a satisfactory alternative to excision.

It has been suggested that though the operation relieves the pain it turns the patient into a chronic invalid. Of two patients who recently wrote to me, one is working as a collier in a mine, and the other is the successful head mistress of a large school for girls.

ACTINOMYCOSIS SUCCESSFULLY TREATED BY IODINE IN MILK.

BY

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THE rapid and uninterrupted recovery of four consecutive cases afflicted by this distressing and usually fatal malady seems worthy of record.

The treatment adopted was evolved as the result of an observation made during the course of the following fatal case.

Late Treatment: Death.

A. S., a farm labourer, was admitted to the Bristol Royal Infirmary under my care in February, 1925, suffering from what appeared to be acute appendicitis. The appendix was removed. It was situated behind the caecum, and was bound down by dense adhesions. After an uneventful recovery the patient was

discharged to a convalescent home in March. Four weeks later a small abscess in the scar was opened in the casualty department.

He was readmitted in July with an abscess below Poupart's ligament, flexed hip, pain on walking, and a mass in the right iliac fossa. The diagnosis of actinomycosis was made, and confirmed by the recovery of the organism from the pus.

He was treated by x rays, large doses of potassium iodide, by vaccines (both stock and autogenous), and later by colloidal iodine given by the mouth and injected into the sinuses. His progress was, however, steadily downward.

In December he was bedridden and apparently moribund. The whole peritoneum seemed to consist of one huge abscess, which extended down the thighs almost to the knees. No doubt a very mixed infection was present.

About this time our pharmacist, Mr. A. L. Taylor, expressed the opinion that colloidal iodine contained little if any iodine in a colloidal state, and suggested that tincture of iodine freshly added to milk would give a more truly colloidal solution. The patient was therefore given this preparation by the mouth.

Within a week the sinuses had all closed, and he was out of bed greatly improved in his general condition. Unfortunately, in April a fresh abscess, containing staphylococci and other organisms, re-formed in the abdomen, and he died on April 29th, 1924.

The Four Successful Cases.

During the period of improvement in the case just recorded my colleague Mr. C. F. Walters showed me a similar case.

CASE I.

A boy, who also had been operated upon for appendicitis, subsequently presented intensely hard chronic inflammatory masses in the abdomen; they spread across to the left iliac fossa, and finally invaded the skin. In places small areas of softening were noted. At my suggestion this patient was given the same preparation of iodine and milk.

The effect was almost incredible, for in a few weeks the masses had melted away and not a trace of the disease remained. The boy has remained perfectly well ever since.

It will be observed that no opportunity arose of confirming the diagnosis microscopically, but clinically it was as definite a case of actinomycosis as one could possibly meet.

Mr. Rendle Short adopted the same line of treatment in the following case.

CASE II.

The patient was a girl who had suffered from actinomycosis of the jaw and face for five years. The organism had been recovered from the pus. She had undergone numerous operations, including removal of portions of the lower jaw and zygoma. In spite of very free removal the disease always recurred. In November, 1924, she too was put upon iodine and milk. Seeing that bone was invaded a rapid response could hardly have been expected in this case, and one further abscess did develop in January, 1925, but since then all sinuses have healed and she appears to be completely cured.

CASE III.

In December, 1924, a butcher was sent to me by Dr. Dix of Clifton. This man had a large left-sided abdominal tumour. It was palpable by the rectum, and extended to the lower border of the ribs. It was proved by incision and microscopic examination to be actinomycotic in nature.

The same treatment was carried out, and within three weeks no trace of the tumour could be detected. The patient has remained perfectly well ever since. Skin markings showed that the diameter of this mass, which felt like a lump of wood, sometimes diminished by fully an inch within twenty-four hours.

CASE IV.

The last case, a young woman, was also under the care of Mr. C. F. Walters. She had a hard inflammatory mass in the neck, attached to the lower jaw. Several small abscesses in connexion with this had been opened during the course of some six weeks. In March, 1925, another abscess was opened and typical sulphur granules were discovered in the pus.

After a fortnight's treatment on the same lines as the other cases all sinuses were soundly healed and no trace of the inflammatory mass remained.

There appears to be no necessity to push the dose of tincture of iodine; 5 to 10 minims in half a cup of milk taken three times a day have proved ample, though more can be given without any harmful results.

In looking through the literature bearing upon the subject of actinomycosis I have only been able to find one case in which treatment produced results at all comparable to those obtained in these cases. This was recorded by Bigland and Sergeant in the *BRITISH MEDICAL JOURNAL* of July 14th, 1923 (p. 61). The patient in this case was a man suffering from actinomycosis of the lung complicated by empyema; he recovered after having his empyema cavity washed out with colloidal iodine, which drug was also administered intravenously. In addition he was given large doses of potassium iodide by the mouth. Possibly colloidal iodine given intravenously,

although it contains little iodine in a colloidal form, may produce the same curative effect as does a truly colloidal solution when given orally.

I hope that this article may attract the notice of the veterinary profession, and that a trial may be given of this method of treatment in the case of animals.

In conclusion I must express my indebtedness to my colleagues Mr. C. F. Walters and Mr. Rendle Short for permission to make use of their cases in conjunction with my own; to Mr. A. L. Taylor for his happy suggestion as to the best way to make colloidal iodine; and to Professor McBain for his kindness in demonstrating the fact that when tincture of iodine is added to milk it does make a truly colloidal solution.

RUPTURE OF ANEURYSM ON BRANCH OF LEFT RENAL ARTERY, COMPLICATING PREGNANCY.

BY

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On November 5th, 1924, a woman, aged 28, about seven months pregnant, was brought to the maternity department of the Dundee Royal Infirmary in a very collapsed condition. The pulse was rapid and weak, and the face was very blanched.

According to the history, treatment had been carried out for the past three months for cystitis with frequency of micturition. The patient had had a miscarriage about a year before. The present acute condition dated from the day prior to admission (November 4th). The statement made was to the effect that while walking she was suddenly seized with severe pain in the back and almost collapsed. She was seen by a doctor, but the medicine he gave was at once vomited.

The patient was admitted to hospital at about 11 a.m. Accidental haemorrhage was suspected, but there was no sign of blood externally. Examination of the abdomen did not tend to confirm the original provisional diagnosis, however. A very hard and acutely tender resistant area was felt in the left flank. It was considered wise to keep the patient under observation before intervening, and thus give her time to settle down in hospital, with the possibility of some improvement taking place. I saw her again at 4 p.m., when her condition was even worse than before, as vomiting had supervened, rather suggesting the possibility of intestinal obstruction. It was decided that an exploratory laparotomy must be done, in spite of the very critical condition of the patient. She was certain to die if left alone, and it seemed that operation would give her the only chance of recovery, although a very poor one.

Somewhat later, therefore, I opened the abdomen under ether anaesthesia, some 1/2 per cent. novocain being injected into the muscles. The incision was to the left of the mid-line, the rectus muscle being pulled outwards. A normal pregnant uterus was found, and the intestines were not unduly distended. On palpation the right kidney seemed to be very small. The explanation of this will be seen in the pathological report. A large hard retro-peritoneal mass was present on the left side, and discoloured blood was seen between the layers of the mesentery of the pelvic colon and, to some extent, round the gut, in the region of the descending colon and pelvic colon. The mass turned out to be a very large blood clot.

I opened the posterior parietal peritoneum over the swelling, but very little blood came away, as clotting had already taken place to some extent. It would have been running an unjustifiable risk to begin clearing away the clot. A moment's uncontrollable bleeding would certainly have caused immediate death. A drain was inserted through a stab wound in the left flank to the region of the clot—although there was little chance of much drainage taking place—and the opening made in the posterior peritoneum was closed as far as possible. The abdomen was closed in layers. Shortly afterwards the patient died. This was expected, considering her condition.

Fortunately a *post-mortem* examination was allowed. The parts involved, including the gravid uterus, were removed *en bloc* and hardened before dissection. The following are some of the points in the immediate pathological report by Dr. F. M. Milne. Only the main points will be mentioned.

"There is some atheroma in segment between aortic and mitral valves."

"There is a large retroperitoneal haemorrhage extending from left pelvic brim upwards to behind the spleen. It lies particularly around the kidney in the form of a large coagulum, which compresses the kidney tissue. The kidney, with the mass of blood, weighs 4 lb. (approximately). The haemorrhage extends into the left broad ligament, and also within the mesentery of the descending colon; it was found even close to lower border of pancreas. The right kidney shows hydronephrosis. Spleen normal in size, pale in colour. Liver pale and fatty; no gall stones. Stomach and intestines normal. Suprarenals normal."

When palpated during the operation the hydronephrotic right kidney must have been fairly empty, and only the lower pole of kidney substance was left, thus suggesting a small kidney.

Later I did a careful dissection of the specimen. This was rather difficult, as the clot was so hard, and I had to be very careful to avoid cutting anatomical structures which might be involved in it. Eventually, however, a small aneurysm was found on a branch of the left renal artery. The sac of the aneurysm was about the size of a pea and had ruptured. There was no history of trauma to account for the rupture. The presence of an aneurysm at this site must be very rare, and it would be especially unexpected in a woman of the age of the patient under consideration.

Dr. Tudhope of the pathological department of University College, Dundee, examined a section of the aorta, but he

did not find anything microscopically to suggest a syphilitic endarteritis.

Dr. Christine Thomson examined the child. Even if syphilitic, it would have been impossible to find spirochaetes after the preserving of the specimen, and there had been no opportunity for having the Wassermann test done on the mother's blood.

The following are some points noted by Dr. Thomson.

"The baby is very suspicious of syphilis; *S. pallida* not found; autolysis of viscera.

"Splenic enlargement present, also definite adhesive peritonitis. Periportal fibrosis in liver, commencing to spread, but no definite mononuclear cirrhosis. Very slight fibrosis of spleen. Spleen much enlarged. Chondro-epiphysitis of femur (indefinite). Placenta suspicious of syphilis."

Thus the presence of syphilitic infection of the child is only suspected, but the signs are inconclusive.

Rowlands¹ reported the case of a married woman, aged 47, who suffered from severe haematuria for three weeks. Blood was seen coming from the left ureter. The left kidney was removed. On examining the kidney a ruptured sacculated aneurysm, the size of a large pea, was found, partly on the surface of one of the lower renal papillae and arising from an intrarenal branch of the renal artery. There was no history of recent injury or illness. The aneurysm was seen after opening the pelvis of the kidney. The patient recovered. The site of this aneurysm would, in all probability, appear to be less dangerous than that of the one under review.

It would be inferred that aneurysm of the splenic artery, although rare, is of more frequent occurrence than that of the renal artery or one of its branches.

Fitzwilliams² reports a case in which there were three aneurysms of the splenic artery, one of them having ruptured. Operation was performed, but the patient was beyond help. She was a woman of 27, with no other sign of disease. Symptoms suggested rupture of a gastric ulcer or of an ectopic pregnancy.

Baumgartner and Thomas³ give an analysis of forty examples of aneurysm of the splenic artery collected from

literature. It would appear that certain diagnosis of the condition before rupture is practically impossible, although the condition may be suspected in rare cases. Such an aneurysm may be of considerable size, and yet it may be impossible to palpate it.

Garland⁴ reports an interesting case of rupture of a splenic artery aneurysm simultaneously with paracentesis of the abdominal cavity, when 1 litre of fluid was drawn off. The trocar did not wound the aneurysm. In all probability even such moderate relief of intra-abdominal tension may have been sufficient to determine rupture of the aneurysm.

It is stated that out of some 4,100 autopsies in Massachusetts General Hospital only three cases of aneurysm of the splenic artery were found.

I am indebted to Dr. R. C. Buist for permission to publish this case.

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EXPERIMENTAL PASSAGE OF THE OOCYSTS OF FISH COCCIDIA THROUGH THE HUMAN INTESTINE.

BY

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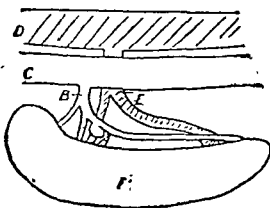
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In the BRITISH MEDICAL JOURNAL of February 13th (p. 262) the authors pointed out that three coccidia described in man—*Eimeria wenyoni* Dobell, 1919, *Eimeria oxyphora* Dobell, 1919, and *Eimeria snijdersi* Dobell, 1921—were not true human parasites, but corresponded morphologically to the oöcysts of two species common in the liver and testis respectively of certain fish. *Eimeria sardinae* Thélohan, 1890 (of which *E. oxyphora* and *E. snijdersi* become synonyms), is present in the "soft roes" (testes) of about 100 per cent. of herrings, occurs in enormous numbers in the soft roes of sprats, and is somewhat less frequent in the testes of mackerel. It is interesting to note that, since the previous communication was published, this parasite has been found in tinned sardines (*Clupea pilchardus*) exported to this country from Portugal, and also in tinned soft roes of herrings from Norway. In spite of the high temperatures to which these articles of diet must have been subjected during the cooking processes at the factories, the oöcysts were in a remarkable state of preservation, and their contents were easily differentiated. *Eimeria clupearum* Thélohan, 1894 (synonym *E. wenyoni*), is confined to the livers of the same group of fish, and its oöcysts are especially numerous in the livers of herrings. These coccidia provide a striking example of two distinct, but closely allied, species selecting different organs of the same fish for their development. Wenyon (1915), in his original description of the oöcysts of this coccidian in the faeces of man, compared them with those of *Eimeria faeciformis*, which is parasitic in the intestine of the mouse, and he obviously suspected that man derived the infection from some animal source. Brug (1922) mentioned in the literature that these *Eimeria* might simply be ingested with the food, basing his suggestion on the fact that natives frequently eat insects and also the intestines of animals. Brug also suspected that the distorted forms of an *Eimeria* seen by Snijders (*E. snijdersi* Dobell, 1921) in a case in Sumatra might be the result of cooking.

It will be noted that up to the present no one suspected fish as the source of these *Eimeria*, and, further, that until the authors undertook this investigation and actually found the oöcysts in herrings, there was no mention or suggestion in the published literature of the possibility of fish being incriminated. The salient fact is that the discoveries of Thélohan made over thirty years ago have remained more or less buried in the literature, and it is almost inexplicable



Left kidney from behind. A, aneurysm; B, left renal artery; C, aorta; D, inferior vena cava; E, left renal vein; F, left kidney—small on account of pressure.

that these parasites should only now be traced to the herring.

To prove that the oöcysts could pass through the human intestine the following experiment was undertaken. A volunteer was given a strong saline soon after the midday meal, which resulted in a copious evacuation about 6 p.m. A pound by weight of herring soft roes heavily infected with *E. sardinae* was cooked by frying in butter and seasoned with salt, pepper, and lemon, and about three-quarters of these were eaten at 8 p.m. No other food was taken until the following morning, when, at 10 o'clock, a semi-fluid motion was obtained, and this, on examination, was found to contain the oöcysts. In the stool they were relatively numerous, two or three on the average to each cover-slip preparation, and these corresponded in every way with oöcysts previously seen by the authors in human stools. The next stool passed by the volunteer showed no oöcysts, and he suffered no ill effects.

This experiment places beyond doubt the origin of these *Eimeria* in human faeces, and, although an experimental meal of herring's liver (with *E. clupearum*) has not been given yet, there is no reason to suppose that the result would be any different from the above. These oöcysts of *E. sardinae* and *E. clupearum* must be eaten every day by large numbers of individuals.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THREATENED GANGRENE OF THE ARM DUE TO INJURY OF THE MAIN ARTERY.

I HAVE read with interest Mr. Peter McEwan's communication on this subject in the *JOURNAL* of January 30th (p. 186), and should like to offer a few suggestions on the treatment of similar cases, as the result of experience gained during the war.

In the first place, rupture of the main artery in a patient under 45, even if unassociated with damage to the accompanying vein or venae comites, is unlikely, of itself, to cause gangrene in the upper extremity, where the collateral circulation is notoriously free. When gangrene occurs in such circumstances it is probably due to the tension of a haematoma, which seriously impedes the arterial flow and the venous return, by compressing not only the main vessels but also those concerned in the collateral circulation.

The correct treatment is to remove the haematoma and deal with the artery and vein, or veins, at the injured spot. Take, for instance, the case of a wound or rupture of the axillary artery, with the formation of a diffuse traumatic aneurysm in the axilla. The third part of the subclavian artery on the affected side is controlled by firm pressure against the first rib—or better, I think, by a temporary ligature, or an arterial clamp, which compresses the artery but does not damage its inner coat. The axilla is now opened up, all clots are cleared out, and the injured vessel is sought for. A small opening in the artery may be made evident by a momentary release of the pressure controlling the subclavian. A spurt of haemorrhage immediately reveals the injured spot. If the artery is completely torn across ligatures are applied to both ends. If incompletely severed it is wise to complete the division and tie both ends. In the case of a small wound I have been able to suture the opening without occluding the artery. (This was in a patient in whom the accident happened during the removal of a breast for carcinoma.) The ideal method in all cases would, of course, be arterial suture, but, except in those cases in which the collateral circulation has been seriously interfered with, the method described is sufficient. If the axillary vein is injured it can be dealt with in the same way as the artery. Experience during the war showed that ligature of the accompanying vein or venae comites

in arterial injury, so far from increasing the risk of gangrene, actually lessened it by retaining in the limb a quantity of blood useful for its nourishment. All bleeding points having been secured, the temporary ligature or clamp is relaxed, and, if no further haemorrhage takes place, is finally removed. The wound in the axilla may be sutured without drainage, or a strip of rubber left in for twenty-four hours.

In injury to the brachial artery the procedure is even simpler, as a bloodless field can be secured by a tourniquet applied above the suspected rupture. The clots are turned out, and the artery and vein, or veins, dealt with as described.

Mr. McEwan's cases were both late cases, and my object is, not to criticize adversely his treatment, but to emphasize the importance of relieving pressure at the affected spot at the earliest opportunity. If this is done gangrene can be prevented, unless some other complication is present.

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SEPTICAEMIA DUE TO *B. AERTRYCKE*.

THE following case presents several features of interest, and seems, therefore, worthy to be put on record.

A man, aged 46, was admitted to the Devon Mental Hospital on October 1st, 1925, in a state of acute mania; in this state he remained until October 21st, when symptoms of bronchopneumonia set in, and terminated fatally the same day.

At the *post-mortem* examination the appearance of the different organs of the body suggested the possibility of septicaemia: the lungs were very congested, and there was evidence of commencing abscess formation at the left base; the intima of the aorta had a faint pink appearance; the liver and kidneys were congested and showed evidence of cloudy swelling, while the spleen was large, soft, and pulsatious, and the intestines generally injected. Cultures were accordingly made, with the usual precautions, from the interior of the left ventricle of the heart. An organism was isolated, which on further investigation gave the biochemical and serological reactions of *B. aertrycke* (Mutton).

It was proved that, during his sojourn in hospital, the patient had been on a fluid or semi-fluid diet, but as several of the patients in the same ward had about this time partaken of brawn, this was subjected to bacteriological examination, with negative results. A point of considerable interest is that the patient came from Lynton. During the summer of 1925 there was a small outbreak of food poisoning in this area, and a strain of *B. aertrycke* was proved to be the causal agent. Inquiry of the patient's relatives elicited no history of previous intestinal trouble; he was apparently a casual labourer, and had been in farm service for several years when a lad.

Our findings were confirmed by Dr. W. G. Savage, county medical officer of health for Somerset, and by Mr. Bruce White of the Lister Institute, to both of whom our thanks are due.

The salient features of this case are: First, the unusual source of the organism—namely, the heart blood. The patient was much too ill during life to attempt blood culture, and as the possibility of an intestinal pathogen was not contemplated at the *post-mortem* examination, the intestines were not examined bacteriologically. We cannot be certain, therefore, whether the presence of the organism in the general circulation was a terminal phenomenon or not. Secondly, the specificity of the strain obtained—a point noted both by Dr. Savage and by ourselves. The organisms included under the comprehensive heading of the "Salmonella Group" are very closely interrelated, both biochemically and serologically, and can usually only be differentiated by agglutinin-absorption procedures: in this case, however, the organism in question agglutinated with a *B. aertrycke* serum up to a dilution of 1 in 250, and was absolutely unaffected by the serums of allied strains. The serums employed were those of the Standards Laboratories at Oxford. Thirdly, the fact that the patient came from an area in which there had already occurred an outbreak of food poisoning due to the same strain of organism.

These notes are published by kind permission of the medical superintendent, Dr. R. Eager, O.B.E., to whom our thanks are due.

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Reports of Societies.

INTRATHORACIC NEW GROWTHS.

At a joint meeting of the Sections of Medicine, Electro-Therapeutics, Surgery, and Laryngology of the Royal Society of Medicine, held on February 23rd, with the President of the Section of Medicine, Dr. HUGH THURSFIELD, in the chair, a discussion was held on the diagnosis and treatment of intrathoracic new growths.

Dr. L. S. T. BURRELL, opening the discussion, pointed out that only a few years ago such a subject attracted mere academic interest, but nowadays, when it was being discovered that these new growths in the thorax were not so uncommon as previously supposed, and that they were in some instances amenable to treatment, the question became one of practical importance. He dealt with intrathoracic new growths under three groups: those of the mediastinum, those of the pleura, and those of the lung. In each case the new growth might be primary or secondary, malignant or benign. In general the diagnosis of secondary tumours was easy, and they were beyond cure. Primary tumours, and especially the benign ones, which could prove fatal on account of their size, were, however, curable in certain cases. Dealing with mediastinal new growths, Dr. Burrell described sarcoma as being the commonest, fibromas and dermoid tumours also occurring. In the early stages the signs were those of pressure. He described one case where a patient complained of swelling of the veins over the right side of the neck on stooping. Another striking case presented well marked changes in certain joints, and on examination of the chest a mediastinal tumour was found. This was treated by three applications of x rays, and both the tumour and the joint affection disappeared. The tumour recurred, and was again successfully treated. Death followed four years after the first discovery of the growth, which proved to be lymphadenoma. In many cases of mediastinal new growth a pleural effusion occurred early, but generally not until other signs had made the diagnosis obvious. Pain and dyspnoea also occurred early, but x -ray examination of the chest was the only certain and accurate method of diagnosing mediastinal new growths in their earliest and curable stages, for certain cases were suitable for surgical treatment. Dealing next with tumours of the pleura, of which the majority were endotheliomata, Dr. Burrell described the earliest symptom as dyspnoea due to a large pleural effusion. The diagnosis in these cases was usually obvious, and no treatment was of any value. Confirmatory evidence of the disease could be obtained by thoracoscopy and also by withdrawing the pleural fluid, which was frequently blood-stained, but not always so. Coming to new growths of the lung, Dr. Burrell pointed out that these were not so uncommon, accounting for at least 1 per cent. of all cases of carcinoma. Tuberculosis was held to be a predisposing cause, and frequently occurred with the neoplasm. Hence, since the upper lobe was affected more commonly in both these conditions, diagnosis might be extremely difficult. Nevertheless, early diagnosis was of great importance, since operation offered some chance of a cure, impossible by any other means. The physician should always be on the look-out for something unusual in his tuberculous patients, and he should not fall into the fallacy of disregarding a persistently negative sputum report. About 80 per cent. of all cases of carcinoma of the lung began in a bronchus, and hence bronchoscopy was of value. Once the diagnosis was made a surgeon should always be consulted, since radiation therapy, except in cases of lymphadenoma, was disappointing, and both innocent and malignant tumours of the lung, otherwise certainly fatal, could and had been removed by operation.

Mr. SOMERVILLE HASTINGS said that to laryngologists new growths in the thorax made themselves known by pressure on the vagus, causing laryngeal symptoms, by pressure on the oesophagus, and by pressure on the trachea or main bronchi. Pressure on the vagus generally gave rise to the usual paralytic affections of the larynx. In the early stages there was considerable difficulty in breathing, which was noisy, and in cases of pressure by malignant tumours intubation was the most satisfactory treatment to tide the

patients over this stage until complete paralysis set in. With regard to pressure on the oesophagus, Mr. Hastings stated that more accurate information could be obtained by the oesophagoscope than by an opaque meal and x rays. In treatment of oesophageal obstruction well screened radium was sometimes useful. Pressure on the trachea and bronchi could be brought about by various tumours, both inside and outside these passages. By getting the patient to bend well forwards the interior of the trachea could sometimes be seen with a laryngeal mirror, and the bronchi could be examined with a bronchoscope. In skilled hands, Mr. Hastings emphasized, the risk of bronchoscopy was practically negligible. By means of bronchoscopy a growth could be recognized, a piece removed for section, opaque substances could occasionally be introduced to help subsequent x -ray examination, a growth could be removed, or radium could be applied. Further, if sepsis had occurred the patient's comfort could be increased by lavage through a bronchoscope.

Mr. J. E. H. ROBERTS emphasized the importance of early diagnosis, since operative surgery had now made it possible to remove intrathoracic new growths in their early stages. Suspected cases should be submitted to special methods of examination, such as bronchoscopy and thoracoscopy. Dealing only with the neoplasms of the thorax, Mr. Roberts pointed out that innocent ones were rarer than the malignant varieties, but they were being detected more frequently now by means of x rays. Dermoid cysts in the anterior mediastinum and fibromas growing from the posterior mediastinum were the most important. Symptomless though these tumours might be at first, they eventually caused pressure symptoms and death. Means of access to these tumours was obtained either by a sternum-splitting operation which avoided opening the pleura, and which was suitable for growths at the apex of a lung, or by a transpleural operation. Of the malignant tumours the primary sarcomas of lung and mediastinum did not come properly within the surgeon's reach. Radiation treatment was to be preferred, but eventual cure was not to be expected. Primary carcinoma of the lung appeared to be becoming common; it arose usually from a bronchus and rarely from the parenchyma of the lung. It caused obstruction of the lumen of the bronchus with collapse of part of the lung and, later, bronchiectasis. Since operation in these cases where infection had occurred was very dangerous, the surgeons hoped that it would be possible to diagnose the new growth before degeneration and sepsis set in. Palliative operations to drain abscesses in these cases were, however, worth while. Mr. Roberts concluded by showing some striking skiagrams of cases before and after the operative removal of intrathoracic new growths.

Dr. STANLEY MELVILLE pointed out that in the pre-radiological days the publication of a case of neoplasm in the chest was a rarity, and clinical medicine rather failed with regard to this condition, partly because it was thought too rare and partly because the hopelessness of the outlook did not encourage diagnosis. Nowadays, given satisfactory team work between all concerned, it should soon be possible, Dr. Melville believed, to make a working diagnosis in any case of intrathoracic new growth. Dealing first with the benign neoplasms, he described the x -ray diagnosis of fibroma, and pointed out how collapse of the lung helped in the diagnosis. This diagnostic collapse was a simple and harmless procedure and ought to be of universal use. In the case of a dermoid cyst in the chest x -ray diagnosis was rendered difficult by the dense opacity of the contained sebaceous material. Dealing next with malignant neoplasms, Dr. Melville pointed out the apparent increase in their occurrence, showing some recent statistics indicating that carcinoma of the lung accounted for over 4 per cent. of all cases of carcinoma. He asked whether this increase was real or apparent. Bronchial stenosis appeared to be the first result of carcinoma of the lung and it gave an almost unmistakable picture. In the upper part of the lung cases of primary carcinoma provided a very characteristic x -ray picture only to be confused with lobar pneumonia. In the lower part distinction was more difficult owing to the obscurities produced by pleural involvement. In secondary

neoplasms of the lung both sarcoma and carcinoma were very similar in appearance, but the distinction was not of much importance. In the case of mediastinal tumours collaboration between a clinician and a radiologist was of greatest importance. It was the duty of the radiologist to prove that the mass was not connected with the aorta, and the strict lateral position was of great help. The radiologist could also diagnose retrosternal thyroids, and should employ opaque meals to see if any tumour present pressed upon the oesophagus. Dr. Melville showed numerous skiagrams to emphasize certain points, and concluded with a strong plea for more team work and free discussion on this subject.

Dr. ROBERT KNOX dealt mostly with the treatment of intrathoracic new growths by means of radiation. He emphasized the importance of diagnosis, since aneurysm was often mistaken for a new growth. He described a case of lymphosarcoma which was first treated successfully by buried radium and, on the recurrence of the tumour two years later, by x rays. The latter again produced disappearance of the tumour. X-ray technique was still improving and big doses could be given by this method, avoiding the necessity of operating in order to insert radium. A second case, also successfully treated by means of x rays, was a mediastinal tumour secondary to a new growth of the testicle. A third case, of secondary sarcoma, had failed to respond to any radiation treatment.

Dr. R. HILTON described how the introduction of a small amount of air into the chest greatly helped in the diagnosis of intrathoracic neoplasms associated with pleural effusion by lowering the level of the fluid. Pneumothorax was not only confined to diagnosis, but should be performed as a preliminary to surgical intervention. Air should only be introduced at atmospheric pressure and not forced in. Collapsed lung favoured operative procedures being easier to manipulate.

Sir CHARLTON BRISCOE dealt with the diagnosis of involvement of the phrenic nerve by tumours at some point in its course. Certain areas of deflation of the lung followed paralysis of the phrenic nerve, and these could be detected by certain areas of dullness on examination of the chest. X-ray examination was also important, and since lung deflation was apt to produce obscurities in the region of the diaphragm an exact mapping out of the limits of its movement on the affected and sound sides was very important.

Dr. F. G. CHANDLER pointed out that the early diagnosis of innocent tumours was often by chance on a routine radiological examination of the chest. Enlarged veins on the chest were not usual in these cases, being more commonly due to aneurysm, gumma, or substernal thyroid. He described one case of primary sarcoma successfully treated by x rays, but had never seen any other such case benefited by this form of treatment.

Dr. DEVEREUX FORREST described the results of 152 cases of intrathoracic neoplasm occurring in the last twenty years at the London Hospital. According to Professor Turnbull, these were all cases of carcinoma, the oat-celled sarcomata of the posterior mediastinum being in reality medullary carcinoma of the bronchial epithelium. Dr. Forrest emphasized the symptoms and signs in some detail, and produced charts which seemed to indicate that the occurrence of new growths in the chest was really on the increase. He pointed out that secondary deposits in the liver from new growths of the lung were extremely common.

The PRESIDENT uttered a note of warning against accepting statistical proof that the disease was on the increase, since admissions to the London hospitals had nearly doubled in the last twenty years, and cases were now admitted which previously were always relegated to the infirmaries. Mr. T. P. DUNHILL emphasized the difficulties of diagnosis, showing three very similar skiagrams from cases of endothelioma, aneurysm, and retrosternal thyroid. He described several other cases of retrosternal thyroid tumours. The PRESIDENT pointed out that early dyspnoea as a symptom had not been sufficiently emphasized. He also advised clinicians to study their patients more frequently with the aid of the x-ray screen. Mr. ROBERTS and Dr. MELVILLE briefly replied.

EXPERIMENTAL EPIDEMIOLOGY.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine held on February 26th, Drs. MAJOR GREENWOOD and W. W. C. TOPLEY contributed a paper entitled "Experimental epidemiology: Some general considerations."

The chief difficulties encountered in the study of human epidemic disease, they said, were that the data, although extremely numerous, were not compiled on a uniform plan, and that changes, both of professional opinion and, still more, of the economic and social conditions of a human population, rendered continuous observations of the course of an epidemic disease under uniform environmental conditions impossible. An experimental method had the advantage that environmental changes (other than those it was actually desired to study) could be maintained constant over a period which, having regard to the relative lengths of life of men and mice, was much longer than the whole modern history of infectious disease.

The bulk of the experiments described in the paper related to colonies of mice wherein a fatal infectious disease due to a pasteurilla existed; the colonies were recruited by the immigration of healthy mice which had been subjected to a long quarantine and were not carriers of the infective organism. In different experiments the rate and method of immigration were varied. In one series the additions ranged from six daily down to one every third day. One of these experiments had been continued for five years, which, assuming that on the average a human life was thirty times as long as the life of mouse, corresponded to a period of human observation of 150 years, and the medical statistics of the community were compiled and analysed with the same care as those of a human population. The statistical history of this community was described, and it was shown (1) that the death rate exhibited the same quasi-periodic variations, epochs of great and small mortality, as human medical statistics of infectious diseases display; (2) that although throughout the whole period no animals infected with pasteurilla entered the community, that infection produced at intervals epidemics of pasteurilosis; (3) that an infection with the Gaertner organism which the quarantine failed to exclude led to epidemics which in their relation to the pasteurilla epidemics produced effects comparable with the phenomena which, in human experience, the doctrine of epidemic constitutions had been invoked to explain. The authors suggested that, as in the colonies of mice living under uniform environmental conditions variations of cosmic phenomena could hardly be required to explain the epidemic successions, that hypothesis might perhaps be also unnecessary in connexion with human epidemiology. Another experiment was described in which during 325 days not a single death from pasteurilosis occurred—that is, in human experience some twenty-seven years—and no infected animals were admitted, yet the disease again became epidemic. As the number of daily admissions increased the rate of mortality tended to increase and the intervals between successive epidemics to decrease, but large discontinuous additions—for example, adding 50 or 100 mice at long intervals—did not have the same effect upon the mortality as small continuous additions. It was suggested, therefore, that the determining factor was not so much a critical arithmetical ratio of carriers to susceptibles in a population as the continuous addition of susceptibles. Knowledge of the mechanism of natural infection in human disease was very imperfect. Such data as those of Dr. McClure implied that the proportion of susceptibles exposed to infection who were actually infected did not always vary with the ratio of susceptibles to infecting cases—that is, that the attack rate in families of three was the same as in families of two when the initial infecting case was not removed (scarlet fever).

Finally some experiments were described designed to test whether the relative immunity of animals which had passed successfully through an epidemic of infectious disease, in comparison with animals which had never been exposed, were a consequence of selection (the naturally unresistant weeded out by death) or of active immunity due to sublethal infections. To this end two infected colonies were

established, one of which received immigrants from the other and from a clean stock. It was shown that the advantage of the immigrants from an infected colony over unsalted stock was more easily explained on the hypothesis of immunization than on that of selection, although both factors were probably at work. Length of exposure rather than severity of the disease (measured by the death rate) during the period of exposure seemed to be the important factor of the advantage derived by the survivors.

TESTING OF RENAL FUNCTION AND TREATMENT OF RENAL DISEASE.

At a meeting of the Section of Urology of the Royal Society of Medicine on February 25th, with Mr. JOCELYN SWAN in the chair, papers were read on the testing of renal function and treatment of renal disease.

Professor HUGH MACLEAN said that there were from fifteen to twenty possible tests of renal function, and each year saw additions to them, with some falling into desuetude. To have a great number of tests was of no value. With experience of a few tests, the renal condition of practically every patient could be ascertained. The minimum number of tests he used was two—namely, the blood urea and the urea concentration tests. While he agreed that 20 mg. per 100 c.cm. was the average quantity of urea in the young person, as people got older the urea concentration rose, so that at about 60 it was not uncommon to find it 60 mg. with enjoyment of good health. Many conditions other than those connected with the kidney influenced this content, and if the blood urea determination was the only test used mistakes would be made. If the blood urea was normal the condition of the kidneys could not be very bad. If there were 90 mg. of blood urea and a concentration of 2.6 to 3 per cent., it was safe to conclude that the cause of the condition was not kidney defect. He had tried the water test, but there was no evidence that it gave more information than did the urea test. A very important point was to deprive the patient of all fluid intake fifteen hours before giving the urea. With regard to the significance of albuminuria, it was fairly common in the young, and in them seldom led to any kidney disease later in life; casts were very seldom found in the urine of these overgrown, somewhat neurotic youths. When casts were found, even epithelial, should the case be regarded as grave? He had watched such cases for seven years, and, when they showed normal blood urea and urea concentration figures, no ill results had followed. Still, admittedly it was difficult to be certain whether a case of nephritis was being dealt with. In the absence of any obvious progressive deterioration in a few months, the conclusion was justified that there was no active renal lesion. Where, however, casts and blood were present, a more serious view should be taken, but even some of these cases cleared up entirely. It was of the utmost importance to examine the centrifuged deposit. As to the relationship of high blood pressure to nephritis, he had seen boys with a systolic pressure of 155 mm. and a diastolic of 80, with some albuminuria, and in several of them nothing further had happened. Some people's normal blood pressure was high compared with the average. When this high pressure was associated with cardio-vascular changes, it was common to find the kidneys also involved; when this happened the end was not very distant. There was no real treatment for established kidney disease; all that could be done was to place the kidneys under the best conditions to recover. Certainly in acute nephritis all that could be effectually done was to keep the patient warm and protect him in the usual way. In the cases in which the stomach was disturbed, he was in the habit of using 50 per cent. glucose, which enabled the patient to be supplied with a considerable number of calories daily. In the parenchymatous variety, with much oedema, no doubt a good solid diet containing a fair quantity of protein was beneficial. In this form there was a natural tendency to diuresis. He did not believe there was any evidence that protein did any harm in renal disease, and the patient's resistance and general health should be maintained as well as possible.

Sir THOMAS HORDER did not agree with keeping the number of renal tests as few as possible, in the present state of knowledge, and in view of the probability that nephritis was not an entity so much as an evidence of general metabolic disturbance. The symptoms, as well as the results of tests, must always be taken into account. With regard to the significance to be attached to the finding of casts, much depended on the criterion. If the urine were centrifugalized and casts were afterwards found, that must not be placed on the same basis as the finding of the doctor who, in a routine way, placed the urinary sediment under the microscope. Nephritis he regarded as a disease of very slow progress, if the patient succeeded in escaping infections—not necessarily grave ones, but such conditions as sore throat and coryza. He somewhat regretted that some impatience was nowadays shown over the slow recovery manifested by these patients. He agreed with Professor Maclean that a patient with parenchymatous nephritis whose disease had rendered him anaemic did better on a mixed diet. Active treatment of the condition known as chronic nephritis he regarded as the therapeutics of the future rather than of the present.

Sir JOHN THOMSON-WALKER spoke of the surgical aspect. He said that in the medical disease an immediate result was not looked for, as an almost permanent condition was being dealt with. In the surgical disease, however, in 80 per cent. of cases a temporary condition was being dealt with. A man with back pressure on the kidneys and an enlarged prostate would, in 80 per cent. of cases, recover his kidney function in ten days, without removal of the prostate, simply by bringing about efficient drainage. In borderline cases of nephritis treated surgically the good effect following decapsulation of the kidneys he attributed entirely to the incision. He agreed with Professor Maclean's desire to have the renal tests reduced to a minimum, and reaffirmed his own confidence in the urea tests rather than in the colour tests. Still the ordinary examination for urea in the urine must not be neglected; in many cases the special tests could be dispensed with on finding 2 per cent. of urea in the ordinary urine. The urea concentration test forced the kidney to work as high as it could be expected to work at any given time; it was important to know what the kidneys could stand. In the majority of cases on which he had operated for enlarged prostate or for a bladder condition the urea was less than normal, but that did not prevent his decision to operate. Only when half the kidney tissue was inactive was the blood urea test important; until then he did not think there was much accumulation of urea in the blood.

Sir WILLIAM WILCOX agreed that the two most important tests of renal function were the urea concentration test and the blood urea test; he pleaded for the adoption of another, which he regarded as important—namely, the estimation of the chlorides in the urine, calculated as sodium chloride. In cases of damage to the kidney, sodium chloride was found to be much below 0.5 per cent.; in waterlogged cases the chlorides were almost absent. He did not know of any disease in regard to which it was so difficult to give a prognosis as in kidney disease. He regarded kidney disease as analogous to such conditions as hay fever and asthma, and thought that in kidney disease there was a peculiar sensitiveness of the kidney tissue to some toxin. He appealed for more patience in treating cases of this disease; heroic measures were useless. The amount of blood urea he did not regard as indicating the intensity of the symptoms in a case, but it was useful in distinguishing kidney from heart cases.

Dr. J. W. McNEE also thought it would be unwise to reduce the number of renal tests in use, especially as those tests were crude; they should be of more advantage in surgical cases, which were instances of temporary renal insufficiencies. In performing these tests it must be remembered that the extrarenal factors counted for much; questions of amounts of previous diets, liver involvement, cardiac disability and failure were all important. The blood urea test was of very great value in watching the progress of a severe case of nephritis. He also used the urea concentration test, though sometimes it did not give the information needed. A third one he used was the

ater concentration test; it was easy to do, and had often applied the knowledge he wanted. He would be loath to give up any of those three tests, but he did not think anyone ought to be restricted to three. Sometimes, for instance, it was well to do a blood creatinin test, though it was not necessary as a routine. He had seen albuminuria with casts clear up in nine months. In regard to treatment, he thought the profession at the present day stood in need of guidance concerning the use of diuretics.

SURGICAL TREATMENT OF OSTEO-ARTHRITIS OF THE HIP.

At a meeting of the Buxton Medical Research Society on February 17th, Mr. HARRY PLATT, consulting orthopaedic surgeon to the Devonshire Hospital, read a paper on the surgical treatment of osteo-arthritis of the hip.

Mr. Platt said that it was now widely realized that rational surgical treatment must be based on a clear understanding of the mechanical significance of the essential pathological changes seen in the osteo-arthritic hip. The radiographic appearances, which gave valuable evidence of joint deformation, were at the same time misleading. Thus the osteophytic lip of the acetabulum, which was often a dramatic feature in the radiogram, was from a mechanical point of view of little moment. Pain and limitation of mobility in the early stages were due to the dense infiltration of the joint capsule, which became abnormally adherent to the femoral neck. Later the complete loss of cartilage from the femoral head and acetabulum brought two eburnated bony surfaces into apposition. This bone sclerosis extended deeply, and explained the complete failure of Nature's efforts to ankylose the disorganized joint. Although osteo-arthritis of the hip-joint was usually a monarticular affection, early changes were not infrequently seen on the so-called healthy side, and the possibility of a bilateral involvement after some years must always be carefully gauged when operative attack was contemplated. Surgical procedures could be divided into four distinct groups: (1) forcible manipulation under an anaesthetic; (2) limited operations for the removal of osteophytes, thickened capsule, and other formations; (3) arthrodesis (surgical fixation); (4) excision of the head of the femur.

Manipulation.—All that a forcible manipulation could accomplish was to stretch to a certain degree the thickened and infiltrated capsule, or even to detach partially the soft osteophytic lip around the margin of the hip socket. In the early stages an increase in the range of mobility, accompanied by lessened discomfort, could be obtained by such a method. This procedure was suitable for the very early osteo-arthritis of the hip in the active and robust individual. A careful choice of cases would prevent any untoward complications following a manipulation.

Limited Removal of Capsule, Osteophytes, etc.—The operation known as cheilectomy—removal of the acetabular rim—introduced some years ago, was first considered and its rationale examined. When it was realized that this osteophytic rim was not a definite obstacle to mobility in itself, cheilectomy in its limited sense was obviously an operation which could accomplish very little. But the excision of the osteophytic rim, combined with a free excision of the thickened capsule, was a procedure of very considerable value, and could be regarded in some measure as the open equivalent of a manipulation. This operation also could be employed only in a limited group of cases, but might well be adopted more widely as an alternative to the more drastic procedures still to be considered.

Arthrodesis.—Careful observation of a considerable series of osteo-arthritic hip-joints had emphasized the fact that most patients would be well satisfied with a painless, complete ankylosis of the joint in a useful position. Arthrodesis was therefore the pivotal operation in the surgical treatment of osteo-arthritis of the hip. As a technical undertaking there were certain difficulties; in the well advanced stage, removal of the eburnated bony covering from the femur and acetabulum so as to expose suitable cancellous surfaces was not an easy matter. The operation took a long time and was a fairly severe test of the

endurance of the patient. On the whole it was an operation to be reserved for the robust type of patient of middle age, and was only suitable in specially selected cases amongst older people.

Excision of Head of Femur.—This was a revival of the old classical excision of the hip-joint. It consisted essentially in removing the mushroomed portion of the femoral head, leaving a rounded stump of the neck which was thrust deeply into the acetabulum in the position of abduction. There was no interference with the acetabular surface. As part of the operation the great trochanter, which had been detached to allow easy access to the joint, was reattached to the femur at a lower level, thereby gaining a position of mechanical advantage. In this operation the retention of a certain amount of mobility was aimed at. In the speaker's experience the operation had proved suitable in selected cases of osteo-arthritis of the hip in older people. It was quite certain that by this method pain could be eliminated, and often a useful degree of mobility remained. In some cases the hip-joint stiffened up rapidly and the end-result was equivalent to an arthrodesis.

In conclusion, Mr. Platt referred to the bilateral hip-joint arthritis which occasionally accompanied spondylitis deformans (spondylose rhizomelique) and dealt briefly with the mechanical correction of the spinal deformity and the possibility of preventing the onset of ankylosis in such hip-joints.

Drs. C. W. BUCKLEY and J. E. HARBURN remarked that the disease was increasing, and that many cases which came under their care were far advanced and from a surgical point of view were almost hopeless, but received some benefit from the baths and waters. Dr. J. B. BERR's experience of forcible manipulation had been unsatisfactory. Dr. E. BRIDLE suggested that some method of diagnosis ought to be devised to distinguish monarticular cases from others.

LIGHT TREATMENT.

At a meeting of the Chelsea Clinical Society on January 19th, Dr. SEYMOUR PRICE in the chair, a discussion on heliotherapy was opened by Sir HENRY GAUVAIN.

Sir H. Gauvain said that artificial sunlight must not be confused with natural sunlight, for in the latter the question of the value of air treatment had to be taken into account. Many further tests of the real value of ultra-violet rays in the treatment of disease would have to be undertaken before the true value of the method could be estimated; but he felt that, as in the clinical value of cod-liver oil, clinicians had anticipated scientists, and it might well be that new discoveries as regards ultra-violet rays might be made which would confirm the favourable experience of them amongst clinicians. The mind as well as the body was affected by direct sunlight. Sir H. Gauvain thought that sunlight should be used as an adjuvant to other forms of treatment in cases of surgical tuberculosis.

Professor LEONARD HILL followed with an account of his scientific work at Hampstead, and mentioned the value of sunlight in producing pigmentation, and as a bactericide.

Dr. H. MACCORMAC pointed out that epithelioma of the skin was rare in Alpine guides, and this was explained by the fact that their skin was constantly exposed to the direct rays of the sun. He considered that ultra-violet rays were useful in many skin diseases, especially in cases of tuberculous affections. In psoriasis and acne vulgaris the beneficial effect of the rays was most marked; alopecia areata, also, in some cases had been successfully treated with these rays. He thought that there was some danger in the self-administration of light baths.

Dr. MURRAY LEVICK agreed with Dr. MacCormac as to the superiority of the mercury vapour lamp. It was not always advisable to produce too deep a pigmentation in the skin, and he drew attention to the use of these methods of treatment by unqualified people, and the danger to the public engendered by such treatment. He thought that much knowledge was necessary for the proper administration of light, and that there were risks about such treatment which should not be left to the layman.

Dr. HOWARD HUMPHRIS said that sunlight undoubtedly induced chemical changes in the blood, as, for example, an increase in the calcium and phosphorus content. Ultra-violet rays induced a fluorescence in the skin; this was followed by a leucocytosis, and possibly the bactericidal power of the blood was increased. Sunlight was analgesic, and thus sciatica and lumbago might be cured by its use. It was especially useful in cases of anaemia in young people, and acted as an excellent tonic in elderly people. Dr. Humphris claimed for sunlight that it did good even in serious disease of the alimentary tract.

CARCINOMA OF THE RECTUM.

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on February 19th, the President, Mr. R. C. B. MAUNSELL, in the chair, Mr. W. E. MILES read a paper on carcinoma of the rectum.

Mr. Miles said he had treated 587 patients for this condition, and in 211 of these the disease had occurred between the ages of 50 and 60, with almost equal frequency in men and women. There was only one type of cancer of the rectum—adenocarcinoma; but three varieties of carcinoma were clinically recognized, which differed in malignancy—the papilliferous type, the adenoid type, and the colloid degenerative type. In the first type involvement of the glands was seldom found, and it was the least malignant type; even after a restricted operation it was not apt to recur. This type was, however, in the minority. The adenoid type was much more malignant; there was always infiltration, and only an operation which aimed at removing the vulnerable tissues would protect a patient against a recurrence of this type. The colloid type affected the connective tissues, and was the most malignant type of cancer, and practically always recurred, even after the most drastic operation, as the dissemination was so widespread. These three varieties of carcinoma might be met with in any part of the rectum. Referring to symptoms, he said that if attacks of alternating constipation and diarrhoea were waited for, a case might be missed which would otherwise be amenable to treatment. Sometimes these attacks did not occur until the disease was very far advanced and the position of the cancer affected their early or late appearance. An urgent symptom, however, was actual difficulty in obtaining an action of the bowels at all. Ampullary growths might persist for a considerable time before they produced enough symptoms for notice to be taken of them. In cases of cancer of the rectum, if the liver was involved, it might be taken for granted that the growth had penetrated the peritoneum, and that the case was inoperable. It was impossible to say how long these growths might exist without producing any symptoms; they might be present for six months before any symptoms showed themselves, but the extent of the circumferential involvement was an index of the depth of the growth, and of the length of time the disease had been present. The operability or inoperability of a case could not be estimated by digital examination alone. It was necessary to open the abdomen and see what the condition of extramural extension was. The dissemination of cancer from the extramural lymphatics was slight.

The President drew attention to the lack of symptoms in cases of carcinoma of the rectum, except when the growth was low down, near the anal canal, in which case the pain was very severe. As compared with Mr. Miles's figures, the operations for the condition which he (the President) had done were very small, but it was a condition of much importance in which he took great interest.

Sir WILLIAM TAYLOR said that anyone who had operated to any extent on cases of carcinoma of the rectum must have recognized that there was only one scientific method of dealing with the condition, and that was the combined abdominal and perineal procedure. He referred to the importance of opening the abdomen, and not estimating the operability or inoperability of a case by digital examination alone. On several occasions after opening the abdomen he had found secondary deposits in the liver which otherwise could not have been detected. If he passed his hand right above the liver he found secondary deposits, even though the under surface of the liver was absolutely

free from them. By the combined abdominal and perineal operation the disease could be removed in its entirety, and therefore that was the only satisfactory procedure. He drew attention to the small number of cases of carcinoma of the rectum seen in Ireland in comparison with the very large number seen by Mr. Miles at the Cancer Hospital in London, and said that from the comparatively small number of cases he himself had seen he had come to the conclusion that six cases were inoperable for one that was operable. When at the Mayo Clinic recently he had seen six cases operated on in two days, by the parasacral procedure, after a preliminary colostomy; by this method he believed the mortality rate was about 5 per cent. Now, however, the operation done at the Mayo Clinic was the combined abdominal and perineal one. His own personal death rate from this method was one out of fifteen cases.

Mr. SETON PRINGLE said that his mortality rate in these cases was much higher than those of Mr. Miles and Sir William Taylor. He mentioned a few points in his own technique which differed from that of Mr. Miles. Instead of opening the whole lumen by colostomy he only put in a small suture, and by this means it was possible to administer any quantity of saline to the patient immediately after the operation. He quite agreed that there was only one really radical operation for carcinoma of the rectum, and that was the combined abdominal and perineal one; although the mortality might be high, the patients who survived had a reasonable chance of permanent recovery.

Mr. H. F. MACAULEY thought the vast majority of cases of carcinoma of the rectum seen in Dublin were inoperable; he frequently found nodules in the liver, and this prevented further operation. There seemed to be no possible safeguard against recurrence in the liver.

Mr. H. S. MEADE in the last ten years had seen 46 cases of carcinoma of the rectum, and of these 26 were inoperable; 11 patients, though operable, refused operation, because they had had a colostomy. Of the rest, 2 were still alive, and were receiving deep x-ray treatment. He had operated on 20 cases, and in the first 8 he had done the perineal operation, and they were all dead except one. By the combined abdominal and perineal method he had operated on 12 cases, 7 of whom had died, but the other 5 were still alive.

Mr. MILES, replying, said that he was pleased to hear that in Dublin the combined abdominal and perineal method was gaining ground, for he was quite confident that it was the only method which was really successful in these cases. If the disease was extensive the operation was futile; it should be limited to the earliest possible cases if it was desired to prevent patients from a recurrence. It was without value if an actual growth was present in the perineum. Even in early cases the biggest possible operation only gave a possibility of preventing recurrence of the disease. In all obstructive cases he performed caecostomy. In a toxic patient there was danger of chronic obstruction if the bowel was divided, so he drained through the caecum.

At a recent meeting of the Royal Medico-Chirurgical Society of Glasgow, the President, Professor ARCHIBALD YOUNG, in the chair, two communications were made on the subject of trigeminal neuralgia. Mr. GEORGE DALZIEL showed three patients who had been treated by the injection of alcohol. The technique employed followed that described by Dr. Wilfred Harris, but in each case only the third branch was injected, the results being very satisfactory. Mr. JAMES R. LEARMONTH read a paper on neuralgias of the head and their treatment. Using the term "neuralgia" in its wider sense, he considered first, in general, the conditions which might give rise to pain referred to the various cervical nerves. Pain referred to the fifth nerve was then discussed in some detail, special reference being made to the methods of treatment adopted for the relief of trigeminal neuralgia. A plea was made for the earlier resort to operative measures—the procedure of choice being division of the sensory root of the fifth nerve between the ganglion and the pons. This operation gave instant and lasting relief at a cost of permanent anaesthesia in the distribution of the nerve.

The operative technique, which was briefly outlined, was that employed by Dr. A. W. Adson, neurological surgeon to the Mayo Clinic. In conclusion, the speaker referred to the rarer forms of neuralgias associated with the seventh through the geniculate ganglion and with the glosso-pharyngeal nerve. In the discussion which followed Professor Young, Dr. Jones, Mr. William Rankin, and Mr. J. Scouler Buchanan took part.

JAMES MACKENZIE INSTITUTE.

In a paper on the Schick test, read before the James Mackenzie Institute for Clinical Research, St. Andrews, Dr. MATTHEW FYFE referred first to the incidence and death rate of diphtheria and to the expenditure incurred by isolation and treatment. By the use of the Schick test during an epidemic, he said, it was possible to detect susceptible contacts, who could then be temporarily immunized by antitoxin. When time permitted toxoid antitoxin could be employed to produce a more lasting immunity. He described the passive immunity, apparently derived from the mother, of newborn infants, the gradual loss of this in the first two years of life, and the gradual development of acquired immunity after puberty, and he emphasized the high incidence and death rate of diphtheria from the second to the tenth years of life. The value of the Schick test as a check on vague bacteriological reports and as an aid in the identification of carriers was illustrated, and its simplicity, cheapness, and safety were emphasized. Dr. Fyfe, in conclusion, referred to the results of immunization of Schick-positive subjects in other countries and in institutions and public health areas in Britain. He looked forward to a time when, by a general adoption of those methods, diphtheria would be banished from the list of common diseases dangerous to life.

Reviews.

THE CHEMISTRY OF DRUGS.

Mr. NORMAN EVERS, in the preface to his book *The Chemistry of Drugs*,¹ states that his object has been to give a description of the substances used in medicine from the standpoint of pure chemistry. The author only touches incidentally upon the therapeutic action of drugs, but gives a concise description of the chemical constitution, the reactions, and the chemistry of the methods of manufacture. The book deals with the chief synthetic drugs and with all the naturally occurring drugs of importance in medicine whose active principles are known. The treatise is therefore written primarily for the chemist, but it is of interest to all concerned in the study of the action of drugs. It is the first time that this information has been collected into a single volume, at any rate in this country, and the book has the great advantage over foreign works of somewhat similar scope in that the author has exercised his powers of selection and has given an account only of those drugs which are of real importance in medicine.

The volume deals with the following classes of drugs: synthetic drugs; alkaloids, glucosides, and other vegetable drugs; and drugs of animal origin.

In the case of each an account is given of the source of the drug, its chemical properties, its reactions, and the methods of manufacture. The chapter on drugs of animal origin is of particular interest, since it contains an account of the chemistry of cod-liver oil and its vitamins, and of various internal secretions, notably insulin, adrenaline, and thyroid. Most of this chapter is concerned with discoveries made during the last few years, and it is interesting to note how rapid has been the advance in knowledge of the chemistry of the internal secretions.

The standard methods of manufacture of insulin are described, and in this chapter the author has included a note on the work of Collip on the parathyroid gland, carried out during the past year. In an appendix Mr. Evers writes a few pages on the relation between chemical

constitution and physiological action. He wisely concludes that we have probably only touched the fringe of this vast subject, but draws attention to the interesting fact that hitherto all efforts to improve the therapeutic properties of naturally occurring drugs have been almost completely fruitless. He points out that "it can hardly be a coincidence that in so many cases these compounds produced in plants, perhaps as waste products, should of all their derivatives so far studied have the maximal physiological action in the body."

In the introduction the author is severely critical of English therapeutics, contending that "there is an undoubted contrast between the amount of scientific ingenuity and intelligence which has been applied on the chemical side to the production of new synthetic drugs, and the haphazard methods employed in their clinical use and trial." He goes on to express the opinion that successful advertising methods play a wholly disproportionate part in influencing members of the medical profession in their choice of drugs. One cause of this state of things is, the author maintains, the absence of any organization in this country for providing an impartial test for the pharmacological and clinical properties of a new drug. In defence of the medical profession, it must be pointed out that it is much more difficult to determine the therapeutic properties than the chemical properties of a drug. Even when allowance is made for this fact, however, there is still a marked contrast between the mass of exact knowledge regarding the chemical properties of drugs collected by the author in this book and the scrappy and inexact information that alone is available regarding the comparative therapeutic value of drugs.

A CYCLOPAEDIA OF PATHOLOGICAL ANATOMY.

PROFESSORS F. HENKE of Breslau and O. LUBARSCH of Berlin are producing a series of monographs on pathological anatomy and histology. When the series is complete it will comprise some fourteen or fifteen volumes. So far the second and sixth have been received in this country.

The authors, with the aid of numerous collaborators, have set themselves the task of collecting all the knowledge which is available on the morphological aspects of disease. They have confined themselves almost entirely to the anatomical aspect, though recognizing that pathology, like all the other biological sciences, has advanced into a territory where new methods and outlook often make pure morphology appear rather old-fashioned. They have met this criticism by insisting that morphology still has a large part to play, and that no extensive series of monographs written from this standpoint alone has yet appeared. They express the hope that these large volumes, each of which is copiously illustrated, will prove that German medical science, despite lack of money and other difficulties, shows no slackening of effort, and is still indispensable to the whole world of medical science.

The second volume contains the morbid anatomy of the diseases of the heart and blood vessels. The first portion of this (179 pages) is devoted to malformations of the heart; then follow diseases of the endocardium, of the musculature, the bundle of His, and finally the diseases of the pericardium. The whole occupies 606 pages.

The description of the malformations of the heart illustrates extremely well the value of morphology and also its limitations. It gives a catalogue of the forms assumed by the various anomalies, suggests the factors at work and the time at which they act in producing the various lesions. To get any further it is necessary to leave purely static considerations, and to take into account the factors of growth responding to dynamic influences.

Considerable space is given to the work of Beneke, who in the last ten years has attempted to explain first the normal development of the heart, and then its malformations, on hydrodynamic considerations. His view is that the form of the heart tube is the result of the

¹ *Handbuch der speziellen pathologischen Anatomie und Histologie*. Herausgegeben von F. Henke und O. Lubarsch. Zweiter Band: Herz und Gefässe; und Sechster Band: Harnorgane, Männliche Geschlechtsorgane. Erster Teil. Berlin: Julius Springer, 1924 und 1925. (Sup. roy. 8vo. Bd. II, pp. xii + 1152, 232 figures; paper cover G.M.80, bound G.N. 92.40. Bd. VI, pp. viii + 792, 334 figures; paper cover G.M.81; bound G.M.85.75.)

¹ *The Chemistry of Drugs*. By Norman Evers, B.Sc., F.I.C. London: Ernest Benn, Ltd. 1925. (Cr. 6to, Pp. viii + 247. 3s. 6d. net.)

blood stream flowing through it, just as a straight blood vessel of uniform bore is the product of the blood stream flowing through it. The auricles are thin because they function as a reservoir containing only a slowly moving stream of blood, while the ventricles bring about a much more rapidly moving stream of blood. Septa are formed from adjacent heart tissue wherever, owing to the "steady stream" influence, there are produced lateral surfaces free from pressure. The interatrial and the interventricular septa arise in this way. Similarly the spiral septum forms in the intermediate space between two different columns of blood. Another factor is the varying demand of different tissues for blood. For instance, the brain, which grows rapidly when compared with the trunk, occasions great changes in the formation of the aortic arches. The case could, indeed, be greatly strengthened by taking into account the successive stages in the development of blood vessels as revealed by the injection method. All recent work on the vascular system emphasizes the importance of hydrodynamic considerations. If the blood flow fails then the muscular development and the formation of the blood vessels is held up, the steady stream influence is only a feeble affair, and so the formation of heart valves, etc., is hindered. Since the fundamental factor is the blood stream it follows that the effect of anomalies of the heart will be widespread, and will affect many parts whose differentiation follows the normal development of the heart.

Whatever may be the outcome of these ideas of Beneke there can be no doubt that they are the most fruitful suggestions so far made for the understanding of the malformations of the heart. They fall into line with the Roux school of "Entwickelungsmechanik." The method of experimental embryology, owing to the fact that it is confined practically to amphibia and birds, is liable to severe limitations in unravelling mammalian anomalies, but nevertheless offers a field in which these hydrodynamic considerations can be tested. No answer is furnished in this monograph as to why these cardiac anomalies are more frequent in the male sex.

The chapter on the special muscular system of the heart is of great interest. There are still a large number of problems awaiting solution there. The author of this chapter seems to believe that there is no direct connexion between the sino-auricular node and the atrio-ventricular node, yet accepts the position that around the great veins in the interatrial septum and on the posterior surface of the right auricle there is an abundance of a specialized muscular tissue which resembles very closely the Purkinje tissue, but yet affords no direct path between the nodes. Again, he seems to be fascinated by the idea that the bundle of Purkinje is a sort of neuro-muscular termination, and is a region where nerve transforms itself into muscle. There is, however, no real evidence for such an idea.

The rest of the second volume is devoted to the diseases of the blood vessels. Like the preceding, it gives a most detailed account of all investigations bearing on the structural side of the special pathology of this system. The illustrations, often in colour, are numerous and excellent. The chapter on arterio-sclerosis is conventional, and is not nearly so suggestive as the recent review by MacCallum. There is a copious bibliography.

The sixth volume deals with special pathology of the urinary system. It contains first a consideration of the developmental anomalies of the kidney and the ureter; the illustrations of these are particularly noteworthy. Congenital hydronephrosis is illustrated by three figures—one showing a valvular deformation of the ureter, a second the effect of an abnormal renal vessel, and a third a high implantation of the ureter. The remainder of this volume deals with the diseases of the kidney, and though presenting no original features it is distinguished for the excellence of the figures illustrating the morbid histology of the kidney.

These monographs will form an important work of reference, for they are intended to bring present knowledge of morbid anatomy together under one cover. The excellence of the figures will make the series extremely useful to those needing illustrations of particular diseases, and the copious bibliography will be valuable.

TREATMENT OF FRACTURES IN GERMANY.

It appears that in Germany, as in England, all is not quite at the best in the treatment of fractures, and Professor FRITZ LANGE has laudably undertaken to try to improve matters in general, and particularly in country practice.* He holds that specially difficult and complicated cases should be sent to orthopaedic hospitals, and he confines himself therefore to directions as to the treatment of the ordinary forms of bone injury. Consequently no mention is made of the various plating operations, and only in one instance—that of fracture of the os calcis—is any penetration of the skin by surgical means advised. Professor Lange speaks of the number of cases of knee ankylosis from septic synovitis which he saw during the war and attributed to the use of nail extension, and he excludes this method from his recommendations, confining himself to splints and to gypsum and extension by means of the zinc-gel bandage, which he has found much more trustworthy than adhesive plaster, Heussner's glue, or mastisol. But the elaborate screw corrector which he recommends for the treatment of fractures near the ankle-joint is hardly likely to form part of the country practitioner's armamentarium.

The usual typical fractures are described and illustrated, and methods of treatment clearly set forth. We do not look in a German work for any appreciation of British surgery, but we must confess to being very much surprised that a surgeon of Professor Lange's eminence should be so ill informed as he shows himself to be in the surgical history of the late war. The only reference in this book to the Thomas splint is to be found in the following passage (p. 81):

"The mortality of gunshot fractures of the thigh among the French and English amounted in the beginning to 80-90 per cent. As soon as the Americans, however, took part and instituted special gunshot-fracture hospitals under the direction of American orthopaedists, the mortality fell to 10-15 per cent. For this improvement American military surgery has to thank the superior education of their surgeons at the university. In America for the last twenty-five years orthopaedics have been a subject for examination, and consequently every medical man is obliged to improve himself orthopaedically. And the Americans, moreover, brought with them a transportation splint, the Thomas splint, which indeed does not altogether represent an ideal splint, but, however, was actually better than the Volkmann splint and the lath-bandages (*Lattenverbände*) which were most used on the German side."

It would be difficult, we think, to crowd more misstatements into so short a passage. The history of the Thomas splint and the achievements of Sir Robert Jones and his coadjutors, long before the first American ambulance approached the battlefield, and Maurice Sinclair's work too, seem all to be unknown in Munich.

This book is well printed and the illustrations are excellent, and its low price may well make us envy our German brethren, who have instruction placed at their disposal at a price within the reach of all. Such a book could not be published in Great Britain for less than two or three times the German price.

UNIVERSITY REFORM IN LONDON.

EVERYONE who has given attention to the subject will accept the dictum with which Mr. H. G. WELLS opens his introduction to Mr. HUMBERSTONE's book on *University Reform in London*,† when he says that "a university stands not for material but for mental interests." Nevertheless, most readers acquainted with the recent history of the University of London will turn first to the chapter on the site question, because at the present stage the party in university politics to which the writer belongs is indicated by his attitude towards this matter. Mr. Humberstone, though formerly a student of the Royal College of Science, is all for the Bloomsbury site. This site is of 11½ acres immediately north of the British Museum. The offer to present it to the university was

* *Die Behandlung der Knochenbrüche durch den praktischen Arzt.* Von Geh. Hofrat Professor Dr. Fritz Lange. Klinische Lehrkurse des Münchener medizinischen Wochenschrift, Band 6. München: J. F. Lehmann. 1925. (Med. 8vo, pp. 124; 81 figures. Paper cover, M.3.50; bound, M.5.)

† *University Reform in London.* By Thomas Lloyd Humberstone, B.Sc.Lond. With an introduction by H. G. Wells. London: G. Allen and Unwin, Ltd. 1926. (Post 8vo, pp. 132; 4 plates. 7s. 6d. net.)

definitely made by the then Minister of Education, Mr. H. A. L. Fisher, as long ago as April, 1920. The Government was prepared to secure the university against loss on maintenance charges, though not to provide the cost of the buildings out of public funds. The university, with its curious faculty of looking a gift horse in the mouth, has not accepted the offer, although, as Mr. Fisher said in January, 1925, "An American university presented, as was the London University, with the superb site of eleven acres in the heart of a capital city, would not have deliberated for a moment whether the site was worthy of acceptance, but in the space of an incredibly small number of months would have covered it with magnificent buildings, and would then have asked for more."

Discussion of the subject has become mixed up with the proposal to remove King's College from the Strand to Bloomsbury. The Government offered £375,000 to King's College if it vacated the site in the Strand. It is comprehensible that King's College might see no advantage in moving from the Strand to Bloomsbury, and might fear that the grant it was to receive for surrendering its present site would not be large enough to prevent it from falling into financial embarrassments before it could re-establish itself on the new site; and it can also be understood that it might have been actuated by a fear that it would by removal lose some of its individuality and traditions. The conclusion does not follow that "if King's College declines to shift, the whole Bloomsbury scheme must fail," to quote the words of Dr. Graham Little, the representative of the university in Parliament; nor does the commission's conclusion that the removal of King's College is a condition precedent to the formation of a university quarter in Bloomsbury. As Mr. Humberstone says, apart from King's College, the whole of the area available in Bloomsbury could be profitably used in course of time for university purposes.

His book gives a convenient, and on the whole very impartial, summary of the circumstances in which the numerous commissions on the subject were appointed and of their recommendations. The matter is once again in commission, the report of the Haldane Commission having been referred to a departmental committee of the Board of Education, which is instructed to recommend what changes are most needed in the existing constitution of the university. The present chairman is Mr. Hilton Young, M.P., and for the first time the university itself is strongly represented, the members including graduates (Sir Robert Blair and Dr. Eason), teachers (Mr. Lees Smith and Professor A. F. Pollard), and the late Principal, Sir Henry Miers; the other members are Sir A. Selby-Bigge, late Secretary of the Board of Education, and Miss K. Wallas. It is believed that the report of this committee will not be long delayed. Mr. Humberstone's book will form a useful preparation for an intelligent appreciation of its recommendations.

AIX-LES-BAINS AND FIBROTIC ARTHRITIS.

TITLES of books are sometimes disappointing in promising more than the text fulfils, and, indeed, being the best part of the publication; conversely, they may be deceptive in not revealing the full value of the contents. It is to the second class that Sir JAMES KINGSTON FOWLER's recent *Aix-les-Bains and Mont Revard: The Douche Massage Treatment of Arthritis and Fibrositis*¹ belongs, for the title page might suggest that it is but one more of the familiar objects on a waiting-room table, extolling the virtues of a hungry spa.

Besides giving a pleasant, practically useful, and "non-guide-booky" description of Aix-les-Bains and its attractive station for an after-cure, Mont Revard, which has undergone much change for the better accommodation of visitors, the author deals with the nomenclature of rheumatoid diseases, classifying these affections as fibrositis, accepted with the commendation "a perfect name, and one the use of which should be encouraged," fibrotic or fibrous arthritis causing partial or complete fibrous ankylosis, of which he gives a rather dramatic

account in the body of a dead senior colleague at the Middlesex Hospital, who left his ankylosed elbow-joint to the museum so that future generations of students might profit from his bodily infirmities; unfortunately, before the specimen was secured at the necropsy, peri-articular adhesions were broken down and there was nothing to show in the joint; the other forms described are synovial arthritis and osteo-arthritis. Little is said about the etiology of rheumatoid or fibrotic affections, but between the lines there lurks some suggestion of scepticism about dental sepsis and its drastic treatment.

Believing that the aim of the teacher should always be to crystallize the substance of his instruction into a short sentence, an *obiter dictum*, Sir James Fowler practises this with eminent success, and the personal touches add charm to his common sense. The illustrations and get-up of the book are admirable, and as all his writings provide most pleasant reading we look forward to his promised *Notes and Queries of a Physician*.

THE TOKYO INSTITUTE FOR INFECTIOUS DISEASES.

THE third volume of *Scientific Reports of the Government Institute for Infectious Diseases* at the Imperial University of Tokyo contains nineteen papers on bacteriology, pathology, chemistry, and medical entomology. Some of these are in English, others in German, and one in French. The volume deals with the year 1924. Among the articles dealing with bacteriology is one which describes a new method of staining the flagella of bacteria. If other workers find this as easy and are as successful as the inventor, he will be credited with having made an important contribution to bacteriological technique. In the same section, in an article on how the antitoxic immunity is transmitted into the system of a newborn child through lactation, another author reports experiments which lead him to deny the heredity of acquired immunity. He thinks that immune bodies in milk can be absorbed unchanged from the digestive organs of a newborn child if the bodies are from the homologous animals, but not from animals of other species. Colostrum is very rich in antibodies, and one of its main functions is to equip the newborn infant with maternal antibodies and thereby adapt it for the environment of the outside world.

The section on pathology contains an article on the influence of the constituents of thymus gland cells on the growth of the young, and an experimental study of the secretion of bile. Both of these are well documented reviews and neither appears to have been published previously.

Japanese workers have recently been devoting much attention to the functions of lymphocytes, and the present volume includes three articles on this subject—one dealing with the biochemical action of lymphocytes, another with the significance of the germinal centre of lymph follicles, and a third with the function of the lymphocytes in the intestinal tract. Many of the other articles which we have not mentioned are concerned with diseases not met with in this country, but important in Japan.

SUNSHINE AND OPEN AIR.

FOR those who are as yet unacquainted with Dr. LEONARD HILL's admirable treatise on *Sunshine and Open Air* the second edition² is now available. The fact that the first edition (reviewed in these columns on August 9th, 1924, p. 237) was published less than eighteen months ago is indicative of the interest displayed in this very important subject. The herding together of the population in towns, where sunshine and fresh air are none too plentiful, has rendered a scientific and ordered knowledge of these indispensable therapeutic agents essential to the medical practitioner. This knowledge will be found in compact form, and without irrelevant detail, in Dr. Hill's book.

The work is primarily concerned with the influence of sunshine and open air on health, and has special reference

¹ *Aix-les-Bains and Mont Revard: The Douche Massage Treatment of Arthritis and Fibrositis*. By Sir James Kingston Fowler, K.C.V.O., C.M.G., M.D., F.R.C.P. London: William Heinemann (Medical Books), Ltd. 1925.

² *Sunshine and Open Air: their Influence on Health, with Special Reference to the Alpine Climate*. By Leonard Hill, M.B., F.R.S. Second edition. London: E. Arnold. 1925. (Demy 8vo, pp. vii + 132; 12 figures, 7 plates. 10s. 6d. net.)

to the Alpine climate; but it is wider in scope than its subtitle would suggest, and includes much related matter. After a section treating of the atmosphere at high and low altitudes and its geographical variations, there is a chapter on humidity and catarrh which discusses at length the effect of breathing warm, moist stagnant air. There follows a detailed consideration of sunshine, its analysis, its effects, its distribution, its comparison with the mercury vapour lamp, and so forth. The biological action of light occupies Chapter IV. Here are discussed such important matters as penetration; action on the blood; deficiency diet, rickets, and light. The last chapter deals with metabolism and cooling power, and shows the differences between these processes in England and the Alps. There is an appendix on artificial light treatment. Altogether a valuable and interesting book.

NOTES ON BOOKS.

THE thirty-sixth edition of *Burdett's Hospitals and Charities*¹ shows an important change, as compared with previous editions, tables of comparative hospital statistics being now omitted, with the exception of those relating to the large funds. The introductory chapters contain particulars of these funds, and also descriptions of the St. Marylebone Hospitals League, which was founded in 1923 to support the ten great hospitals in the borough, and of the Sheffield Joint Hospital Board. Other chapters deal with the contributory scheme of the Hospital Saving Association, the Rockefeller Foundation, the London School of Hygiene and Tropical Medicine, the Charity Organization Society, the Jewish Board of Guardians, and the Association of Nursery Training Colleges. In this edition appear also for the first time particulars of the hospitals of the Sudan Medical Service, and the statistics of the Indian military hospitals have been brought up to date. The part of the volume containing the directory of medical and nursing institutions has been carefully revised, and the great mass of information in it renders the present issue an indispensable reference book for all concerned with medical charity.

The thirty-fourth edition of the Charity Organization Society's *Annual Charities Register and Digest*² continues on the lines which have rendered its predecessors so valuable to all concerned with charitable work in London. The importance of the index is fully recognized, over sixty pages being devoted to it, and the details of the various societies and charitable agencies are kept well up to date. In a preliminary review of the year a general account is given of the finances of the metropolitan charities, and in the appendix to the volume are included such different organizations as friendly and trade societies, metropolitan savings banks and employment exchanges, hospital almoners, and agencies for the homeless.

Professor CHARLES ACHARD, the accomplished Secrétaire-Général of the Académie de Médecine, has published five lectures on diabetes³ which deal respectively with the utilization of sugar, clinical investigation into failure of the organism to utilize sugar in many different conditions, metabolic disorders in the course of diabetes, and insulin. Diabetes mellitus is regarded as a metabolic disturbance arising in the course of various disorders, a syndrome common to a number of morbid conditions, and not itself a disease. There are some interesting observations on the lipase content of the blood in diabetes and in other conditions, and the action and therapeutic uses of insulin are fully described in a book which, though small, contains many references and shows the learning and wisdom of the author.

The work of Dr. LEROUX-ROBERT on the value of high frequency in oto-rhino-laryngology⁴ has a preface by Professor D'ARSONVAL, who describes his first introduction of the method at the Hôtel-Dieu in 1896 and its cold reception. The author gives a full description of the various forms of apparatus and appliances employed. The surgical use of diathermy—or, as he insists it should be correctly called, diathermo-coagulation—is well known in this country. He lays emphasis on the medical uses of diathermy, "rénovatrices," in contrast to the surgical uses, which are "destructrices." Both the medical and surgical applications comprise several

different methods of employing the agent, and the author gives the indications and technique with much precision. The diagnostic diathermy of Kubo for testing the labyrinth is described also. It is scarcely probable that there is such a panacea as Dr. Leroux-Robert would have his readers believe diathermy to be; but, making due allowance for his natural enthusiasm, he is to be congratulated on the account he has given of an agent which merits more attention than it has yet received at the hands of otologists and laryngologists in this country, at any rate in its medical aspect. It can only be by a much extended trial that the limits of its application can be precisely defined.

Modestly concealing his name under the pseudonym of "M.R.C.S.," a member of our profession reveals a real talent for verse in *Odds and Ends*.¹¹ Twenty out of the fifty short poems deal with the period of the war, and breathe a pathos in the graceful lines that, as the verses "After" beginning—

After the fear is forgotten,
The doubt of the dolorous days,
When anguish has faded to interest,
And 'tis mainly the crippling that stays,

sometimes recall Swinburne's musical lilt. Some of the other verses date back to the early eighties and Cambridge, while later ones were begotten in Exeter or—

Down away in Devon, where the ships go sailing by,
Where the dappled clouds in summer-time steer
eastwards up the sky,

of which there is a charming photograph of the rocky coast in sunlight as the frontispiece to this collection.

An account has been published of the proceedings of the special congress held at Berlin in April last year to consider nerve massage and allied conditions.¹² During the congress the use of nerve massage in the treatment of trigeminal neuralgia, and disorders of the sense organs, vasomotor system, and kindred conditions was considered, and some of the papers read are given in full. The volume also contains a report of the subsequent meetings in September and October, which dealt with the physiology and pathology of the peripheral nervous system.

¹¹ *Odds and Ends*. By M.R.C.S. Exeter: William Pollard and Co., Ltd. 1925. (Pp. 64; 11 illustrations.)

¹² *Bericht der Sonderkongress des Vereins der Aerzte für Nervenmassage*. Leipzig: G. Thieme. 1-26. (Sup. roy. 8vo, pp. 104. R.M. 3.60.)

PREPARATIONS AND APPLIANCES.

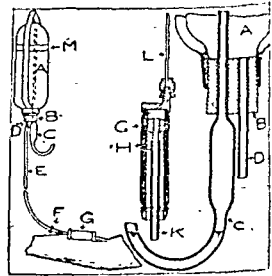
Apparatus for the Intravenous Administration of Saline. Dr. R. H. DUNLOP (Edinburgh) writes: The following is a description of an apparatus and technique for the intravenous injection of saline solution which I have designed to eliminate the disadvantages of the jug and funnel method.

The apparatus is sterilized (without risk of breaking the container) by submerging it in tepid water, which is then gradually heated to boiling point. The saline solution is heated to 40° C. and transferred to the container, which, after replacing the cork, is suspended in an inverted position. The temperature to which the saline must be raised will vary with each apparatus according to the length of the rubber tube E, as it is desirable to have the saline emerging from the intravenous needle at body temperature.

The container having been suspended at a height of from 2 to 3 feet above the table on which rests the arm of the patient, the clamp F is released and the solution allowed to flow until all air is expelled from the system. A tourniquet is applied to the patient's arm and the skin at the bend of the elbow is sterilized by application of ether and iodine. The syringe is held in the right hand and the needle introduced into a prominent vein. Provided that the rubber tube E is clamped, blood will flow into the syringe on withdrawing the piston if the vein has been entered. When blood appears the tourniquet is loosened and the clamp released; the saline solution will then pass into the vein. During the operation the U-bend of the air inlet tube contains a small quantity of saline which by its constant movement serves to remove impurities from the air entering the container, and as an indicator of whether or not the saline is flowing.

The advantages of the apparatus and technique are that it is simple, and an air lock is impossible; the saline solution is not contaminated and it is administered at body temperature throughout the operation; less time and no assistance are required, and the vein is secured without incision.

The apparatus can be obtained from Arch. Young and Sons, 57, Forrest Road, Edinburgh.



A, Thermos flask container. B, Rubber cork. C, Air inlet tube with U-bend and bulb. D, Saline outlet. E, Rubber tube. F, Clamp. G, Hypodermic syringe (2 c.c.m.) converted. H, Bored piston. K, Copper tube screwed into piston. L, Intravenous needle. M, Tapes for suspension.

¹ *Burdett's Hospitals and Charities*, 1926. Thirty-sixth year. London: The Scientific Press, Ltd. 1925. (Demy 8vo, pp. xx+988. 17s. 6d. net.)

² *The Annual Charities Register and Digest*. Thirty-fourth edition. London: Longmans, Green and Co. Ltd., and Charity Organization Society. 1926. (Demy 8vo, pp. xx+533. 8s. 6d. net.)

³ *Cinq Leçons sur le Diabète*. Par Ch. Achard. Paris: J. B. Baillière et Fils. 1925. (Gr. 8vo, pp. 136; 30 figures. 8 fr.)

⁴ *La Haute Fréquence en Oto-Rhino-Laryngologie*. Par Dr. Leroux-Robert. Préface du Prof. D'Arsonval. Médecine et Chirurgie Pratiques. Paris: Masson et Cie. 1925. Gr. 72, pp. 165; 74 figures. 15 fr.)

TREATMENT OF CANCER BY LEAD.

MEMORANDUM BY THE LIVERPOOL RESEARCH COMMITTEE.

FROM time to time as opportunity served we have published notes of the work being done by the Cancer Research Committee established in Liverpool a few years ago for the investigation of the treatment of cancer. Dr. W. Blair Bell, professor of obstetrics and gynaecology in the University of Liverpool, has been the moving spirit, and is now honorary director. His position is fully defined in the memorandum by the committee published below.

The research has been wholly or mainly directed to the administration of lead in colloidal form, and the results in a certain percentage of cases reported have been strikingly favourable.

The chairman of the committee, which is mixed lay and medical, is Mr. J. A. Smith, the honorary treasurer Mr. Rex D. Cohen, and the honorary director, as already said, Professor Blair Bell. The members of the committee are: Dr. J. G. Adami, F.R.S. (Vice-Chancellor of the University of Liverpool), Sir Robert Jones, K.B.E., Ch.M., F.R.C.S., Mr. C. Sydney Jones, Mr. F. T. Paul, D.Sc., F.R.C.S., Mr. J. J. Shute, Mr. J. A. Smith, Mr. R. Wilson, and Mr. B. Crompton Wood, M.P. Communications should be addressed to the Secretary, Cancer Research Committee, The University, Liverpool.

Memorandum of the Liverpool Cancer Research Committee.

It may be held to be wise to ignore criticisms that have no basis in fact. Nevertheless, the spread of adverse criticism creates rumours, and from our war-time experience we know how damaging rumour may be both to morale and to the pursuit of proper procedures. For this reason we consider it expedient to inform the medical profession of the truth of certain matters concerning which grave and unjustifiable charges have been made.

These charges are of two kinds:

I.

It has been stated that some great secret has been withheld from publication; that is to say, the method of preparation of the material used has not been disclosed. Now, in spite of the fact that Professor Blair Bell would have been absolutely justified, and would have received the entire support of this committee, in withholding publication on this matter in view of the manifold difficulties of manufacture and the dangers of usage, as so ably explained by Professor Carter Wood in the *Lancet* (1926, i, 414), in point of fact this course has not been adopted. So long ago as February, 1924, Professor Blair Bell described and discussed the method of preparation of colloidal lead. Since that time many variations have been employed, but the general method has remained the same. The dosage and all the dangers and difficulties have likewise been published. Finally, however, has not even yet been reached.

The very fact that the general body of practitioners appears to be ready to use the material if it be distributed without control, to the possible disparagement of the method and serious risk to the public, has impelled the committee recently to protect the method of manufacture, as was done in the case of insulin.

II.

With the dissemination of such erroneous ideas it became inevitable that many would charge Professor Blair Bell with "making hay while the sun shines," and say that he is keeping the treatment in his own hands, is exacting exorbitant fees, and is rapidly amassing a fortune by the employment of what to all intents and purposes they assert is a secret remedy.

This charge is wholly contrary to the truth.

The Liverpool Cancer Research Committee has evidence that during the first five years 75 per cent. of the 200 odd patients treated were virtually charity patients, some few paying a nominal fee for accommodation, the majority being treated free of all cost. In other words, during the first five years since the initiation of the treatment Professor Blair Bell has received remuneration from at

most 75 patients—that is, an average of 15 each year. Nor, considering the benefit conferred, can the remuneration be regarded as other than most moderate.

Feeling acutely the charges circulated against him—often by men he had regarded as friends—at the end of four years a cheque for the whole amount charged for treatment was sent by him to the Cancer Research Committee. This cheque the committee refused to accept. At the end of last year, on his return from America, when, for the first time, there was a large influx of patients, Professor Blair Bell approached the Cancer Committee again, asking them to receive all the fees for treatment, at the same time becoming themselves responsible for all necessary expenses. Knowing how gravely his intense preoccupation with cancer had interfered with his gynaecological practice, the committee would not consider this offer. They made the counter-offer, which has been accepted, that for his services as director he should, from December 1st, 1925, receive a stipend like the rest of the staff. In return the committee assume all responsibilities for the housing and maintenance of the cancer patients under Professor Blair Bell and the clinical staff; they receive all the fees, and place all the books detailing income and expenditure under the weekly supervision of a well known accountant. They have taken under their control the nursing home previously occupied by Professor Blair Bell's gynaecological cases, and have, in addition, bought and furnished another. Out of the moneys received they are continuing the stipends of those of the staff engaged in research, and are enlarging that staff, and they have by resolution agreed that all moneys over and above those expended as aforesaid shall be devoted to the furtherance of medical research.

We may add that these arrangements have been submitted to the President of the General Medical Council, and have received his personal approval. Further, to secure its position, the question of incorporation is being considered by the committee.

It is felt by all engaged in this work that, if it can be generally known that Professor Blair Bell and the clinical staff are not benefiting to any unusual degree by this work, but are by their labours supporting the entire burden of the laboratories and clinical organizations, there may be greater confidence in, and greater sympathy with, what promises to develop into a very wonderful advance in the treatment of a most terrible state.

We append a copy of the circular letter which has been drawn up and sent by the director to all doctors who have written to ask for treatment for their patients.

Signed, on behalf of the Liverpool Cancer Research Committee,

J. A. SMITH, Chairman.
REX D. COHEN, Treasurer.
J. GEORGE ADAMI.

Liverpool, Feb. 23rd, 1926.

CANCER RESEARCH COMMITTEE.

Dear Sir,

Thank you for your letter. You will understand that we are engaged in a scientific investigation, and have regarded our clinical work as a test of the findings obtained in the laboratory. We do not pretend and never have pretended that we have a "cure for cancer." Nevertheless, the ultimate aim of all such work is that, and we are prepared to take suitable cases that can come for consultation in the first instance, provided they are fully informed:

- (1) That consultations are arranged in order that it may be determined whether the case is suitable for further investigation. A consultation does not mean that *ipso facto* the patient will be taken for treatment.
- (2) That the treatment itself may be dangerous.
- (3) That the treatment is experimental in nature.
- (4) That there is no guarantee whatsoever as to the result.
- (5) That patients must, if they come, place themselves unreservedly in our hands, and continue the treatment so long as we think it advisable.
- (6) That accessory treatment, such as x rays and operation, may be necessary.
- (7) That, if an operation has been performed, a section must be sent in advance.
- (8) That all fees are handed over to the Cancer Research Committee.

Yours very truly,
W. BLAIR BELL, Director.

THE STATISTICAL STUDY OF CANCER.

[We have received from Professor Blair Bell the following letter showing the position he had taken up in June, 1924, with regard to certain aspects of the statistics of cancer in relation to particular trades specially liable to lead poisoning. It seems appropriate to publish it here as a sequel to the memorandum of the Liverpool Research Committee.]

SIR,—The Medical Research Council has recently issued a report entitled "An investigation into the statistics of cancer in different trades and professions." Statistical findings in regard to matters of this kind rarely obtain unanimity even among statisticians themselves, and they are only generally accepted when they coincide with clinical and experimental experience. It is interesting to receive confirmation of this from statisticians concerned in their "Summary and Conclusions" to the report mentioned.

It follows, therefore, that when statisticians attempt to disprove practical observations they should be very sure of their figures in respect of all the conditions usually accepted by statisticians and ordinary folk as being necessary for accuracy. To quote me as admitting that the figures I have employed are too small for strict accuracy, and then to use the one set of the figures in which this is most definitely the case for the purpose of contradicting what I have merely said is *suggestive*, seems to me weak.

As my address to the North-Western Branch of the Society of Medical Officers of Health two years ago (*Public Health*, 1924, 217) is the object of attack, I feel that justice will be served if you will allow me the space to publish my remarks and figures on the subject, and also the remarks and figures from the report of the Medical Research Council. Unfortunately, the reports of the Medical Research Council and *Public Health* are not very generally read, and this makes me the more anxious to trespass on your valuable space, especially as the matter is of more than passing interest.

I think the unprejudiced reader will allow that I have been extremely cautious, and have weighed the matter in all its bearings, in spite of the fact that I make no pretence to being a statistician.

Extracts from Address by W. Blair Bell, published in "Public Health," 1924, xxxvii, 217.

"We have, therefore, been concerned in an attempt to discover whether persons poisoned with lead are less liable to malignant disease than the rest of the population; and, moreover, whether the decrease in the number of cases of lead poisoning as the result of legal enactments has led in particular occupations to an increase in the number of deaths from cancer.

"In the absence of precise records, it has been possible only to obtain evidence either of a personal character, or from statistics of doubtful value.

"In the first place I approached the Registrar-General, but he appears to be so little interested in the subject that he did not trouble to acknowledge, let alone reply to, my letter asking him if he could help me in the matter.

"In marked contrast with this has been the help I have received from those concerned in private enterprise—industrial and insurance—and I take this opportunity of acknowledging with gratitude their kindness and interest. Indeed, it was the following voluntary letter—slightly altered for publication by the sender, and with a few passages of a personal nature deleted—which stimulated my investigations in the matter, although I had previously made a few tentative inquiries from friends in the Midlands.

"Dear Sir,

"I have had, and still have, under my observation the chemical plumbers employed in the various works of the United Alkali Co. distributed over the country. This experience in managing chemical works has extended over the long period of more than 50 years, during which I have always taken a keen interest in the question of industrial diseases, such as plumbism associated with chemical manufacturing.

"From time to time I have read, with very great interest, the researches you are making, on the influence of salts of lead in the cure of cancer, and when I heard of your work it struck me that I had never, in my long experience, come across a case of cancer with the enormous number of chemical plumbers that have passed under my control. With this striking fact before

me I wrote to our managers in Glasgow, Newcastle, Bristol, Widnes, and Runcorn, to ascertain from them, from their own experience, and that of my old foremen and plumbers, whether their observations corroborated my own, and I enclose herewith the seven reports from these gentlemen, and one from Mr. Johnson of the Plumbers' Union, the contents of which will explain themselves, and from which you will see that my impressions have been amply confirmed by the fact that in no case have they found deaths from cancer amongst the chemical plumbers in their various works. This led me to address the communication to you, in order that I may direct your attention to these important facts, and which possibly may be of value to you in your researches, in which I take a very deep interest. This question, to my mind, divides itself into two parts:—1st: chemical plumbers, and 2nd: plumbers employed in house-building, shipbuilding, a make the following observations on the of these two classes of men, in respect likelihood of their absorbing lead, and thus enjoy immunity, or otherwise, from cancer.

"Chemical Plumbers.

"The chemical plumbers we employ are subject to the unfortunate disease of plumbism, but never to cancer, and I explain this fact in the following way.

"Our men are largely employed in building and repairing vitriol chambers, acid cisterns, and the like. For this purpose they burn the lead seams by the oxyhydrogen blow pipe, which gives a flame of intensely high temperature. As lead melts at the low temperature of 600° F. some certain portion of it is volatilized by this intensely hot flame, probably becomes immediately oxidized and breathed by the men in a fine state of division, producing symptoms of plumbism, but it has occurred to me that inhalation of this volatilized lead in minute quantities may have the important effect of explaining their immunity from cancer, and this view seems to be supported by the fact that none of us can find a genuine case of death from cancer amongst our chemical plumbers.

"House, etc., Plumbers.

"With regard to plumbers working in houses, ships, engineering, etc., the conditions of their work are entirely different. When water cisterns, etc., are lined with lead the seams are made by soldering with a bolt, the temperature being so low that little, or no, lead can be volatilized, as compared with that which rises from the intensely high temperature of the oxyhydrogen flame. In this manner we would expect that the house plumbers would not absorb lead to render them immune to cancer, but their death rate from that disease would probably be similar to that for ordinary workmen in other industries.

"All the information and figures that I have been able to get from the Plumbers' Union support this view.

"All these facts, therefore, to my mind, point to the important fact that the inhalation of volatilized lead by chemical plumbers not only explains the production of plumbism amongst them, but also the important fact that cancer amongst this class of men is unknown.

"I submit these data for your consideration from the medical point of view, in the belief that possibly they may throw some light upon the effect of lead compounds in preventing this terrible disease.

Yours truly,

(Signed) THOMAS W. STUART,
General Technical Manager, United
Alkali Co., Ltd.

"I do not think it necessary to append the letters received by Mr. Stuart from the various branches of the United Alkali Co. They are unanimous on the subject.

"The communication received from District Secretary of the United Operative Plumbers' and Domestic Engineers' Association is, however, worth quoting:

"I have been at the trade for 40 years and it will be easy for you to imagine that in such a long period a huge number of chemical plumbers have been known to me personally.

"Again, I have been an official in our association for 25 years and in such a position that all medical certificates pass through my hands, and in the whole of my experience I have never known a single case of cancer." [Italics by W. B. B.]

"I shall not comment on these remarkable statements, beyond saying that no criticism can destroy their value, for, even though a number of cases of cancer had been overlooked, the general truth of them would not be affected, since they concern 'a huge number' of men.

"With regard to the qualifications concerning house plumbers contained in Mr. Stuart's letter, in the statistics received from the Plumbers' Union no attempt is made to distinguish between the different types of plumbers, and, therefore, as Mr. Stuart says, no true relationship can be drawn between the mortality rate among this class of worker as a whole and the general population; but a matter of interest to be extracted from the figures supplied by the union is the rise in the cancer rate proportionately to a decrease in the number of deaths from plumbism.

"An analysis, from this point of view, of the figures given is shown in Table 2.

TABLE 2.—*Plumbism and Cancer.*
Percentage of all Deaths.

	1911-1914.		1920-1921.	
	Cancer.	Plumbism.	Cancer.	Plumbism.
Plumbers' Union	4.5	1.5	9.7	0.5
General male population, ages 25 to 65	6.0	—	10.0	—

"I well know that figures based on percentages of a small number of deaths from two variable diseases one of which is diluted may or may not approach statistical accuracy; but I am tempted to give them because they accord with the other evidence to be adduced.

"A similar, but also not entirely accurate, relation between the decrease in lead poisoning and the increase in the cancer mortality to which I have just referred, is shown in the mortality figures of England and Wales for the years 1900-1902 and 1910-1912, in relation to the three occupations in which lead poisoning is most prevalent (Table 3).

TABLE 3.—*Comparative Mortality Rate per 100,000 Population at Ages 25 to 65 years.*

	1920-1902.	1910-1912.	Percentage Increase or Decrease.
ALL MALES—			
Cancer	68	78	+15
Plumbism	1	1	0
FILE MAKERS—			
Cancer	57	78	+37
Plumbism	55	10	-82
LEAD MANUFACTURERS—			
Cancer	81	83	-1*
Plumbism	102	123	+21
PLUMBERS, PAINTERS, AND GLAZIERS—			
Cancer	73	87	+19
Plumbism	23	20	-13

* This is in reality a diminution of 16 per cent.; compare first group, showing normal increase.

"It will be observed that these figures, whatever value they may have, show that a decrease in the number of deaths from plumbism is accompanied by an increase in the mortality rate of cancer, and vice versa. The numbers are, however, too small for strict accuracy.

"Again, after the introduction of strict legislation in regard to the use of lead in the manufacture of pottery there is apparently an increase in the mortality rate of cancer among the workers concerned.

"From figures given by Hoffman we find that the standardized death rates from cancer among males over 15 years of age in 35 occupations showed an average rise of 15.6 per 100,000 of the population in the ten years between 1890-1892 and 1900-1902; but possibly owing to the legislation introduced in the middle of the decade—that is, in 1896—plumbism decreased, and the death rate from cancer among potters increased by 27.2 per 100,000 of the population concerned—11.6 per 100,000 above the general average. Had restrictions been introduced at the commencement of the period we might reasonably have expected a still greater increase in the mortality rate of cancer.

"It is only fair to state that in one or two other occupations the rise in the death rate from malignant diseases was greater, but I dare say that some cause could be found for the increases, if investigations were made. In striking contrast, however, was the decrease in the chimney-sweeps' cancer in the same period by -40.6 per 100,000. In this trade preventive measures had been directed against the cause of cancer.

"Further, Hoffman gives details of 2,452 deaths from cancer concerning which a considerable amount of information was forthcoming, and the probable predisposing causes were impartially recorded. In only three of these cases is lead poisoning mentioned along with other pathological conditions, and in only one is there anything to suggest that the patient may have been suffering from lead poisoning when attacked by cancer of the liver.

"Again I would insist that the value of these figures lies not in their infallible statistical accuracy, but in their suggestive harmony.

"I am afraid that my remarks have been more discursive than I had intended, and that the information submitted is suggestive rather than decisive. I hope, nevertheless, that what I have said may induce medical officers of health to look into the question of a possible relationship between lead poisoning and cancer, and to furnish statistics based on larger figures, properly standardized in the way indicated. By 'properly standardized' I do not mean only in regard to age and sex, but also to the possibility of cancer arising in a patient suffering with lead poisoning.

"I would, therefore, ask all public health authorities who can help in this matter to tabulate their mortality rates in regard to the male population between 25 and 65 years of age in the few occupations in which lead poisoning is possible, in such a way as to make it easy to discover whether there is any real evidence of comparative immunity from malignant disease in association with lead poisoning. Whether this will be found possible I do not know. A diluted mortality rate is unsatisfactory, and can demonstrate little more than I have already shown in the foregoing figures.

"The statements of Mr. Stuart are, however, of particular importance in that they deal with a class of worker who must inevitably absorb lead by inhalation. In such circumstances the whole of the men engaged can be considered poisoned, and the dilution effect would be infinitesimal. To take potters as a group would be useless, the dilution of the figures by at least 80 per cent. of those engaged, who never come in contact with lead, would falsify statistics to an extent that would render them useless.

"All statistics concerning the matter under discussion must, then, show:

- (a) Inevitability of lead poisoning.
- (b) Existence of lead poisoning.
- (c) The coexistence of one of these conditions with the onset of cancer."

Extract from Report of Medical Research Council, "An Investigation into the Statistics of Cancer in Different Trades and Professions," No. xcix, 1926.

"While the ingestion of metallic substances over a considerable period of time has been advanced by more than one observer as a predisposing cause of cancer, it may be mentioned that Blair Bell (1924), having found the administration of lead salts apparently of value in the treatment of malignant disease, has recently suggested that those who are exposed to lead poisoning or plumbism show a reduced mortality from it. From data supplied by the Plumbers' Union he concludes that, among plumbers, there has been a rise in the cancer rate which is proportionate to the decrease in the number of deaths from plumbism. He also compares the mortality statistics for plumbism and cancer in England and Wales in the two periods 1900-02 and 1910-12, and gives figures which appear to indicate, though he admits the numbers are too small for strict accuracy, that a decrease in the number of deaths from plumbism is accompanied by an increase in the mortality from cancer, and vice versa, in the occupational groups, file makers; lead manufacturers; and plumbers, painters and glaziers; in which occupations lead poisoning is most prevalent.

"With the view of ascertaining if the relationship suggested received confirmation from the data available, the following table has been compiled from Table V of the Supplement to the 75th Annual Report of the Registrar-General. In it are shown for the two triennial periods, 1900-02 and 1910-12, all the occupational groups with comparative mortality figures from lead poisoning above unity (1), the standard for occupied and retired males in England and Wales, in apposition with the comparative mortality figures for cancer in the corresponding groups.

Comparative Mortality Figures.

	1910-1912.		1900-1902.	
	Cancer.	Occupational Lead Poisoning.	Cancer.	Occupational Lead Poisoning.
Lead manufacturers	89	123	81	102
Potters	89	22	74	10
Plumbers, painters	87	22	73	23
File makers	78	10	57	56
Copper manufacturers	71	6	45	3
Gunsmiths	78	4	74	—
Printers	68	2	65	2
Glass-makers	81	2	71	8
Chemical manufacturers	71	—	85	3
Occupied and retired males	78	1	68	1
Clergy	45	—	48	—
Coal miners	61	—	53	—
Shipbuilders	64	—	55	—
Slaters, tilers	117	—	71	—
Furriers, skinner	82	—	115	—

"Out of eight groups with a comparative mortality figure for lead poisoning above the standard for England and Wales in 1900-02, only two are markedly low for cancer, while two are markedly high; in 1910-12 only one group, printers, is rather low, and only one, plumbers, is high. A few other groups with no cases of lead poisoning are also given in order to show that lower and higher cancer figures, with more pronounced variations in rise or fall, are to be found in other occupations than the "lead" occupations. These data do not reveal the connexion suggested between cancer and lead poisoning."

From this it is clear that the statisticians of the Medical Research Council have completely overlooked the matter of *proper standardization*, on which I laid much stress.

In conclusion, I may mention that I have recently received (December 22nd, 1925) a letter from Mr. Hoffman, the eminent American statistician, well known in regard to cancer mortality, who has been investigating lead poisoning in the United States; in this communication he writes:

"I am engaged in two extended investigations, one into cancer and one into chronic lead poisoning. With regard to both I am proceeding along much similar lines of investigation. I am dealing with original death certificates representing the entire mortality in the case of cancer for about twelve cities for the last five years, and for lead poisoning for the entire United States Registration Area, for the last eleven years. My lead poisoning investigation represents 1,592 deaths regarding which the standard death certificate reveals considerable interesting information. I am chiefly concerned with the occupational distribution and the collateral causes of death. As I have had occasion to say to you before, and in one of my publications, I have never yet found a case of chronic lead poisoning in which a tumour formation, whether malignant or benign, was mentioned as a collateral or contributory cause of death. Nor do I recall having ever seen a cancer death certificate, and I am dealing with more than 20,000 in my cancer investigation, in which lead poisoning was mentioned as a contributory cause of death in malignant diseases."

Surely the matter is worth proper investigation over many years on the lines I have suggested. Until this has been done no one can know whether what I have been careful to call "suggestive" is a positive fact or not.—I am, etc.,

Liverpool, Feb. 22nd.

W. BLAIR BELL.

TESTS FOR DRUNKENNESS.

DISCUSSION BY THE MARYLEBONE DIVISION.

A MEETING of the Marylebone Division of the British Medical Association was held on February 25th, when a discussion took place on tests for drunkenness. Lord DAWSON OF PENN presided.

Dr. JAMES MAUGHAN (Metropolitan Police Surgeon), in opening, confined his remarks to border-line cases and to the tests which had proved useful in deciding them. It was regrettable that no substitute had been found for the word "drunk." Susceptibility to alcohol varied within wide limits in different men, and even in the same man under different conditions. It seemed to be remarkably increased among men suffering from neurasthenia. Degrees of tolerance were important; in the toper an amount of alcohol which would quickly reduce a teetotaler to the condition of a log of wood was held up somewhere, to be released into the blood over an extended period. The signs presented by a man first at his arrest and then an hour afterwards might show marvellous differences. Dr. Maughan's own procedure at the police station was to elicit the particulars from the man, to encourage him to tell his story in his own way, noting meanwhile any incoherence in speech or disorder in behaviour, and any other suggestions of impaired self-control or disorientation. The tests applied depended largely upon the man's own leading. The mask-like face, with flushed cheeks, the quick soft pulse, the pupils, at times unequal, at times exhibiting hippus, and showing no reaction to a 2-c.p. light, difficulty in convergence of the eyeballs—these were all to be noted. On an alcoholic smell of the breath he passed no comment, and Romberg's test in many cases was not of much value; another test was intricate reading, such as the discovery from the time-table of the last train from Rugby to London on a Sunday, and again there was the pronunciation, which was the weakest of all tests—an unfair one if in his normal state a man had any defects of speech or

education. The writing test also might not be fair, unless in the case of a man such as a clerk accustomed to writing. Among persons in drink errors in respect to time were very frequent, and errors in respect to space fairly frequent. Many a time he had been solemnly assured by the drunken person that they were not in London but in Birmingham or somewhere else. The principle underlying the choice of tests should be scientific and rational. According to the physiologists alcohol that found its way into the cerebro-spinal fluid paralysed the synapses in the brain, with the result that the highest centres were cut off from one another, their directional mandate to the automatic mechanism was blocked, and their control over the lowest centres disappeared. In such circumstances one would expect to find gross inco-ordination of movements and uncontrolled release of elemental passions. If examination showed that, owing to alcohol, a man was suffering from a loss of the power of the higher centres to direct his automatic actions, he was drunk within the meaning of the law. Such a man, driving a car, for example, was likely to fail at the psychological moment when an emergency arose. It was disconcerting to find how many other causes besides alcohol might be cited to explain the results of the tests. For that reason it was desirable to use many tests in order to avoid injustice. Some reactions clearly indicated failure in sense reception or in the performance of skilled movements. Sometimes there was an isolation of the senses to such an extent that for the time being the man was a double entity, his higher powers even allowing him to look on, amused and interested, at the actions of his automatic self. On the other hand, some of the tests were purely reflex, and their only value was in the fact that paralysis of the reflexes and of the highest nervous centres happened to occur simultaneously in many cases. The most admirable control test would be to make a similar examination of the accused person when unquestionably sober.

Mr. VERNON GATTIE, a police magistrate, said that in the definition of drunkenness the dictionaries were not helpful. Taylor's *Medical Jurisprudence* defined "drunk" as follows:

"The" (not "a") "mental condition which arises in sentient beings as a result of taking alcoholic (usually) or etheral (less commonly) or other intoxicating (still more rarely) material. . . . A person is drunk within the meaning of the (judicial) proceedings if this mental condition has led him to behave in the manner which led to the proceedings."

It might be a good test to apply: Would he have acted in the same way if he had not had the liquor? Some of the tests appealed less to the layman than others. The pronunciation of "truly rural" did not seem to be of much value. Nor did the test in which it was noted whether the person swayed when standing with his heels together and his eyes closed. The police magistrate must rely on the doctor, who applied the tests which seemed to him proper. When there was a difference of opinion between two doctors the magistrate should give the accused, in that unsatisfactory phrase, "the benefit of the doubt," because the onus rested upon the prosecution to prove the charge, and with medical evidence to the contrary the charge was not proved. The doctor's evidence might be fortified by that of the police officer who saw the accused immediately after arrest, but the usual police "signs"—thickness of speech, unsteadiness of gait, and alcoholic breath, did not appeal much to the magistrate. A difficult point arose when the doctor said that at the time he examined the man, an hour or two after arrest, he was not drunk, but that in his opinion he had been drunk some while before. It must be difficult for a doctor to express such an opinion with any confidence, and the magistrate should hesitate before convicting. The corresponding case was that of the man who was drunk a couple of hours after the arrest, but quite possibly not at the time of the arrest. The arrest itself produced a shock to the nervous system, and might precipitate a worse condition than the man was in at the time the arrest, or perhaps the accident, occurred. Some men were highly excitable by nature, some had a curious pronunciation, with some the consumption of a very small amount of alcohol sufficed to give a smell to the breath, and some had an habitual incapacity to give any accurate account of their movements, and their ideas of time were normally vague. The magistrate must observe carefully the demeanour of the accused person during the proceedings, but his main reliance must be upon the doctor.

Dr. ANTHONY FELLING dealt with the subject from the neurological point of view. This was a condition, medically, of acute alcoholic poisoning which affected the nervous system, the alimentary tract, and the cardio-vascular and urinary systems. Alcohol affected the nervous system in the order of the evolutionary levels, the highest being the first to suffer. In the great majority of cases of drunkenness the question related to the slighter degrees of alcoholic poisoning, and in such cases it was the disturbances of the higher emotional mechanism which occurred. Here, therefore, the tests of the mental or emotional condition of the suspected person assumed a cardinal importance, but the difficulty of idiosyncrasy came in, hence the value of the testimony of the private medical attendant. Ample opportunity should be given to the accused to tell his own story. Abnormal garrulity on the one hand, or surly silence on the other, would go some way to corroborate suspicion, while a candid and fair story would clear away doubts engendered by peculiar conduct. On the next evolutionary level disturbance occurred in the power of performing finely co-ordinated movements. Not only should slurring of the speech and tremors of the hands be noted, but the manner in which the accused person received and interpreted the directions given. Romberg's sign was not a reliable test, many persons; even when in perfect health, exhibiting slight unsteadiness when standing with eyes closed: Assuming that the tests had established an *a priori* likelihood of drunkenness, the possibility had to be excluded of the disturbance being due to actual organic disease or even to the temporary effects of shock or profound excitement from other emotional causes. A careful examination of the muscular power of the limbs, of the functions of the cranial nerves, and of the reflexes should suffice in most cases to exclude organic disease, but so far as the tendon reflexes, the arm, the knee, and the ankle jerks were concerned, it was their absence or gross diminution which was important; a mere exaggeration of these reflexes was of little value in any case, and no value in the differential diagnosis of acute alcoholic poisoning. Judging by reports of cases, the reaction of the pupils to light appeared to have considerable importance attached to it, but alcohol had no constant effect on the pupils. The only characteristic condition was that to which attention was directed many years ago by Macewen, and later by Glaister—contracted pupils, dilated at once on any stimulus, but contracted again when the stimulus was withdrawn. Every case must be judged individually, and an opinion be arrived at only after careful consideration of all the facts and responses to tests. Recently tests had been suggested based on the chemical examination of the cerebro-spinal fluid or the urine. The examination of the former for alcohol might be dismissed as impracticable, and both tests were open to the valid objection that though they might show that alcohol had been consumed, and even approximately how much, they could not show whether any given person was drunk or not. One man might carry a bottle of whisky and not show it, and another might be drunk on two glasses of beer. Reliance must be placed on clinical tests, and standards of conduct and behaviour were the only criteria on which to depend in slight and difficult cases.

Dr. GRAHAM GRANT said that early in his career as a police surgeon he went to see a man who had been arrested for being drunk, and being enthusiastic at that time over certain tests, he declared him to be not drunk. The man was accordingly released, and, on going out of the police station, fell down the steps, and was brought back, so that he was compelled to certify him as drunk! One thing he had often found was that persons alleged to be drunk had an extraordinary capacity for sobering themselves under stress. They could make themselves apparently so sober that the inexperienced medical man was misled.

Dr. COURTENAY LORD said that he was particularly interested in this subject as secretary of the committee of the Association which had undertaken the bold task of considering the present tests for drunkenness with a view to some possible standardization. It was hoped to eliminate tests which experience had shown to have no value or doubtful value, and to establish others which could be used on all occasions by police surgeons, who, of course, could use their own discretion as to the application of supplementary tests as well. Such a result would relieve public anxiety, but even if no concrete proposals could be made a negative result would not be without value. As showing the difficulties with which the problem was hedged

about, he recalled one case from his own brief experience as a police surgeon—the case of a man arrested for riotous drunkenness, whose conversation was perfectly sensible, and not until he began to quote Shakespeare did the speaker really think him drunk. But next day that man admitted to him that he had no recollection at all of anything which occurred from the time he left the scene of his jollification to the hour when he woke up in his cell the next morning.

Lord DAWSON remarked that the general opinion about drunkenness had changed. This country, under conditions of freedom, was steadily becoming more sober, as everybody who worked among the industrial classes would admit. Drunkenness to-day, therefore, was judged from a stricter standard than formerly. The activities of modern life also demanded from the community a much higher degree of sobriety. To drive a motor car called for an acute condition of mind, a quick judgement such as our forefathers were rarely called upon to exercise. An alcoholic state which, fifty years ago, might have called for no interference or censure must now receive attention because, under the conditions of modern life, it made the individual capable of antisocial conduct previously unknown. It followed that the tests for drunkenness must be applied almost exclusively to the higher centres. The police surgeon, like the practitioner in any other field of medicine, had a far more difficult task to-day than was the case years ago; if the means available for examination and diagnosis had improved, concurrently had the complexity of the problem increased. He added an expression of the hope that the term "neurasthenia" would be used as little as possible. In the war it was made to mean anything or nothing, and sometimes was regarded as identical with malingering and humbug. It would be a poor result to get out of the difficulties about "drunkenness" by taking refuge in "neurasthenia."

Dr. P. B. SPURGIN (Metropolitan Police Surgeon) agreed that the words "drunk" and "drunkenness" were clumsy, unscientific, and unsuitable, but they met the views of the public more or less. He would suggest as a definition "suffering from the effects of alcoholic toxæmia." The public had been made uncomfortable by the press with regard to drunkenness, especially in motor-car cases. The public did not know of the large proportion of cases which never reached the police court and publicity—namely, those in which the divisional surgeon was able to certify as not drunk a person who had been brought in by the police. He believed that there had never been a case taken into the court in which there was not reliable and consistent evidence of a state of drunkenness. In cross-examination he had admitted that the result of one test after another might be explained in some other way, but when the cross-examining counsel exclaimed in triumph at the end of the recital of the tests that there was therefore no evidence of drunkenness he was discomfited on it being pointed out to him that although the result in each test might be otherwise explainable, the result of the whole series of tests together corresponded to nothing except alcoholism, and the magistrate generally agreed.

Mr. BISHOP HARMAN said that Dr. Maughan had appeared to think that the test of failure of convergence was a very good one, but in fact it was a very common disability. It occurred among a large number of his own patients, of whom he would be very much surprised to learn that they were suffering from alcoholism in any degree whatever.

A VISITOR, who had been a naval surgeon, said that in the navy it was not the surgeon who stated whether or not a man was drunk, but the officer of the watch, who applied the simple test of whether the man was or was not fit for duty. Questions of conduct could be judged to a considerable extent by any reasonable person.

Dr. D. ROXBURGH, who had taken the chair, Lord Dawson having to leave the meeting, remarked that unsteadiness of gait should not be regarded as a sign of drunkenness, in view of the number of people who suffered from giddiness, especially after an influenza attack.

Dr. MAUGHAN, in reply, agreed that the nature and variety of cases of drunkenness had altered during the last thirty or forty years. In the old days the "drunks" used to be far more pugnacious, and frequently had to be held down. He recalled, in closing, a story of Dr. Mercier. When someone said that there was an analogy between alcoholism and insanity Mercier laughed, and, asked why he did so, explained, "It is absurd to say they are analogous, they are identical."

PRINCIPLES OF TREATMENT IN DISEASES OF THE NERVOUS SYSTEM.

SECOND LETTSOMIAN LECTURE.*

IN his second Lettsomian lecture, delivered at the Medical Society of London on February 24th, Dr. E. FARQUHAR BUZZARD began by speaking of the indications for surgical intervention in tumours of the brain. His respect for brain surgery, he said, had been growing for many years. It was impossible for anyone who had not seen and followed a large number of cases to appreciate the value of surgical intervention in relation to brain tumours. The results of such intervention were far more satisfactory now than they were twenty years ago, and the credit for this should be allowed, not solely to advance in surgical skill and judgement, but also to the fact that diagnosis was, on the whole, made earlier and more accurately.

Intracranial Surgery.

The lecturer said that intracranial exploration was a field of surgery which was rich in surprises. When everything seemed to point to the presence of an infiltrating glioma, with its attendant bad prognosis, the result of the exploration might be to find an endothelioma or chronic abscess, capable of complete removal. The most promising group of cases of intracranial tumour from the point of view of permanent relief afforded by operation was that in which headache, vomiting, and optic neuritis were often conspicuous by their absence. In spite of the general teaching that these must be regarded as cardinal symptoms of intracranial tumour, cases in which these were not present provided perhaps the majority of examples of successful treatment. This was not merely a question of early diagnosis—although it meant much to the surgeon that his services should be called upon before intracranial tension was so much raised—but it was due to the fact that slow-growing endotheliomata might reach a very large size without provoking the cardinal symptoms, and that they could often be entirely removed with little fear of any recurrence.

The localization of intracranial lesions was not to be regarded as a difficult task compared with that of determining their nature. If, on the other hand, the tumour was so placed that its removal was out of the question there was no need to ascertain its nature by exploration, although a decompression might be indicated for the purpose of relieving suffering. This operation should be avoided, however, if relief could be afforded by other measures.

Epilepsy.

The last quarter of a century (Dr. Buzzard continued), though not devoid of praiseworthy efforts, had seen little light thrown on the pathogenesis of epilepsy, and had supplied no substantial reasons for altering what might be termed its traditional treatment. Confining his remarks to the principles governing the treatment of epilepsy in its earliest stages, he said that he accepted the view that epilepsy was a manifestation of instability on the part of some important nervous mechanism closely related to, if not identical with, the vasomotor system. Epileptic attacks he regarded as only the outward and visible signs of some permanent underlying nervous state which was inherent in a certain proportion of the population. While it was true that psychological investigations had seemed to show that the minds of most epileptics approximated to a certain type, workers in this field of research would not suggest that that type of mind was confined to epileptics, nor did they attempt to explain why only a proportion of persons possessing it were subject to fits. The early diagnosis of epileptic instability, before any of its manifestations had appeared on the scene, was an ideal which in the present state of knowledge seemed almost out of reach, but the next best thing would be a general recognition of its most trivial "embryonic" signs, such as the so-called regional jerks, which preceded other epileptic phenomena by many months and sometimes years, and a certain momentary interruption in the continuity of a patient's mental processes, associated perhaps with some local sensory disturbances or with what the patient might call a "wave of unreality."

The lecturer proceeded to lay down the principle that any manifestation of epilepsy in childhood should ensure treatment being persevered with until adult life, however successful the treatment might have been in preventing any repetition of the first sign. Even then cessation of treatment should be carried out gradually and with caution. In treatment each case must be studied as a separate problem. Measures should be taken to avoid what appeared to be the exciting cause, such as emotional disturbances, fatigue, and dietary indiscretions, but the child's life should be made as little different from that of his fellows as possible. Septic tonsils, adenoids, errors of refraction, and vulvitis, no doubt, might play a part as exciting causes, but their correction did not relieve the doctor of his responsibility for dealing with the underlying instability, without which no manifestation of epilepsy would have made its appearance. As to medicinal measures the bromides had been convicted, through no fault of their own, of many crimes of which they were not really guilty. Given irregularly or for too short a time, they were blamed for lack of success; given in too large or too frequent doses, they were held responsible for inevitable toxic states; given in appropriate doses without success—a result which might often ensue, especially when their use had been too long delayed—the depression really attendant on their failure to cure was laid at their door. Bromides should be prescribed, in his opinion, as soon as any manifestation of epilepsy made its appearance, the dose should be the minimum required for its purpose, and the number of doses in twenty-four hours should be as small as possible, and timed in accordance with any special features of the case under consideration. The administration must be regular and continued for an indefinite time according to age and other circumstances, and a small quantity of arsenic, two or three minims of Fowler's solution, should always be given with the bromide. Luminal had proved useful sometimes alone, but more often with bromide. Belladonna, borax, and digitalis might be added to bromide sometimes with advantage.

Syphilis of the Nervous System and Disseminated Sclerosis.

Dr. Buzzard said that, with certain exceptions, the patients who presented themselves with tabes dorsalis, general paralysis of the insane, cerebral syphilis, syphilitic myelitis, and so forth had been sacrificed to the time-honoured but groundless tradition that a medical man possessed the knowledge which justified him in telling a patient that he had been cured of his syphilis. It was true that large numbers of patients suffering from syphilis were cured, but medical men had no means of deciding in any particular case whether or not a cure had been effected. The public had always asked for cures, and in deference to their wishes the medical profession had weakly claimed the power to cure. With regard to what were known as the parenchymatous forms of syphilis of the nervous system, general paralysis and tabes dorsalis, the results of anti-syphilitic treatment were less constant in their encouragement. The first disease had still to be considered as incurable. Tabes in its early stages had at any rate been checked, and held in check, by repeated courses of mercury and of the arsenical compounds or by a judicious combination of these metals. The principles governing the treatment of syphilis of the nervous system did not really differ from those governing the treatment of syphilis of other organs, but in view of the special nature of the nervous tissues the importance of early diagnosis could not be too strongly urged.

With regard to disseminated sclerosis, he held the view that if the principles governing the treatment of syphilis were applied, in spite of ignorance as to the causal agent in sclerosis, the results were often too striking to be disregarded or to be attributed entirely to chance. Arsenic and mercury were employed more and more frequently in the treatment of this disease, but success, as in the case of syphilis, was mainly dependent on early diagnosis and on the indefinitely continued administration of these two metals. He did not believe arsenic had specific powers in combating disseminated sclerosis, but a long experience of its effect in such cases led him to think that if used early and perseveringly it was the best weapon available.

* A report of Dr. Buzzard's first lecture appeared in the JOURNAL of February 20th (p. 333). His third and concluding lecture is to be delivered on March 12th.

British Medical Journal.

SATURDAY, MARCH 6TH, 1926.

STATISTICAL STUDIES ON CANCER OF THE BREAST.

IN a previous report issued by the Ministry of Health's Departmental Committee on Cancer, to which we drew attention in our issue of October 4th, 1924 (p. 628), Dr. Janet E. Lane-Claypon presented valuable statistical information on cancer of the breast in relation to its surgical treatment. Perhaps even more valuable are the results which she has now published, dealing mainly with the associated antecedent conditions, local and general, in mammary cancer.¹ We are still in complete ignorance regarding the direct causative factors of breast cancer, nor, in spite of countless articles and monographs on the subject, is there general agreement as to the relative importance, or even existence, of contributory or predisposing causes. It is true that the Japanese experimenters Yamagiwa and Ishikawa, who first produced cancer of the skin in rabbits by repeated applications of coal tar, claimed to have induced carcinoma of the mammary gland in these animals by repeated local injections of tar, though their claim does not seem to be admitted by competent judges; but no one has succeeded in reproducing the disease experimentally under conditions that are likely to obtain in the case of the human cancer, possibly because no one knows what these conditions are. Properly conducted investigations into preceding or attendant conditions over a sufficiently large number of cases, non-cancerous as well as cancerous, and with reliable statistical methods, may prove useful in eliciting facts that will help in the elucidation of the etiology, or at least in dispelling prevalent misconceptions. Dr. Lane-Claypon has analysed the previous histories of some 500 women suffering from cancer of the breast in comparison with those of a like number of women over the age of 45 who were free of cancer in any part of the body. Care was taken to make the two groups as strictly comparable as possible. Though nothing that may be called new or startling emerged from these comparisons, the study is of considerable importance in providing us with exact figures instead of impressions, and in eliminating personal bias.

Dealing first of all with such phases of normal sexual activity as could be measured statistically, it was found that only very small, and probably negligible, differences could be detected in the menstrual histories of the two classes, but definite divergences could be established in respect of fertility. The incidence of mammary cancer is higher in the unmarried than in married women, as is generally known, but these studies further reveal that the greater the fertility the lower the liability to cancer of the breast. The figures are most critically considered by Dr. Major Greenwood, who contributes a special chapter on the point, and he shows that after making all allowances for circumstances such as might vitiate the comparisons the divergence is very striking, the difference being of the order of 22 per cent. This is all the

more remarkable as a similar comparison of relative fertility does not exhibit this difference in the case of cancer of the uterus. Lactation for any period from six months up to two years is without relation to any subsequent development of cancer; on the other hand, the absence of lactation or its prolongation beyond two years would appear to have a detrimental effect on the breast in this connexion, but sufficiently large numbers were not available to allow emphasis to be put on the point. Unilateral lactation could not be shown to exercise any deleterious influence in causing cancer of the breast exclusively used.

It is commonly assumed, probably not without justification, that cancer is the terminal phase of some other lesions less grave in themselves, and if we could establish a constant, or even a frequent, preceding lesion, preventive measures might be adopted with success. We turn with interest, therefore, to the section of the report dealing with previous troubles of the mammary gland. These have been divided into three groups—namely, those associated with lactation, developmental or functional errors, and injuries of various kinds. Such troubles as suppurative puerperal mastitis and cracked nipples seem to play no part in predisposing the breast to cancer; on the other hand, non-suppurative or transient mastitis associated with lactation does exert a baneful influence which is far from negligible in Dr. Lane-Claypon's opinion; to a less extent this applies also to structural and functional abnormalities; but where the great divergence arises between the two groups is in respect of antecedent injuries to the organ. That there is a close association between injury and the subsequent development of cancer the figures amply demonstrate, but it may still be doubted whether the statistical method is conclusive on such a point as this. It is probable that the part played by injury is exaggerated, for a person who develops cancer of an organ so liable to injury as the breast is much more likely to dig out from "the subconscious memory" instances of injury than one who is not suffering from cancer and has no stimulus to recall to recollection such occurrences. It is significant that the average time elapsing between the recalled injury and the development of cancer is short in comparison with the interval between other breast troubles and the appearance of the cancer. The figures do not disclose any important hereditary tendency to cancer of the breast, nor do they argue against such a possibility, for the nature of the material does not admit of precise deductions.

The symptoms of which the patients complained are tabulated and described in detail. The point of most importance which emerges is the high proportion of cases associated with pain at one stage or another, sometimes before any lump was felt. It is suggested that where pain in the breast is complained of the patient should be kept under observation, and there is reason to believe that the pain which is felt early in the disease is of a more intermittent character than that which supervenes later. Some interesting particulars are given regarding the stage of the disease when the patients present themselves for examination. About 80 per cent. of all the women applied for hospital advice without consulting a private practitioner; and too often those who sought private advice were advised to delay and report subsequent progress. The mean interval elapsing between observing the growth and applying for treatment was about ten months for those who survived the operation for less than three years, and not more than 15 per cent. of the patients presented themselves at a stage of the disease

¹ A Further Report on Cancer of the Breast, with Special Reference to its Associated Antecedent Conditions. By Janet E. Lane-Claypon, M.D., D.Sc. Lond. Ministry of Health Reports on Public Health and Medical Subjects. No. 32. 1926. London: H.M. Stationery Office. 3s. net.

when any effective remedial measures could be taken. Sir George Newman, commenting on this in the preface to the report, emphasizes the fact that "a mass of disease and suffering is still needlessly continuing which we already have ample means at our disposal to prevent." The spread of knowledge by intelligent propaganda ought to save many lives.

The vexed question of the relationship of "chronic mastitis" to cancer of the breast is considered at length, and this part of the report will repay study by those who believe in as well as by those who doubt the relationship. While recognizing that the data at present available are insufficient to afford a basis for a theory for the development of cancer of the breast, the author sums up her views as follows: "The continually recurring changes of the menstrual cycle have an important bearing upon the whole process, since there is evidence of an inverse relationship between fertility and cancer of the breast. Probably at some period, and for causes at present unknown, one of which, however, may well be injury, one part of the breast does not follow the ordinary cycle of the rest of the tissue. This departure from normality may gradually recede, or may become accentuated. . . . When accentuated, a condition of hyperplasia may result from the cumulative effect of a constantly recurring stimulus. The evidence dealing with the passage of hyperplasia to a condition of malignancy, while not absolutely positive, is yet of such a nature as to leave little room for doubt that it does occur."

UNQUALIFIED MEDICAL PRACTICE.

THE discussion on unqualified practice and the attitude of the medical profession and the authorities of the medical profession thereto, to which we devoted some attention a fortnight ago, has been advanced by the meeting of Peers and members of the House of Commons, of which a report will be found at page 450. Lord Dawson's address at that meeting was wise, temperate, and conciliatory, and its effect should be to dissipate still further the fog in which this matter has become enveloped. As Lord Dawson said, the subject has been "overlaid with a certain diffuseness and bitterness of spirit." As long as these persist some people will not see clearly even in a serene atmosphere; and though such an atmosphere is unquestionably a good thing, one can, in fact, become too placable. Mischievous error has to be withstood, not propitiated; and unjust charges may well be denied emphatically and without qualification or apology. Pervading all the activities of certain journalists and the speeches of certain members of Parliament on this matter, there seems to be the accusation or assumption that professional rules or customs in regard to relations with unqualified practitioners, and to public pronouncements on medical matters, have as their sole or primary object the obtaining of some advantage for registered practitioners. It is by no means easy to see how such advantage would accrue, and no attempt is made to show it. The very rules and customs themselves are usually misstated or misunderstood; but as the debate proceeds there is less and less excuse for these misstatements and misunderstandings, and it should be clear that not only, as Lord Dawson said, does the profession accept the good of the public as the overriding principle, but that it is exactly this public good which professional rules and customs are designed to promote and do in fact subserve.

Obscurity in the discussion would be avoided, not

only by accuracy as to facts and freedom from bitterness, but by constant awareness of certain distinctions of fundamental importance which ought to be, but apparently are not, obvious. One of these is the distinction between scientific knowledge and manual dexterity, between a theory of the causation of disease in general and the practical treatment of certain limited classes of case. A "bonesetter" used to mean a person who professed to have a special knack in dealing with injuries or displacements of the bones or joints. The "osteopath" of to-day is a person who treats all forms of disease by manipulation of the bones or joints on the professed theory that all disease is caused by misplacements of bone and consequent pressure on nerves and blood vessels. His hated rival the "chiropractor" is said to restrict manipulations to the spinal column. Now these theories of disease are, of course, what Lord Dawson called them, "sheer buffoonery," and treatment based upon them not only may be, but demonstrably very often is, dangerous; whereas manipulative skill within its proper range, and based upon accurate diagnosis, may be not merely useful but even essential for success in treatment. But when it is argued that "osteopathy" or "manipulative surgery" should receive a certain official status or recognition, we are bound to ask what the words exactly connote. Impossible claims can then be rejected and more restricted and logical requirements met.

The present claim that there should be a register of "qualified" osteopaths, on an equality with and possessing essentially the same rights as registered medical practitioners, ignores a further distinction—that between the requirement of at least a minimum amount of knowledge and training tested at every stage, and the imposition of a limitation upon opinion or practice. The former does not connote the latter to any degree whatever. Although in this country unqualified practice (except in dentistry and midwifery) is not forbidden by law, it is by general consent inadvisable for the State to recognize such practice except upon a basis of knowledge and training, and such State recognition cannot be based upon essentially different minima. Is it argued that there should be separate curriculums, separate colleges, separate tests, for those students who are eventually going to act upon the assumption that all disease is due to pyorrhoea alveolaris, or to the presence of a large intestine, or to bony displacements, or to "subluxation of the spine," or to anything they please? In the medical profession, after evidence of the possession of the required fundamental knowledge, a practitioner is at liberty to hold any opinions he likes, to give expression to them by proper means, and to base his practice upon them. The only restrictions on him are his own conscience, the recognized limits of professional discussion, and the judgement of the public. The Minister of Health was no doubt right when he said that there is nothing to prevent osteopaths setting up their own colleges and giving their own diplomas, but, as has happened in America, the curriculum of any such colleges would have to approach the normal medical curriculum before any guarantee could be given to the public by means of State recognition and registration.

A third distinction which it may be worth while to mention at the present time is that between legitimate public health propaganda and public pronouncements by registered medical practitioners for the purpose of personal advertisement or gain. Under the heading "Having it both ways" an important newspaper has

assumed a contradiction between the warning issued by the General Medical Council against the latter practice, and the encouragement given by the Ministry of Health to the former. There is, we need hardly say, no such contradiction; still less is there any ostensible or implied restriction upon the particular opinions which may be expressed in the course of health propaganda work. There are admittedly cases in which it is difficult to draw the line as to what is legitimate and seemly, especially as motive may be the essence of the case; but effective health propaganda is one of the duties of the profession. The Representative Body of the British Medical Association laid down some excellent considerations for guidance when it adopted last year the Council's report on indirect methods of advertising.¹

REPORT OF THE ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.

THE eagerly awaited report of the Royal Commission, appointed in July, 1924, to inquire into the scheme of National Health Insurance, has been issued this week. The Commission, it will be recalled, was set up in accordance with a promise made by Sir William Joynson-Hicks, when Minister of Health, during the negotiations in the previous autumn with the Insurance Acts Committee of the British Medical Association as to the terms of service of insurance practitioners. Its reference, as settled by his successor, Mr. John Wheatley, was shown beforehand in draft to the Insurance Acts Committee, and was accepted by that Committee and by the medical profession generally as allowing of the wide inquiry expected. The report is a large and comprehensive document of more than 400 pages. By far the greater part consists of a Majority Report signed by the chairman (Lord Lawrence of Kingsgate), Sir John Anderson, Sir Humphry Rolleston, Sir Alfred Watson, Sir Arthur Worley, Sir Andrew Duncan, Mr. Digby Besant, Professor Alexander Gray, and Mr. William Jones. A detailed summary of the conclusions at which the majority have arrived, and of the recommendations they submit, is reproduced in full in the SUPPLEMENT this week, together with a summary of the conclusions and recommendations put forward in a Minority Report signed by Mr. James Cook, Mr. John Evans, Mrs. Harrison Bell, and Miss Tuckwell.

It will be seen that all the members of the Commission concur in the opinion that National Health Insurance has established its position as a permanent feature of the social system of this country, and should be continued on its present compulsory and contributory basis, subject to various changes indicated in the two reports. The Commissioners appear to be at one also in concluding that medical benefit has been a valued and successful element in the scheme, but that while this has inevitably been hitherto confined to a general practitioner service, such limitation has detracted from the value of the benefit, and its removal is desirable. Among the many points put forward in the main body of the report we may note especially the recommendation that Insurance Committees should be abolished and their duties transferred to committees of the appropriate local authorities; also that, as and when funds are available by partial pooling of the surpluses of Approved Societies, there should be an extension of statutory

benefits for insured persons, the first of which ought to be a widening of the scope of medical benefit to include expert medical advice and treatment and laboratory services. In any scheme for extending the scope of medical benefit the Commissioners hold that provision should be made for the closest co-operation between general practitioners and specialists, and that any practitioner possessing the requisite qualifications should be entitled to take part in the work. The findings of the Minority Report include the opinion that it is undesirable to retain Approved Societies any longer as the agencies for the distribution of cash benefits to insured persons, and that local authorities should take their place. A reservation (which should rather be called an addendum) by two signatories of the Majority Report—Sir Andrew Duncan and Professor Gray—discusses the lack of co-ordination in respect of our social services, the relation between an insurance scheme and the prevention of sickness, the relation between expenditure on health and national finance, and the burden of the tax on industry.

The summaries published in the SUPPLEMENT will enable our readers to grasp the main features of this important document. Comment on a report of such length and complexity must, of course, be deferred to a later issue.

PYELOGRAPHY.

PYELOGRAPHY has now found a definite place in clinical medicine, but, as Mr. R. J. Willan reminds us in his lecture on the subject published at page 409 this week, considerable difficulty still exists in the interpretation of pyelograms. The normal renal pelvis is subject to a great range of variations, and what at one time were considered to be pathological abnormalities are now regarded as varieties of the healthy kidney. Nevertheless, in spite of these difficulties, great progress has been made in the art of pyelography. By it may be diagnosed lesions which would otherwise escape detection. Indeed, it may be said that the only method of detecting the early stages of such a condition as hydronephrosis is by the use of pyelography, and, as an early diagnosis of this condition is essential if the kidney is to be saved, an enormous advantage is thereby conferred. Progress has also been made in technique since Voelcker and von Lichtenberg introduced a 5 per cent. solution of collargol as the best medium for distending the pelvis. At the present time solutions of sodium bromide and of potassium iodide are the most popular. The use of a crystalline salt is clearly preferable to that of a colloid. It has been shown experimentally that a certain quantity of the fluid with which the pelvis is distended finds its way by imbibition along the tubules of the kidney. This is liable to cause nephritis, as shown by the appearance of casts, pus cells, and renal epithelium in the urine. If an easily soluble substance like sodium bromide be employed, it becomes rapidly diluted on entering the renal tubules, and such irritating properties as it may possess are thereby diminished. It is seldom that one sees nowadays a reaction after pyelography provided that catheterization has been carried out with an aseptic technique, and that the pelvis is distended with the utmost carefulness and gentleness. The improvement in the construction of catheterizing cystoscopes that has taken place in the last twenty years has added still further to the ease with which a pyelogram is made, and it should now be within the province of any surgeon possessing reasonable cystoscopic skill to use this method of diagnosis in all doubtful cases. Mr. Willan in his interesting article gives some indication of the type of case on which the pyelogram may throw light.

¹ Annual Report of Council, 1924-25. Appendix II. SUPPLEMENT to the BRITISH MEDICAL JOURNAL, April 11th, 1925, p. 164.

THE "BRITISH PHARMACOPOEIA."

A CONFERENCE took place at the offices of the General Medical Council on February 23rd between the members of the Pharmacopoeia Committee of the Council and representatives of certain medical, scientific, and pharmaceutical societies. The Pharmacopoeia Committee consists of Sir Donald MacAlister, Bt. (chairman), Sir Robert Bolam, Sir Humphry Rolleston, Bt., Sir Nestor Tirard, Sir Holburt Waring, Professor R. B. Wild, Dr. J. A. Adams, Professor Ashley W. Mackintosh, Sir Norman Walker, Dr. Leonard Kidd, Dr. Edward Magennis, Sir John Moore, and Dr. Philip Hamill (secretary). The representatives who met the Committee were: Dr. J. Smith Whitaker and Dr. E. W. Adams (Ministry of Health), Dr. H. H. Dale and Sir David Prain (Royal Society), Sir W. Hale-White and Professor A. J. Clark (Royal Society of Medicine), Dr. T. R. Elliott and Sir Walter Fletcher (Medical Research Council), Mr. E. Lewis Lilley and Dr. John W. Bone (British Medical Association), Mr. P. F. Rowsell and Mr. Edmond White (Pharmaceutical Society), the late Professor A. R. Cushny and Professor W. E. Dixon (Physiological Society), Professor F. G. Donnan (Chemical Society), Dr. A. B. Rendle and Lieut.-Colonel A. T. Gago (Linnean Society), Mr. H. Todd and Mr. W. J. Hardy (Northern Ireland Pharmaceutical Society), Mr. G. A. MacLean Lee and Mr. J. Smith (Southern Ireland Pharmaceutical Society), and Mr. A. Chaston Chapman and Mr. E. Hinks (Society of Public Analysts). The President outlined the history of the past issues of the *British Pharmacopoeia* and the present position as regards its revision. He mentioned that the Dominion of Canada had made a suggestion which might result in arrangements being made for the fuller consideration of specially Canadian requirements, and said it was probable that if anything was done on these lines similar arrangements would have to be made for ascertaining the special requirements of other parts of the Overseas Dominions, such as India, Australia, and South Africa. The delegates from the societies brought forward certain proposals concerning the method of revision, and many suggestions on the subject were offered. At the conclusion of the conference the President stated that these proposals and suggestions would be carefully considered by the Pharmacopoeia Committee at a meeting about the middle of March, after which he would ask the delegates to meet the Pharmacopoeia Committee again. On the motion of Sir William Hale-White a hearty vote of thanks was accorded to the Council for its action in inviting the conference.

EARLY WORKERS IN PUBLIC HEALTH.

SIR GEORGE NEWMAN'S Oration¹ to the Hunterian Society exhibits that breadth of view and quick appreciation of the essentials of his subject which experience of his writings leads the reader to expect. The great bulk of the medical profession are still occupied with the art of healing the sick, but a continually increasing minority are concerned primarily with the prevention of disease. There is much unavoidable, and indeed valuable, overlapping between the two, and the General Medical Council has decreed that every student, however he may develop and specialize later on, shall, to begin with, be educated in both aspects of medicine. The Chief Medical Officer's deliverances are always in readable and vigorous language, and in this oration he shows how in John Hunter's time and throughout the eighteenth century, before any specialism in disease prevention had formally developed, some great practitioners like Edward Jenner, Richard Mead, Lind, Haygarth, Blane, Huxham, and others were laying the

foundations of the science which seeks to protect humanity against invisible dangers on every side. Like Sir John Simon, who was the first to occupy the post of chief medical health adviser to the Government, Sir George Newman has an extensive knowledge of the literature of the subject, and in this pamphlet of fewer than fifty pages he gives his readers the benefit of his study of the discoveries of the Hunterian period. The oration, indeed, is a masterly survey of the pioneer work of a century of scientific development closely bearing on the welfare of the civilized world. In his easy-chair over an evening pipe when his day's work is finished a busy doctor may, with the oration in his hands, spend a pleasant hour communing with the great men of the past, thinking of the astonishing differences between then and now, and speculating as to the possible further revelations of Nature's secrets which may lie open to some successor of his at the end of the twentieth century, of which only one-fourth is already behind us.

THERAPEUTIC USES OF KAOLIN.

THE use of china clay or kaolin for the manufacture of porcelain has long flourished in the Orient, and since the eighteenth century centres at Limoges in France, and in Devon and Cornwall in this country, have supplied many thousands of tons annually. Its use in medicine as an excipient for certain pills, as a dusting powder for ulcerated surfaces, and as a basis of a form of poultice, has also been known for a long time. Of recent years the use of kaolin has been extended, however, and it is coming into favour for the treatment of certain intestinal infections. A discussion of its action in this respect formed the basis of a recent thesis¹ by Dr. L. H. Braadfladt, who had an opportunity for an extensive trial of its properties during the cholera epidemic in China which began in 1919. A hundred consecutive cases of cholera were selected, and divided into two groups according to their severity. Of these, 15 in the severely ill group and 20 in the moderately ill group received kaolin. It was given by the mouth in a heavy suspension consisting of 800 grams in a litre of water. If vomiting was a prominent symptom 3 ounces of this suspension was given every half-hour. After the vomiting and diarrhoea had abated slightly, usually at the end of six to eight hours, the dose of kaolin was continued every hour and then every two hours. It was not found necessary to give it for more than twelve to fifteen hours in most cases. Of the 35 patients who received kaolin only 1 died, and she was unconscious on admission and had complete suppression of urine. Of the total of 100 patients, 41 received hypertonic salt solution only with 9 deaths, 24 received salt solution and kaolin with 7 deaths, while 35 received kaolin alone with 1 death. In the two clinical groups the mortality rate was 22 per cent. in the severely ill and 6 per cent. in the moderately ill, so the therapeutic use of kaolin in cholera appears to be justified. Certain experimental work gives a clue to the way in which kaolin acts. When mixed with cultures of bacteria in fluid media, incubated at body temperature, and kept in motion, kaolin carries down with it as a precipitate large numbers of the organisms. If 25 mg. of the powder be mixed with one minimum lethal dose of diphtheria toxin this will fail to kill a guinea-pig on injection. Toxic filtrates of cultures of the cholera vibrio standardized to kill rabbits in 2 c.cm. doses by intravenous injection produce no toxic effects when previously shaken up with kaolin. Dr. Braadfladt concludes, therefore, that kaolin does not act as an antiseptic, but carries down with it large numbers of the bacteria in the intestine, while with regard to toxins it seems to render them harmless by a process of adsorption. Experiments on normal individuals indicate that after kaolin has been

¹ *The Private Practitioner as Pioneer in Preventive Medicine. Being the Annual Oration of the Hunterian Society, 1926. By Sir George Newman, M.D., D.C.L. Oxford University Press. London: Humphrey*

¹ *Journ. of Infect. Dis.*, vol. xxxiii, No. 5.

taken by the mouth *B. welchii*, for example, disappears almost completely from the faeces. It does not upset digestion, and it tends to reduce intestinal fermentation as evidenced by flatulence. It has been used in the treatment of bacillary dysentery, chronic ulcerative colitis, and acute enteritis with success, and it might possibly be beneficial in food poisoning by members of the salmonella group if given early enough. Dr. Braadfladt's results, with their experimental basis, suggest that the use of kaolin in intestinal infections deserves an extended trial.

IMAGINATION AS A METHOD OF TREATMENT.

At the social evening of the Royal Society of Medicine on March 1st an address was given by Dr. Gustave Monod of Paris and Vichy on "Imagination as a method of treatment." Sir StClair Thomson presided over a distinguished company which filled the Barnes Hall to overflowing. Dr. Monod first spoke of Cagliostro (Joseph Balsamo), the charlatan of the eighteenth century, who, after studying medicine and chemistry, wandered in many countries posing as a prophet and magician. A certain reputation attached to him, at Strasbourg and in Switzerland, as one who brought about rapid recoveries from diseases diagnosed as mortal. Mass suggestion, as M. Coué had discovered for himself in our own day, was an important factor in healing by the imagination. Cagliostro's panacea was spirits of wine distilled on sulphate of antimony, and he had a famous mirror for conveying suggestions to his patients. His powerful personality, his consummate stage management, his weird polyglot verbiage, as incomprehensible to his auditors as to himself, constituted his technique, and it was not disputed that many of his cures were authentic. The second example was David Gruby, a regular physician of Paris in the nineteenth century. The technique of this famous practitioner was perfect simplicity; he drove his commonplace devices into the subconscious mind of his patient with unerring skill. His prescriptions were legendary in Paris, his Latin was all his own, his powders were chalk, his mixtures were water, but his remedies to be efficacious had to be taken according to certain particular directions. The rheumatic patient was advised to eat three apples—one at 7 a.m. at the Arc de Triomphe, another at 7.20 in the Place de la Concorde, and a third in the Trocadero Gardens at 7.40. A nervous member of the Stock Exchange, with persistent migraine, was ordered to go to Versailles by the 12.50 to eat an orange, and return by the 2.24—in that way he missed his daily excitement on the Bourse. A lady suffering from intractable insomnia was ordered to take a spoonful of his famous water every half-hour during the night; the nurse had no difficulty with the first two or three doses, but when the fourth was presented the indignant lady insisted on being allowed to sleep! Gruby's therapy was based on using the patient's imagination to reinforce his own pre-eminent common sense, and his astonishing success earned him the odd title of the *derviche guérisseur*. The lecturer next turned to Emile Coué, who was formerly a chemist at Troyes, where his shop window had a battery of flagons, flanked by two splendid bowls, one red and the other blue, with his name in gilt letters above. He observed that the physical and chemical properties of his drugs could not account for all the results obtained by their use, and was clearly one of the disciples of Hippolyte Bernheim, who was practising at the same time with astonishing success at Nancy, demonstrating that healing by automatism was a general phenomenon, not confined to hysteria, as Charcot had taught. Coué's method consisted in making straight a path for the propulsion of sufficiently potent concepts to seize the entire field of the subconscious mind. Auto-suggestion was brought about by the repetition of his celebrated sentence, "Every day in every way," etc., which had to be pronounced without a break twenty times

in succession, using a bit of string with twenty knots as a rosary. In the French the sentence was entirely monosyllabic, and so ran quicker than in the English. Coué soon found that the patients who waited for him created an atmosphere of expectancy. These patients were not given private consultations, they were assembled in a bare room, and the seance proceeded. Coué's cheery good nature was attractive. His self-depreciation disarmed criticism. He used a conversational tone and a simple vocabulary. He stated his principles in few words, and proceeded to test the suggestibility of his patients, making a thrust at any point he wished. The sitting concluded with a short peroration, recited monotonously, a homily of optimistic philosophy, with a few hints on digestion. It was, Dr. Monod said, to a definite category of morbid minds—"mythomaniacs"—that Coué addressed himself. His immediate results appeared to be remarkable. The word "cure" came trippingly to the tongue. But cure might be imagined as easily as disease. In the case of a definite lesion such as a hernia Coué said that the subconscious saw to it that the tear in the peritoneum healed little by little, or, in the case of a fibroid, that the subconscious mind, having accepted the idea that the fibroid must disappear, the brain ordered the arteries which nourished it to contract, so that the fibroid starved. As to malignant tumours, he said only that his method "improved" them. The truth was that what he did was to relieve the patient by removing the anxiety with which the imagination overloaded the lesion. Reduced to the simplest expression, the most implacable of diseases might be induced to create a minimum of reaction. The lecturer discussed the possible harm of Couéism. Coué stated that he advocated only the good use of his method. Yes, but what about others? The method might act both ways. No physician, however, could afford to neglect any kind of successful treatment. He could and would make use of good suggestions. He could learn from Coué. The consulting room of a London specialist always appealed to the lecturer as being sympathetic and optimistic, with engravings illustrating Shakespearean poetry, and furniture suggesting serenity and comfort, and all the technical apparatus disposed behind a screen. It was right to appeal to the imagination, but to rely on auto-suggestion alone was to turn patients into puppets, and the appeal of scientific medicine must be first to the reason. Lord Dawson of Penn, in proposing a vote of thanks, said that beneath the amusing passages of Dr. Monod's address there was a serious warning which the medical profession should take to heart—namely, as to the danger of vanity and pretence. The mind and the imagination must enter into the fabric of disease, and likewise into treatment, and it was for medical men to see that the psychological side of their work was honest, delicate in its application, and incidental in its methods. He spoke also of the harmony of British and French ideals in medicine, and said that Dr. Monod possessed the characteristics of both nationalities in the clarity of his mind, the glow of his enthusiasm, and his genius for friendship. Some excellent exhibits bearing on the subject of the address were shown by the Wellcome Historical Medical Museum.

MAISTRE WACE.

To the vast majority of English readers who have not made a study of Norman-French literature, *Maistre Wace*,¹ as the author—Dr. J. H. Philpot—of the book himself says, must be little more than a name, if so much. Though it is for such readers that this book has been written, it should also earn the gratitude of scholars and of all those who are interested in tracing the origin of English poetry. *Maistre Wace* constitutes one of the bridges over which

¹ *Maistre Wace*. By J. H. Philpot, M.D. London: Methuen and Co., Ltd. 1925. (Cr. 8vo, pp. 155. 7s. 6d. net.)

post-classical poetry had to pass on its way from the memorized to the written word. Dr. Philpot most justly describes him as a pioneer in two literatures and as a forerunner of Chaucer, and, at the present day, of Masefield, to whom the book is dedicated. The life of Wace occupied the greater part of the twelfth century (1110-75). He was born in Jersey, and his father may have taken part in William the Conqueror's invasion of Britain. Educated at Caen in Normandy, much of his life was spent at the court of Henry II and Queen Eleanor of Aquitaine. Wace's main title to fame rests on two long poems in Norman-French. The earliest, 15,000 lines in length, called "Roman de Brut," gives an account of the British kings from Brutus, the first king of Britain, down to Cadwallader. His knowledge was based on the Latin chronicle of Geoffrey of Monmouth, Bishop of St. Asaph, to whom we are indebted for the stories of King Lear, Cymbeline, and the legend of King Arthur. The Latin prose of this old chronicle Wace translated, with considerable additions to it of his own, into Norman-French in octosyllabic rhyming couplets. The book was extremely popular and hailed as a new Aeneid, for the descent of the British kings was traced to the heroes of the Trojan war. The poem was finished in 1155 and dedicated to Queen Eleanor. Five years later the queen commissioned him to write another work, and this was the famous "Roman de Rou," on which his fame as a poet most securely rests, and which induced Henry II to bestow on him the canonry of Bayeux. The poem is a chronicle of the Dukes of Normandy, beginning with Rollo and ending with the battle of Tenchebrai (1105), when the Normans and English finally became united. Hero is recounted how the old viking Rollo, though he had been converted to Christianity, never entirely gave up his pagan habits, so that when he came to die he ordered a hundred Christian throats to be cut in honour of Thor and Odin, while at the same time he showered gifts on the Christian churches! It is in this poem that we have told in 700 Alexandrine verses the strange story of the tragedy of William Longsword, and these Dr. Philpot has translated for us in lucid and vigorous verse, while he has also unraveled the very tangled political skein of that epoch. It must be remembered that Wace was writing towards the end of the Dark Ages, when something of an early renaissance may be detected, "the rude strength of the Middle Ages turning to sweetness"; it was a time when men were beginning to love the things of the intellect and the imagination for their own sake. Dr. Philpot exhibits Wace as a very human, somewhat worldly person, who thoroughly enjoyed his life at the court and dearly loved making money. His muse was rather a pedestrian one, and perhaps his merit may be greater as an historian than as a poet; he was less the inspired artist than the careful craftsman, who worked conscientiously at his materials; but Wace fully realized the value of his own writings, as is shown by the following:

How long shall any name resound
Beyond the grave unless 't be found
In some clerk's book; it is the pen
Gives immortality to men.

A NEW BIOLOGICAL JOURNAL.

The first appearance of the *Quarterly Review of Biology* adds yet another to the approximately 25,000 reputable scientific journals published at regular intervals, and it is fitting that in the first sentence of this new periodical Dr. Raymond Pearl, the editor, should ask the question, Why start another? He replies that it is the purpose of the new journal to keep scientifically minded readers informed of progress in all branches of science, and is addressed to "a fairly numerous body of cultivated men and women who are genuinely interested in knowing about the progress which biology is making." The first number contains articles on the

biology of the mammalian testis and scrotum, symbiosis among animals, with special reference to termites and their intestinal flagellates, experimental studies on morphogenesis in the nervous system, a review of the discovery of photoperiodism, and the influence of the length of daily light periods upon the growth of plants, and recent discoveries in the biology of amoeba. The articles are fairly short but comprehensive, and are written so far as possible in non-technical language, so that teachers, investigators, and others who are not actively engaged in research but who are interested in biology in its broadest sense may be able readily to understand papers by specialists working in other fields. An interesting series of papers is promised for future numbers. The editor has the assistance of an advisory board of experts in different branches of biology, most of them occupying teaching posts in American universities. The journal will certainly justify its existence if future numbers are as interesting as the first. It is published by the Williams and Wilkins Company of Baltimore, U.S.A., and the London agents are Messrs. Baillière, Tindall and Cox, 8, Henrietta Street, Covent Garden, W.C.2. The price is stated as 5 dollars a year, or 1½ dollars a copy.

TETRA-ETHYL LEAD.

ATTENTION was drawn a year ago in these columns¹ to the possible danger to the public involved in the addition of one part in a thousand of tetra-ethyl lead to petrol to make the product ethyl gasoline. The numerous cases of poisoning associated with the manufacture of tetra-ethyl lead in large quantities disquieted the United States public health officials, and a conference was held last May to discuss the effect of the use of ethyl gasoline on the public health. As a result of the report of the conference the manufacturers discontinued the sale of ethyl gasoline, of which 300 million gallons had already been distributed. A committee appointed by the conference has just reported.² Its conclusions are that, although ethyl gasoline has been used for two years by some drivers of cars, yet it is unable to find any evidence that the use of ethyl gasoline has caused any lead absorption in drivers of cars. Employees at garages were found frequently to suffer from slight lead poisoning, but this occurred in garages where ethyl gasoline was not used, although it was more marked when ethyl gasoline was used. The committee concludes that there is no valid reason why the sale and use of ethyl gasoline should be prohibited, but it recognizes that its conclusions are based on a relatively small number of cases studied over a relatively short period. Lead is a particularly dangerous poison owing to its extraordinary power of producing cumulative effects, and it is to be hoped that the subject will be very fully investigated before any general use of ethyl gasoline is allowed. Owing to this property of lead it is obvious that very extensive and irreparable damage might be produced before the first symptoms of poisoning appeared.

¹ BRITISH MEDICAL JOURNAL, February 7th, 1925, p. 273.

² Journ. Amer. Med. Assoc., 1926, 86, 370.

EXPERIENCE shows that it is difficult to keep up the interest in a debate for much more than an hour at a time. It is also well known that when a debate is adjourned to a subsequent day the interest in it flags. The Royal Society of Medicine last week made a successful experiment in overcoming both these objections. The discussion on the diagnosis and treatment of intrathoracic new growths united in debate the Sections of Medicine, Electro-Therapeutics, Surgery, and Laryngology, under the presidency of Dr. Hugh Thursfield. A profitable discussion, as our report shows, was in full swing from 5.30 to 7.15. The meeting then stood adjourned for half an hour, when a welcome break was utilized for obtaining refreshments at a buffet organized by the society and at a very nominal price. The debate, after this half-hour's rest and refreshment, was then carried on with renewed zest until 10 o'clock. Many more Fellows would doubtless have profited by this arrangement had it been advertised beforehand.

New South Wales.

[FROM OUR SPECIAL CORRESPONDENT.]

UNIVERSITY OF SYDNEY.

MR. A. RADCLIFFE-BROWN, professor of social anthropology in the University of Capetown, has been appointed to the newly created chair of anthropology in the University of Sydney. The senate acted upon the advice of a committee consisting of Professor J. T. Wilson (Cambridge), Professor Elliot Smith (University College, London), and Dr. A. C. Haddon (reader in ethnology, Cambridge). The establishment of the chair was made possible by the action of the Commonwealth and the several State Governments—on the strong recommendation of the Australian National Research Council and the universities and scientific bodies in the various States—in providing sufficient funds for the upkeep of the department. Professor Radcliffe-Brown has been engaged in anthropological field work for the past sixteen years in the Andaman Islands, Australia, and South Africa. He was a scholar of Trinity College, Cambridge, and after taking his degree was awarded the Anthony Wilkin studentship to make investigations among the Andaman islanders. He published an essay on the religion of the islanders in *Folk Lore*. He became a Fellow of Trinity College, and the next piece of field work he undertook was in north-western Australia in 1910; it yielded important results, some of which were recorded in *Man*, 1910, 1912, 1914. In addition, Mr. Radcliffe-Brown has published a monograph on the "Andaman Islanders." He was president of the Section of Anthropology of the South African Association for the Advancement of Science, and while in Capetown established a successful department of anthropology and greatly stimulated interest in anthropology, the number of undergraduates in the subject having grown from sixteen in 1922 to forty-four in 1924, some of whom were working for master's and doctor's degrees in anthropology.

Associate Professor A. N. Burditt has been appointed to the Challis chair of anatomy at the University of Sydney. He has been on the teaching staff of the university since 1919, when he was lecturer and demonstrator of anatomy. In 1924 he was appointed associate professor of anatomy while he was prosecuting researches in Europe. The present appointment has been made after consultation with a committee in London, consisting of Professor J. T. Wilson, Professor G. Elliot Smith, and Professor C. J. Martin. Professor D. A. Welsh, professor of pathology, has been appointed dean of the Faculty of Medicine in succession to Dr. A. E. Mills, the professor of medicine, who has been granted a year's leave. Dr. S. A. Smith has been appointed acting professor during his absence.

A Bequest to the University of Sydney.

The late Colonel Oswald Watt, who died in May, 1921, left estate valued for probate purposes at over £175,000. The testator bequeathed the bulk of his property upon trust to the Senate of the University of Sydney "for such uses for the benefit of the institution as the Senate in its absolute discretion should determine." The trustees have now informed the university that the great part of the estate has been realized, and that after realization of some further assets and the death of certain annuitants, a sum approximating to £109,500 (of which £46,000 has been already paid over) will ultimately be received by the university.

ROYAL PRINCE ALFRED HOSPITAL.

During 1924-25 the number of patients under treatment was 8,250. Of these, 4,800 were discharged cured, 2,001 were relieved, 577 unrelieved, and 370 died. The average number of patients resident daily was 493.9; the mortality rate over total cases under treatment (deducting 74 deaths of patients within twenty-four hours of admission) was 3.58 per cent.; the attendances in the out-patient and casualty departments numbered 127,947. The total revenue from all sources was £103,060, as compared with £100,379 in the year 1923-24, while the expenditure was £111,857, as compared with £111,884, the excess of

expenditure over revenue having thus been £8,797, as compared with £11,504. The revenue fell in donations (from £2,777 to £2,440), but there was a marked reduction in income from the Repatriation Department, owing to the lower numbers of patients treated; which fell from £17,043 to £12,556. In nearly every other respect the income was higher than in the previous year, the total from public contributions having risen from £11,213 to £15,060; from patients other than repatriation cases from £11,306 to £12,200; from miscellaneous receipts from £8,287 to £9,434; and from extraordinary receipts (legacies and bequests not invested) from £630 to £1,012.

ROYAL ALEXANDRA HOSPITAL FOR CHILDREN.

The Royal Alexandra Hospital for Children has been recognized by the University of Sydney, upon the recommendation of the Faculty of Medicine, as a clinical school for the training of medical students in the diseases of infancy and childhood. The students will attend daily in groups for a period of six weeks each, and during such time will not be permitted to attend the general hospital to which they have been attached. The number of patients treated in the hospital in 1924 was 40,790. Of these, 8,332 were treated as in-patients in the main hospital; 14,980 casualty and out-patients were treated in the casualty department; and 17,325 were treated in the out-patient department, Quay Street. The average number of beds occupied daily was 290, and the average cost of each occupied bed was £160. In the convalescent home at Collaroy Beach 153 in-patients were treated, the average cost per occupied bed being £111. The expenditure of the hospital in 1924 amounted to £61,390, and the ordinary receipts for the same period to £58,588.

Scotland.

THE ROYAL HOSPITAL, MORNINGSID.

In his report for 1925, the hundred and thirteenth since the opening of the institution, Professor G. M. Robertson, the physician superintendent, deals with several questions of the utmost moment in regard to the treatment of mentally disordered patients. As is well known, Professor Robertson has for long fought to free the mentally sick from the hindrances and harsh obligations imposed by the lunacy laws.

"The carefully designed and elaborate procedures for the protection of the liberty of the subject are considered in these days superfluous; more than that, they are inimical to the peace of mind and well-being of sick patients needing treatment, whatever the legal mind may say in their favour. Although they deal with the healing of the sick, a medical spirit is conspicuous by its absence in our lunacy laws."

Professor Robertson hopes that those in authority have noted that patients, the relatives of patients, and the medical profession are opposed to the present system of certification and of sheriffs' orders. This attitude is reflected in the increasingly high percentage of those entering for treatment as voluntary patients; this is a particular feature of the admissions to the hospital at Morningside. In Scotland any patient who understands what he is doing can enter a mental hospital for treatment as a voluntary patient merely by signing an application expressing his or her desire to do so. This applies to the poor as well as to those with means, and parish councils are becoming more and more willing to concede the privilege to those who are chargeable, although by doing so they incur some additional expense.

Nursing Homes.

In addition to Craig House and West House, in which private patients are treated and cared for, the managers have established, during the last seven years, a third department quite apart from the two mentioned—namely, a group of nursing homes in the suburbs of Edinburgh in which physicians can visit and treat their own patients exhibiting nervous or mental symptoms, exactly as they visit and treat those with bodily diseases in ordinary nursing homes. Each of these nursing homes is specially

adapted for a certain type of case, and this differentiation adds to the value of the group. They have enabled many persons suffering from mild or transient attacks of mental disorder to be treated and to recover without certification or being placed in a mental hospital.

The Royal Hospital and the Royal Infirmary.

Professor Robertson again lays stress on the necessity of co-operation of the mental physician with the general physician in the treatment of patients suffering from mental ailments, and points out that the benefit derived from such co-operation is reciprocal. In recognition of this trend towards co-operation, and of the growing importance of the subject, the managers of the Edinburgh Royal Infirmary two years ago appointed the physician superintendent at Morningside physician consultant in psychiatry at the Infirmary. They have now decided to authorize the opening of a mental out-patient clinic to be conducted by him with the help of two assistants; it began work on March 2nd, and will be held weekly. It will be purely for out-patients, and has not the privilege of recommending a patient for in-treatment. To make good this deficiency the managers of the Royal Hospital at Morningside intend to provide an observation hospital situated near the West House for the treatment of early and mild forms of mental trouble among patients of the classes who, for bodily ailments, seek admission to the Royal Infirmary. It is to be called the Jordan Burn Hospital, and will not be a mental hospital or an asylum, but will be actually a hospital for a special form of disease, into which all patients enter voluntarily and without any legal formality or stigma, exactly as they do when entering the wards of the Royal Infirmary. The difficulty to be faced in this is financial, and an appeal is made to the generosity of the public, £15,000 being the amount required. The benefits to the poor of such an observation hospital are wellnigh incalculable.

EDINBURGH ROYAL INFIRMARY IN 1925.

The annual report of the Royal Infirmary of Edinburgh for the past year shows that 15,755 patients were treated in the institution, an increase of 68 over the number of the year before. The largest number of in-patients on any one date was 943, and the average duration of stay 20.6 days. Excluding the deaths which took place within forty-eight hours after admission, the death rate was 4.7 per cent. Besides the cases treated in the wards, 55,346 out-patients attended, being an increase of 6,907 over those receiving treatment in the preceding year. The average waiting list of persons desiring admission to the wards was 1,932, of which number 812 were ear, nose, and throat cases. With regard to finance, the ordinary income was £109,931, as compared with £107,907 for the preceding year, or an increase of £2,023. As compared with this, the ordinary expenditure had been £127,751, an increase of £214 over that of the preceding year; but as it was pointed out that there was an average of two more beds in daily occupation throughout the year, the relative expenditure was really under that of 1924. The extraordinary income amounted to £75,020, while the extraordinary expenditure amounted to only £3,751, so that the deficit of ordinary income and expenditure is amply met, and £15,317 retained as part of the permanent capital. The cost per occupied bed for the year was £141 3s. 3d., or 1s. 6d. less than that for the previous year. A special badge day collection in the city and provincial districts on May 23rd resulted in the collection of £7,419, an increase of £1,347 over the sum derived in the previous year from a similar source. This fund is raised largely by a pageant, organized by a secretary assisted by a large and representative citizens' committee, and various friendly societies, trade union organizations, and industrial firms and business establishments take part in it by arranging attractive displays. The total amount raised by this means since its inauguration ten years ago is £44,580. A systematic scheme for collecting small subscriptions from the employees of public works, business establishments, staffs of schools, banks, Government and other offices, known as the League of Subscribers, yielded during the year £21,356 (£451 more

than the previous year); there are 1,021 groups of subscribers in Edinburgh and 373 groups in provincial districts. The leading contribution is that of the London and North-Eastern Railway Company's employees (North British Railway section), whose subscriptions during the year reached the sum of £2,490. The contributions from miners and oil workers, made through the pay office staffs of the various collieries and works, amounted to £14,348 during the year, a decrease of £593 as compared with the previous year. This falling off was fully accounted for by the continued trade depression and resultant unemployment in the mining industry.

ROYAL MEDICAL SOCIETY OF EDINBURGH.

The annual dinner of the Royal Medical Society of Edinburgh was held in the Hall of the Royal College of Surgeons of Edinburgh on February 25th. The Senior President, Dr. J. G. McCrie, presided, and the guest of the evening was Dr. James Taylor, C.B.E., physician to the National Hospital for the Paralyzed and Epileptic, Queen Square, London. Among those present were Sir James Hodsdon; Sir Harold Stiles; Professor John Fraser; Emeritus Professor W. Russell; Professor R. Muir; Dr. John Orr, dean of the Faculty of Medicine, Royal Colleges; Dr. John Stevens, honorary secretary of the Edinburgh Branch of the British Medical Association; Dr. R. W. Johnstone, President of the Edinburgh Obstetrical Society; Dr. W. Guy, dean of the Dental School; and Dr. O. Charnock Bradley, Principal of the Royal (Dick) Veterinary College. After the usual royal toasts had been acknowledged, that of the Imperial Forces was proposed by Mr. M. A. T. Thomson, Master of the Merchant Company of Edinburgh, and acknowledged by Captain J. Tovey, R.N., and Lieutenant-General Sir W. E. Peyton, K.C.B., G.O.C. Scottish Command. The chairman, in proposing the health of Dr. James Taylor, welcomed him as an old president of the society as well as on account of his eminence as a physician. Dr. Taylor, in proposing the toast of the Royal Medical Society, recalled with infinite pleasure the happy evenings which he had spent as a student in the society's old hall in Melbourne Place. He thought that the members of the medical profession were justified in the opinion they held that their profession was the best profession of all. It offered a great deal, for it presented scope for intellectual endeavour, constant interest, and its boundaries were always widening. He had recently taken part in a discussion with some well known medical friends—as to the quality which was chiefly responsible for success in medical practice. On taking a vote, it was found that each of them had expressed the opinion that the quality which conduced mainly to this was that of sympathy. In addition to the scope it offered for intellectual pleasure and exercise, medicine had a strong human appeal. Mr. W. R. Russell, one of the presidents of the society, in reply, said that the society was in a flourishing condition, and during the present session its active membership had increased from 99 to 119. The society's library was becoming more widely used after the period of depression during the war, and the Library Committee contemplated purchasing many more books. He believed that the society continued to maintain its old tradition and was an important adjunct to medical education in Edinburgh. Dr. R. H. Sanderson, also a president of the society, proposed the Edinburgh Medical School, and remarked that the bicentenary of the Medical Faculty of the University would be celebrated in the present year. Professor G. M. Robertson, President of the Royal College of Physicians of Edinburgh, replied on behalf of that body, and Dr. A. Logan Turner, President of the Royal College of Surgeons, for that corporation. He believed that so long as the teachers in the Edinburgh school maintained the tradition of making teaching the first call on their time, so long would Edinburgh maintain its position as a great medical school. In referring to the beginnings of the school, he mentioned in particular three names—those of Sir Robert Sibbald, Dr. John Monro, and Provost George Drummond, who had been responsible for the virtual founding of the institutions upon which the beginning of an efficient medical school in Edinburgh had depended. To

Sir Robert Sibbald the city was indebted for the commencement of a scientific outlook upon medicine. Dr. John Monro had been the first to conceive a complete medical faculty in which all the subjects then necessary for medical education should be taught, and he had educated his brilliant son, Alexander Monro, with the object of teaching anatomy and of organizing such a faculty. To Provost George Drummond the movement which had resulted in the founding of the Royal Infirmary was to be credited. Dr. L. B. Wevill, another president of the society, proposed the sister professions of the Church and the Law, to which the Rev. Dr. James Harvey, Moderator of the General Assembly of the United Free Church, and Sheriff McClure, K.C., replied.

RELIEF OF INCURABLES.

The fifty-first annual meeting of the Association for Relief of Incurables in Glasgow and the West of Scotland was held on February 24th in the Merchants' House, Glasgow. Lord Provost Sir M. W. Montgomery presided. The total number of patients during 1925 had been 333, of whom 142 had been treated in Broomhill Home, 65 in Lanfine Home, and 126 in the outdoor relief department. During the year the oldest inhabitants in point of residence at both homes had died—one in Broomhill after a stay of forty-eight years, and the other in Lanfine after twenty years. These long periods, although passed in weakness, had not been spent in idleness, for both patients were experts in certain handicrafts. The association had depended for its success largely upon the contributions from employees of public works, and subscriptions from this source had shown an increase. Dr. R. M. Buchanan, president of the Royal Faculty of Physicians and Surgeons of Glasgow, in moving a resolution of thanks to the subscribers, said that the relief of incurables had always made a strong appeal to the liberality of citizens in the West of Scotland. The number of patients suffering from the effects of rheumatism and of tuberculosis was striking. On the prevention and cure of these two diseases medical science was at present concentrating attention, and a valuable adjunct to the association would be provision for research in regard to these diseases. The homes provided opportunities of a most favourable kind for such work.

GLASGOW EYE INFIRMARY.

At the hundred and second annual meeting of Glasgow Eye Infirmary, held on February 22nd, the Lord Provost, Sir Matthew W. Montgomery, who presided, said that the hospital was one of the most beneficial institutions in the city. During the year 1,791 patients had been admitted, and there had been a total attendance of 67,577. The ordinary income did not meet the ordinary expenditure, and it had been necessary to draw on capital account to make up the deficiency. An important phase of the work was the attention given to infantile affections of the eye; for the fact that the number of children now developing blindness at birth was a negligible quantity, the Eye Infirmary was entitled to a great share of the credit.

ABERDEEN ROYAL MENTAL HOSPITAL.

Occupational therapy was commenced at the Aberdeen Royal Mental Hospital during 1925, and in the annual report for the year it is stated that it has been found to be of definite value, not only for convalescents, but also when progress towards recovery has ceased. A considerable variety of employment is available, and stress is laid upon the importance of this, so that the greatest number of patients may be influenced. In some melancholic and demented patients interest gradually developed, both in the work they were themselves able to do and also in that of others. With increasing interest came greater ability, until such articles as rugs and baskets were manufactured; the workmanship of nearly all the articles was of a surprisingly high standard. Dr. R. Dods Brown, the physician superintendent, states that recovery was hastened in many cases in this way, and improvement effected in patients who had been inmates for a long time. It is now proposed to erect five or six verandahs for the open-air treatment of patients.

England and Wales.

VOLUNTARY HOSPITALS COMMISSION.

THE Minister of Health has addressed a letter to the chairman of the Voluntary Hospitals Commission explaining that he has come very reluctantly to the conclusion that in the present financial situation it is impracticable at this stage to proceed with the proposals made in the Commission's last report for a parliamentary grant towards the cost of hospital extensions. In expressing his appreciation of the services of the Commission, Mr. Chamberlain has informed Lord Onslow that he is most anxious that the Commission should continue its work, both to act as a link between the Government and the voluntary hospitals, and also to keep in touch with the local voluntary hospital committees throughout the country and to facilitate communication between them. It is understood that the chairman has intimated to Mr. Chamberlain the willingness of the Commission to comply with this request.

THE ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

A festival dinner of the Royal National Orthopaedic Hospital, in Great Portland Street, was held on February 24th at the Hotel Victoria, with H.R.H. Prince Henry, K.G., the president of the hospital, in the chair. The dinner was organized to further an effort which the hospital is making to provide 200 additional beds and to extend the out-patients' department. Mr. H. E. West, chairman of the committee appointed by Prince Henry for the purpose of raising the necessary funds, reported that the sum desired was £87,500, and that so far £40,000 had been received. The extensions at Great Portland Street were now well under way, and it was hoped soon to start the first unit of the extension at Brockley Hill, Stanmore, where a country branch was opened in 1922. Prince Henry, in commending the charity, said that it began its work in 1838, and had turned hundreds of thousands of actual or potential cripples into healthy, happy, and useful members of the community. The hospital was still far too small for the increasing demands upon it. Twenty years ago it had only 45 beds, to-day it had 300, and the out-patient attendances annually had multiplied during the same period by more than seven. To-day there was a waiting list of a thousand children. The hospital dealt with both the preventive and curative sides of orthopaedic surgery. Its surgical staff included the greatest names in that branch of science. In view of the prolonged character of the treatment, educational facilities had to be provided for the child patients, and both at Great Portland Street and Stanmore the hospital had a school, staffed by fully qualified teachers. His Royal Highness thought there were few charities which came so near to the heart of humanity as the care of the crippled. The Spanish Ambassador also made an eloquent plea on behalf of the hospital, and referred to the influence of British orthopaedists in European countries. He also described the antituberculosis and similar movements in Spain, which, he said, owed their inspiration chiefly to the British princess who was the Spanish queen. Mr. Reginald McKenna, treasurer of the hospital, pathetically appealed to the company and the public not to allow him, in his capacity as treasurer, to be numbered among the unemployed. Other speakers were the Earl of Denbigh, the Bishop of St. Albans, Major-General the Right Hon. J. E. B. Seely, and Lord Riddell. At the end of the dinner Prince Henry announced that an additional £7,500 had been subscribed at the tables.

VENEREAL DISEASE AND THE MERCHANT SERVICE.

The British Social Hygiene Council held a meeting at the County Hall, Westminster, last week to consider what recreational facilities could be provided in the Port of London. Mr. Greaves-Lord, M.P., who was in the chair, drew attention to the material difficulties in securing continuous curative treatment in the case of seamen, and in spreading knowledge effectively. Seamen on arriving in port were, he said, subjected to intensified temptation.

The British Social Hygiene Council, he felt, would be lacking in a most important part of its work if it did not teach that cleanliness of thought and continence were the only preventives of disease. While much could be done by education, the men on landing desired companionship, and if this was not provided they would seek it in undesirable ways. It should be remembered that the sailor had the same instincts for sport as other people, and these should be exploited. Mr. Cuthbert Laws said that the council had set its hand to a great work, and suggested that the local authorities should be invited to co-operate—as, for instance, by providing open spaces for the use of seamen. London had been very generous to seamen who visited the port, but there was need for opportunities for healthy recreation on shore, and it might be possible to secure greater co-ordination of such facilities as did exist. The shipowner would welcome anything that tended to induce a healthy mind in a healthy body. Mr. Leonard Bowden, representing Mr. Havelock Wilson, reminded the conference that in the earliest log-book in the world sirens had attempted to lure the crew of Ulysses to destruction, and to-day there were harpies in every port. He urged the council to build on the foundations that had been laid by those who knew the seaman, and to federate the various clubs existing for his welfare. Municipalities, banks, and other organizations had playing-fields which might be placed at the disposal of seamen. London should take the lead in providing facilities for uplifting a fine body of men. Mr. E. B. Turner held that by opportunities of exercise and sport the tendency to kick over the traces was greatly reduced. He said that in one command, as a result of organized games, venereal disease had dropped from 327 per thousand in 1885 to 30 per thousand in 1914, because the boys had worked off their superfluous energy in playing games instead of playing the devil. The whole period from 1872 to 1914 had been characterized by a less general consumption of alcohol, by the prohibition of public solicitation, and by the revival of athleticism among all classes. Already he saw signs that the practical standard of morality was rising, and the objective should be to extend this improvement to sailors. Fleet-Surgeon W. E. Home cited the case of Singapore, where at one time the incidence of venereal disease had been 50 per thousand a month. Recreation of all sorts had been introduced, and by February, 1925, there was not one case per thousand a month. Admiral Tupper said that the municipalities should provide playing facilities, and pleaded for young men who were athletes to go on board ship and say to the seamen, "Come along, we want a game." Mrs. Neville Rolfe announced that the conference was the first of a series that was to be held in the main ports of the British Isles. Women should be got to open their homes to other people's sons when they came into port. The mercantile marine added to the wealth of the port, and the seaman therefore had a claim upon the port. She insisted that the seaman had an equal right with the resident to the use of the open spaces, and advocated the organization of retired officers and men resident in port towns who should have facilities given them by the owners to get in touch with the ships when they reached port. After Mr. Hall Hall, chairman of the London Playing Fields Association, had expressed the hope that wealthy people connected with shipping would provide grounds for seamen visiting the Port of London, a resolution was passed nominating representatives of the chief interests concerned with instructions to draw up a concrete scheme for providing recreational facilities for seamen in the Port of London.

RESEARCH ENDOWMENT AT THE LONDON HOSPITAL.

A recent anonymous gift of £50,000 to the London Hospital for the endowment of research into the causes of disease has been invested in trustee securities with the object of providing salaries for research workers. The donor of this sum signified in August last his desire to make the gift, and as a result of many conversations as to the best channel for such benevolence he accepted the suggestion of the hospital authorities to endow medical research. It was explained to him that research was badly handicapped in this country because, unless a man had means of his own, he was rarely able to take up research as

his life-work. He might exist on a miserable honorarium, or keep himself going for a year or two by means of scholarships; but as domestic responsibilities came he had to abandon the work for more lucrative employment, thereby often scrapping a piece of research when it was becoming valuable. A trust deed accordingly was drawn up, requiring the dividend to be spent on salaries, not on buildings or on laboratory equipment, which it was thought the hospital itself should provide. The fund, which is to be known as the Freedom Research Fund, is to be managed by a committee consisting of a nominee of the donor, the head of the clinical laboratory, and the house governor of the hospital. The following dispositions have been made: (1) a scholarship in pathology of £100 a year, open to students, selected by examination, from Oxford and Cambridge; (2) a research studentship of £400 a year, tenable for three years, the student to devote his whole time to a subject chosen for him; (3) the remainder of the income to be divided between two senior pathologists who will devote their whole time to research work of their own choice. By the annual scholarship for junior men it is hoped to keep in touch with those who have a leaning towards research, and to give such men the opportunity of showing their capacity in the laboratories attached to a great hospital. The research student will act as an assistant to one of the senior research workers; to this post Mr. Leslie Hewitt, recently working with the Medical Research Council, has already been appointed. The two pathologists for the senior positions are to be Dr. S. P. Bedson, of the Lister Institute, and Dr. W. Howard Florey, at present John Lucas Walker Scholar of Cambridge University and working in America under the Rockefeller Foundation. The researchers will have the very great advantage of working in extremely fine laboratories—the Hale and Dunn laboratories of the London Hospital—side by side with the hospital staff who are doing the routine investigation work; they will be in touch also with the clinical work of the hospital, and especially with the medical unit, and they will be working in a centre where unlimited clinical material is forthcoming. The sum of £50,000 does not represent the limit of the endowment fund which it is hoped to reach.

CUMBERLAND INFIRMARY.

The rapid progress now being made by the Cumberland Infirmary was described at the annual meeting of subscribers held on February 13th, when the president, Mr. T. Carr, presented the eighty-fifth annual report of the committee of management. As compared with the previous year the number of in-patients had increased by 399 during 1925, and the out-patients by 516, the respective totals being 2,312 and 7,394; all the wards had been fully occupied. The income for the year, including legacies, had been £16,485, and the expenditure £13,271, resulting in a gratifying balance of over £3,000; there were now twenty-seven endowed beds and eight endowed cots. Considerable progress had been made in the erection of the new out-patient department, and it was hoped that the building might be completed and occupied during the current year. Further ward accommodation was urgently needed, but this would necessitate an increase of the staff accommodation and a complete reorganization of the administrative department, with a considerable increase in the cost of maintenance. During the year the committee had made an arrangement with the Silloth Convalescent Institution which it was hoped would result in many more infirmary patients being sent there for convalescence. The chairman made special reference to the presidential address of Mr. Norman MacLaren to the Border Counties Branch of the British Medical Association last year. Besides giving a most interesting history of the Cumberland Infirmary, eight proposals for its extension were outlined in it. Of these only two had been dealt with so far—the provision of an electric lift and the work on the new out-patient department. The six remaining projects were at present held up, mainly for financial reasons. A chart had been prepared which showed that since its establishment in 1840 the infirmary had grown to five times its original size, and it

was indicated that any further enlargement of the buildings must be accompanied by a corresponding increase in revenue. The Voluntary Hospitals Commission had reported that 10,000 additional hospital beds were required for England and Wales; the proportion applicable to the Cumberland Infirmary would be twenty beds to be added during the next five years. The chairman added that the new out-patient department was being constructed in such a way that another story could later be erected on the top, and that possibly the additional beds might be obtained.

MATERNITY AND CHILD WELFARE: BIRMINGHAM MEETING.

The first provincial meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health was held in Birmingham on February 19th and 20th, under the presidency of Sir John Robertson, M.O.H. Birmingham. Dr. Ethel Cassie contributed a paper on some aspects of child welfare work in the United States of America and Canada, and referred to the large and extremely efficient part played by voluntary agencies in infant welfare organization in various towns she had visited. Active propaganda by posters and literature was employed on a far larger scale than in this country, and was undoubtedly very beneficial. There were apparently in America no specifically trained midwives, and the practising midwife had no legal status. Miss Hilda Shuffelbotham gave an account of defective ante-natal care and defective obstetrics, with special reference to the health of the mother. She recommended a routine post-natal examination at the end of the puerperium as a preventive of later gynaecological trouble. Visits were paid to various heliotherapy centres and to the Carnegie Institute, where an exhibition dealing with all aspects of infant welfare work was explained in detail by the Institute's staff.

BRISTOL CONGRESS OF PUBLIC HEALTH.

Under the auspices of the Royal Institute of Public Health a congress will be held at Bristol, from May 19th to 24th, under the presidency of the Duke of Beaufort, High Steward of the City of Bristol. The congress will include sections of State medicine and municipal hygiene; naval, military, air, and tropical diseases; industrial hygiene; pathology, bacteriology, and biochemistry; and women and the public health. For May 19th a reception has been arranged by the Vice-Chancellor of the University of Bristol, and the congress dinner will be held on May 20th. In connexion with the meeting excursions are being arranged to Bath, Cheddar, Wells, and Glastonbury, and a church service on May 23rd. The Ministry of Health has intimated that it will be prepared to sanction the reasonable expenses of two delegates to the congress from those local authorities in England and Wales whose accounts are subject to Government audit. Further information may be obtained from the secretary of the Royal Institute of Public Health, 37, Russell Square, W.C.1.

SUNDERLAND ROYAL INFIRMARY EXTENSION.

On February 24th H.R.H. Princess Mary (Viscountess Lascelles) visited Sunderland to lay the foundation stone of the Royal Infirmary extension. The origin of the present infirmary was a dispensary, which was established in May, 1794. Changes of site have been made from time to time, and expansion had been necessitated by the increasing population of the town; the number of people served by it now is about 350,000. The institution was one of the first in the country to organize the collection of contributions from workpeople, and it abolished the ticket system of admission in 1855, since when the only qualification for admission has been medical or surgical necessity. Previous extensions had been made in 1867, in 1882, in 1888 when an out-patient department was added, and in the early nineties when the Hartley wing was opened and an isolation block completed. A convalescent home, mainly for children, was provided in 1891, and in the following year a home at Harrogate, which now accommodates forty patients. An important extension was made in 1903, when the building of the children's hospital was begun. During the war nearly 3,000 wounded received treatment. In 1917 the venereal diseases department was opened, and in 1921 a modern orthopaedic department. In 1922 the pathological department began work; in addition to serving the needs

of the infirmary and children's hospital, it deals with a large amount of the public health work of the town and district. In 1923 a new operating theatre block and an x-ray department were added. The present extension scheme comprises the building of two new three-storied ward blocks, the rebuilding of the administration block, enlargement of the out-patients' department, and the provision of accommodation for paying patients. The new administration block will be four stories high, with workshops and kitchens on the lower ground floor, and matrons' rooms and rooms for the medical and nursing staffs on the upper floors. Each ward block will be three stories in height, with accommodation for 95 beds, and on each floor there is to be a large ward with a balcony at the south end. On the ground floor a large glass-roofed sun balcony will be placed on the west side of each ward. The out-patients' department will be brought thoroughly up to date, and special provision made for ear, nose, and throat cases. The estimated cost of the completed scheme, exclusive of furnishing, is approximately £150,000, and the accommodation will be increased from 240 to 480 beds.

THE LONDON COUNTY COUNCIL AND ARTIFICIAL LIGHT TREATMENT IN TUBERCULOSIS.

The London County Council has been making arrangements for the experimental use of artificial light under specialized supervision in the treatment of tuberculosis in the various boroughs. To this end negotiations have taken place with the authorities of certain London hospitals. It is proposed that the metropolitan borough councils should be enabled to arrange on an experimental scale for a period of twelve months, as part of their tuberculosis dispensary schemes, for artificial light treatment in the out-patient departments of certain hospitals and other approved centres. The arrangements will be made direct between the borough councils and the hospital authorities, and will be subject in each case to approval by the Minister of Health (who has already given the scheme a general approval) and the L.C.C. It remains to be seen to what extent the borough councils take up the scheme, but on the assumption that 1,600 cases will receive treatment in the year the cost is estimated at £2,400.

Correspondence.

PUERPERAL FEVER: ENDOGENOUS INFECTION.

SIR,—As the interim report on the causation of puerperal morbidity and mortality¹ is under consideration I should like to indicate one aspect of the question of "endogenous infection." The report says:

"The possibility of endogenous sources of infection has been suggested from time to time, but has not met with acceptance by that section of the profession still dominated by the views of Semmelweis."

Is it possible that any section of the profession refuses to believe that a woman can have her pelvic organs infected from the bowel or by the blood stream soon after a labour or an abortion? If so, its position is surely opposed to the dictates of common sense.

In ordinary gynaecological work there are plenty of cases of pelvic peritonitis, tubo-ovarian abscess, and acute recurrent attacks of pelvic inflammation in which no one would suggest that the infection had just arrived from the outer world by the vaginal route. Dermoid cysts, ovarians with twisted pedicles, fibroids with impaired blood supply, and other structures often get infected from the bowel or by the blood stream. What is there peculiar to the puerperal state which can prevent occurrences such as these? On the other hand, the pelvic structures are often bruised during labour, and are thus more likely to be infected from endogenous sources during the puerperium than they are at other times.

Thus, logically, we should expect to meet with pelvic inflammatory lesions of endogenous origin following labour. And clinical experience bears out this expectation. We do.

—I am, etc.,

Manchester, March 1st.

W. E. FOTHERGILL.

¹ BRITISH MEDICAL JOURNAL, SUPPLEMENT, January 8th, 1925.

SYSTEMIC FACTORS IN CANCER.

SIR,—Dr. Cramer, in a recent British Medical Association Lecture (BRITISH MEDICAL JOURNAL, January 30th, p. 175), drew attention to the observation of Dr. Murray that the production in mice of a tumour of the skin by tarring at one site produces a resistance to its development at another site.

Since the publication of Dr. Murray's paper I have collected from the records of the Cancer Hospital more than twenty-five cases, verified microscopically, of multiple primary human cancer to elucidate this point, a number of which come within my own experience. The numbers are, no doubt, too small to have any statistical value, but, so far as they go, they do not seem to support Dr. Murray's theory.

Dr. Cramer also refers to the experiment of the removal of mammary cancer in mice, followed by tarring, in which a similar resistance to the development of growth on the skin was found. I have the records of several cases of carcinoma of the breast or other organs removed successfully some years previously, in which cancer of another type developed subsequently at another site. The number of these cases is not large, but this is partially accounted for by the difficulty of tracing such cases, and by the fact that the average duration of life after operation for cancer of the breast, as shown by Dr. Wyard from the records of this hospital, is not more than five years. It may be mentioned further that the recent experiments of Lynch at the Rockefeller Institute on the ablation of mammary carcinomata in mice followed by tarring do not support Dr. Murray's theory of resistance.

Dr. Greenwood (February 13th, p. 302) points out that there is no statistical evidence that the causes which favour the development of one form of cancer hinder the development of another form, and it seems possible that the reason is that no such hindrance exists in the human subject.—I am, etc.,

London, Feb. 24th.

H. J. B. FRX.

THE ACTION OF CERTAIN ALLEGED INTESTINAL ANTISEPTICS.

SIR,—Dr. Garröd deserves the thanks of our profession for his article on the above subject, published in your last issue (February 27th, p. 367), and for the moderate statement of the conclusions which he draws from the results of his investigations. I have not the necessary technical knowledge to criticize the methods he employed—no doubt they will be criticized by interested and possibly disinterested persons; but I think the conclusions at which he has arrived from his laboratory findings correspond closely with those formed by most of us from the clinical standpoint. Of the commercial preparations that he tested, I have used only two—namely, dimol and kerol. I have prescribed them in two kinds of cases—one in which bacteriological examination of the stools and serological tests showed that there was a definite intestinal infection, usually with a *Streptococcus pyogenes longus*; the other in which general symptoms, the presence of marked indicanuria, and the faecal examinations pointed to excessive intestinal putrefaction. In no case that I can remember was there any clinical evidence that either of these preparations had any beneficial effect, even after prolonged use.

On the other hand, I think that most bacteriologists would agree that calomel has a definite influence on the bacteriological flora of the intestines, and the same may probably be said of creosote, if given in sufficient dosage, but neither drug is suitable for prolonged administration.

As a dermatologist I meet with three common types of patients with what one may call abnormal intestinal bacterial activity. In Type 1 there is evidence of excessive intestinal fermentation with acid production; these patients are often active, strong, fresh-complexioned persons, but they are seborrhoeic, and subject to the various forms of infection of the skin with the seborrhoeic triad of micro-organisms—the "bottle bacillus," the acne bacillus, and different strains of staphylococci. Their stools are acid and contain excess of the organisms responsible

for intestinal fermentation and acid production. The urine does not contain excess of indican. In them restriction of carbohydrate, particularly of soft, starchy foods and sweets, and the temporary administration of alkalis, lead to a rapid improvement in their symptoms, unless the secondary infection of the skin is of long standing.

In Type 2 there is evidence of excessive intestinal putrefaction; these patients are sallow, pigmented, usually thin, and have marked muscular hypotonus with visceropptosis. They afford, in fact, the classical picture of chronic intestinal toxæmia described by Sir Arbuthnot Lane. Their stools are commonly alkaline, and a large excess of indican may be found, though not necessarily, in their urine. In them it is obvious that treatment must be directed towards changing the intestinal flora from the putrefactive to the fermentative type, and this can only be done, in my experience, by dietetic means, combined with suitable measures for overcoming the intestinal atony and stasis.

Type 3 is a combination of the above two types—that is, there is evidence of both excessive intestinal putrefaction and fermentation. These patients present all the clinical symptoms of Type 2, and are in addition seborrhoeic. The sallow, pigmented person with acne vulgaris is a good illustration of this type, which is the most difficult of the three to treat with success.

It is not too much to say that one can foretell with considerable accuracy the intestinal flora of a person from his general appearance, and, above all, from the state of his skin. The only rational means of changing the flora is by a dietary suitable to the particular case under consideration, and I believe the administration of so-called intestinal antiseptics to be a snare and a delusion.—I am, etc.,

London, W.1, March 1st.

H. W. BARBER.

COMMON SENSE IN RELATION TO DOUBTFUL TUBERCULOSIS.

SIR,—Dr. Weatherhead's criticism (February 27th, p. 401) of Dr. L. G. J. Mackey's paper on "Common sense" (January 30th, p. 211) would no doubt be justified if the latter had advocated treatment at a sanatorium for every suspicious case of early tuberculosis. He expressly does not do this, but on the contrary advises a "restful fresh-air holiday." This being the case, I fail to understand the point of Dr. Weatherhead's letter.

With every word that Dr. Mackey says on this subject I am in absolute and entire agreement, and if the profession as a whole would take this teaching to heart many tragedies would be avoided and a great cause of reproach to our profession be removed. It amazes me again and again to see with what equanimity some doctors will regard haemoptysis in their patients. Very differently would they regard it if it occurred in themselves or in one of their family. Over and over again I see patients with advanced pulmonary tuberculosis in whom the disease has only just been diagnosed or not yet diagnosed, and who give a history of slight haemoptysis two, four, or more years previously which was ignored by their doctor. There exists a perverse and, to me, inexplicable tendency to explain away haemoptysis—to find some totally inadequate cause.

Apart from mitral stenosis and acute affections of the lung, inflammatory or infarction, haemoptysis is practically invariably tuberculosis or something worse; and the doctor's first duty is to institute a complete and thorough investigation, the most important elements of which are sputum examinations, temperature record, and weight record. I have known cases where over a pint of blood has been coughed up, where no treatment was given, and where nothing bad has occurred for twenty years, but the cause was tuberculosis all the same, and the patient was fortunate. Such cases are rare; the common sequel of a neglected haemoptysis is pulmonary tuberculosis so advanced that the prognosis becomes doubtful, grave, or hopeless.—I am, etc.,

F. G. CHANDLER, M.D., F.R.C.P.

London, N.W.1, Feb. 27th.

SIR,—Dr. Weatherhead's courteous criticism of my attitude in regard to a case of haemoptysis unaccompanied by symptoms or physical signs, occurring in a young person, reveals a fundamental difference of opinion between us.

Both he and I believe the probable diagnosis to be that of pulmonary tuberculosis; but while I advocate that the patient should have immediate treatment and careful observation, he advocates careful observation alone.

I admit that a poor man in such circumstances cannot get adequate treatment without being labelled tuberculous, but I regard the drawbacks of such a label a lesser evil than delay in commencing treatment. I consider that the advantages of immediate treatment in the majority of such cases outweigh the disadvantages of treating as tuberculous the small proportion which would have remained in perfect health without any treatment at all.

But if I am wrong in my estimate of the value of early sanatorium treatment, then I admit that I have no right to ask a possibly healthy blood-spitter to incur the social penalties which Dr. Weatherhead so graphically describes.—I am, etc.,

Birmingham, Feb. 28th.

LEONARD MACKAY.

METHODS FOR MEASLES PROPHYLAXIS.

SIR,—In the article in the BRITISH MEDICAL JOURNAL of February 27th, dealing with a recent publication of mine on measles prophylaxis, your reviewer suggests that the methods described are unlikely to inspire much confidence owing to the fact that the protective substances present in the serums cannot be standardized. This difficulty—always a crucial one with serological methods—has to some extent been overcome by a biological method introduced by Professor Débré of Paris, which is based on an old observation of his, that if the serum of a person immune to measles be injected into the subcutaneous tissues of a patient who is in the catarrhal stage of the disease, a local inhibition of the subsequent eruption will appear ("phenomenon of Débré").

If, therefore, several serums be injected, at this stage, in equal quantities, the measure of the inhibition of the eruption in each case will give some indication of the relative content in immune bodies of the various serums employed.

This method, although certainly not ideal, is the best available at present, and is the one which is being employed in France at the present moment. The reaction is not, obviously, comparable with the Schultz-Charlton phenomenon in scarlet fever, and has not the same diagnostic utility, since once the eruption has appeared no blanching can be produced, even by employing considerable doses.—I am, etc.,

London, W.6, Feb. 27th.

W. S. C. COPEMAN.

DYSENTERY IN MESOPOTAMIA.

SIR,—I entirely agree with Dr. Boney's letter in the JOURNAL of February 13th (p. 303). The recent report on the health of the army with reference to the prevalent types of dysentery in Mesopotamia is almost incredible. Like Dr. Boney, I cannot conceive what change can have taken place in the etiology of the disease, so that all cases of dysentery are now amoebic; the bacillary type having apparently disappeared.

In the course of my laboratory work the figures in 1917 to 1920 were, roughly, two cases of bacillary dysentery to every case of amoebic infection. In addition to the group comprising Flexner's and Shiga's bacilli, representing roughly 50 per cent. of all cases of dysentery, there was a type of bacillary dysentery in which one isolated a bacillus morphologically and biochemically resembling Shiga's bacillus, but failing to agglutinate Shiga high titre serum. This non-agglutinable type would, of course, belong to the 23 per cent. of undiagnosed cases mentioned by your correspondent.—I am, etc.,

Rugby, Feb. 28th.

G. F. MITCHELL, M.D.

PHTHISIS A DISAPPEARING DISEASE?

SIR,—It is a curious sign of the degree to which we are all obsessed by the politicians that Dr. C. E. S. Flemming (February 20th, p. 321) should point to phthisis as one of the disappearing diseases and at the same time publish a chart which strongly hints that it has lately obtained a fresh lease of life. If he produces the mean line from 1847 to 1896 onwards he will find that the disease should by now have been practically extinct. He affirms the necessity to decide the causes not less than to record the facts. He should have therefore included the huge drop from 1842 to 1847, and the mean line from 1842 to 1896 would, he then would see, hit the zero point in the year 1923.

If, further, Dr. Flemming had examined the year 1918 in detail, he would have noticed that the Registrar-General points out that the decline in fatality began during, not after, the war, though the fact was obscured by an influenza epidemic in the last quarter.

In any case, taking the abnormal years 1919-23 into calculation, the decline is not nearly half so fast after 1896 as before it. But if, as appears, poverty is the decisive factor in national mortality, then in appraising results phthisis is an increasing disease, inasmuch as 1917 was the last year in which the effects of the pre-war poverty could be traced. And if he examines his own chart he will find a most suspicious resemblance between the curves 1904-13 and 1919-24.—I am, etc.,

Bath, Feb. 22nd.

B. G. BASKETT.

INTRAMUSCULAR INJECTION OF GUAIACOL- IODINE-CAMPHOR OIL IN RHEUMATOID ARTHRITIS.

SIR,—In the issue of the BRITISH MEDICAL JOURNAL of October 10th, 1925, there was published a paper of mine dealing with a method of treating rheumatoid arthritis and periarticular fibrositis—other than specific types of case—by the injection of an oil containing guaiacol, iodine, and camphor, combined.

After much careful testing of various mixtures of this triple oil I find that the combination which gives the most consistently good results, and which has given most satisfaction in its use, is one containing pure guaiacol 10 per cent., iodine as iodipin 10 per cent., and camphor 5 per cent., in sesame oil. A thin, pure, carefully clarified specimen of this oil should be used in the preparation of the triple oil which is to be sterilized and then put up in ampoules of 1 c.cm. each, or, better still, in 20-minim ampoules, so as to allow of sufficient to provide the full 1 c.cm. dose being drawn up into the syringe. The compound is a thin amber-coloured oil, clear and transparent, and smelling strongly of guaiacol; there should be no haziness or deposit of any sort, no matter how long the preparation is stored.

Numerous reports have reached me of satisfactory results having been obtained by using this triple oil. In a few old-standing and chronic cases, where much deformity and rigidity existed, the result so far has been somewhat disappointing. Yet the more extended use of the oil may improve even these if the treatment is persevered in, and care taken to make use of all the supplementary means suggested in the original paper. Massage is not well tolerated as being too painful, and is best used to counter the disuse atrophy of muscles; but where gentle passive movements of joints, gentle stretching, and local radiant heat baths have been utilized regularly after each injection the results have been more satisfactory, the effect of the oil being, very likely, accentuated. In the case of a lady who had had much iodine in various forms, both externally as well as internally, an intolerance of iodine occurred; in her case guaiacol 10 per cent. with camphor 5 per cent. (without the iodine) has been suggested for use.

As to dosage of the combined oil: if a stronger dose is thought to be desirable for any case, it seems to me wiser to repeat the maximal amount of 1 c.cm. more frequently so as to produce a continuous, rather than an explosive, effect. There is, so far as I can see, no

evidence that larger doses at longer intervals will be more effective. It must be borne in mind that guaiacol injected has been known to cause collapse, so that caution must be observed in giving large doses. Using the oil made according to the formula advised, there should be no irritation or pain to speak of apart from the needle prick; even the prick need hardly be felt if the needle is pushed in slowly and deliberately; it is the quick stab which hurts.

I have several times been asked how long a course of treatment should continue. The only reply I can give to that question is: that the treatment should be gone on with steadily so long as benefit can be obtained from its use, and so long as the iodine is being normally excreted. A colleague informs me that delayed improvement occurred in a case of his some weeks after a course of twelve injections had been given. One other matter seems to me to be of great importance: as complete a general detoxication of the patient, without using means which are too drastic, should, if possible, be obtained during the treatment with the triple oil.—I am, etc.,

S. WATSON SMITH, M.D.; M.R.C.P. Edin.

Bournemouth, Feb. 14th.

HAMILTON DRUMMOND MEMORIAL FUND.

SIR,—In your issue for October 24th, 1925 (p. 766), you kindly published a first list of subscribers to the above fund. Since that date further sums have been received or promised from those whose names are appended to this letter, making in all a total of £533 17s. 6d. In addition, a sum of over £286 has been subscribed by past and present officers of the Northumberland Yeomanry.

Doubtless there are still many others who will wish to join in this tribute, and the committee will be glad if they will do so at once.

Individual subscriptions for any amount not exceeding five guineas may be sent to the treasurers (Professor R. P. Ranken Lylo at 11, Osborne Terrace, or Mr. Philip E. Noble at Lloyds Bank, Grey Street), or direct to me at The Hawthorns, Osborne Road, all in Newcastle-upon-Tyne.—I am, etc.,

G. GREY TURNER,
Convenor.

Newcastle-upon-Tyne, March 1st.

Second List of Subscribers.

Dr. Sarah B. Allen	Professor John Fraser	Dr. Ivan Pirrie
Dr. William Anderson	Dr. John Galloway	Mrs. Pirrie
Dr. C. N. Armstrong	Mr. Gordon Gordon-Taylor	Dr. G. Newton Pitt
Dr. Paige Arnold		Mr. W. Mark Pybus
Mr. W. Girling Ball	Dr. C. N. Gover	Dr. Amy Robinson
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Dr. E. F. Bell	Dr. P. Henderson	Assistant Matron and
Dr. Monica Bell	Dr. Phyllis Herbertson	Nurses
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Dr. Robert Forsyth	Sister Nichol	Dr. G. J. Williams
Dr. S. B. Fox	Miss A. M. Parsons	Dr. Olive Wilson
Dr. C. B. Fox		

The March issue of the *Edinburgh Medical Journal* is devoted largely to tuberculosis. It contains articles on the virulence of tuberculous viruses, by Drs. W. T. Munro and W. M. Cumming; the surgical treatment of renal tuberculosis, by Mr. Henry Wade; the production of certified milk and early tuberculosis in cows, by Sir Robert Philip and Dr. J. C. Simpson; the light treatment of tuberculosis, by Sir Norman Walker; serology of the tubercle bacillus, by Dr. W. M. Cumming; pulmonary tuberculosis in infancy and childhood, by Dr. L. Findlay; and some statistical aspects of tuberculous meningitis, by Dr. J. L. Halliday.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

SUPPLEMENTARY Estimates have been considered in the House of Commons this week, and other business has included a debate on aid to necessitous areas. The Births and Deaths Registration Bill obtained a second reading on February 26th, and will be sent to Standing Committee A, where it will be considered after the Criminal Justice (Increase of Penalties) Bill and the Adoption of Children Bill. The Midwives and Maternity Bill, introduced by Dr. Fremantle, was read a second time on March 1st without discussion, and will also be referred to Standing Committee A.

On March 2nd the Unionist Health and Housing Committee of the House of Commons, with Dr. Fremantle in the chair, conferred with the Minister of Health, who explained the four bills which he hoped to pass into law this session. These were the Local Authorities (Emergency Powers) Bill, to continue the present use of the Metropolitan Common Poor Law Fund; a bill to authorize the removal of guardians who act illegally; a Borough and County Borough Extension Bill, based on the interim report of the Royal Commission on Local Government; and the Smoke Abatement Bill. This last was to be a moderate measure which would not impose heavy burdens on industry or the householder, but might stimulate local authorities to more use of the powers they possessed. It would provide penalties for the emission of smoke of other colours than black, and for the emission of grit.

A meeting of the Parliamentary Medical Committee was summoned for March 3rd to consider the British Medical Association memorandum on the Coroners Bill, and to meet a deputation from the British Medical Association on the subject of the bill promoted by the British Joint Council of Opticians.

On March 2nd, on the motion of the Government, a Select Committee was appointed to consider and inquire into the question of the inspection and supervision of nursing homes, and to report what legislation, if any, was necessary or desirable for that purpose. The committee was composed of Sir Cyril Cobb, Dr. Vernon Davies, Sir C. Forestier-Walker, Colonel Hurst, Sir Richard Luce, Mrs. Philipson, Major Price, Dr. Salter, Miss Wilkinson, and Mr. C. H. Wilson.

MEDICINE AND THE PUBLIC.

About sixty Peers and members of the House of Commons attended a meeting at the House of Commons on February 25th to hear, at the invitation of the Parliamentary Medical Committee, an address by Lord Dawson of Penn on the relations of the medical profession, the General Medical Council, and the public. Dr. F. E. Fremantle, chairman of the Parliamentary Medical Committee, presided. Mr. Norman King, registrar of the General Medical Council, also attended.

In opening the meeting Dr. FREMANTLE recalled that last October members had been asked to attend a meeting at which osteopaths, chiropractors, and others were invited to state the case for special registration. The Medical Committee felt that as the osteopaths had first innings members of the Houses of Commons and Peers would desire to hear the doctors' side of the case. The Medical Committee reserved the right to differ from Lord Dawson, whose pronouncement was not to be taken as representing the medical profession. On one thing medical members of both Houses agreed, and that was in the traditional desire of the profession to protect the public. The public had not recognized that the essential duty of the G.M.C. was not merely to do personal justice, but to protect the public on the lines laid down in the Act of 1858.

Summary of Lord Dawson's Address.

Lord Dawson said the subject on which he proposed to speak had been overlaid with a certain diffuseness and bitterness of spirit. At present there was considerable criticism against the medical profession—he had never known this feeling so strong as now. The profession had no complaint against criticism, but in the course of the recent discussion there had been not a few suggestions that doctors were actuated by selfish class motives. That was not true. They had the ordinary mixed motives of mankind. If they were too good they would not be able to understand human nature, but a selfish policy would be the negation of the doctor's life. True, the medical man had his foibles. The profession did not like secrecy in regard to discoveries, and when a man combined secrecy with gain they claimed the right to cast him out. Moreover, they expected the successful man to undertake a

certain amount of unremunerative work for public service. Doctors, he remarked, were quixotic enough to give the public advice on health which if followed would deprive them of much of their livelihood. The criticisms showed real disquiet and doubt whether all was well, and it was right that the medical profession should try to meet these doubts. He proposed to deal mainly with the relation of the medical profession to unqualified practitioners, a general topic which covered the grievances of Sir Herbert Barker and Dr. Axham. The profession accepted the principles that the good of the public should be the overriding principle, and that the profession should avail itself of knowledge from any quarter if of benefit to the people. They did not contemplate the legal prohibition of unqualified practice, but they were concerned with the question whether it should be recognized by the medical profession and the State.

Aims and Methods of Medical Education.

The crux of the situation was that diagnosis of disease must precede its treatment. The average period of medical studentship was five and a half years, and the primary object of the education was not to push in empirical facts but to teach the man to think. More than half the time was taken up with sciences which had no direct connexion with medicine. Every student had to dissect the human body. That preliminary training was not concerned with medical theories. It was pure knowledge. In the last two and a half or three years of the curriculum they taught the student disease in the wards and laboratories and by *post-mortem* study. Not till nearly the end of that course did they deal with treatment at all, though all the controversies raged round treatment. They could teach their men treatment quite quickly provided they knew disease. It would be criminal not to make a stand on the principle that there should not be any recognition of a man as an independent practitioner until he had been trained in diagnosis. After the finish of the training they put no limitations on medical men. They could become *homoeopaths*, osteopaths, chiropractors, and he had presided at a meeting the other night which was addressed by an osteopath with a medical qualification, who had a fair hearing. Science was the same for all; there could not be two anatomies, two physiologies. "Build," he said, "what theories you like provided you have learnt your job." That was demanded in other professions. If a man said, "I have a special gift. Without training I can build a bridge across that river," his hearers would tell him to qualify as an engineer. They insisted on special training for lawyers. They compelled every sea captain to study navigation before he navigated his ship. Why not insist on equal precautions on the sea of life? Let the osteopaths select their most brilliant students, put them through the medical curriculum, and then put them forth as osteopaths. The medical profession would never give way on the subject of adequate training.

Auxiliaries and Irregulars.

When a proper diagnosis had been made there was room for great latitude in the question of treatment, and he prophesied that treatment would often in the future be delegated to services ancillary to medicine. The medical profession had foreseen this, as shown by the fact that they had recently instituted a system of certificated midwives. He also mentioned the bacteriological assistants, the nurses, masseurs, and the operators of x-ray and light treatment, over all of which the doctor had a co-ordinating control. As far as osteopathy was concerned, if he personally found that an osteopath possessed, as he often did, manipulative skill, he welcomed his aid conscientiously given, provided it had been preceded by medical diagnosis.

It was part of the duty of the medical profession to protect the public from "stunts" and fancies, even if honest. These rose and fell in a never-ceasing stream, and were put forward with astounding light-heartedness. There was deep set in the human mind from the primitive ages a belief in the miraculous in medicine. Everyone was hunting for a short cut. Although he personally was in favour of listening to everything, they had to approach these new cults and fads with proper caution.

Osteopathy.

Osteopathy was only one of the new forms of practice, but it had been so much in the public mind that he dealt specially with it. Manipulative surgery followed bonesetting, in which

Sir Herbert Barker had followed Hutton. Bonesetting, or manipulative surgery, meant gifted fingers, and it was clear that its leading exponents had these. This gift might be of use provided diagnosis preceded its exercise. Human beings were not built in water-tight compartments; many a bad joint was due to disease of the lungs or heart. The manipulative surgeon talked, as the doctor was forbidden to do, about his successes, but he said nothing about his failures. Lord Dawson instanced the case of a youth with undiagnosed painful joints who was beautifully treated by a manipulative surgeon, but became worse because the affection of the joints resulted from gonorrhoea. Another case was that of a patient beautifully treated for paralysis of the legs—but he had a tumour. Diagnosis might thus be delayed, though the thing for which the medical profession was striving was earlier diagnosis.

The average osteopaths about the country did not excel in treatment, yet they were boomed in the press and by M.P.s, who never mentioned Sir Robert Jones, who was the greatest manipulative surgeon in the world. Sir Robert had formed manipulative clinics all over the country. He had more in his little finger than the osteopaths had in their whole bodies.

Lord Dawson turned to the theory underlying osteopathy—that all illness resulted from displacements of the spine or from pressure on the nerves and blood vessels. That was sheer buffoonery. The x rays could show whether there was displacement of the spine, and dissection could show whether there was pressure on nerves and blood vessels. Investigation by these means had shown that in no case was there the displacement or pressure which the osteopaths postulated. There were rival sects to the osteopaths, such as the chiropractors, from whom had sprung the *napropaths*, and if his hearers waited a few months they would get many more sects. He repeated that the crux was diagnosis. Given that, medical men would accept aid from anyone who would give skilled treatment. Osteopaths had the choice of going through the medical course or of giving skilled treatment under medical control.

The General Medical Council.

Turning to the General Medical Council, Lord Dawson said it might vary in composition from time to time. Recent criticism of the personnel might be deserved, but that did not justify criticism of the Council as an institution. He himself disagreed with the G.M.C. in several particulars, but his duty while seeking to secure amendment was to obey. Recent offenders had wilfully broken the law. There were cases in life where a man's defiance of authority for conscience' sake might be justifiable; but he should be very careful to see that his defiance was not associated with material gain. As to the suggested nomination of lay members, he asked his hearers how the nomination of laymen would be accepted if made to the Bar Council, or if outsiders were nominated to the Trades Union Council by the Home Secretary. In conclusion, he emphasized the point that good work in medicine was never theatrical, and that wonder-working and short cuts were always to be distrusted. Whether his hearers agreed with him or not, he asked them to believe that the medical profession was actuated by a desire to serve the public welfare.

DISCUSSION.

Mr. Ropner asked Lord Dawson to explain the relations between a bonesetter and a medical man where the services of the former were invited after diagnosis.

Lord Dawson said there could not be intellectual equality, but in the limited field of treatment there would be courteous comradeship.

Answering Sir E. Hume-Williams, Lord Dawson said they did not propose to make osteopathy without diagnosis illegal. Provided the doctor was satisfied that the osteopath was honest according to his lights and that his work was good, and that the patient wished to be treated, he would agree to such treatment. His opinion was that a doctor doing so would no more be covering than if he was employing an unqualified masseur. "Covering" was when the initiative was taken by an unqualified man who did not understand what he was treating. He would punish any doctor who did that.

Mr. Norman King said Lord Dawson was correct. If the registered medical practitioner was responsible for the treatment and took a patient for it he would not be "covering." But if the doctor, as in the case of Mr. Axham, was employed by the unqualified practitioner, that was "covering."

Mr. Peto said that in a certain case Lord Dawson sent a patient to Mr. Barker, as he then was. In that case Mr. Peto presumed that Mr. Axham was entitled to administer an anaesthetic. Mr. King said "Certainly," as the patient was Lord Dawson's.

Mr. Peto asked why, when Sir H. Barker had offered to demonstrate his methods at any hospital for the benefit of young

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students, the medical profession had refused the offer. Lord Dawson said they deprecated young students being dragged into these questions before the proper time. He would like to see a written document containing the actual words of Sir H. Barker's offer. Some of his colleagues had tried the work of osteopaths, but had often been met with an evasion and an excuse. If any such offer as the reported one by Sir H. Barker had been made a demonstration could easily have been arranged. If Sir H. Barker had followed the medical tradition of doing work of an unremunerative character, or had thrown open his clinic, this demonstration would have been simple. Lord Dawson declared himself astonished that Sir H. Barker had not taken the opportunity to found a clinic to which doctors would come from all the world to see his work.

Mr. Peto said he would obtain from Sir H. Barker the document containing the offer to demonstrate. Sir Martin Conway asked what would happen presuming that his own physician, having diagnosed his case, refused to approve his going to an osteopath, but that he still insisted in going, and in the subsequent treatment a qualified physician administered an anaesthetic. Would that physician be deemed to be "covering"? Lord Dawson said that was a technical question, but the growing complexity of treatment.

Asked about M. Spahlinger, Lord Dawson said that inquirers could not get down to the facts to form an opinion. Medical men were all anxious to know the facts and prepared to take steps to find out.

Lord Knutsford reminded members of the House of Commons that they like to see that no man who was unqualified was allowed to practise medicine.

Lord Balfour of Burleigh said one reason for the public uneasiness was that there was no appeal from the G.M.C. He asked Lord Dawson whether some sort of appeal could not be arranged.

Lord Dawson said he was quite prepared to accept a right of appeal, provided that he knew what the appeal court would be. However, he was convinced that justice was done now.

Dr. Fremantle said the opinion of the highest lawyers was that it was right the profession should be judged by the profession, and that was the intention of Parliament in 1858.

Mr. Neville pointed out that there was an instance where an appeal from a professional court was to an authority not a member of the profession. The appeal from military tribunals was to the Judge Advocate-General, a barrister.

On behalf of those present Mr. Basil Peto thanked Lord Dawson for his address.

Registration of Births and Deaths.

On February 26th Mr. Tinné moved the second reading of the Births and Deaths Registration Bill "to render more complete and effective the safeguards afforded by the law of registration, in relation to disposal of the dead, with a view to eliminating, so far as possible, any element of risk or opportunity for the concealment of crime." He said the promoters of the bill had also had much correspondence on premature burial, and he quoted from the memorandum that "provision is made enabling local authorities to arrange for the medical inspection in certain cases of the body of the deceased person and for regulating certain means of disposal. Stillbirths were required under the bill to be registered as a measure of additional safeguard for the protection of infant life." A Select Committee had reported on the subject of the bill in 1893, and its recommendations were incorporated in the present bill. The bill sought to get over one of the objections to previous ones by eliminating a clause as to the universal medical inspection of bodies before burial. A new clause authorized county councils, in any borough councils, and metropolitan borough councils, in any case where a body had not been seen by a registered medical practitioner since death, to verify the cause of death by the services of such a practitioner, at the request of the coroner.

Mr. Tinné pointed out that the present law did not restrict the disposal of a body except in burial or by cremation. It might be taken out to sea and put overboard without detection if there had been any crime. The bill proposed that in future any birth, whether still or live, would have to be registered, and that the body of no stillborn child should be disposed of without the proper certificate. There had been a good deal of trouble in regard to medical certificates in the past, as, though the registrar could send a particular form of certificate to a doctor who had attended a patient in his last illness, it had not been necessary that the doctor should use that form. He hoped that the bill would get over that difficulty.

Dr. Fremantle seconded. He recalled that the Select Committee of 1893 recommended that "uncertified deaths as a class should cease to exist." The Departmental Committee of 1909 on the Law relating to Coroners found that "the present law of burial and interment affords every opportunity of crime." Cases where death certificates had been carelessly given cropped up every now and then in public and in the courts, and when reported had a serious effect on a large number of people thought it necessary to provide wills that large numbers to be made on their reputed corpses to ensure their death. Speaking as a medical man, he believed the danger of premature burial was exaggerated, but instances did occur where persons were disposed of or steps taken to dispose of

them unwittingly, they being thought to be dead before death had occurred. A county medical officer of health had sent him an extract from a newspaper alleging that at Darlington an infant presumed to be stillborn had been placed in a coffin and taken to the cemetery, where the coffin was opened and the baby found to be still alive; it was seen by a medical man before it subsequently died. Dr. Fremantle recalled that in 1923 a bill had been introduced which was prepared under the auspices of the British Medical Association. A little later a bill had been introduced by Dr. Salter. Then the Federation of Medical men, Services appointed a committee of representative medical men, coroners and undertakers, and a bill resulted which he himself introduced in 1924. Mr. Wheatley, then Minister of Health, privately approved that measure. In 1925 Dr. Fremantle had reintroduced the same bill, but the Minister of Health felt that certain points were impracticable. A conference had followed with officials of the Ministry of Health, and the result was the present bill. The Registrar-General and his officials had endeavoured to improve the certification of deaths, and the figures obtained were of great scientific value, but there was a gap, particularly in cases where, to spare the feelings of the relatives, the medical man gave the terminal result which caused the death instead of assigning it to the primary and original cause. In that way the statistics of syphilis and alcoholism were quite unreliable. It had been suggested that the medical man should give two statements, one of the fact of death and one of the cause, and that the second should be sent confidentially to the Registrar-General for statistical use. But if such a provision had been inserted in the bill the insurance companies would still want to see the more intimate and confidential certificate. Doctors were not fond of filling up forms, and if they gave them two to fill up for one incident they were unlikely to get either form correct. The bill made it essential that the medical man, in giving his one certificate, should give it on the prescribed form which went to the Registrar-General. By improving on the present system and gaining more experience from registrars and medical men they would secure the system of certification which they desired. Dr. Fremantle then explained why the bill did not propose that every death should be verified and a medical certificate given only after a medical man had inspected the body after death. The Minister of Health had demonstrated to him in conversation that in a large number of cases this could not be done. At present in only about 30 per cent. of cases was it certified that the bodies were seen by the medical men after death. When a case had become chronic and the doctor knew it had passed beyond his aid, his visits became fewer. Often a nurse was installed whom he knew Eventually he was notified by letter of the death which he knew was inevitable, and, the cause being known, signed the certificate. To require him to visit the body would give confidence undoubtedly, but doctors were busy men, and if the State insisted on the visit the State would have to pay fees for the doctor's time and travelling expenses. Such expenditure could not be proposed in a private member's bill. In 99 cases out of 100 the medical man did what was intended, and the bill provided that all cases of death would be seen when the local authority thought it necessary. That suggestion appealed to him. He also asked the House to support the clause making the registration of stillbirths essential. In many sad cases there was nothing to prevent an infant born alive from being represented as never having lived at all, and it could be disposed of within the law. That the law could be defeated by those deliberately breaking it would still be possible.

Mr. Arthur Greenwood (who was Parliamentary Secretary to the Ministry of Health in the last Government) said the bill was long overdue and an improvement on earlier editions.

Sir Kingsley Wood (the present Parliamentary Secretary to the Ministry of Health) said that department thought the present safeguards afforded by the registration laws in connexion with burial were not only incomplete but ineffective, from lack of machinery and power to enforce them. The position to-day was the same as in 1893. The standard of the medical profession, however, was higher still to-day than it was then, and the undertakers certainly had a much higher and better disposal of bodies. The bill provided that disposal to all forms of disposal of the registrar's certificate or the coroner's order, and that portions of the document should be filled in and sent back to the registrar in every case, notifying the date and manner of disposal. This was good machinery for preventing a body being buried under an authority which related to another body. The bill put duties upon certain persons to be effect the disposal of a body. These persons would have to be defined more closely in committee. The provision that the doctor would be required to send his certificate of death direct to the registrar was a necessary change from the present practice of handing it to some relative. At present, if a certificate were suppressed the registrar never heard of the death at all. He would obtain improved medical information on the cause of death. He thought that a complete medical inspection of all dead bodies would probably be a costly safeguard against a very small danger, and would be a costly safeguard against a very small danger.

Sir Richard Luce did not think that the bill went far towards carrying out the objects it had in view. Its methods for securing the prevention of crime and the prevention of premature burial seemed to him totally inadequate. No attempt had been made to improve the scientific knowledge of the cause of death. It was quite true that in some cases the medical man did not give a complete account of the cause of death, usually to spare the feelings of the relatives. Though the certificate was to be sent direct to the registrar, it would not be confidential. There should be a provision either in this bill, or in the Coroners Bill already introduced in the House of Lords, that in cases where the medical man doubted the cause of death, or where he believed the death was

due to violence or accident, it should be his duty to inform the coroner, and the coroner, not he, should give the certificate. It was the custom for coroners to find fault with doctors who gave certificates in these cases, but the law definitely laid down that this was their duty. He would not oppose the second reading.

Sir Douglas Newton and Mr. Grottrian declared that the penalties provided in the bill for infringement should be increased. Mr. Dennis Herbert thought the bill required scrutiny by lawyers.

The bill was then read a second time and sent to a Grand Committee.

Answering Colonel Day, before this debate, Mr. Chamberlain said the subject of death certification was already under his consideration with other related matters, but he could not see his way in present circumstances to introduce any legislation. Colonel Day, in his question, suggested amendment of the law to compel the examination of the body before a death certificate was issued by a medical practitioner.

Colonial Medical Service.

Colonel Day asked the Colonial Secretary if he was aware of the manifesto issued by the British Medical Association on the acceptance by doctors of colonial appointments, and whether he would reconsider the new regulations with a view to consultation with the Association.

Mr. Amery said he had seen this announcement, which arose out of regulations recently issued for the East African Medical Service. It had been published before he had had an opportunity of considering the representations which members of the medical staff in East Africa wished to make to him on the effect of these regulations on officers already in the Service. He had now received and considered these representations, and had reached certain decisions on the points raised. He had intimated to the British Medical Association that he was prepared to receive a deputation from it.

Hospitals and Local Authorities.

Mr. Chamberlain, replying on March 1st to Mr. Robinson, who asked the number of hospitals in England and Wales provided and aided, respectively, by local authorities; the total number of beds available; and the number of maternity, tuberculosis, infectious diseases, and other hospitals, said that so far as general hospitals were concerned the information in his department indicated that one large general hospital, with 750 beds, and three relatively small accident hospitals had been provided by local authorities. The total number of beds was not known. Under the Local Authorities (Expenses) Act, 1887, sanctions had been given from time to time to donations and subscriptions by local authorities to voluntary hospitals, but these had generally been for small amounts. Since August, 1925, local authorities had been empowered by Section 64 of the Public Health Act, 1925, to make reasonable subscriptions or donations to voluntary hospitals to the extent of the produce of a penny rate. These payments did not require his sanction, and he was therefore unable to state how many hospitals had been aided in this manner. The information with regard to hospitals of other classes was:

A. Hospitals Provided by Local Authorities.

	No.	Beds.
For tuberculosis	153	10,963
For acute infectious diseases	1,040*	37,700*
Maternity hospitals (not including maternity wards in general hospitals or Poor Law institutions) ..	63	908
Babies' hospitals	12	260

* Round figures. At 52 of these hospitals there were 2,230 beds for the treatment of tuberculosis.

B. Voluntary Hospitals aided by Local Authorities.

General hospitals—	No.	Beds.
(a) Used in connexion with tuberculosis schemes	153	†
(b) Used in connexion with venereal diseases schemes	139	†
(c) Maternity sections used in connexion with maternity and child welfare schemes ..	12	175
Tuberculosis hospitals	127	8,563
Maternity hospitals (not including maternity sections in general hospitals) ..	52	917
Babies' hospitals	12	334

† Available beds used as and when required.

The figures under the above headings were exclusive of accommodation in homes for unmarried mothers and their babies, observation wards in connexion with maternity and child welfare schemes, and convalescent homes.

C. Institutions Provided by Poor Law Authorities.

Institutions wholly for the sick, exclusive of institutions for mental cases ..	No.	Beds.
Mixed institutions (with a total accommodation of some 160,000) ..	64	32,250
.....	530	79,000*

* Beds for the sick.

Vaccination and Small-pox.

On March 1st Mr. Groves asked the Minister of Health whether, in view of the evidence placed before the French Academy of Medicine indicating that vaccination might increase susceptibility to encephalitis, he would consider the advisability of suspending the operation of the Vaccination Acts while the whole question of the danger of increasing susceptibility to

disease in general by vaccination against a single disease was investigated. Sir Kingsley Wood replied in the negative. He added that the investigation of methods to diminish or remove any risks which might result from vaccination was one of the matters referred to the Committee on Vaccination which had recently been appointed. As at present advised, the Minister of Health saw no necessity to consider any interference with the operation of the Vaccination Acts.

Sir Kingsley Wood told Mr. Groves, on March 1st, that the Minister of Health had received the report of the British delegate on the conference of members of the Health Committee of the League of Nations at the Hague, in January, but the suggestions of the conference had not yet been transmitted by the Health Committee. As soon as these suggestions were received they would be referred for consideration to the Committee on Vaccination which was recently appointed.

Sir Kingsley Wood informed Mr. Whiteley that 665 cases of small-pox were notified in the county of Durham during the four weeks ended February 20th. Fewer cases were notified in the week ended February 20th than in any of the previous six weeks, but at present there was no sign of any substantial abatement of the epidemic. Mr. Whiteley asked when the loans requested had been granted in order to provide the equipment and staff to deal effectively with the cases. Sir Kingsley Wood replied that the application from the county council for sanction to a loan was now under consideration. Mr. Whiteley asked whether the Ministry of Health would spread the loan over a longer period than it had previously allowed. Sir Kingsley Wood said he would consider that, but the Ministry only received notification of the epidemic in the county of Durham five or six days before the question was asked, and a representative of the Ministry had immediately been dispatched to the district. Mr. Harris asked whether this epidemic were not the worst England had had for many years, and whether a spread to the neighbouring counties would not be very serious. Sir Kingsley Wood said it would appear that the severity of the disease itself was not so serious, but he asked for notice of any question concerning the danger to neighbouring counties. Commander Williams asked what steps the Ministry of Health was taking to let the local authorities know that a great deal of this epidemic could be checked by increased vaccination. Sir Kingsley Wood said the Ministry had already communicated with the local authorities in the matter, and was constantly urging them to take this precaution.

In reply to Mr. Scrymgeour, Sir Kingsley Wood said 5,365 cases of small-pox were notified in England and Wales during 1925, but this figure was subject to revision. Death was attributed solely to small-pox in three instances, while in six other cases other causes were also entered on the death certificates.

Ophthalmic Benefit.

Sir Kingsley Wood, in answer to Mr. Viant, said that before the commencement of the new schemes of ophthalmic benefit last July, representations from bodies of opticians were made both to the Minister of Health and to the Royal Commission on National Health Insurance. The Minister had not since received any deputation or general observations from them with regard to the administration of the schemes, but was arranging to receive a deputation at an early date. In reply to Mr. Rhys Davies, Sir Kingsley Wood said he was not aware of growing dissatisfaction at the administration of these benefits. The National Health Insurance Commission's report was expected shortly and would no doubt deal with the matter.

Mr. Viant also asked the Minister of Health if he was aware that the proportion of refraction cases referred by some panel practitioners to ophthalmic surgeons was extraordinarily high, while the number so referred by other panel practitioners was exceedingly low; and whether he would issue instructions to such practitioners which would ensure greater uniformity; and further, if he was aware that many cases of refraction, where no ocular disease existed, were being referred to ophthalmic surgeons, thereby seriously depleting the surplus funds of approved societies unnecessarily; and if he would make regulations limiting the cases in which reference to ophthalmic surgeons was permitted. Sir Kingsley Wood said it was no part of the duty of an insurance practitioner to refer applicants for ophthalmic benefit to ophthalmic surgeons, but where the practitioner was of opinion that a patient was in need of ophthalmic treatment or optical appliances he gave him, if desired, a written recommendation to be forwarded to his approved society. It then rested with the society to decide whether the application for ophthalmic benefit was to be granted, and, if so, whether the payment that it would make was to cover the cost of examination or treatment by an ophthalmic surgeon. He knew of no good reason for seeking to limit the discretion of societies in the manner suggested, and, in any event, had at present no power to make regulations for such a purpose. It was better, at any rate for the present, to keep the matter in the discretion of the approved societies. Mr. Rhys Davies suggested that the approved societies had no power to act in the way Sir Kingsley Wood suggested. Sir Kingsley Wood said the Ministry was advised that the approved societies could themselves come to a determination in the matter, and they were constantly doing so. Mr. Compton asked whether Sir Kingsley Wood was aware that the State auditors refused to sanction payment in these cases unless the medical certificate had been given in the first place and that the approved societies had no discretion in the matter. Dr. Vernon Davies asked whether the House was to understand that the approved societies decided that the ophthalmic surgeon should be consulted, or did the doctor in charge of the case do this? Sir Kingsley Wood thought this was generally done by consultation between the approved society and the doctor on the panel.

Encephalitis Lethargica.

Mr. Neville Chamberlain (Minister of Health) informed Mr. Compton, on March 1st, that at present there was not sufficient information available to enable an estimate to be given of the percentage of recoveries from juvenile encephalitis which had suffered mental or moral injury from that disease.

On March 1st Mr. Ammon asked the Parliamentary Secretary of the Ministry of Health what investigations were being carried out by his department with reference to mental cases, and particularly cases of encephalitis lethargica. The question was put during a Supplementary Estimate for £23,860 for salaries and expenses of the Board of Control (Lunacy and Mental Deficiency), England, and grants in respect of the maintenance of certain ex-service mental patients.

Sir Kingsley Wood, in reply, said that the inquiries taking place were not a general inquiry into the lunacy laws of the country. A special committee was sitting, and it was hoped to have its report at an early date. The technical committee appointed jointly by the Board of Control and the Board of Education was to inquire into the incidence of mental deficiency throughout the country, as there was a lack of knowledge on the number of cases and what arrangements should be made for dealing with them. He hoped that the investigation might end by March, 1927. It was being conducted by one of the principal officers of the Board of Control, but it might possibly continue for another year, as they had come to the conclusion that it was important to get accurate information on the real extent of the problem. It was only in the last two or three years that the disastrous mental after-effects of encephalitis lethargica had come to light. It was true that it was a notifiable infectious disease, and local public authorities had power to treat cases in their isolation hospitals, but there was no duty on the authorities to provide for persons suffering from the mental after-effects, and, outside London, he regretted to say, there was no hospital provision. A certain number of cases were certified and sent to mental hospitals or mental deficiency institutions. In some of the larger areas, in London and Lancashire, these cases were concentrated in one mental deficiency institution in each area. It was decided last year to establish a hospital, limited to 100 beds, in London for cases under 15 years of age, under the Metropolitan Asylums Board. Children of either sex were being admitted. This was an experiment, by which they hoped to be able to gain much more knowledge of the unfortunate after-effects of this disease than they possessed at present. They felt that their present powers in dealing with this disease were insufficient. The definition of mental deficiency was very limited. It really prevented their making the necessary arrangements for detention.

Mr. Ammon asked if anything was being done in the case of adolescents, where the real trouble came on.

Sir Kingsley Wood replied that although they said children would be admitted under 15, they did not strictly adhere to that particular age. In some cases people were admitted at a much older age. So far as the Board of Control was concerned, it had come to the conclusion that in a very large number of these cases persons who were proceeded against should not certainly be treated as criminals, and it wanted to make proper provision for them. The Minister of Health had now under consideration what further steps should be taken. Mr. Ammon had raised a very important question, which demanded, and was receiving, the attention of a large number of people who were interested, not only in mental deficiency, but in the welfare of a number of young people who were, unfortunately, suffering, and were occasionally brought before the courts of this country. The Ministry of Health had made provision, and they hoped, if further powers were given to them, that they would be able to do something still more in a matter which certainly required attention.

The vote was carried.

On the same day Mr. Ammon asked the Minister of Health whether the Government was inclined to view favourably the offer received from Dr. Damoglou to place at the disposal of the Ministry a method of treatment of cases of encephalitis lethargica. Sir Kingsley Wood replied that the answer was in the negative.

Industrial Fatigue.

Answering Mr. McLean, Mr. R. McNeill, Secretary of the Treasury, said that facilities had been given to the Industrial Fatigue Research Board in some Government departments for investigating special problems arising in particular kinds of manipulative work. An example was telegraphist's cramp. He was unaware of any proposal for a widespread application of tests by medical practitioners among the female employees in all Government offices. The tests of women at the Govan Employment Exchange, made for the Industrial Fatigue Research Board, were not medical examinations. They were simple external measurements made by two women assistants. The tests had not been applied to any officers at the Govan Employment Exchange. A number of women officers at neighbouring exchanges were allowed to undertake the tests at their own suggestion. The Industrial Fatigue Research Board asked, in May, 1925, for facilities to examine women signing at employment exchanges, and preliminary arrangements were completed in November. Consent was given to this scientific inquiry that knowledge might be gained of conditions affecting women's employment. The tests were only sanctioned for, and had been applied only in, the case of volunteers.

In reply to Dr. Fremantle, Sir Kingsley Wood said the Minister of Health was anxious to facilitate the provision of housing accommodation for the employees of new undertakings, but did not think that it would be practicable to introduce legislation making it compulsory for employers to produce such accommoda-

tion. A number of firms had already provided for the housing of their employees.

Colonel Gibbs, answering for the Minister of Health, told Mr. McLean that the investigations of the Industrial Fatigue Research Board did not involve medical examinations, but were concerned with special problems arising in manipulative work. The investigations were made to gain knowledge of a kind likely to improve the conditions or environment of employment, and were not restricted to any particular class of worker. No question of powers arose, as the subjects of test were always volunteers.

The Milk Supply.

In an answer to Dr. Fremantle, Sir Kingsley Wood said the numbers of producers' licences for certified and Grade A (tuberculin tested) milk in operation in England and Wales were 96 and 97 respectively. The number of such licences for Grade A milk on March 31st, 1925, the latest date for which figures were available, was 110. In the herds producing the first two grades of milk were approximately 3,500 and 3,800 cows respectively. The cows in Grade A herds might be roughly estimated at 2,000 to 2,500. Mr. March asked whether the Ministry of Health was discouraging the use of Grade A milk in any way. Sir Kingsley Wood said he had no knowledge of that. In a further reply to Dr. Fremantle, Sir Kingsley Wood said licences for the sale of pasteurized milk were issued by local authorities. March 31st, 1925, was the latest date for which returns were available. These gave the number of pasteurizing establishments as 62, and of other premises licensed to distribute as 370. He had no complete information on the quantity of milk now sold in England and Wales as pasteurized, but on a rough estimate it might be taken to be between 15,000,000 and 20,000,000 gallons per annum. He could not say without notice how often the premises of these firms were inspected by representatives of the Ministry of Health.

Dr. Fremantle asked the Minister of Health if he had evidence that bovine tuberculosis was communicable to man by the consumption of tuberculous milk. Sir Kingsley Wood said the Minister had such evidence. He was advised that the positive conclusions of the Royal Commission on Tuberculosis concerning this subject had been confirmed by the subsequent work of many investigators at home and abroad. Mr. Erskine asked whether the moral to be drawn was not that people should drink orange juice and not milk. Sir Kingsley Wood said he thought the answer contained its own moral.

Insurance Practitioners' Remuneration.—Answering Commander Kenworthy, Sir Kingsley Wood said that sums withheld from insurance practitioners under the powers contained in the National Health Insurance (Medical Benefit) Regulations were not returned to the Central Pool for distribution among practitioners, but were carried to a special fund from which, under Article 21 (2) of the same Regulations, payments were made to Insurance Committees towards meeting exceptional expenses incurred by them in administration of medical benefit.

A Unified Medical Service.—During the debate on the Air Estimates, on February 25th, Major Attlee said these Estimates provided £209,000 for the medical service. In the Army Estimates he found £2,500,000 for the Army Medical Service, and more was provided for the medical service in the navy. They required one medical service for the three and one united hospital service for the three. Colonel Spender-Clay said he could not see why there should be three departments for dealing with medical services. All these services could, even without a Ministry of Defence, be correlated, and a very large sum of money might be saved. Sir Samuel Hoare said he would convey to the Prime Minister the arguments used by Colonel Spender-Clay on the question of a Ministry of Defence, and would give the fact that they had been supported by members in every quarter of the House. It was obvious from the course of the debate that there was a growing feeling in the House for much closer co-operation between the three services than at present existed.

Miner's Nystagmus.—Mr. Spencer asked whether nystagmus was on the increase among coal miners. Colonel Lane-Fox said the incidence of miner's nystagmus was still very heavy, but the total number of cases in 1924 was slightly less than in 1923; the number of new cases declined both in 1923 and 1924, and he hoped it would continue to do so. Mr. Spencer asked whether the Government intended to give effect to the recommendation of the Medical Research Council with regard to a higher standard of illumination by making the provision of such a standard compulsory. Colonel Lane-Fox said he hoped to be able before long to fix a higher candle-power standard for flame safety-lamps. For electric safety-lamps the present standard of candle-power was much higher than the standard for flame lamps, and he was advised that it was not yet practicable to raise this.

Health of Kenya.—On March 1st Mr. Amery, answering Mr. Scurr, who asked if the Governor of Kenya had taken any action with regard to the petition from the Kikuyu Central Association asking for certain reforms in health administration, said that he had no information, but he would inquire of the Governor.

Notes in Brief.

The Admiralty explains that the removal of salt pork from navy rations is a result of the increased facilities for the issue of fresh and frozen meat. When a substitute is necessary tinned meats are preferred.

The Minister of Health cannot say when the bill dealing with slums in towns and insanitary dwellings in country areas will be introduced.

The committee on the pay of the Royal Army Medical Corps has not reported.

Obituary.

A. R. CUSHNY, LL.D., M.A., M.D., F.R.S.,

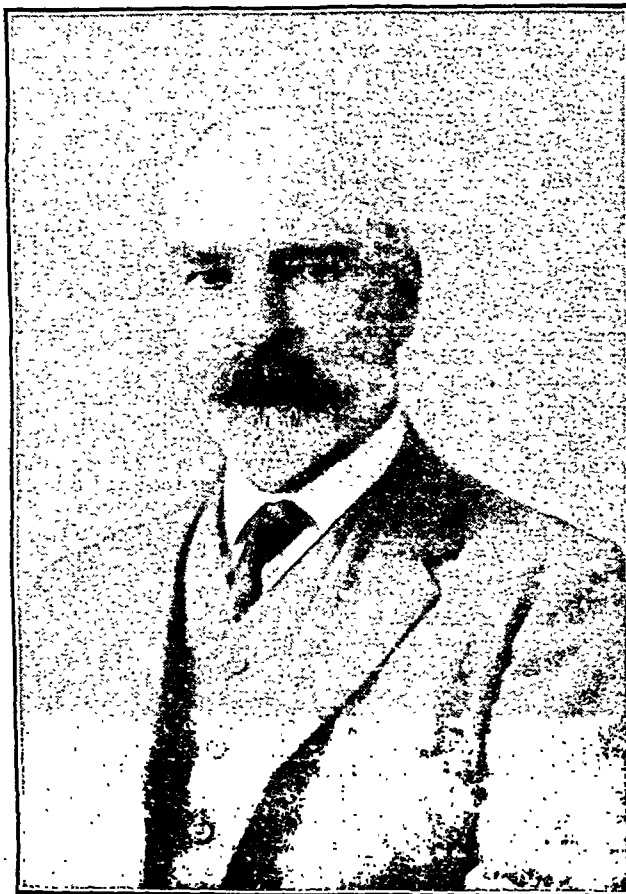
Professor of Materia Medica and Pharmacology,
University of Edinburgh.

THE sudden death of Professor A. R. Cushny at his home in Edinburgh on February 25th came as a particularly severe shock to his friends because it was quite unexpected. Professor Cushny had been in London two days before at an important conference, and had then appeared to be in his usual excellent health. He was only 60 years of age, and was of unusually fine physique, and all his friends confidently anticipated for him many more years of active work.

Arthur Robertson Cushny was the son of the late Rev. John Cushny of Speymouth, Morayshire, and was educated at Aberdeen University, where he graduated M.A. in 1886 and M.B., C.M. in 1889, when he was appointed Thompson Fellow. After proceeding M.D. in 1892 he went to Germany, and for a year was assistant to Schmiedeberg in Strasbourg. In 1893 he was elected to the chair of pharmacology at the University of Michigan, and he held this post till 1905, when he came to London. While at Michigan he commenced his studies of the action of drugs upon the heart, and also brought out the first edition of his well known textbook. In 1905 he was appointed professor of pharmacology at University College, London, a post which he held until 1918, when he was elected to the chair of materia medica and pharmacology at Edinburgh University, the position he was holding at the time of his death. He was elected a Fellow of the Royal Society in 1907, and served on the council of the society 1916-18. He was a member of various important public bodies, including the Royal Commission on Whisky, the Chemical Warfare Committee, and the Central Control Board (Liquor Traffic).

Professor Cushny's name is particularly associated with his work on the action of digitalis. It was during his time at Michigan that he worked out the mode of action of this drug upon the mammalian heart, and later in London, in collaboration with his friend the late Sir James Mackenzie, he applied the knowledge he had obtained from animal experiments to the treatment of heart disease. He was the first to suggest that certain clinical irregularities of the heart might be due to a disorder of function comparable to the condition of auricular fibrillation, which had long been recognized in laboratory experiments. This suggestion, which soon was proved to be correct, was an extremely valuable one and assisted greatly in the development of our modern knowledge regarding the functional disorders of the heart. Professor Cushny's last contribution to the pharmacology of the heart was his monograph on *Digitalis and its Allies* (1925), a work in which he gave a masterly summary of a vast and confused literature. Professor Cushny also did much

to advance our knowledge regarding the functions of the kidney. He published many papers on the secretion of urine, and in 1917 published a monograph on this subject, in which he not only summarized the existing knowledge, but also advanced a new theory of kidney secretion, based on the idea that the kidney discriminates between threshold and non-threshold substances. This theory provided the first coherent account of kidney secretion that accords with our modern knowledge of physiology and of physical chemistry. A third line of important fundamental research was his investigation of the manner in which pharmacological action is modified by the optical activity of alkaloids. This formed the subject of the Dohme lectures which he delivered in Baltimore last year.



(Photo)

PROFESSOR A. R. CUSHNY.

(Photo)

This short account of Professor Cushny's researches does not, however, give any adequate indication of the services he rendered as a pioneer in establishing the science of pharmacology in this country. Pharmacology originated in Germany, and the replacement of the old *materia medica* by the science of the mode of action of drugs has been a slow process in this country; but Cushny did more than any other person to bring about this change. His textbook, *Pharmacology and Therapeutics, or the Action of Drugs*, which is now in its eighth edition, is recognized as the most trustworthy guide to the subject. His wide knowledge and exceptional powers of judgement made him one of that select number of persons who can write a great textbook. The first edition of this book was a pioneer piece of work, for it was the first general textbook of pharmacology to be published, and it had an enormous influence in moulding the development of pharmacology in the English-speaking world. Cushny treated the mode of action of drugs as an exact science, and his book contains statements only

of those facts that have been established by carefully controlled observations on animals or man. Naturally his attitude appeared to some to be unduly sceptical, for he had no hesitation in rejecting cherished traditions as unproven when they lacked definite objective evidence for their support. Now, however, it is generally recognized that this is the only manner by which a science can be built upon secure foundations.

At the Annual Meeting of the British Medical Association in 1910 he was President of the Section of Pharmacology and Therapeutics; for some years he was a valued member of the Scientific Grants Committee of the Association, and in 1906 was a member of the Proprietary Drugs Committee.

Apart from his activities in advancing the knowledge of pharmacology, Professor Cushny had an extensive knowledge of the history of drugs, and in particular was an authority on the life of Withering, the discoverer of digitalis. Mr. Walter Spencer informs us that only last week Professor Cushny had agreed to annotate for the Royal Society of Medicine the collection of Withering's letters bequeathed to the society by Sir William Osler.

Professor Cushny has for long been the doyen and the leader of the pharmacologists in this country, and his

untimely death is an irreparable loss to this science, which he did so much to establish on a sound basis. He leaves a widow and one daughter, and to them we proffer the condolences of the medical profession in their bereavement.

APPRECIATIONS.

Sir Edward Sharpey-Schafer, F.R.S.

The death of Professor Cushny is a severe blow to the University of Edinburgh. When he was appointed in 1918 he succeeded to a chair in which for many years the opportunities for research had been allowed to lapse to such an extent that it was difficult to carry out pharmacological investigations at all, both by reason of lack or antiquity of equipment and the absence of a directing spirit. For his distinguished predecessor, Sir Thomas Fraser, had little time in the intervals of his hospital and private practice to devote to research, and during his latter years was seriously handicapped by frequent attacks of illness and by having suffered an intracapsular fracture of the neck of the femur which greatly restricted his activities. By a rearrangement of duties, and the establishment of a chair of therapeutics, of which Dr. Jonathan Meakins was the first occupant, Professor Cushny was relieved of the clinical work which had taken up so much of his predecessor's time and energy, and was enabled entirely to reorganize the department of materia medica in the university. Under his auspices the laboratories were thoroughly equipped for the most modern methods of investigating the properties of drugs, and workers who before had been conspicuous by their absence were freely attracted to the department, which has become one of the most active in the university. This is not a place to speak of his scientific attainments, nor of the importance of the work which he has produced—these matters are dealt with elsewhere. But to say that it will be difficult to fill the place of Professor Cushny, both in the branch of science which he made his own and in the university to which he has been attached during the last seven or eight years, is a simple statement of fact. Possessing, as he did, a wide knowledge of the subject with which he had to deal, he combined with this abundance of common sense and an unusual strength of character. By these qualities he endeared himself both to his students and colleagues, who will for many a long day miss his wise counsels and his genial personality.

Ave atque vale!

Dr. H. H. Dalc, F.R.S.

The death of A. R. Cushny has fallen as a sudden blow on his colleagues and friends in medical science. On Monday and Tuesday, February 22nd and 23rd, he was in London, and all who came into touch with him had remarked on his mental vigour and good spirits. I had a long talk with him on the Monday evening, when he spoke with quiet optimism of plans for a well earned leisure, after another five years of the work which he loved and enjoyed. From this buoyant mood, and the joy of his return home on the 24th, he was suddenly smitten into unconsciousness by a rapidly fatal cerebral haemorrhage. For himself no way of leaving life could have been happier; but we are left to wonder how his place can be filled.

For Cushny held a place in the medical science of this country which was, in some ways, unique. He had passed early from Aberdeen to Berne and Strasbourg, had worked with the veteran Schmiedeberg, had brought great distinction to a chair of pharmacology in the United States, and had written the first great systematic textbook of pharmacology. He was at home in several countries, and known and respected by every pharmacologist in the world. Yet, when he returned to this country in 1905, with wisdom ripened by an unrivalled experience, he was, and to the end remained, still young in his sympathies and interests, and typically British in the caution and solidity of his character. He was a quiet, undemonstrative man, with a large and generous heart, and his juniors in age and experience soon found that he was tolerant of ideas and of enthusiasm, and warm in his encouragement of good work. He did not easily acquire or relinquish a conviction; but that made his agreement and approval only the more worth winning. He was a wise, big brother to us

all. The sympathy of the many who knew and loved him will go out to his widow and daughter in this tragically sudden end to a family life of unusually perfect sympathy and happiness.

Professor E. H. Starling, F.R.S.

When, in 1905, Cushny was persuaded to accept the chair of pharmacology at University College, London, he had already, by his work at Ann Arbor, Michigan, achieved the leading position in his science. It is largely due to the influence of his teaching that pharmacology has made, in recent years, such great advances in the United States, where his pupils have carried on his work. But at University College he was undertaking the creation of a department out of nothing. Previous to his appointment materia medica and therapeutics were taught by a part-time lecturer, as was the custom in other medical schools. The remuneration was meagre, and the "department" consisted simply of one ill lit and badly furnished room. Nothing daunted, however, by these material disadvantages, Cushny set himself to the building up of a school in London with the calm optimism and the unflinching equanimity which always characterized him in anything he undertook. His sane judgement of men and things made him at once a valued colleague—both in the college and in the laboratory; and there is no doubt that he fully appreciated the society into which he had fallen and the regard in which he was held by its members. When at last, through a generous gift of Mr. Carnegie, it became possible to provide Cushny with a laboratory adequate to his work, we hoped that we had secured his continued and permanent help in building up the school of our ambitions. But to an Aberdeen man the old reputation of a professorship at Edinburgh University was too strong to be resisted, and the succession to the chair of Fraser seemed a fitting crown to his life's work. During these Edinburgh years Cushny has been at his best, and his activities in research as great as during any other period of his life. His masterly work on digitalis and his monograph on the secretion of urine—the second edition of which he had just completed and seen through the press—represent the summary of the two lines of work to which he had chiefly devoted his attention throughout his scientific career. Our modern views on the action of digitalis and the "modern theory" of renal secretion we owe to Cushny. Although his monograph is devoted to a vindication of the "modern theory," we feel that in this, as in all Cushny's work, there is no slavish adherence to a verbal formula. Cushny was of opinion that a theory, if well substantiated to start with, should be tried until it broke, and not be abandoned at the first experimental result which seemed at variance with its teaching. But this meant for him the continual devising of fresh tests for the theory, and thereby the acquisition of new facts and the extension of our knowledge of the subject. To pharmacology, physiology, and medicine Cushny's death is thus a severe loss and one that to his friends is irreparable.

Dr. W. E. Dixon, F.R.S.

Professor Cushny succeeded Sir Thomas Fraser in the University of Edinburgh towards the end of the war, and at once embarked on the task of reorganizing the work in the department of pharmacology and remodelling the teaching. At this time he was the outstanding figure in British pharmacology, a man who had throughout life devoted himself whole-heartedly to the one subject. His textbook, published in 1899 and modelled on that of his master, Schmiedeberg, was the first of its kind published in English, and may be regarded as the model on which subsequent books on the subject have been made. In Edinburgh he collected round him able young assistants in whom, by precept and example, he instilled a new spirit into pharmacology, inspiring them with the search for truth. He was a severe but just critic, and could not tolerate slackness. I remember his sage words to an assistant who wished to do some outside work; he told him that he had better not follow pharmacology if he regarded wealth as the criterion of success. Cushny was a keen investigator and always seemed to me to see a little further than others; he was often right when others were wrong;

either because he knew more or because he was better able to balance his facts. Cushny's work in pharmacology was mainly devoted to investigating the mode of action of well known drugs, rather than by adding to our materia medica. Shortly before his death he told me that when in Michigan he had discovered the condition of auricular fibrillation in animals; he had thought it a condition likely to occur in patients and had asked his clinical friends to search for it. Cushny was careful, frugal in his habits, and lacking in all forms of ostentation; he never shirked his duties or tried to save himself. In Edinburgh he gave practically the whole of the lectures himself, leaving his assistants free for research. He had a quiet, persuasive manner, a genial nature, and a kindly sympathy which attracted to him those needing advice or help in trouble, and only his intimates can appreciate how cheerfully he gave his time and thought in the interests of his assistants and pupils. The world is poorer by his death, but his memory and example remain to inspire us with a courage in our own work and sympathy for that of others.

Professor A. J. Clark.

The untimely, and unexpected death of Professor Cushny is a great loss to his friends and to the medical sciences, but this loss is felt particularly severely by those who, like myself, were not only his friends but also had been pupils under him. A considerable proportion of the holders of chairs of pharmacology in England and the Dominions have been, like myself, assistants to Cushny. All of us, his past pupils, would, I think, mention as his outstanding characteristic the power of shrewd and well balanced judgement, and we have all been indebted to him on innumerable occasions for help and advice on matters scientific and personal. He had a remarkable power of interesting and encouraging young scientists in useful lines of research, and his kindness and patience were inexhaustible.

THE RIGHT HON. MICHAEL FRANCIS COX,
M.D., F.R.C.P.I.,

Late Chairman of Convocation of the National University of Ireland.

THE death of Dr. Michael Francis Cox, after a prolonged illness, removes from the ranks of the medical profession in Dublin one of its leading practitioners. Born at Kilmore, co. Roscommon, in the year 1852, he was educated at St. Mel's College, Longford, the Catholic University, Dublin, and London University. In 1875 he obtained the licentiate, and in 1892 became a Fellow of the Royal College of Physicians of Ireland, and in 1895 the Royal University of Ireland conferred on him the honorary degree of M.D. After completing his medical training Dr. Cox took up first medical teaching, and then commenced private practice; at an early age he rose to a position of eminence in his profession. He had been President of the Royal College of Physicians of Ireland, and during the Lord Lieutenantcy of Lord Aberdeen he was made a member of the Privy Council. Dr. Cox was senior physician to St. Vincent's Hospital, Dublin; consulting physician to the Children's Hospital, Temple Street, to the Linden Convalescent Home, and to Our Lady's Hospice. In the various positions which he held he contributed to the full the resources of his medical skill and experience, and did much to uphold the dignity and traditions of the Irish medical profession, by whose members he was held in the highest esteem. On the occasion of his election as President of the Royal College of Physicians of Ireland in 1922 he was presented with a beautiful replica of the Ardagh cup by his colleagues in St. Vincent's Hospital.

He was an honorary LL.D. of the National University of Ireland, a member of the Royal Irish Academy, a Fellow of the Royal Academy of Medicine in Ireland; Fellow and vice-president of the Royal Society of Antiquaries, Ireland; and a member of the senate of the National University. Dr. Cox had been examiner in medical jurisprudence and materia medica in the Royal University of Ireland, and demonstrator in anatomy of the Catholic University Medical School, Dublin. In 1923 Dr. Cox contracted a serious illness, from which he never wholly rallied from that time up to his death. He was keenly interested in science

and literature, and was the author of *The Country and Kindred of Oliver Goldsmith* and *Notes on the History of the Irish Horse*. In years gone by his lectures on historical and archaeological subjects in several halls, notably that of the National Literary Society, aroused great interest. There were few men more learned in Irish folklore, more particularly that which referred to his native west. His health finally gave way last year, when he definitely retired from active participation in public affairs. On November 11th Dr. Cox resigned the position of chairman of convocation of the National University of Ireland, which he had held from its inception; the occasion was marked by signal expressions of appreciation and affection.

In opening the new dispensary at St. Vincent's Hospital, Dublin, Professor J. S. McArdle, surgeon to the hospital, paid the following tribute to the work of the late Dr. Michael Cox. Having referred to Marsh, O'Farrell, and O'Leary, Surgeon McArdle said: "One other man is unfortunately unable to be with us to enjoy the vision of his hospital's progress. Through weary and often very trying times he was a wonderful counsellor, while in his medical work he was indefatigable; outside his professional effort he was the greatest example of thoughtfulness for the poor that has appeared in my long experience. So persistently kind, so constantly mindful of the trials and troubles of others, his mind must have been attuned by other than earthly influences."

JOHN B. STORY, M.B., M.Ch., F.R.C.S.I.,

Past President of the Royal College of Surgeons in Ireland and of the Ophthalmological Society of the United Kingdom.

We much regret to record the death of Mr. John Benjamin Story, who died at Malahide after a distinguished professional career. He was the son of the late Rev. W. Story of Tyrone, and received his education at Winchester, Dublin, Zürich, and Vienna. He graduated M.B., B.Ch. Dublin in 1876, proceeded M.Ch. in 1888, and obtained the F.R.C.S.I. in the same year. Although he devoted himself to ophthalmic surgery he took a considerable interest in public life, and was High Sheriff of Tyrone in 1911.

Mr. Story held the office of President of the Royal College of Surgeons in Ireland from 1918 to 1920, and during the same period he was also president of the Ophthalmological Society of the United Kingdom, of which he was an original member. He was professor of ophthalmic surgery to the Royal College of Surgeons in Ireland, president and honorary consulting surgeon to the Royal Victoria Eye and Ear Hospital, and president of the Irish Medical Association in 1913. He held the appointment of honorary surgeon oculist to the King in Ireland, and to the Earl of Cadogan and Earl Dudley during their tenure of office as Lord Lieutenant of Ireland. His other appointments included those of ophthalmic surgeon to the Adelaide, Mercer's, Monkstown, and the Dublin Castle Red Cross Hospitals; he was also oculist to the Claremont Institute and St. Joseph's Asylum. Mr. Story published numerous papers on ophthalmic operations and disease. He was the author of "Ocular lesions in variola, rubeola morbilli, scarlatina, erysipelas, and diphtheritis," in *Norris and Oliver's System of Diseases of the Eye* published in 1900, which we reviewed in the *JOURNAL* (1900, vol. i, p. 847). He contributed articles on tuberculosis of the conjunctiva, strabismus, and glaucoma to the *Transactions of the Royal Academy of Medicine in Ireland* and the *Ophthalmic Review*.

He married in 1892 a daughter of the late Rev. J. W. Hollowell, and leaves two daughters.

WILLIAM CHARLES SULLIVAN, M.D.,

Medical Superintendent, Broadmoor Criminal Lunatic Asylum.

We much regret to report the death of Dr. William Charles Sullivan at Bournemouth, on February 26th, in his 58th year. He was the youngest son of the late Dr. W. K. Sullivan, President of Queen's College, Cork, and was educated in Cork, Dublin, and Paris. He graduated M.B., B.Ch., B.A.O. at the Royal University of Ireland in 1891, and proceeded M.D. in 1896; he won the Stewart scholarship in mental diseases in 1895. The early years of his

professional life were spent in the prison medical service, and he held in succession the posts of deputy medical officer of the prisons at Liverpool, Parkhurst, Holloway, and Pentonville. He was next appointed medical superintendent of the State Criminal Lunatic Asylum at Rampton. In 1910 he succeeded the late Sir Richard Brayn as medical superintendent of Broadmoor Criminal Lunatic Asylum, and held that responsible post until his death.

Dr. Sullivan had for many years taken a profound interest in the subject of alcoholism, on which he had published an excellent book in 1896. His opinions were well balanced and persuasively expressed, and he was much respected as an authority in this field. His position was recognized by appointment to the post of scientific adviser to the Central Control Board for the Liquor Traffic which was set up in 1915, and he continued to hold that post until the dissolution of the Board in 1919. Besides these varied duties, he held the post of lecturer in criminology and forensic psychiatry at the Maudsley Hospital, and published numerous articles on psychological subjects. His last book, *Crime and Insanity*, which we reviewed on June 28th, 1924, dealt with the nature and extent of the influence of psycho-pathological conditions on the causation of criminal acts. It was generally considered a most valuable and timely contribution to criminology—an authoritative and convincing work, its conclusions being preceded by closely reasoned discussions.

Dr. Sullivan married Miss Mary Fitzpatrick, the writer of Irish stories, and had one son.

HUGH JONES ROBERTS, M.D.,

Late Chairman, North Carnarvon and Anglesey Division.

We much regret to record the death of Colonel Hugh Jones Roberts on February 18th, in his 64th year. He was the eldest son of the late Dr. Evan Roberts, and received his medical education at Guy's Hospital. He obtained the diplomas M.R.C.S.Eng. and L.S.A. in 1885; graduated M.D.Durh. in 1907, and passed the examination for F.R.C.S.Edin. in 1911. Colonel Roberts succeeded to the practice of his father, which he carried on in conjunction with his brother, Dr. E. Shelton Roberts. He was a pioneer of the Volunteer movement in the Nantlle Vale district, and for several years commanded the 6th Volunteer Battalion of the Royal Welch Fusiliers. He held the Volunteer Long Service Decoration, and served on the Carnarvonshire Territorial Association. During the war he was in command of the military hospitals at Preston and Eaton Hall, and at the end of the war remained in charge of the Ministry of Pensions Hospital at Bangor until it was closed. Colonel Jones Roberts was an honorary associate of the Order of St. John of Jerusalem in England, a member of the Court of Governors of University College, North Wales, and an examiner and honorary life member of the St. John Ambulance Association. For many years he had been a keen member of the British Medical Association. He was honorary secretary of the North Wales Branch from 1898 to 1914; in 1904 he was a representative, and in 1906 chairman of the North Carnarvon and Anglesey Division. He was a member of the Central Council from 1905-06 to 1911-12, and at the Liverpool Annual Meeting in 1912 was vice-president of the Section of Pharmacology and Therapeutics.

A colleague writes: The British Medical Association loses a loyal worker and one who took its proceedings most seriously. He was a model of decorum, and was always "regimental." A quiet dignity was apparent in all his work, and he brought it into play in conducting any Division or Branch meeting at which he was present. He had been in failing health for some years. He took a keen interest in old Welsh literature, and would quote old authors and anecdotes with a charm and smile that was very fascinating. He fathered the idea of having an Association Annual Meeting at Bangor when the new college was being built. The Branch and Divisions took an interest in the matter after the completion of the buildings, but it was found to be impracticable, and he was very disappointed. He was a loyal colleague, and the profession in North Wales will greatly miss him.

J. R. P.

WALKER OVEREND, M.A., M.D.,

Honorary Radiologist, Buchanan Hospital, Hastings, and late X-Ray Assistant, St. Bartholomew's Hospital.

We regret to record the death, on February 10th, of heart failure, of Dr. Walker Overend, at his residence in St. Leonards. Dr. Overend was born in 1858 at Keighley, Yorkshire, and was educated at Skipton Grammar School. In 1874 he was awarded the Queen's scholarship at the Royal School of Mines, and studied under Huxley. Four years later he obtained the B.Sc.Lond., with honours in zoology, and won a university exhibition. In 1882 he obtained the Brackenbury scholarship at Balliol College, Oxford, and in 1886 he secured a first class in the honours school of physiology. He won the Radcliffe Travelling Fellowship in 1887, and studied in Heidelberg and Strasbourg; in the latter town he investigated the effects of veratrin and curare in striped muscle, publishing his results in Schmiedeberg's *Archiv* for 1889. On his return from Strasbourg he held the post of deputy lecturer on physiology at St. George's Hospital for a year. In 1892 he obtained the diploma L.S.A., and graduated M.B., B.Ch.Oxf. in 1893. He then joined a friend in practice at Edmonton, and was elected in 1895 physician to the Prince of Wales's Hospital, Tottenham. He proceeded M.D.Oxf. in the same year, and about this time he published several papers dealing mainly with the heart and lungs. Defective health compelled him to leave Edmonton in 1899, and he settled at Clacton-on-Sea, where he remained until 1912.

His interest was early attracted to the medical possibilities of x rays, and he possessed an x-ray apparatus as early as 1902. He decided to retire from general practice in 1912 and devote himself to the new science of medical radiology; accordingly in the following year he became chief assistant under the late Dr. Hugh Walsham in the x-ray department of St. Bartholomew's Hospital. About the same time he commenced practice as a radiologist at St. Leonards, and was shortly afterwards elected radiologist to the Royal East Sussex and Buchanan Hospitals, Hastings. During the war he acted as radiologist to the Victoria Hospital for Diseases of the Chest. He continued his work in St. Leonards until last August, when a sudden cardiac attack compelled him to relinquish it. The chief interest of his life since 1912 was the radiology of the lungs, the importance of which he was one of the first to appreciate. His experience has been summarized in his published work *The Radiography of the Chest*, the first volume of which was published in 1920, and reviewed in our columns on June 12th, 1920 (p. 798); the second volume is now in the press. His other publications include many papers in the *British Medical Journal*, the *Lancet*, and the *Archives of Radiology and Electrotherapy*. He married in 1893 Robina Marion Orr, who survives him, together with one son, Dr. T. D. Overend, with whom he was in partnership.

JOHN ALEXANDER SUTHERLAND, M.B., C.M.,

Physician, North Bierley Joint Hospital.

Dr. JOHN ALEXANDER SUTHERLAND died on February 18th, in his 70th year, at his residence, Low House, Cleckheaton, after a few days' illness. A native of Dunbar, he was a distinguished pupil at the Edinburgh Institution. He graduated M.B., C.M. at the university in 1878, and during his student days was an energetic Volunteer and a good marksman in the university "Blacks." He served as one of the house-physicians in the Edinburgh Royal Infirmary in a group which included such well known names as those of Sir German Sims Woodhead, Sir James Mackenzie, and Sir George Berry, and he was also for a time house-surgeon to the Leith Hospital. With his lifelong friend Dr. John Stewart of Nova Scotia, he was instrumental in organizing ward entertainments for the patients. He commenced practice in Cleckheaton in 1880, and there the whole of his professional life was spent.

In addition to the work of a busy practice, Dr. Sutherland was a man of many activities and wide interests. He had been medical superintendent of the North Bierley Joint Hospital since its opening in 1890, and was formerly medical officer of health of the Cleckheaton

Urban District Council. A keen ambulance man, he was widely known in the West Riding as lecturer and examiner in this subject, and he was a Knight of Grace of the Order of St. John of Jerusalem in England, and an honorary life member of the St. John Ambulance Association. At the great fire and series of explosions which occurred at the Low Moor picric acid factory during the war he was conspicuous for his daring and bravery in rescue work under the most dangerous and terrifying conditions. For many years he had taken an active interest in the Epsom College Medical Foundation, of which he was local secretary, and in the work of the Boy Scouts. An esteemed member of the Congregational church, he took a large share in temperance and philanthropic work in Spenn Valley. Devoted to his profession, he rarely took a long holiday, yet his love of the sea led him to visit the shores of the Baltic, Russia, and the Canary Islands. He was a well known philatelist and authority on stamps.

Dr. Sutherland was a fine type of the old family doctor, who combined with his professional duties the part of guide, philosopher, and friend. A man of high principles and upright conduct, he had the courage of his convictions and was never afraid to express them. Withal he was one of the most lovable and kindly of men, abounding in humour, doing good by stealth, always ready to help in time of trouble. In him the poor, the needy, the suffering, and the afflicted had indeed a true friend, and the remarkable way in which the people of Cleckheaton turned out on the day of his funeral to pay a last tribute to their old friend was an index of the high esteem in which he was held by all. He will be greatly missed by a large body of friends in Yorkshire and elsewhere. He was twice married, and is survived by his widow, a son, and a daughter.

F. M. C.

We regret to record the death of Dr. F. J. TRESILIAN, at the age of 64, at his residence in Enfield, on February 14th, following a short illness. Until within ten days of his death he was actually practising, and he will be mourned by many people in Enfield and elsewhere. Born in London, Frederick James Tresilian was the second son of Stewart Stewart Tresilian, a member of a very old Cornish family who lived at Tresilian, near Falmouth. He lost his parents when very young, and was brought up by his grandmother in the old town of Cloyne, co. Cork, Ireland. From Middleton College he passed to Queen's College, Cork, where he graduated M.D., M.Ch., M.A.O. with first-class honours in 1885. He obtained the diploma M.R.C.P. Edin. in 1887, and the F.R.C.P. in 1902. He practised in Enfield from 1890 until the time of his death. He was an honorary medical officer to the Enfield War Memorial Hospital, a keen member of the British Medical Association, and of the North-East Clinical Society, of which he had been president. He was medical referee to the Prudential Assurance Company, and when he first went to Enfield was for eight years clinical assistant to the ear, nose, and throat and eye departments of the Prince of Wales's General Hospital, Tottenham, and also to the Central London Throat, Nose, and Ear Hospital. He contributed articles on nerve diseases and other subjects to the *BRITISH MEDICAL JOURNAL* and other periodicals. He leaves a widow, one son, and two daughters, one of whom is in the medical profession.

Universities and Colleges.

UNIVERSITY OF LONDON.

Chair of Physiology, tenable at University College.
Dr. G. V. Anrep has been appointed as from March 1st to the University Readership in Physiology, tenable at University College. He holds the degrees of M.D. and D.Sc.
The title of Emeritus Professor of Physiology at University College has been conferred on Dr. Herbert R. Spencer.
Sir James K. Fowler and Dr. A. Goodman Levy have been appointed Fellows of King's College and University College respectively.
Mr. H. L. Eason, M.D., M.S., was reappointed the representative of the University on the General Medical Council.

ST. THOMAS'S HOSPITAL.

Three popular lectures in physics will be given in the Governors' Hall on Tuesdays, March 9th, 23rd, and 30th at 5 p.m. The first will be delivered by Sir Richard Paget, Bt., who will speak on the nature of human speech; the second, dealing with wireless telephony with light waves, will be given by Professor A. O. Rankine, O.B.E.; and Professor C. R. Darling, F.I.C., will deliver the third on experiments with drops and globules. The lectures will be illustrated by experiments.

Professor R. H. A. Plimmer will give four lectures on vitamins in nutrition in the Governors' Hall on March 11th, 12th, 15th, and 16th at 5 p.m., illustrated by lantern slides. Admission to the lectures is free without ticket.

UNIVERSITY OF ABERDEEN.

At the meeting of the Senate on February 23rd a course of post-graduate study in medical subjects for the benefit of practitioners in the north-east of Scotland was approved. The Faculty of Medicine recommended that the course should be instituted this summer and should extend from the first week in April till the last week in June. The only fee payable will be £1 ls. registration fee.

The spring graduation ceremony was fixed for Wednesday, March 24th.

Professors Shennan and Mackenzie Stuart were appointed to represent the Senate at the Congress of Universities of the Empire to assemble in London on July 12th and to meet in Cambridge from July 13th to 16th.

UNIVERSITY OF CAMBRIDGE.

We regret that by a printer's error in the degree list published on February 20th (p. 354) the B.Chir. conferred on Mr. H. B. Stallard appeared as M.Chir.

Medico-Legal.

ACTION FOR NEGLIGENCE AGAINST MEDICAL OFFICERS.

Venn v. Todesco and Elder.

THE rehearing of the action brought by Mrs. Mary C. Venn of Thornton Heath against Dr. J. M. Todesco, resident medical superintendent of the Croydon Borough Hospital, and Dr. G. W. Elder, formerly assistant resident medical officer at the hospital, for damages for the death of her husband, which was alleged to have occurred through the negligence of the defendants, took place before Mr. Justice McCardie and a special jury, in the High Court of Justice, King's Bench Division, on February 27th and subsequent days, but the jury again disagreed and were discharged.

Mrs. Venn sued on behalf of herself, her son Laurence, and her daughter Eileen, a schoolgirl. The pleadings contained the allegations that Mr. Venn was recovering from scarlet fever and had a deep-seated abscess in the hip in March, 1922, when he was admitted into the Croydon Borough Hospital for treatment. Dr. Todesco and Dr. Elder were alleged to be negligent in not properly diagnosing the abscess while Mr. Venn was under their care. Dr. R. V. Clark, the medical superintendent of the hospital, did not examine Mr. Venn until April 24th, when he ordered an immediate operation, but, blood poisoning supervening after the operation, Mr. Venn died on June 15th. Death was alleged to be due to the "negligent delay of between six and seven weeks" at the Croydon Borough Hospital before Dr. Clark examined Mr. Venn.

The defendants pleaded that they were not negligent, and also that they were protected by the Public Authorities Protection Act, 1893.

The case first came on for hearing in June, 1925, before the Lord Chief Justice and a special jury. Dr. Clark was then entirely exonerated, but the jury disagreed as to the liability of the other two defendants. The previous proceedings were reported in the *BRITISH MEDICAL JOURNAL* of July 11th, 1925, p. 92.

Sir Henry Maddocks, K.C., and Mr. B. M. Goodman, instructed by Mr. A. S. Joseph, appeared for the plaintiff, and Mr. Neilson, K.C., and Mr. T. Cartliew, instructed by Messrs. Le Brasseur and Oakley, appeared for the defendants.

Mrs. Venn, in her evidence, said her husband never suffered from rheumatism. Cross-examined by Mr. Neilson, she said Dr. Milson, in advising her husband to go into hospital, told her that her husband had an abscess on the hip, and not merely that there was an inflammation there. She was never told that her husband had diphtheria when he went into hospital. Her husband's leg was always swollen, and the swelling did not go down from the time he entered the hospital until April 12th.

Dr. E. G. D. Milson said he treated Mr. Venn for scarlet fever in March, 1922. There were no symptoms of diphtheria then. At that time his leg had such an inflammation that it might eventually have formed pus. He did not think the inflammation on the hip could have been mistaken for a burn. If the operation had taken place ten days earlier it might have made a difference in the chance of saving the patient's life. Cross-examined by Mr. Neilson, the witness said he sent Mr. Venn into

hospital for observation regarding the inflammation and to have an operation if necessary.

Sister Smith, who was present at the operation on April 25th, 1922, said so far as she could recollect the abscess discharged nearly three pints of pus.

Laurence Venn corroborated his mother's evidence that Dr. Todesco had told them that his father was suffering from scarlet fever and rheumatism, and that it was a case of mind over matter. Each occasion they visited his father at the hospital the leg was always very inflamed. Cross-examined by Mr. Neilson, witness said although it might have been against regulations for visitors to examine patients, he and his mother on the occasion of each visit raised the bedclothes and examined his father's leg.

The Defence.

Dr. Todesco, in his evidence, said Mr. Venn was admitted on March 18th, 1922, and when he examined him on the following day there were symptoms of scarlet fever. There was some redness on the right hip, but no swelling which pitted on pressure, and he agreed with Dr. Elder, who also made an independent examination, that the redness was consistent with a burn caused by a hot-water bottle. A swab was taken of the patient's throat, and a bacteriological test revealed diphtheria. He was then transferred from the scarlet fever ward to the mixed infection ward. On March 28th he complained of pain in his leg, but an independent examination, both by himself and by Dr. Elder, revealed nothing to account for the pain other than the rheumatic condition of the patient which was common in patients suffering from scarlet fever. The witness had had cases of abscesses forming in scarlet fever, and the possibility of an abscess was present to his mind when he made his examinations. He did not suspect the presence of an abscess until April 24th, when he telephoned to Dr. Clark, who then examined the patient, and ordered his removal to the general hospital for an immediate operation. At no time did he hear that Dr. Milsom had sent the deceased into the hospital for observation regarding the inflammation of the leg. Cross-examined by Sir H. Maddocks, witness said some abscesses were difficult to diagnose on account of their depth. An abscess beneath the muscles, especially a thick muscle like the thigh, might give no indication of its presence except pain, and that he attributed to rheumatism. He did not think a previous history of the case would have helped him. He did not think that if the operation had been performed on April 13th, instead of April 26th, it would have made any difference.

Dr. Elder said he examined Mr. Venn in the ambulance before admission. He then only suspected scarlet fever, and ordered the patient to be placed in the scarlet fever ward, but upon a swab being taken of the patient's throat which revealed diphtheria he ordered him to be removed to the mixed infection ward. In his opinion there was nothing to do except to watch the patient. Mr. Venn himself told witness he had been a martyr to rheumatism, and also that the redness on his leg was a burn caused by the application of a hot-water bottle. He did not ask Mrs. Venn about Dr. Milsom's diagnosis and she did not tell him. Cross-examined by Sir H. Maddocks, witness said both he and Dr. Todesco made independent entries on the admission card. He did not diagnose the deep-seated inflammation until April 25th.

Dr. Veitch Clark said Dr. Todesco and Dr. Elder worked under him at the Isolation Hospital in 1922. Witness visited the hospital two or three times a week, being the administrative officer of the whole department. He had found both doctors trustworthy and conscientious, Dr. Todesco being known to him for eight years and Dr. Elder for three years. Witness saw Mr. Venn in the hospital twice—once in the first week in April, 1922, and again on April 25th, when he was rung up for a consultation. On that day he detected a deep-seated abscess in the right thigh, and so he called in Mr. Adams, the surgeon, who operated. The chart was not consistent with deep-seated inflammation or abscess when the patient was admitted. That was absolutely negatived by his temperature. In his opinion, Mr. Venn could not have had the abscess down to April 10th, for he himself examined Mr. Venn carefully just before that date and there was no inflammation at all in the leg. He knew of no disease in which an abscess formed more rapidly than in a case of scarlet fever. Cross-examined by Sir H. Maddocks, witness said that with deep-seated inflammation an abscess was likely to form in a day or two.

Dr. G. E. Newby, honorary surgeon to the Croydon General Hospital, said that from what he had heard of the evidence he did not think that there had been any negligence whatever.

At this stage of the hearing the jury intimated that a majority of their number had come to a decision, but Sir H. Maddocks, for the plaintiff, said he would not agree to accept it, and the case therefore continued.

Dr. William Hunter, consulting physician to the London Fever Hospital and Charing Cross Hospital, said he had made a careful study of the documents connected with the case, and he had come to the conclusion that it was absolutely impossible for Mr. Venn to have had a condition of pus in his body when he was admitted to the hospital. In the circumstances the doctors could have done nothing but watch Mr. Venn's case with care. For a patient to complain of pain in the hips and joints was usually indicative of rheumatism, which was the most common complication of scarlet fever. The case was a very difficult one, and nothing could have been done until—as in this case—the operation was performed.

The Summing-up.

Mr. Justice McCardie, in his summing-up, said although the case was of importance to the plaintiff, it was also important to

the defendants, because every professional man, certainly every man engaged in the medical profession, valued his reputation and his honour, and unless the case was clearly proved against him he was entitled to say: "You ought not to find against me." The law on the matter was, in his opinion, free from doubt. Many phrases had been referred to to indicate the measure of duty which rested upon a doctor—a duty which existed whether the doctor were paid by the patient or whether the patient were treated, as Mr. Venn was treated, at a public institution. To his lordship's mind, the duty could be stated in words that did not admit of further definition or further amplification. The words were these: that a doctor must show to his patient, and exert towards the patient, reasonable skill and reasonable care. In the medical profession, as in other professions, there were men of different gifts; for example, in surgery there was the man who possessed singular powers of insight, great operative capacity, and who gained a world-wide reputation. There was, on the other hand, the man who possessed ordinary gifts, ordinary skill, and the ordinary capacity for care. That was the standard that must be applied. In this case (continued his lordship) one noticed, to begin with, that the defendants were both men of excellent qualifications. Sometimes one found that a doctor was engaged in the treatment of a case or a trouble of which he had had but little experience, but in this case, as they knew, Dr. Todesco for a good many years, and Dr. Elder for a considerable period of time, had gained a wide and accurate experience of scarlet fever cases, and they were engaged in this infectious hospital as the resident medical officer and the assistant medical officer respectively. What was the case alleged against them by way of negligence. Not that they themselves did not operate, because they were not surgeons. It was important to remember that the case alleged against them was that they failed in diagnosis; in other words, that they diagnosed too late the existence of an abscess in Mr. Venn. That led up to this point for the jury to remember, that of all the functions a medical man had to fulfil there was none more difficult and more delicate than diagnosis. Upon many subjects of life opinions differed, but the human body was the most difficult thing in respect of which a doctor had to say that there was specific trouble, or a specific internal complaint, and the case against the defendants was that they were guilty of want of reasonable skill and want of reasonable care in regard to this most difficult subject of diagnosis. A diagnosis in respect to what? Not to some external and immediately observable feature in the human body, but a diagnosis in respect to a deep-seated abscess, and the whole of the evidence pointed to this: that, difficult though diagnosis was with respect to many matters, there was no matter with respect to which it was so difficult as with regard to a deep-seated abscess. There were two matters which his lordship himself felt he should like to consider, and they were these. It was often said that a doctor had differed from another doctor. So he had, because the human body lent itself to many differences of opinion, but it was not negligence for one doctor, competent and careful, to form one opinion, and for another man as competent and careful to form another opinion. In fact, in his view it was the duty of a medical man, just as it was the duty of a lawyer, or any other professional person, to form his opinion honestly and to the best of his ability, and, having formed his opinion, to express it. The professional man who failed in that failed, in his lordship's view, in his duty as much as a judge who, having formed an opinion of the case, lacked the courage to express it.

His lordship then exhaustively reviewed the facts of the case as given in evidence, but pointed out that in this case they had many documents showing details of the patient from day to day—the chart of temperature, the nurses' reports, etc. When he took those documents he asked himself: When Mr. Venn was sent to the hospital as an ordinary patient to take his place with 170 to 200 people there, what conceivable interest was there on the part of Dr. Todesco, or Dr. Elder, or the nurse, or the clerk, and what conceivable motive was there, to put down anything that was not true? They would realize the doctors' attitude in this matter, and they would know that one of the proud things of a hospital was to turn out the patient cured. That was the pride of the hospital—professional pride. If they went round the hospitals they would see that the nurses looked upon the patient, not as a mere patient, but as a case so that she afterwards could say: "He came in ill and he went out well." These records were made when no one had any conception that any action would arise out of the case. It was the right of a judge, in trying a case with a jury, to express an opinion he had formed, subject to their judgement as a jury upon the evidence. This was the second of two very prolonged trials, and, exercising his right, remembering that they were the judges of fact to take an opposite view if they thought it proper to do so, he himself had formed the conclusion that upon the evidence before the court these defendants ought not to be found guilty of negligence. He further felt, if one weighed the documents and the whole of the testimony in the case, that if a doctor were to be found guilty of negligence upon such testimony as that before them, then no doctor would be safe. He knew from what happened on Friday that the overwhelming majority of the jury were in favour of the defendants, but the one jurymen who took an opposite view would, his lordship hoped, reflect that cases of this sort were not, and ought not, as a matter of duty to be determined on mere sympathy. Every judge must remember that it was his duty to decide not on sympathy but upon testimony, because unless he decided upon testimony he failed in his duty.

The jury retired for an hour, but, being unable to give a unanimous verdict, they were discharged.

The question of law whether the defendants were protected by the Public Authorities Protection Act, 1893, was reserved for argument on a future date.

The Services.

FOREIGN DECORATIONS.

The following decorations have been conferred by the President of the French Republic in recognition of services during the course of the war, 1914-19:

Médaille de la Colonel William General Gerald C. Henry Herriek, C.B. C.M.G., T.D., T.F., Charles P. Templeton, C.B.E., D.S.O., C.A.M.C., Albert G. Thompson, C.M.G., D.S.O., retired pay, late R.A.M.C., Hugh S. Thurston, C.B., C.M.G., C.B.E., retired pay, late R.A.M.C.; Lieut- Colonels Harold Collinson, C.B., C.M.G., D.S.O., T.D., R.A.M.C.(T.F.), Pierre Z. Rheume, C.A.M.C., Eugene Ryan, C.M.G., D.S.O., R.A.M.C.; Majors Henry D'A. Blumberg, O.B.E., T.D., R.A.M.C.(T.F.), John M. M. Crawford, O.B.E., R.A.M.C., Joseph A. Luesier, C.A.M.C., Michael J. Mahony, D.S.O., T.D., R.A.M.C.(T.F.), Arthur J. Mollison, R.A.M.C., George S. Parkinson, D.S.O., R.A.M.C., Alfred N. Rivet, C.A.M.C., Edouard C. Saint-Pierre, C.A.M.C., George H. Stevenson, O.B.E., M.C., R.A.V.C.(S.R.), Alan C. Turner, D.S.O., T.D., R.A.M.C.(T.F.); Captains Alfred J. Clark, M.C., C.A.M.C., James Jackson, R.A.M.C.(T.F.), Louis de G. Joubert, C.A.M.C., Joseph A. Lorrain, C.A.M.C., Ernest S. Stork, D.S.O., R.A.M.C.(T.F.), Ernest W. Strangé, R.A.M.C.(T.F.); Temporary Captains William H. Rayner, R.A.M.C., David L. Williams, M.C., R.A.M.C. En Bronze: Majors Harold E. Griffith, T.D., R.A.M.C. (T.F.), Harry C. Sidgwick, Captains Ernest A.M.C., Eric M. Jardine, O.B.E., O.B.E., B. Pike Townse R.A.M.C.	En Fermeil: Brevet Lieut- S.R.). En Argent: Major- pay, late A.M.S.; Colonels Alexander D. Sharp, C.B., C.M.G., T.D., T.F., Charles P. Templeton, C.B.E., D.S.O., C.A.M.C., Albert G. Thompson, C.M.G., D.S.O., retired pay, late R.A.M.C., Hugh S. Thurston, C.B., C.M.G., C.B.E., retired pay, late R.A.M.C.; Lieut- Colonels Harold Collinson, C.B., C.M.G., D.S.O., T.D., R.A.M.C.(T.F.), Pierre Z. Rheume, C.A.M.C., Eugene Ryan, C.M.G., D.S.O., R.A.M.C.; Majors Henry D'A. Blumberg, O.B.E., T.D., R.A.M.C.(T.F.), John M. M. Crawford, O.B.E., R.A.M.C., Joseph A. Luesier, C.A.M.C., Michael J. Mahony, D.S.O., T.D., R.A.M.C.(T.F.), Arthur J. Mollison, R.A.M.C., George S. Parkinson, D.S.O., R.A.M.C., Alfred N. Rivet, C.A.M.C., Edouard C. Saint-Pierre, C.A.M.C., George H. Stevenson, O.B.E., M.C., R.A.V.C.(S.R.), Alan C. Turner, D.S.O., T.D., R.A.M.C.(T.F.); Captains Alfred J. Clark, M.C., C.A.M.C., James Jackson, R.A.M.C.(T.F.), Louis de G. Joubert, C.A.M.C., Joseph A. Lorrain, C.A.M.C., Ernest S. Stork, D.S.O., R.A.M.C.(T.F.), Ernest W. Strangé, R.A.M.C.(T.F.); Temporary Captains William H. Rayner, R.A.M.C., David L. Williams, M.C., R.A.M.C. En Bronze: Majors Harold E. Griffith, T.D., R.A.M.C. (T.F.), Harry C. Sidgwick, Captains Ernest A.M.C., Eric M. Jardine, O.B.E., O.B.E., B. Pike Townse R.A.M.C.
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Medical News.

The Fellowship of Medicine announces that on March 11th, at 11, Chaudes Street, Colonel F. E. Fremantle will deliver a lecture on the economics of public health at 5 p.m.; this lecture is open to all members of the medical profession. On the same day, at 5 p.m., Mr. E. T. C. Milligan will give a special demonstration in clinical surgery at St. Mark's Hospital, free to members of the Fellowship and to ticket-holders of its general course. A three weeks' course in gynaecology at the Chelsea Hospital for Women will begin on March 8th and last for three weeks. The daily afternoon demonstrations on the diagnosis and treatment of diseases of the eye continue throughout the week at the Royal Eye Hospital, beginning at 3 p.m. From March 15th to 26th the Hampstead General Hospital will hold a daily course for general practitioners from 4.30 to 6 p.m., including surgical and medical demonstrations and lectures. The London School of Tropical Medicine begins a series of eight clinical demonstrations on March 16th, and will continue for four consecutive weeks on Tuesdays and Thursdays at 2 p.m. Copies of all syllabuses and of the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

At a joint meeting of the Education and Medical Sections of the British Psychological Society to be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W.1, on Monday, March 8th, at 8 p.m., a discussion on the definition and diagnosis of moral imbecility will be opened by Drs. Cyril Burt, M. Hamblin Smith, W. Rees Thomas, F. C. Shrubbsall, and A. F. Tredgold. The chair will be taken by Dr. R. H. Cole.

At the meeting of the Zoological Society of London on Tuesday, March 9th, at 5.30 p.m., Mr. F. P. Stowell will make a communication on the purification of sea water by storage. Dr. Francis (Baron Nopcea) on heredity and evolution, and Dr. W. C. Osman Hill on a comparative study of the pancreas.

A SESSIONAL meeting of the Royal Sanitary Institute will be held on March 12th and 13th in the Town Hall, Hastings. Discussions will be held on "Mothercraft and fathercraft," and on the effect of the Public Health Act of 1925 on the work of municipal engineers and sanitary inspectors, under the chairmanship of Professor H. R. Kenwood. On March 26th a sessional meeting will be held in the Guildhall, Derby, when discussions on goitre and on some aspects of the housing problem will be held under the chairmanship of Dr. G. F. Buchan.

THE annual general meeting of the National Baby Week Council was held on March 4th, under the chairmanship of Dr. Mary Scharlieb, vice-president of the council. Addresses were given by Dr. J. R. Kaye, county medical officer for the West Riding, on the economics of maternity and child welfare, and by the Hon. Mrs. Bernard James on the rural child. The Astor silver challenge shield for the most effective local baby week campaign in 1925 was won by Northampton, and Astor banners by Littlehampton and Arundel, and Wigan Health and Baby Week Committees. Certificates of merit for baby week campaigns were awarded to six other districts.

At a meeting of the Pharmaceutical Society of Great Britain to be held at 17, Bloomsbury Square, W.C.1, on Tuesday, March 9th, at 8 p.m., a paper on British pharmacy and its relation to Continental practice will be read by Mr. Edmund White, B.Sc., past-president of the Society, to be followed by a discussion. Medical friends of members will be welcomed.

THE Council of Epsom College will shortly award a St. Anne's Home Scholarship of the value of £48 a year. Candidates must be between the ages of 7 and 12, and must be the orphan daughters of duly qualified medical men who have been for not less than five years in independent practice in England or Wales. Particulars can be obtained from the Secretary, at the office of the College, 49, Bedford Square, W.C.1.

AN exhibition of artificial sunlight (ultra-violet radiation) lamps and other electrotherapeutic appliances will be held in two of the evacuated wards of the west wing of the Middlesex Hospital between 11 a.m. and 6 p.m. daily from March 11th to 16th. The exhibition will be open, on presentation of visiting card, to all members of the medical profession, to members of public health committees, and to others directly interested in the working and application of the apparatus. The general public will not be admitted. There will be no charge for admission. The exhibition will be open also on the evening of March 10th, when the research laboratories of the Middlesex Hospital will be open for the inspection of invited guests.

A HOLIDAY course in children's diseases will be held from April 7th to 17th, at the Hôpital des Enfants Malades, 149, Rue de Sévres, Paris. The course will be of a comprehensive character, and include radiological examination, heliotherapy, and diagnosis and treatment in general. The fee for the course is 150 francs, and further information may be obtained from the secretary at the hospital.

A "DR. RUSSELL BED," dedicated to perpetuate the memory of the close friendship between Mr. Philip Jeffery Walker and the late Dr. James W. Russell, was formally accepted by the Lord Mayor of Birmingham on behalf of the General Hospital, Birmingham, on February 26th. The bed was endowed by Mrs. E. E. Walker, Mrs. Sydney Evershed, and Mr. T. Sydney Walker. On the same occasion a bed endowed by the Birmingham University students from the proceeds of the carnival last year was also accepted.

ON the occasion of his retirement, after fifty-two years' service as medical officer of health to the Tipton Urban District, Dr. A. S. Underhill has been presented with a cheque, publicly subscribed, for £327.

THE tenth international congress for the protection of infancy and maternity will be held at Madrid in the spring under the patronage of Alfonso XIII, with Dr. Martinéz Vargas as president. The following subjects, among others, will be discussed: (1) The influence of summer heat on the infant, (2) isolation of institutions intended for infants, (3) prophylaxis of infantile ailments, (4) prophylaxis of infections in infancy, and (5) protection of the mother during pregnancy.

THE fifty-third annual issue of *Willing's Press Guide*, described in the subtitle as the Advertisers' Directory and Handbook, has now been published. This yearbook provides an index to the periodicals of Great Britain and Ireland, a list of telegraphic news and reporting agencies, and of the principal colonial and foreign journals. It is published by James Willing, Ltd., at 2s. 6d.

Health and Empire, a new quarterly review, is to be published by the British Social Hygiene Council this month. It will deal with social hygiene generally, and the contributors to the first issue include Professors Cyril Burt, Leonard Findlay, Percy Nunn, and Dr. C. J. Bond.

THE Académie de Médecine of Paris has awarded the Prince Albert of Monaco prize of 100,000 francs to Professors Hédon of Montpellier and Laguesse of Lille for their respective works on the internal secretion of the pancreas and the organization of scientific work.

IN connexion with the annual Hospital, Health, Nursing, and Midwifery Conference and Exhibition to be held at the Central Hall, Westminster, from April 12th to 16th, one section will deal exclusively with health work performed by voluntary associations in the United Kingdom. Among the bodies which have already agreed to co-operate are the Central Council for Infant and Child Welfare, the Mothercraft Training Society, the British Red Cross Society, and the National Institute of Public Health.

THE first urological congress of the Union of Soviet Republics will be held at Moscow in the spring, when the following subjects will be discussed: tuberculosis of the genito-urinary tract, introduced by Professors S. P. Fedoroff and Kholzoff; and chronic gonorrhoeal infection, by Dr. Zaigracff, Professor Lejueff, and Dr. Finkelstein.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

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LETTERS, NOTES, ETC.

INDIVIDUAL OVERDOSE OF ULTRA-VIOLET RAYS.

DR. JOHN H. TONKING (Camborne) writes: An instance of possible injurious effects of ultra-violet rays came under my observation lately. A young woman was admitted to a nursing home for miscarriage at the fifth month under my care. During convalescence she informed me that she had been receiving "double doses" by a violet-ray "specialist" with a view to endowing her future offspring with great vitality.

HERPES AND VARICELLA.

DR. E. A. SEYMOUR (Hampstead, N.W.3) writes:—In view of the recent correspondence as to the connexion between herpes and varicella, the following case is perhaps worth recording: On January 24th Mrs. X, aged 42, developed herpes of the frontal nerve. The attack was severe, and the vesicles, which were large, had all appeared by January 26th. The temperature kept about 99° F. On January 31st it rose to 102° and a typical varicella eruption appeared. In neither case could any source of infection be traced.

AN ODD CAUSE OF DIARRHOEA.

DR. C. J. HILL AITKEN (Kilnhurst, near Rotherham) writes: A little girl of 3 had relaxed motions for some weeks. She looked in the best of health, and I wondered if possibly this looseness was natural to her. The mother gave a history of two masses of threadworms having been passed some time back, but only very occasionally now did she see even one worm. She volunteered the statement that the motions were such as one would expect after the taking of opening medicine. I elicited the presence of marked tenesmus on one occasion, without the passage of any motion. I noticed that the ends of the child's fingers were brown-stained, and drew the mother's attention to it. "That," said the mother, "is aloes, which, since she passed the worms, I smear on twice a day to prevent her sucking her fingers when she goes to bed. It is difficult to wash off." I substituted a quinine lotion for the aloes sticky mass, and in two days the motion was formed and remained so.

OCCUPATIONAL BURSA.

DR. J. FANNING (London, E.) writes with reference to the description by Mr. McAdam Eccles of "dustman's bursa" (*JOURNAL*, February 20th, p. 323) to report another form of occupational bursa which he has encountered recently. A painful swelling in the neighbourhood of the right knee developed in a bank clerk, and a distended and inflamed bursa over the ligamentum patellae was found to be present. The explanation appeared to be that the clerk in the course of his work had frequently to open and close drawers, and it had become a habit with him to close them with his knee.

A CRIMEAN VETERAN.

When we stated, in the obituary notice of the late Dr. A. C. W. Norton (*BRITISH MEDICAL JOURNAL*, February 20th, p. 354), that he "must surely have been the last surviving medical veteran of the Crimea," we were in error. We are informed that there is at least one such still living—Dr. James Duncan MacLaren, formerly of Glasgow, but now living in retirement at Elie in Fife. Dr. MacLaren took the M.D. Glasg. and the L.R.C.S. Ed. in

1854, and served during the Crimean war as assistant physician in the civil hospital at Renkiof in the Dardanelles. He subsequently became F.R.F.P.S. Glasg. in 1866, and was for many years physician to the Royal Infirmary and to the Western Public Dispensary in Glasgow, but has long since retired from practice. It is possible that there may be others still alive; the deaths of retired soldiers who served in the Crimea are still, from time to time, reported in the press.

INTRAVENOUS INJECTIONS OF TARTAR EMETIC IN BILHARZIASIS.

DR. F. G. CAWSTON, who writes from Durban (a city, he says, on the banks of three rivers known to be heavily infested with the bilharzia parasite), sends some observations on the treatment of bilharziasis. I have shown (he writes) that, unless very large doses of emetine are employed, it is essential to continue the treatment uninterruptedly for at least twenty-four days, but that the cardiac depression that so often occurs during the third or fourth week of the injections renders emetine a risky drug to use. Rectal injections of tartar emetic are far from satisfactory, because it is impossible to estimate the amount of the drug that will be absorbed through the bowel wall. A patient of 12 noticed the taste in his mouth a quarter of an hour after I had injected 8 grains into the bowel, but he showed no other symptoms; the previous day he had received a rectal injection of 4 grains. A native of 13 received 8 grains on the first day, 12 grains on the second, and 16 on the third day. On each occasion the solution was left in the bowel when he returned home, after lying down for half an hour. There were no toxic effects, except that the patient noted a taste in his throat about a quarter of an hour after each injection. The possibility of curing a patient by one dose of tartar emetic is very remote, and the risk of killing a large number of blood parasites in a short time and rendering them liable to be carried about in the blood stream is too great to warrant the use of heroic methods for this condition. Provided one is on the look-out for kidney-albumin in the urine towards the close of treatment with tartar emetic, and confines oneself to the use of a freshly prepared solution in a limited amount of saline, a course of intravenous injections, skilfully administered over a period of one month, may be regarded as non-toxic and as the method of choice for all cases where a suitable vein can be found.

INFANT WELFARE IN THE MALAY STATES.

The Infant Welfare Centre in Kuala Lumpur, Federated Malay States, which was opened in 1922, continues to flourish, as judged by the report for 1924 recently issued. Its staff now consists of one whole-time medical officer (Dr. M. Josephine Were), two European nursing sisters, and four health visitors. Certain curious superstitions have had to be overcome, such as that which for a time threatened to stop any regular weighing of the babies, but this is gradually being eliminated by means of posters and lectures to the Chinese, Tamil, and Malay mothers. Antenatal work is also well established, and a striking example of the value of this work is shown by the case of a woman who had had three stillborn babies and was found to be infected with syphilis. This was so effectively treated that the next baby was not only healthy but won first prize at a baby show some months later. This baby competition—held in July, 1924—was the first of its kind in the Federated Malay States, and, once the superstitions of the mothers had again been overcome, proved very successful, over 240 entries being received.

HEALTH OF THE MAORIS.

The general health conditions in New Zealand are sufficiently *ide* which that country takes in them. *ct* test when the health of the native *but* in this case it emerges from a close *sor*intiny with complete satisfaction. The Health Department of New Zealand has a division of Maori hygiene, which came into existence at the beginning of this century, and had for its first medical officer of health the first Maori graduate in medicine, Dr. Pomare, *ioneer* work in instituting *public* opinion on health *matters.* *Ce* *re* appointed some years *later* to do health work as Maori sanitary inspectors, and in 1903 another Maori medical officer of health was appointed, Dr. To Rangī Hīroa, who is now, after serving in the war, Director of the Division of Maori Hygiene. The native school teachers have been successfully encouraged to take an interest in the health of the school child, and medical examinations of the native school children date back to 1908. There are now over twenty native health nurses, who have been of the greatest service in coping with epidemics in the populous Maori districts and by their lecturing to the womenfolk they have become an important *educative* factor. Various pamphlets in the native language on the feeding of babies, typhoid, influenza, tuberculosis, etc., are distributed to the native population.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 87.

EXCRETION OF ALCOHOL IN THE URINE AS A GUIDE TO ALCOHOLIC INTOXICATION.

BY

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AND

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LECTURER ON FORENSIC MEDICINE, SHEFFIELD UNIVERSITY; SENIOR
POLICE SURGEON, SHEFFIELD.

(From the Pharmacology Department, Sheffield University.)

INTRODUCTORY NOTE.

BY

GODFREY CARTER.

WITHIN the range of forensic medicine there is no subject upon which medical evidence is more unsatisfactory than that appertaining to drunkenness. It is difficult to reduce a varying group of symptoms and appearances to a formula which can be stated; still more so to a definition which will convince a lay bench of magistrates that the symptoms described are really due to alcoholic consumption, and may not, individually and collectively, be ascribed to other causes; and yet the recognition of indulgence in alcohol presents few difficulties at the time. Every member of a social group can say with accuracy when a member of that group ceases to be normal and gives definite indications that sobriety has passed into insobriety. The picture is made up of many changes, subtle yet recognizable, in speech, appearance, manner, and conduct. It is something we can sense, but analyse and subsequently describe with difficulty.

When for legal purposes it comes to applying a number of tests—such as standing poised, toeing the line, standing immobile with closed eyes, repeating certain words or phrases, smelling the breath, and testing the memory of lapse of time, etc.—the results are very unsatisfactory. We have recently had experience of nerve specialists disagreeing with practitioners in court on the question of drunkenness, and all agreeing that our tests are inadequate and inconclusive.

No two men behave exactly alike under the influence of alcohol, or present the same combination of objective symptoms. The result is that many cases of accusation in the courts on the charge of drunkenness, where serious motor accidents have occurred, are wrongly dismissed for want of evidence which would be unanimously convincing to the bench.

I am sure that too much is made of one sign. It is almost the rule for the constable in charge to open his evidence by saying, "The accused smelt strongly of drink." Certainly my examination in many cases fails to confirm this. It is possible that it may be due to lapse of time since apprehension, but I think not. Does the smell of a man's breath, as regards alcohol, increase *pari passu* with the number of glasses of stimulant he has swallowed? I think not. At most the smell of the breath indicates that some alcohol has been consumed. Therefore I do not think the test is of much positive value; it is of importance in a negative sense. There are five signs to be observed in making an examination which influence me considerably, taken in association with the other symptoms. They are: (1) flushed face; (2) sweating; (3) dilated pupils; (4) congested eyes; (5) rapid pulse; and they are present in nearly all instances.

What we, and the courts, have to decide is, as Dr. Frederick Smith puts it in Taylor's *Medical Jurisprudence*: "Was the person's mental condition, which led to the proceedings, and caused him to behave in the manner he did, prior to his arrest, produced by alcohol? If so, he was drunk within the meaning of the proceedings."

In the majority of cases the police surgeon hears nothing of the charges of being drunk and disorderly which are considered every morning in the courts of our towns and cities, but of late years a more serious class of offence has

come into prominence in which the issues are of great moment morally and materially. I refer to charges of being drunk whilst in charge of motor cars. These offences are most frequently laid against people of some social standing. Serious or perhaps fatal injuries have been inflicted, as well as much damage done to vehicular property. Those charged realize the extreme importance to themselves of establishing their innocence under such serious accusations, and almost invariably make indignant denial. After the police surgeon has examined them they often demand the presence of their own medical advisers. Valuable time has been lost, even before the first doctor arrives at the charge office; more before the advent of the second. And this time factor is of great importance. All who have had experience of the class of case I am considering will agree that nothing sobers a man more quickly after a vehicular accident than finding himself in a police lock-up with the certainty of court proceedings in the morning. I am often impressed with this power of regained control, judging by a person's demeanour and behaviour in an hour's time, as compared with his proved state of instability when arrested and a knowledge of the things he has said and done. He will often go through the usual ambulatory, static, and oral tests with flying colours, so to speak, or fail in only one. Also he will take care to assert that any deviation from the normal which he may present is entirely due to the shock of a collision, with the added anger of the accusation made against him. Then comes further lapse of time, with its sobering effects, before the second medical examination is made. Afterwards in court the defending solicitor urges, in tones of indignant protest, that the cardinal signs of quick pulse, flushed face, and dilated pupils are but the result of an innocent man having been shaken by an accident, wrongly arrested, and charged afterwards with drunken conduct. If it be alleged that his breath smelt of alcohol he will probably state that he had partaken of a glass of liquor but was certainly not drunk.

I learnt from Professor E. Mellanby that Dr. Southgate,¹ who had done much work on the relation of alcohol in the blood and urine, was anxious to carry out an investigation to see if a knowledge of the concentration of alcohol in the urine was of any medico-legal value in the detection of drunkenness, but that for such work my collaboration was necessary. He suggested that it might be possible to state approximately the quantity of alcohol any person charged with drunkenness might have drunk, and that a study of the subject might lead to the determination of a figure representing the alcohol in the urine which would indicate a condition of definite intoxication of the individual, and certainly an unfitness to drive any vehicle on a thoroughfare with safety to himself and the public. Dr. Southgate was able to promise that, if I would procure specimens of urine from persons so charged, and give the time since the arrest, he would carry out the quantitative analyses and furnish me with the reports in an hour's time—that is, in time for the police-court proceedings. It seemed to me that the prospects of developing a simple test which could at least provide definite information that alcohol had been consumed was worth following up, and I gladly gave my assistance. In no work on forensic medicine could I find any reference to the estimation of alcohol in the urine, and it seemed to me probable that the development of the idea might be of service to this branch of medicine. It was at least clear that, in view of an examination of this kind, it would be of no use for a charged person to allege, as does happen, that he has not had any alcoholic beverage or only a small libation, for when alcohol is found in any quantity in the urine it has surely gone in at the mouth.

I arranged that a record should be kept, and an entry made in the police books, of the condition and appearance of persons when apprehended on the charge of drunkenness, and that specimens of urine should be obtained and sent to Dr. Southgate for analysis, so that it would be possible to compare the symptoms of intoxication as observed at the police station with the figures representing the alcoholic concentration in the urine. I obtained permission for a general order to be sent out to all stations within the city boundary that a sample of urine should be obtained in cases of this character as soon as possible after arrest.

A supply of blank labelled bottles was distributed with instructions for urines collected to be dispatched at once to the university, and I emphasized the necessity of quick bottling to prevent alcoholic evaporation. It was our desire to obtain if possible fifty samples before giving our results, but unforeseen obstacles were encountered. The number of specimens sent was so small that I instituted an inquiry into why instructions were not being carried out. Then a fact was brought to my notice, which I was soon able to verify—namely, that if there be one thing a drunken man will not do it is to empty his bladder when requested. He will make every excuse and tell you any manner of fairy tales, but he will not micturate to order, even with a distended bladder. I think he becomes suspicious. Stratagem was then my only resource. So we have set apart a particular cell for "drunks" at the central police station. The lavatory is boarded over loosely for a while. On one side wall a urinal has been affixed, the discharge pipe from which passes directly through to another cell and empties over a receptacle placed beneath it. Nothing is said to the suspect, no request is made, and we find that, in the seclusion of his temporary abode, Nature asserts itself, and we get our sample without difficulty or delay. On the bottle is placed the number from the charge book register, the time of arrest, and the hour when the urine was passed.

In cases of gross intoxication the condition is obvious, and hardly requires a medical man's examination, but still, even these cases are sometimes keenly contested. I think the great value of the urine tests will be in borderland cases, where alcohol has obviously been consumed, but in unascertained quantity, where the symptoms of intoxication are of moderate degree, and where it is alleged for the defence that so little alcohol has been consumed that the conduct complained of could not be attributed to that cause.

EXPERIMENTAL WORK.

BY

H. W. SOUTHGATE.

The idea of correlating the toxic effects produced by alcohol with the corresponding concentration of that compound in the urine is not new. Widmark² (1915) reported the results of examining the urines of 27 individuals arrested for alcoholic intoxication. The results varied from 450 to below 200 mg. of alcohol per 100 c.cm. of urine. Results with acetone were reported by him in 1919. Miles³ (1924) gave interesting comparisons of the toxic effects produced, with a corresponding alcohol urine concentration over a period of two hours, when a dilute solution of alcohol was given to six comparable subjects. During the last two years a study of the experimental data I had obtained of blood and urinary alcohol content in the case of three men convinced me that practical use could be made of the relationship between urine alcohol concentration and the corresponding toxic effect produced in the human subject. Miles had only worked with small doses of alcohol, the action of which could not be detected except by testing with instruments of precision, but the ratio results he obtained I have been able to confirm with much larger doses of alcohol, and extending over a much longer period.

In the light of results I had obtained in the case of my experimental subjects, whose consumption of alcohol was known, I thought it would be interesting to examine the alcoholic content of the urines of those arrested for intoxication. Before giving these data, and the symptoms of intoxication exhibited by the subjects when charged at the police station, I shall first state the experimental evidence upon which this method of examination is based. It will be more possible then to see in what ways the method can be developed by further work, what it is capable of indicating, and what are its limitations. I shall supply evidence on three points:

(1) The alcohol in the blood is related to the amount of alcohol consumed when this is imbibed under constant conditions.

(2) The relation of alcohol in the blood to alcohol in the urine is a fairly constant one in many circumstances.

(3) The concentration of alcohol in the blood is related to symptoms of intoxication of the central nervous system.

If these propositions can be established it is clear that the concentration of alcohol in the urine is also related to alcoholic intoxication. I shall describe and discuss the police court results in the light of the experimental data.

1. Alcohol in the Blood.

It is important to realize that the behaviour of alcohol in the blood is different from other substances eaten as foodstuffs. Most foods after digestion and absorption from the alimentary canal are either stored or oxidized by the body fairly rapidly, so that soon the blood shows no distinctive signs of their presence. This can be seen to happen to glucose, the end-product of carbohydrate digestion, in Fig. 1. After taking 75 grams of glucose

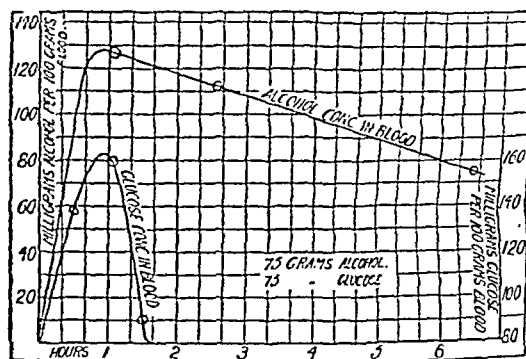


FIG. 1.—Difference between blood alcohol curve and blood sugar curve.

the amount of this substance had sunk to normal in one and a half hours. After drinking a solution containing 75 grams of alcohol it can be seen that even six and a half hours later the blood of a man contains a good deal of this substance—namely, 75 mg. per 100 grams of blood—and from the rate of disappearance, as evident on the curve, it would be present in recognizable amounts even twelve hours after the time of drinking. Thus, although the maximum concentration of glucose and alcohol in the blood after these have been taken by mouth is reached about the same time, glucose disappears quickly and the alcohol disappears slowly. The straight line indicating the rate of disappearance of alcohol from the blood is no mere coincidence. E. Mellanby⁴ was the first to show on dogs that after alcohol has reached its maximum concentration it disappears at a uniform rate from the blood. He showed the further remarkable result that the rate of disappearance of alcohol is independent of the concentration. Thus, in the case of a dog, increasing the amount of alcohol by mouth brings about a corresponding increase in the alcoholic concentration in the blood. This animal was given on different occasions a 20 per cent. solution of alcohol by mouth, containing respectively 55, 50, 30, and 20 c.cm. of absolute alcohol. In each case the alcohol was given when the stomach was empty. The points of maximum concentration of alcohol in the blood on the different occasions are 372, 357, 212, and 120 mg. per 100 grams of blood; these figures do not differ greatly from the ratios of the amounts of alcohol drunk—namely, 2.75:2.5:1.5:1.

Having now seen that there is a relationship between the alcohol consumed and the alcohol in the blood, when the alcohol is taken by the same individual under the same conditions, it is necessary to see whether there are conditions which tend to depress the alcohol concentration; for these same conditions will probably depress also the symptoms of intoxication if these two are related. Some of these will now be briefly mentioned.

(a) *Dilution*.—If two solutions, say of 5 and 20 per cent. strength, containing equal quantities of alcohol are drunk by the same individual under the same conditions, the

TABLE A.—The Variation of the Alcohol Concentration in the Blood and Urine of the Resting Subject with Varying Dietetic Conditions.

Food Taken.	Subject.	Alcohol Concentration in the Blood after—			Alcohol in Urine.		Alcohol in Urine. Alcohol in Blood.		Total Vol. Urine in 6½ hrs.
		1 hr.	2½ hrs.	6½ hrs.	2½ hrs.	6½ hrs.	2½ hrs.	6½ hrs.	
(a) No food	J. H. B.	146	148	87	193	114	1.37	1.37	1,700
	G. H. N.	151	148	78	199	103	1.39	1.34	1,559
	W. N.	160	154	85	212	126	1.39	1.40	2,303
(b) 530 c.cm. water	J. H. B.	142	145	81	205	127	1.41	1.56	2,216
	G. H. N.	130	141	74	199	104	1.41	1.40	2,290
	W. N.	170	154	92	197	125	1.28	1.35	2,125
(c) 530 c.cm. whole milk previously boiled	J. H. B.	114	130	58	186	87	1.43	1.50	2,311
	G. H. N.	123	134	62	184	100	1.37	1.40	1,878
	W. N.	Lost	141	71	195	101	1.39	1.42	2,655
(d) 530 c.cm. whole milk previously boiled and 183 grams bread	J. H. B.	106	116	48	161	70	1.39	1.46	1,513
	G. H. N.	125	116	45	162	58	1.40	1.26	2,085
	W. N.	123	123	49	180	82	1.46	1.67	2,251
(e) 530 c.cm. water and 183 grams bread	J. H. B.	Lost	125	58	163	83	1.30	1.43	1,905
	G. H. N.	137	126	62	164	92	1.30	1.48	1,788
	W. N.	159	143	70	191	114	1.34	1.63	2,160
(f) 50 grams separated milk powder, 183 grams bread, 500 c.cm. water	J. H. B.	101	117	44	146	67	1.60	1.50	1,836
	G. H. N.	140	123	52	154	76	1.25	1.46	1,847
	W. N.	157	130	52	182	78	1.40	1.50	1,936
(g) 50 c.cm. olive oil	J. H. B.	143	142	79	203	114	1.43	1.44	2,162
	G. H. N.	126	146	79	217	125	1.49	1.58	1,454
	W. N.	126	155	88	226	123	1.46	1.45	2,376

alcohol concentration will rise more rapidly and to a higher point in the case of the stronger solution, as Mellanby showed. In Fig. 2 will be seen the blood concentration curves of J. H. B. after 1,920 c.cm. of beer containing 5 per cent. alcohol, 1,200 c.cm. 8 per cent. aqueous alcohol, and after 235 c.cm. of whisky diluted with an equal volume of soda water, thus forming a 20 per cent. solution. In each of these three cases the equivalent of 96 c.cm. of absolute alcohol was taken on an empty stomach. The time of drinking was about the same in each case. It will be seen how the maximum concentration

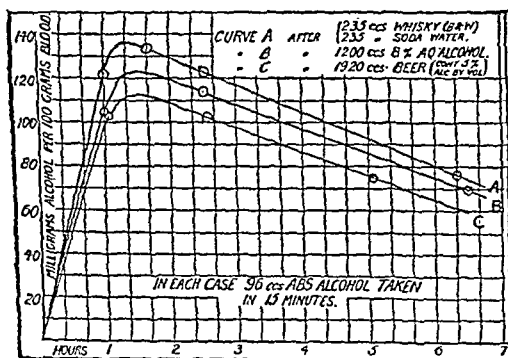


FIG. 2.—J. H. B. fasting.

risers with increasing concentration of the alcohol drunk. Therefore the more dilute the solution, the less will be the concentration of alcohol in the blood.

(b) *Rate of Drinking.*—Diminishing the rate of drinking alcoholic beverages will delay the accumulation of alcohol in the blood. The effect on the maximum point of concentration of alcohol in the blood depends on various factors. For instance, drinking modern beer of 5 per cent. strength to bring about real intoxication must in any case be a slow process, because of the large volume that must be imbibed to supply the necessary amount of alcohol. The amount of alcohol in beer that will take a normal man two hours to drink will be drunk with ease in five minutes in the form of whisky. During these two hours oxidation changes will be taking place in the body, so that about 10 c.cm. of the alcohol consumed will be removed each hour from the body. Thus the maximum point of concentration, apart from the question of dilution discussed above, will be lowered when the more dilute beverage is drunk. In considering any particular instance of slow drinking, as compared with rapid drinking, the two points must be considered: (a) how rapidly can the alimentary canal absorb the alcohol of the particular beverage drunk? and (b) how much alcohol will dis-

appear from the body in the interval? In all cases it can be said that the slower the rate of drinking and the more dilute the alcoholic beverage, the lower will the maximum concentration of alcohol in the blood and the more slowly will this be attained.

(c) *Food.*—All foods tend to depress the rate of absorption of alcohol from the stomach and intestines, and thereby lower the alcoholic concentration of the blood, but some have such a potent action in depressing blood alcohol as to appear almost specific. Among these foods

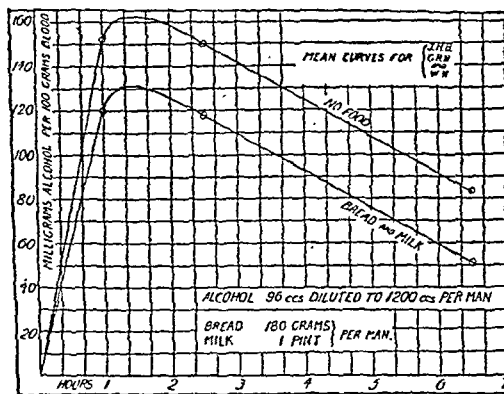


FIG. 3.—Resting experiment.

bread and milk stands out pre-eminent, as Mellanby has shown. It will be seen in Table A and in Fig. 3 that both bread and milk individually have this characteristic effect. It is quite certain that food in the stomach and small intestine greatly depresses the concentration of alcohol in the blood.

(d) *Size of Individual.*—Although it may be taken as a rough guide that the bigger the man the lower will be the concentration of alcohol in the blood produced by a definite amount of alcohol when all other conditions are constant, it does not seem to be always true. In Table B can be seen the maximum concentration in the blood of

TABLE B.

	Amount of Alcohol Drunk.	Dilution.	Max. Conc. of Alcohol in Blood mg. per 100 gr. Blood.	Weight in Kilos.
J. H. B.	96 c.cm.	8 per cent.	123 mg.	72
G. H. N.	"	" "	122 "	74
W. N.	"	" "	130 "	61
A. B.	59 c.cm.	20 per cent.	75 mg.	59.5
	"	" "	62 "	70

different men of varying weights after drinking alcohol when their stomachs were empty.

It will be seen that although in the case of J. H. B., G. H. N., and W. N. the alcohol concentration was roughly inversely proportional to their weight, in the case of A. and B. the ratio was reversed, the heavier man

having the higher concentration of alcohol in the blood when the same quantity of alcohol was drunk by each. It may be stated that A. was fatter at the time this examination was made than usual, his normal weight being about 70 kilos, and this may partially explain the discrepancy. The point needs further investigation. The blood and urine concentration curves for A. and B. are shown in Fig. 4.

(e) *Tolerance*.—It has been shown by Schweisheimer¹ that if abstainers, moderate drinkers, and heavy drinkers take the same quantity of alcohol when other conditions are equal, then the concentration of alcohol in the blood is highest in the abstainers and lowest in heavy drinkers. For some unknown reason the imbibed alcohol is never fully manifested in the blood stream of the alcoholic. Some of his results on these different classes of people are shown in Fig. 5. It will be seen that, although Case v drank

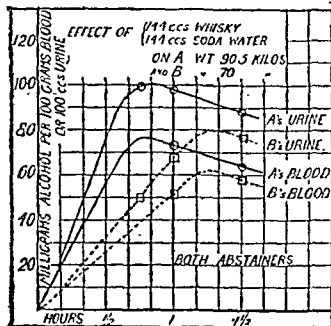


FIG. 4.

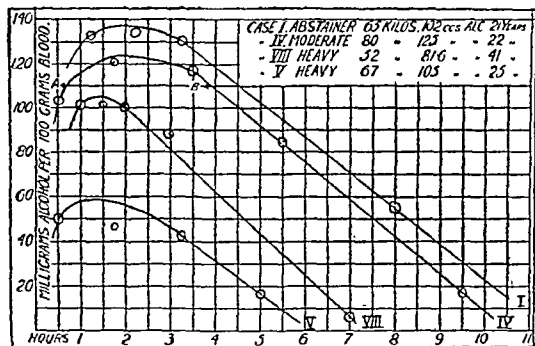


FIG. 5.—Four cases from Schweisheimer's paper.

about the same amount of alcohol as Case I (105 c.cm. as against 102 c.cm.), although their weight and ages were approximately the same, yet the maximum concentration of alcohol in the blood of Case v (heavy drinker) only reached 59 mg. per 100 grams of blood, as compared with 138 mg. per 100 grams of blood in Case I (abstainer).

The main conditions which influence the concentration of alcohol in the blood, so far as they are known, have now been described. It will be seen that, for a given quantity of alcohol drunk, increased dilution, slower drinking, food in the stomach and alimentary canal, and especially bread and milk, an increase in size of the individual (except possibly when increase in size is due to fat), and tolerance to alcohol as seen in the toper, all tend to depress the alcoholic concentration in the blood. It would appear that the maximum concentration of alcohol is produced by a given amount of this substance when a concentrated solution, say in the form of spirits, is rapidly drunk on an empty stomach by one unaccustomed to alcohol. It seems safe to say that if such a person of a known size develops a maximum alcoholic concentration in the blood of x mg. per 100 grams of blood when he has drunk y c.cm. of alcohol, then any other person of similar size found to have a similar amount of alcohol in his blood must at least have drunk a similar quantity or more of alcohol. Thus, by taking a number of normal individuals, such as has been done in the cases above of J. H. B., G. H. N., and W. N., and determining their blood alcohol

after drinking definite quantities in a concentrated form, on an empty stomach, it would be possible to find figures which would represent the minimum amount of alcohol which would produce a definite quantity of alcoholic concentration in the blood. For instance, a 20 per cent. solution of alcohol in the form of whisky containing 96 c.cm. of alcohol, produced, when drunk rapidly on an empty stomach, a maximum concentration of:

136 mg. per 100 grams of blood in J. H. B.
134 " " " G. H. N.
141 " " " W. N.

In these men, and in men of similar size, these concentrations of alcohol in the blood might be produced by imbibing similar quantities of alcohol, but, in practice, they would probably be due to drinking more than the quantity used in the experimental determinations, which are the optimum for producing the highest and most rapidly reached concentration.

Thus it would appear possible, from a determination of the blood alcohol in control cases known to have drunk specific quantities of alcohol under definite conditions, to decide that a concentration of alcohol in the blood of tested individuals could only have been produced as the result of drinking not less than a certain quantity of alcoholic beverage.

2. The Relation of Alcohol in the Blood to Alcohol in the Urine is Fairly Constant in many Circumstances.

Besides having the property of remaining in the blood for many hours after being drunk, alcohol has another characteristic in that, however small may be the quantity in the blood, a higher concentration appears in the urine within half an hour of ingestion. The kidneys cannot, in fact, restrain the passage of alcohol, but actually appear to concentrate it in its passage. So long, therefore, as alcohol is present in the blood after drinking this substance, alcohol can also be detected in the urine.

Nielow,⁶ Widmark,² and Ambard⁷ found that the concentration of alcohol in the blood and urine at any time was the same, but Miles³ showed that this was only so for about the first half-hour after drinking alcohol. After this time the concentration in the urine is always higher. My own figures corroborate, with larger quantities of alcohol and over a longer period, what Miles found with small quantities. In Table 'A' it will be seen that the ratio of alcohol concentration in the urine to alcohol concentration in the blood in the three subjects J. H. B., G. H. N., and W. N., after they had drunk an 8 per cent. solution of alcohol containing 96 c.cm. of this substance on an empty stomach, varied between 1.34 and 1.40 in six samples taken. Since these figures were obtained the writer has

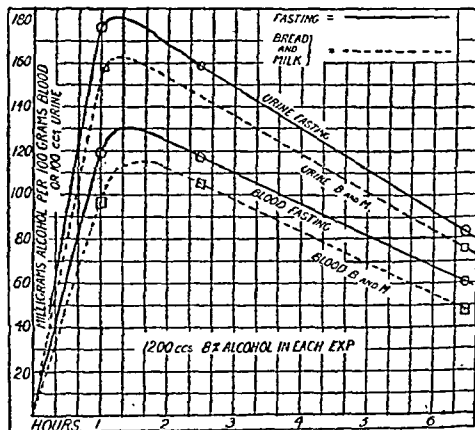


FIG. 6.—Blood and urine alcohol concentration curves of G. H. N.

carried out further estimations at the hour and two and a half hour intervals. The mean from seventeen results at the one hour interval works out at 1.32 for the ratio,

and the mean of the ratio at the two and a half hour interval in thirty-one experiments works out at 1.37. Some of these results are shown graphically in Figs. 6 and 7.

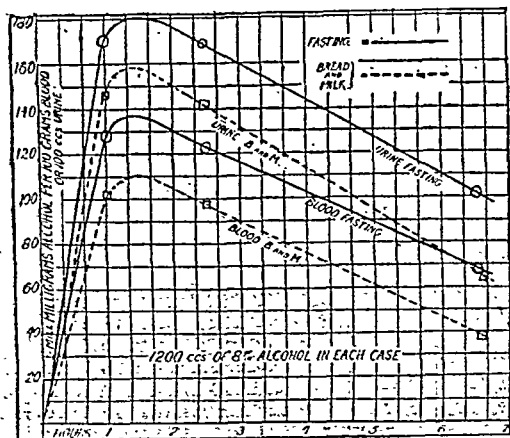


FIG. 7.—Blood and urine alcohol concentration curves of W. N.

In Fig. 4, which shows the alcohol concentration in blood and urine of two other subjects, A. and B., after drinking 144 c.cm. of whisky containing alcohol in a dilution of 20 per cent., the mean ratio of alcohol in the urine to alcohol in the blood one hour after drinking the alcohol is 1.35. It may be accepted, therefore, that when alcohol is drunk on an empty stomach the ratio of these concentrations of alcohol after one hour is a fairly constant figure of the order of 1.35.

It is surprising how constant this figure is. In Table A it will be observed that, when the drinking of alcohol is preceded by drinking water or milk, or eating bread and milk, or bread and water, or olive oil, the ratio of the concentrations of alcohol in the urine and alcohol in the blood remains the same, the average being about 1.40. It would appear, in fact, that food makes no difference to this ratio.

It would be expected that diuresis would influence the ratio, but here again this does not seem to be the case. The following table gives the results of exactly similar experiments carried out on the same subject, but separated by an interval of seven months. In each case the man (J. H. B.) drank 1,200 c.cm. of 8 per cent. alcohol on an empty stomach. The resulting blood and urine concentration curves were practically the same in each case, but on the first occasion, for some unknown reason, he passed 500 c.cm. more urine in the experimental period. The following figures were obtained:

Ratio of Urine Alcohol to Blood Alcohol.			Total Volume of Urine passed in 6½ hours.	Mean Concentration in Urine.
1 hour.	2½ hours.	6½ hours.		
1.32	1.37	1.37	1,700 c.c.m.	148
1.34	1.35	1.39	1,203 "	146

The important point is that the increased flow of urine in the first experiment has not altered the ratio of the urinary and blood concentration of alcohol—a fact which Miles also noted. If, as seems to be the case, there is this fairly constant ratio between urinary and blood alcohol concentration under widely different conditions, all the circumstances described above, as influencing alcohol in the blood can probably be regarded as having an equal and similar effect on the urinary alcohol. Thus slower rate of drinking, the dilute alcoholic beverage, the presence of food, and especially bread and milk in the stomach and intestine, tolerance as the result of constant drinking—all these conditions will tend to depress the alcohol concentration of the urine. On the other hand, a concentrated solution of alcohol drunk rapidly on an empty stomach will give the maximum concentration of urinary

alcohol for a given quantity of alcohol imbibed. Thus, in this case also, it ought to be possible to say, on the basis of control experiments, that a certain concentration of alcohol in the urine can only be produced as the result of drinking not less than x c.cm. of alcohol.

3. The Concentration of Alcohol in the Blood is related to Symptoms of Intoxication of the Central Nervous System.

Increasing the amount of alcohol drunk increases both the alcoholic concentration in the blood and the symptoms of intoxication. Gréhant showed that with increasing quantities of alcohol drunk not only did the point of maximum concentration of alcohol in blood rise, but this remained for a longer time at a high level, thus forming a plateau—the so-called Gréhant plateau. At this stage the animal or man remained for long periods in the "dead drunk" condition.

In Fig. 5, which represents the result obtained by Schweisheimer on abstainers, and moderate and heavy drinkers, it is seen that the concentration of alcohol in the blood of heavy drinkers is much lower than that of abstainers when similar quantities of alcohol are drunk. Schweisheimer considered that this is the reason why the "topers" are less affected than the novices. The symptoms in each case are related chiefly to the amount of alcohol in the blood. One of his conclusions—for which, however, there is no actual evidence in his paper—is that symptoms of intoxication are exactly parallel to the increase and decrease of the alcohol in the blood. To illustrate this from an actual curve he maintained, for example, that the toxic effect of an alcohol concentration in the blood at A (Case IV), a point where the concentration is rising to a maximum, was the same as that at B, a point equal in concentration where the curve is falling. Mellanby pointed out as a result of his experiments that the intoxication at A is greater than at the same level B. Later Miles found a similar result with smaller amounts and weaker concentration of alcohol. This difference between the intensity of intoxication at points of equal alcohol concentration of the blood on the upward and downward curve is probably relatively small with higher concentrations of alcohol in the blood and urine, and does not prevent the blood alcohol being recognized as a fair measure of a man's condition of intoxication. How closely intoxication runs to the blood alcohol was shown by the amounts of alcohol in the blood of a subject of Mellanby who drank the same amount of alcohol under three different conditions: (A) in the form of 20 per cent. solution of whisky on an empty stomach; (B) in stout of strength 5.5 per cent. on an empty stomach; and (C) in stout of 5.5 per cent. strength, but taken two hours after the subject had eaten a basin of bread and milk. As might be expected from the earlier remarks, the concentration of alcohol in the blood was highest in (A), lower in (B), and more depressed in (C) by the bread and milk. Corresponding with these alterations in blood alcohol was the power of the subject to draw a simple diagram. After drinking whisky the rapid rise of alcohol in the blood was accompanied by great inco-ordination in the power to draw, and the descent in the curve by a corresponding recovery.

Referring back to Fig. 2, we see the difference in the maximum concentrations produced by different concentrations of alcohol, and the subject showed corresponding intoxication in the region of maximum concentration. After whisky he showed definite symptoms of gross intoxication. In the case of the 8 per cent. alcohol there were no symptoms of gross intoxication; but his powers of co-ordinating, as tested by Mellanby's method of getting the subject to reproduce a given diagram, were impaired for a considerable period. This same test, applied to the subject after he had drunk the beer, showed such small differences that they are not worth recording.

Method of Applying the Test.

From the experimental evidence given above it is concluded that a knowledge of the concentration of alcohol in the blood is the best guide to alcoholic intoxication. There are obvious objections to the direct method of obtaining the blood concentrations by taking blood

samples, but the above evidence shows that the indirect method of deducing the blood concentration from a knowledge of the urine alcohol concentration gives a close approximation. The problem is to estimate the blood alcohol concentration at the time of arrest. The time of arrest is always noted by the officer. On arrival at the police station the defendant is requested to empty his bladder completely. This specimen of urine should be kept and analysed, even though the resulting figure will give only the mean alcohol concentration over a previous period of unknown duration, but even this figure is of value. The important sample is the next one, which is obtained at the end of, for example, another fifteen minutes. Since only 5 c.cm. of urine are required for doing a duplicate test and for testing for sugar and albumin, the time interval required for this further secretion of urine is not a long one. Let us suppose it is fifteen minutes. Analysis of this sample will give the mean concentration for this interval, or the actual concentration at seven minutes from the time (which will have been noted) when the bladder was evacuated. If the figure 1.35 be taken as the ratio of urine alcohol to blood alcohol, the blood alcohol concentration at this seven-minute interval can be calculated. Knowing this figure and the time interval between the arrest and emptying the bladder, the blood alcohol concentration at the time of arrest is calculated from the fact that alcohol concentration in the blood falls at the rate of about 12 mg. per hour per 100 grams of blood.

There remains for discussion the question whether a blood alcohol concentration figure could be experimentally determined which could be considered as an upper limit as regards the fitness of a person to be in charge of a car. In the opinion of the present writer this is possible if suitable tests, especially those involving judgement, are carried out under actual driving conditions. It is suggested that a number of subjects, used to driving a car, be selected, among these being abstainers, moderate drinkers, and heavy drinkers. These could be put through a series of driving tests (to be decided upon) in such a school as, for example, that in which the drivers of the London General Omnibus Company are tested. If the efficiency of these individuals was determined by these tests before alcohol was given and then afterwards when alcohol had been given to each subject in sufficient quantity to produce approximately the same concentration in the blood and urine of each man, it is maintained that from the results obtained a maximum safety level could be fixed upon for the blood and urine alcohol concentration. It is suggested that this figure be used for comparison with that obtained at the time of arrest of the person accused of being drunk in charge of a car. The writer maintains that this is the only scientific method of estimating intoxication at the time of arrest. The experimental evidence given above shows that there is a basis for the method, which it is hoped may be tried out more fully and under actual driving conditions.

The method of estimating alcohol in the urine is that of Cannan and Sulzer.⁹ It is admirably adapted for such a test, as it can be carried out within half an hour and with as much accuracy as the fat in milk can be estimated. No bodies present in normal urine interfere with the estimation. The effect of the so-called acetone bodies is shown by Table C. It is obviously small, and a routine test with Fehling's solution at once puts one on guard.

TABLE C.

To Test the Effect of Substituting Acetone for Alcohol under the usual Conditions of Estimation.

26.5 mg. of acetone dissolved in 5 c.cm. of water were passed through the apparatus under the same conditions as when estimating alcohol. The result, calculated as alcohol, equals 3.1 mg. of alcohol.

Thus 8 mg. of acetone are equivalent to 1 mg. of alcohol under the experimental conditions.

Tests on Diabetic Urines, from Subjects who had had no Alcohol.

Case 1.—Symptoms severe—air hunger, etc. Urine contained 24 mg. (reckoned as alcohol) per 100 c.cm.

Case 2.—Symptoms not so severe. Urine contained 9 mg. (reckoned as alcohol) per 100 c.cm.

The result with pure acetone makes one doubt whether the 2 to 4 mg. of reducing substance present in normal blood is an acetone body, as has been suggested.

TABLE D.—Summary of Police Court Cases.

No.	Interval.	Urine Alcohol.	Police Remarks.
1	mins. 95	mg. 328	When arrested smelt of drink, was unsteady in his gait, and very talkative.
2	5	383.	This man was unsteady in gait, incoherent in speech, and appeared dazed. Stated he had been drinking spirits. Completely drunk.
3	72	380.5	This man was not able to walk without assistance, and was inclined to his left of drink, and he speak fairly clearly, and stated he had had at least eight pints of beer to drink.
4	15	257	This man had had a considerable amount of intoxicants. His breath smelled of drink. He was very talkative and inclined to be merry and boisterous. His speech was intelligent, and altogether I was of the opinion that he was a person used to taking quantities of alcohol. Certified to be fit to drive a car by police surgeon 45 minutes after arrest.
5	5	323	This man was unsteady in gait, particularly incoherent in speech, and very noisy. His breath smelled of alcohol, and he appeared a typical case of drunkenness. Said he had had six pints of beer.
6	5	232	Unsteady gait, breath smelled strongly of alcohol, quarrelsome.
7	30	356.5	Very talkative. Unable to walk without assistance and smelled strongly of drink.
8	10	316	Unsteady in gait, breath smelled strongly of drink. Inclined to be quarrelsome. Appeared a typical case of drunkenness.
9	10	349	Very unsteady in gait. Breath smelled of alcohol. Was quarrelsome and used obscene expressions.
10	4	315	Very unsteady in gait. Breath smelled very strongly of alcohol. Persisted in the use of obscene language in the cells. Also sang the "Red Flag" when not using foul language.
11	154	223.7	Face flushed, eyes bloodshot. Talked very excitedly, and refused to be seated when asked. Would persist in walking about the office. Smelled strongly of drink, and in order to try to keep a steady gait had to make forced movements of the muscles of his body.
12	23	321.6	Smelled strongly of drink, and stated he had been drinking bitter beer. Had almost lost control of his legs and could not walk without assistance. Did not show any stupidity, but talked all the time in a jocular manner.
13	7	361	Smelled strongly of drink, unsteady in gait. Had fallen and injured nose previous to arrest. Incoherent in speech; inclined to be merry and nasty alternately. Appeared generally to have had plenty of drink. Stated next morning he had had beer and then rum.
14	134	363.5	Unsteady in gait, smelled strongly of drink; said to have consumed several kinds of liquor. Was very drunk.
15	2	270	Unsteady in gait, smelled strongly of drink, sullen and rather quarrelsome. Was rather intelligent when spoken to, and able to give all particulars of himself.
16	13	326	Very unsteady in gait; incoherent in speech; breath smelled of alcohol (should say spirit). Eyes were not alert, but required effort to move. Used obscene expressions, alternating with snatches of song.
17	7	191	Very unsteady in gait; incoherent in speech. Appeared dazed and not able to speak intelligently; was not able to give any particulars of himself. Breath smelled strongly of drink.
18	10	331.6	Unsteady in gait, particularly incoherent in speech.
19	128	329	Incoherent in speech; unsteady in gait; eyes not alert. Breath smelled of alcohol. Inclined to be quarrelsome. Said he had had beer and spirits.
20	169	220.4	Flushed face; very excited; unsteady gait. Breath smelled of alcohol. When placed in the cell started singing, then slept for two and a half hours.
21	10	436.8	Incoherent in speech; very unsteady in gait; eyes very dull; seemed very stupid. Too drunk to give any account of himself. Could not stand without support.

TABLE D (continued).

No.	Interval.	Urine Alcohol.	Police Remarks.
22	mins. 14	mg. 164	Had been found on tramcar two and a half hours before and taken to hospital, where stomach pump had been used, the doctor stating he was drunk. Pale face, unsteady in gait. Breath smelled of alcohol. Gave particulars of himself intelligently.
23	195	326	The prisoner was in a helpless condition. Her breath smelled strongly of alcohol. Speech was incoherent.
24	15	172	Very unstable; unable to stand without assistance. Flushed face, incoherent speech. Must have had a considerable amount of alcohol.
25	65	278	Face very pale; eyes very wild. Excited when she first entered the police office. Calmed down when questioned. Smelled of drink. Unsteady in gait; had to be assisted to walk. Stupid at times, but showed no violence.
26	50	360	
27	55	367	

The above table (D) is a summary of the twenty-seven police court cases examined.

Most of these are cases of pedestrians suffering from gross alcoholic intoxication. The alcohol concentration figure given is, with the exception of Case 4, the mean figure for a previous period of unknown length. The motorist cases are numbers 4, 11, 26, and 27. These results illustrate some of the weaknesses in the present-day methods. In Case 4 the defendant had a blood alcohol concentration when arrested of at least 180 mg. The charge of having been drunk three-quarters of an hour earlier was dropped when the police surgeon examined him forty-five minutes after arrest and certified him to be fit to drive a car. In Case 11 no special sample was obtained—the figure was a mean concentration. Having ('unawares') driven his car on the pavement and knocked two people down, and on returning to the wrong side of the roadway having knocked down a cyclist, he could only confess his guilt. Case 26, one of those referred to in the Introduction, is that of the defendant said to be suffering from the effects of influenza; Case 27 is that of No. 26's passenger, who admitted his guilt.

SUMMARY.

We have given evidence to prove:

- (1) The inadequacy of present-day methods of estimating alcoholic intoxication, particularly that of the motorist, who, while showing no signs of gross intoxication, may yet be unfit through alcohol to be in charge of a car.
- (2) That the concentration of alcohol in the blood is the best measure we have of alcoholic intoxication.
- (3) That the concentration of alcohol in the urine is proportional to that of the blood under all conditions so far examined, and have shown that a fairly constant ratio holds which enables us to deduce one concentration from the other.
- (4) That it is possible by this means to obtain a close approximation of the blood alcohol concentration of a person at the time of arrest, and therefore of the degree of alcoholic intoxication.
- (5) That the work justifies tests being carried out to establish an upper limit of blood alcohol concentration for a person to be fit, after taking alcohol, to be in charge of a car.

It is with pleasure that I acknowledge my indebtedness to Professor Edward Mellanby, in whose laboratory my work has been carried out, for his help and criticisms. Also my thanks are due to the True Temperance Research Committee, who have defrayed the cost of my work.

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PUERPERAL MORTALITY.*

BY

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I READILY accepted the invitation of your chairman, Dr. Rocyn Jones, to be present at this meeting of the Monmouthshire Division because, as one of my colleagues on the Welsh Consultative Council, I know him to be keenly interested in the subject of puerperal mortality, and I gather the intention is that I should offer some observations, by way of preamble to the discussion, by the Division, of the interim report of the Puerperal Morbidity and Mortality Committee of the British Medical Association, of which I have the honour to be chairman.

It is admitted, as regards both mortality and morbidity, that there is much room for betterment in this important sphere of medical practice, and that we in Wales and Monmouthshire have especial reason to give the subject our closest and most earnest attention. I feel sure, Sir, that you, in the influential role of county medical officer, must feel as I do in the capacity of a teacher, and as, I believe, those more highly placed in official circles must also feel—that it is easier to fulminate against the general practitioner or the midwife, or both, from the lectern or office chair than to strive, in season and out of season, to render available those conditions of service which are essential for the elimination of many of the factors contributory to the mortality and morbidity rates.

It is undoubtedly true that, if it were possible, a zealous, unvarying application in all the phases (including antenatal) of midwifery practice, and by all persons and bodies concerned therewith, of that knowledge which we already possess would result, even in prevailing environmental conditions, in striking improvement. It is true, too, that, short of this ideal unity of effort, each of us can contribute his quota toward improvement by conscientious use of that knowledge.

Unless and until, however, further knowledge emerges to illumine some aspects of the problem, there will still always remain a mortality rate sufficiently large to engender concern. It was this consideration, I think, which led the Puerperal Morbidity and Mortality Committee of the Association to submit to the Council a recommendation urging that provision should be made for investigation into the factors which constitute and the conditions which vary resistance to disease, particularly as regards pregnancy and the puerperium. The Council readily concurred, and the recommendation has been referred to the Science Committee of the Association.

The principle underlying the oft-quoted legend which spans the portals of the New York Health Department—to the effect that public health is purchasable, and that, within limits, a community can determine its own death rate—has a very real application to the State responsibility aspect of this question.

To provide those requirements in personnel, equipment, and institutional accommodation, to name no others, which, by common consent, are essential to further lasting improvement in puerperal mortality and morbidity, means money in substantial amount; and let me add that whilst the professional services rendered must be met, in order to secure efficiency, with adequate remuneration, the expenditure under that heading would be by no means the largest item.

In health matters, as in some other concerns, it is extraordinarily difficult to arouse genuine and sufficiently sustained public interest. It took many years of propaganda work, acting on the principle of the summation of stimuli, to convince the public, and, indeed, many members of our own profession, of the need of the Midwives Act, and to bring home the fact that on the date of securing that enactment we were many years behind other civilized communities.

In its own effective, though perhaps undiscerning, way an aroused public opinion will ultimately insist on Parlia-

* Paper introductory to a discussion by the Monmouthshire Division of the British Medical Association, February 26th, 1926.

ment devising such economies in other directions as will permit of the necessary funds being provided. I confess, however, to hearing the other day that during the proceedings at a women's political conference, when the question of national expenditure was under consideration, a rhetorical appeal from the platform, "Shall we have battleships or babies?" was met by the reply from one lady, "Give me a battleship every time."

That phase of the genius of our country which is expressed in the evolution and development of our voluntary hospital system, as we know it to-day, has blinded successive Governments to their obligation to provide, as the Governments of other countries have provided, adequate moneys to cover the expenses of trained personnel, of equipment, and of premises concerned in the conduct of the costly research into matters concerning the health of the people. A few years ago a beginning was made in the establishment of the Medical Research Council, but the funds at the disposal of that very able body represent a small proportion only of the amount which could and should be expended. In this, as in so many other spheres of good service, voluntary effort has blazed the trail and is working towards the development of a highway, and I can imagine no more beneficent or hopeful project to endow than the research along the lines which are now contemplated.

There are not a few signs which go to show that good results are following the propaganda of recent years, and that as experience accumulates we ourselves, as well as those even more directly concerned—to wit, the mothers—are becoming more convinced of the value of ante-natal observation, advice, and, where necessary, treatment.

The public ultimately judges by results, and where, consciously or subconsciously, it is apprehended that, in given smaller or larger areas, ante-natal attendance is followed by a very real diminution in the incidence and gravity of the diseases and accidents of childbirth, there is no lack of patronage of the clinic or of the surgery. An essential condition, however, to a successful degree of appreciation by our patients of ante-natal attendance is their knowledge of the availability, should occasion arise, of adequate facilities for any necessary treatment, institutional or otherwise. I know of several instances where the knowledge of the provision of the contingent use of maternity beds has multiplied the ante-natal work in private practices and at the clinics of local authorities.

The absence of this principle of the "carry-through" provision constitutes, in my opinion, one of the heaviest handicaps to anything like efficiency in the notification of "puerperal fever," and an effective system of notification is essential to the success of our attack upon the largest single factor in puerperal morbidity. A later report from the committee will deal with this highly important subject, which, it is believed, is now engaging the anxious attention of the Ministry of Health.

The difficulty must be to decide whether notification shall apply to (a) cases in which diagnosis of puerperal infection may be presumed to have been established, or (b) all cases of sustained puerperal pyrexia. If the former, then the indications for early treatment and the prevention of the spread of infection may well be prejudiced; and if the choice be for the latter method, then, though the notification may be early, the many cases to be investigated and the many processes to be brought into play in their investigation may overwhelm even a large and costly addition to the administrative machinery existing at present, or even, indeed, that contemplated by the different schemes which the amazing overlapping of the various health agencies is forcing on to the screen.

It is truly difficult to comprehend, from consideration only of the bulk of the work involved, how the local authorities can be expected to comply with the recommendation that there should be an investigation in every area by a competent and experienced medical officer of all maternal deaths, and of all cases of puerperal fever, and all stillbirths and neo-natal deaths, with a view to ascertaining and preventing the causes likely to lead to maternal or infantile mortality.

I think it will be agreed, too, that the amount of the work would not be the only handicap to the satisfactory

discharge of this added range of duties. While practitioners and midwives must bear their share of the responsibility for the breakdown of notification, it must be borne in mind that, under prevailing conditions, objection is frequently raised by the lying-in woman herself or by her relatives and friends. Notification which results in nothing beyond visitation by various officials cannot be other than unpopular, but if and when it is followed by helpful service, and, where necessary, institutional treatment, the prospects of its acceptance and efficiency are assured.

Again, the existence and even the persistence of a rise of temperature in childbed is far too often regarded by the patient and her friends with the minimum of concern. I know, indeed, of some rural areas in Wales where lingers still a tradition that a mother recently confined *must* have a rise of temperature, the condition being dignified by the title "brad-gyfarfod," which, my friend Dr. Llewelyn Williams tells me, freely translated may be taken to mean "a combative meeting." The lochia and the mammary secretion are regarded as the principals in the combat. The mists of such superstitions and of many harmful practices based on ignorance are rapidly disappearing in the light of the wise propaganda conducted by many of our colleagues, by the health authorities, and by the various philanthropic bodies, and an informed public opinion not only asks why, if this mortality and morbidity are in large part preventable, they are not prevented, but is, I believe, ready as never before to support by practice and precept all reasonable measures to make that prevention an objective. Our duty as a profession is to strive, individually and collectively, to meet that aspiration so as to secure the best possible results.

The British Medical Association has taken the matter in hand, as one of profound importance, and our Committee is in touch with the overseas Branches. It has become, indeed, an international concern. It is gratifying to observe the many signs that the Interim Report has aroused the deep interest of our Divisions and Branches, for I am convinced that our Association is the only body which can mobilize the profession to make a real and effective advance, not only in matters medico-political, but also toward the solution of this problem, which intimately engages all its spheres of work, from the most technical bacteriological and biochemical research, through the ranges of hospital practice and investigation, to the clinic and the ultimate domicile.

The Divisional replies to the questionnaire will be analysed by the Committee, and before a further report, with recommendations, is submitted to the Council, the Committee hopes to have the great advantage of conferring with representatives of the Ministry of Health, the Medical Research Council, the Obstetrical and Gynaecological Section of the Royal Society of Medicine, the Society of Medical Officers of Health, and the Central Midwives Board, to which bodies the Council will issue invitations. The report and recommendations will in due course come before the Representative Body after consideration by the Divisions.

I want to see our powerful Association throwing its whole weight into this great problem, which seems to me to call for its influence in initiating research, its unrivalled capacity through the Divisions for initiating or amending clinical methods, and its experienced medico-political skill—in other words, the basis, the adjutant, and the vehicle of a life- and health-saving combination.

It is sometimes forgotten that the Association, as such, is by far the largest purveyor to the profession in this country of all that concerns the practical application of the science and art of medicine, and I have heard it suggested that a logical development of that status would find a much appreciated expression in arrangements by the Association whereby demonstrations may be given, as occasion arises, of any of the newer clinical methods of investigation or treatment. Such demonstrations could take place at convenient centres (hospitals or other buildings) in London and throughout the provinces. I can well believe that such provision would be of eminent service in connexion with the topic we are considering.

There are not a few who regard the outstanding medico-political achievements of the Association as an over-developed salient, and that the general line, including the

clinical interests, needs bringing up. I am a firm adherent of the policy of the salient, but the extent to which we bring up the line is the measure of our consolidation in the confidence of the profession and the esteem of the whole community.

MATERNAL MORTALITY AND MORBIDITY.*

BY

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THE passing of the Midwives Act in 1902 was an epoch-making event. I hope that the two reports—that by Dame Janet Campbell, issued by the Ministry of Health, and that by the Scottish Committee—will lead to other reforms of almost equal importance. In 1923 living births numbered 758,131 and maternal deaths 2,892, or 3.81 per 1,000. Of these, puerperal sepsis accounted for more than one-third, and eclampsia for one-ninth, so that deaths from other causes were 1,552, or about 2 per 1,000. But, as every practitioner knows, these figures do not tell the whole story. They do not indicate the terrible amount of ill health due to pregnancy, much of which is avoidable. I cannot, however, acquiesce in the opinion that the profession is entirely to blame. Until a comparatively recent date education in midwifery was meagre, and the practitioner, when qualified, was not as well equipped as he might have been to deal with midwifery. It redounds to the credit of the general practitioner that in most cases the defective education has been effectively supplemented by observation and practical experience. If the British accoucheur be compared with those in other countries it will probably be found that he is the best; for reasons which influence Dame Janet Campbell I place small reliance on comparative international figures.

In considering the progress of midwifery and the credit due to those engaged in its practice, we must remember that the fall in the infantile mortality rate from 154 in 1900 to 77 in 1922 is due in no small measure to improved obstetrics, by means of which hundreds of thousands of mothers have been enabled to produce healthier children. This is so even in spite of the stationary mortality of the first month. It may also be pointed out that the comparison between the general death rate and the maternal mortality rate may be fallacious, as it does not follow that there was the same room for improvement in the latter. We know, for example, that there was a great wastage of infant lives which should have been preserved, and the saving of these has been chiefly responsible for reducing the general death rate. There is no evidence of any such preventable wastage in maternal lives.

As concerns morbidity, it is not possible to compare one period with another. There is, however, good reason for believing that morbidity has decreased and is steadily decreasing. Progress may not be as rapid as we desire, but if our efforts have not been successful in reducing morbidity it is obvious that our methods must be radically wrong. It must, however, be admitted that maternal mortality and morbidity are partly due to ignorance, carelessness, and undue haste on the part of doctors and midwives. The cases quoted in Dame Janet Campbell's report make sad reading, but they represent only a minute fraction of a vast total of midwifery. Other branches of the profession have their inefficient followers, but it is easier to detect obstetrical errors. We can only look to improved education and the inculcation of higher ideals to remedy these evils. In other directions also there is much to be done. Maternal mortality and morbidity are no doubt largely influenced by bad housing and economic or industrial conditions. This, however, is not the place to deal with those questions. I propose to confine myself to the medical points.

First. I look to the extension of ante- and post-natal work as the most effective means of improvement. There is no need to dilate on the advantages of ante-natal

examinations and treatment, but it may be well to urge the importance of "after-care" in the interests of both mother and child. The continuance of breast-feeding is most important, and this cannot be ensured unless the mother is kept under the observation of the obstetrician for at least a month after the child is born. The post-natal (or rather the maternal and neo-natal) clinic also affords the means of studying and rectifying injuries and other illnesses due to labour. Ante- and post-natal clinics should not be confused with child welfare, and should be staffed by practitioners experienced in obstetrics. No person can carry out ante-natal work who has not been trained. It is a very difficult branch of medicine, and requires much skill and judgement in diagnosis. An intensive campaign should be organized to teach people the advantages of ante-natal work, which can be demonstrated by simple examples. For instance, toxæmia can be controlled or avoided and eclampsia almost eliminated by early recognition and appropriate treatment. The risks of labour in cases of pelvic abnormality may also be obviated or reduced. Steps must be taken to improve and extend the teaching of ante-natal methods for the benefit of both medical students and pupil midwives.

Second. While education in midwifery has improved, much remains to be done. For instance, one great defect is the absence of any clinical test at the final examination. But above all we must have facilities for post-graduate training of young practitioners and for refresher courses for older ones. We do not want more lectures, but facilities for clinical work and the actual handling of patients under the supervision of competent teachers. For this purpose we require one or more well equipped maternity hospitals, solely devoted to the instruction of graduates and staffed by experts who would serve only for limited periods, so as to give persons attending for instruction opportunities for studying different methods. It is sad to think that, considering all the material available in this country, anyone desiring instruction of this sort should have to go to Vienna or Paris. As 60 per cent. of the deliveries in this country are made by midwives, it is most essential that their education also should be improved by increasing clinical facilities that will enable them to see and take part in practical obstetrics of the best type.

Third. The provision of more beds for abnormal cases and for women who desire institutional accommodation owing to housing difficulties. The material thus provided could be utilized for educational purposes.

Fourth. We now come to that mysterious subject sepsis, of which, though it is a notifiable disease, there is no workable definition. At the same time, generally speaking, we know only too well the class of symptoms which come under this name. We also know, partially at any rate, the cause. We know that sepsis may be contagious and exogenous, and that to a great extent it may be avoided by cleanliness. On the other hand, we are satisfied that sepsis is also endogenous, but we do not understand how it arises in these circumstances. In the time at my command I cannot discuss technical details. I may say, however, that there is every reason to believe that streptococci that may be harmless when living upon a healthy unbroken epithelium change their character and become dangerous when allowed to feed on a bruised or broken surface. There are other possible causes of sepsis demanding investigation, notably the effect of intercourse during the later months of pregnancy and the after-effects of venereal disease. We are also faced with the strange and inexplicable fact that women who live and have their children in dirty surroundings do not suffer more from sepsis than those who live and have their children under the best possible conditions. Both classes suffer from contagion, but it is questionable whether the former class is not less liable than the latter, provided no operative intervention has been carried out. When we come to the endogenous type, either there is no difference between the two classes, or if there is a difference it is in favour of the women who live and have their children under apparently unfavourable conditions. All this requires elucidation, and more facilities for research are necessary—research especially directed towards immunity and the defensive nature of the bacteria of the genital tract. The course and treatment of sepsis we understand

* A paper (slightly abridged) read in opening a discussion in the St. Pancras Division on the interim report of the British Medical Association Committee on Causation of Puerperal Morbidity and Mortality, published in the SUPPLEMENT of January 9th, 1926.

fairly well. What we want to know is the cause of the endogenous variety. If this could be discovered we might reduce maternal mortality by one-third. This is an object upon which expenditure is worth while. The saving of 1,100 women's lives is no small matter.

Fifth. The existing organization of midwifery is more or less chaotic, and there is a lack of cohesion between the local authorities on the one hand and medical practitioners and midwives on the other. The midwife can call in any doctor she thinks fit. He may be experienced or may not, and there is no adequate supervision by the medical profession of the midwifery service as a whole. Panels of medical practitioners specially experienced in midwifery should be set up, and except in cases of emergency the midwives should be restricted to the members of these panels. Each patient should be seen by a medical practitioner at least once during her pregnancy. There should also be attached to every panel one or more specialists whose opinion could be sought in cases of exceptional difficulty. Every case of death in childbirth should be reported and investigated, so as definitely to ascertain the cause and whether the treatment has been as it should. Ante- and post-natal clinics and child welfare clinics should be co-ordinated. More beds should be provided for difficult cases, and arrangements made to pass on from the ante-natal clinics those women whose confinements are likely to be difficult. Cases of sepsis should not be treated in fever hospitals, but in open-air isolation wards of maternity hospitals.

That the mortality rate is exceptionally high in sparsely populated districts proves the advantages of skilled and prompt attendance. Steps should be taken to remedy these conditions by a more comprehensive system of administration; and here again the value of ante-natal work is apparent. If every expectant mother were to present herself for ante-natal examination by a medical practitioner, arrangements could be made, even in sparsely populated areas, to provide her with the necessary assistance.

In conclusion, let me say that there is no occasion for despondence, but every reason for hope. Statistics are dangerous things. For instance, the Scottish figures are most depressing, showing as they do that deaths from puerperal causes in Scotland have increased since 1855 from 4.9 to 6.2 per 1,000 births. I do not believe that these figures accurately show the state of affairs. I cannot believe that more women die from childbirth to-day in Scotland than in 1855. These figures depend on classification and knowledge on the part of the medical attendant. Even in an obstetric hospital we find it difficult to tabulate the diseases of pregnancy, notwithstanding an elaborate system of cross-indexing. This applies particularly to venereal diseases.

These matters demand urgent practical attention. Whatever criticism there may be on either side, we all have the same object in view. We are all anxious to improve the midwifery service and to save human lives.

THE TREATMENT OF SEVERE AND PERSISTENT UTERINE HAEMORRHAGE BY RADIUM.

WITH A REPORT OF 200 CASES.

BY

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THE type of haemorrhage under consideration is frequently described as idiopathic or essential haemorrhage, and pathologically it is referred to as chronic metritis, fibrosis uteri, or chronic subinvolution; but, however debatable the pathology, the one distinctive feature is the excessive and uncontrollable haemorrhage with absence of any pelvic lesion to account for it. This series of cases does not include the minor uterine haemorrhages which are relieved by drugs or a single curettage, but only cases which had been dealt with in the ordinary way and proved refractory. In many of the cases I have myself performed curettage in the hope that it would alleviate the condition, and

only used radium when it was subsequently found that the operation had had little or no effect. The cases were chosen for the following reasons:

- (1) The persistence of uterine haemorrhage after prolonged medical treatment.
- (2) After curettage or other operation with no relief.
- (3) Advanced degree of anaemia, with shortness of breath, headaches, oedema of the legs, etc.
- (4) Cases in which the patient had to spend some part of each month in bed on account of the severity of the haemorrhage.

Analysis of this series of 200 cases shows the following reasons for the treatment:

	Cases.
Dilatation and curettage ...	96=48.0 per cent.
Other operations ...	20=10.0 "
X rays ...	1= 0.5 "
Confined to bed for part of life ...	12= 6.0 "
Anaemia ...	38=19.0 "
Palliative treatment failed ...	33=16.5 "

A large number (48 per cent.) had already been treated by dilatation and curettage, of which 8 had been curetted twice, 4 three times, and 2 five times. Blacker's records a case where the patient had been curetted eighteen times. It seems hardly credible that this operation could be repeated four, five, and more times; nevertheless it is frequently done. It is reasonable to repeat it once where a patient has derived considerable benefit from it for months and is nearing the menopause, but there can be little reason for pursuing it beyond this point.

Twenty cases had undergone some other form of operative treatment, including excision of polypi, amputation of the cervix, resection of cystic ovaries, ventral suspension, salpingectomy, appendicectomy, and myomectomy—the best results being relief for a few months, and the poorest no relief at all. One patient (Case 5) had been curetted, and, this proving of no avail, was subsequently given five exposures of x rays, the details of which I did not learn; she improved for a few months, relapsed, and was then successfully treated by radium.

Twelve cases (6 per cent.) were almost completely bed-ridden, and spent the greater part of their time between bed and a couch.

Thirty-eight cases (19 per cent.) were in an advanced degree of anaemia through continuous loss. One (Case 17) had been treated palliatively and later by curettage; after the operation the bleeding did not stop and she was becoming seriously ill. The surgeon had had her prepared for hysterectomy, but as I was in the hospital that morning treating another case he asked me to see her. We decided to give her the chance, and radium treatment was carried out. After one exposure temporary relief occurred, and five months later a second exposure was given, which established amenorrhoea permanently.

Case 66.—This patient, aged 18, had been an in-patient and out-patient at a general hospital for sixteen months, but she continued to lose excessively 8-10 oz. This was aggravated by intermenstrual loss, and culminated in a five weeks' continuous and severe haemorrhage. She was seen at her home in consultation by one of my colleagues, and immediately sent to hospital in an ambulance. She was colourless, breathless, and looked to be in a moribund state. A blood count showed: red blood cells, 2,200,000 per c.mm.; white cells, 12,000. She was given 100 mg. of radium bromide for twenty-four hours. Amenorrhoea ensued for three months; then she had irregular periods of five-day type for five months, and then became, and remains, regular every four weeks of the five-day type. This patient had what is known as the haemorrhagic diathesis, for extraction of a tooth was followed by troublesome haemorrhage and the socket required repeated plugging; she bruised very easily, but no gross internal haemorrhage had been noted. It is also interesting that during her period of amenorrhoea she had attacks of epistaxis.

History.

This condition may occur at any period of menstrual life, but is more commonly found at and around puberty, between 30 and 40 years of age, and at the menopause. The clinical picture is that of menorrhagia and metrorrhagia, and the period may be so prolonged that the patient finds it easier to describe how many days in the month she is clear, rather than to describe how long the haemorrhage lasts. Finally, she may have to spend most of her time in bed on account of the haemorrhage and consequent anaemia.

Of 50 of these cases submitted to the Wassermann test, not one showed a positive reaction; I do not therefore believe that syphilis plays any part in the etiology. In later life a large majority of the patients are parous women, so the possibility that infection plays a part must be admitted, although histological evidence is not obtained; but when it is remembered that this condition is not so uncommon at and around puberty (I have curetted and treated 16 cases), previous infection by gonococcal and pyogenic organisms cannot be a constant factor.

Pathology.

Clinically two types of uterus are met with in this condition—the systolic and the diastolic.

(a) *The systolic uterus*, which is but slightly if any larger than the normal organ, is hard, heavy, and regular in outline, with a cavity $2\frac{1}{2}$ to 3 inches in length; it yields little or no tissue to the curette, but gives a characteristic rasp as the metal loop passes over the surface. It has commonly lost its flexion, and is perfectly straight, with a greater or less degree of retroversion. On section the wall may be as much as an inch in thickness, and the arteries are prominent, with gaping mouths and quite incapable of collapse; if a portion of one of these vessels be dissected out of the uterine wall it will be found to retain its patent condition.

(b) *The diastolic uterus* is bulky and retroverted, with a cavity varying between $3\frac{1}{2}$ and 5 inches, and yields a considerable quantity of thickened, oedematous tissue to the curette. It occurs in parous women, and most often as they are approaching the climacteric. After curettage the hyperplastic endometrium slowly re-forms and the symptoms return. These patients frequently undergo curettage two, three, or more times, in the hope that it will tide them over until the menopause sets in. It is a condition which is almost certainly cured by exposure to radium. If the patient be examined some months after the exposure to radium, when amenorrhoea is fully established, the uterus will be found to have contracted down to the size of what I have called the systolic uterus.

Of the series of 200 cases, 64 (32 per cent.) belong to the systolic group, 18 of which were nulliparous women; 120 (60 per cent.) belong to the diastolic group, of which 8 were nulliparous; and of these 184 cases 30 had small fibroids. In the remaining 16 cases an attempt was made to control the haemorrhage rather than to establish amenorrhoea.

Diagnosis.

The diagnosis must necessarily depend upon the result of an exploratory curettage, the exclusion of new growth, the absence of any other pelvic lesion which would induce haemorrhage, and upon the physical characters of the uterus as determined bimanually and by the curette.

Analysis of Cases.

In nearly all cases at or near the menopause (128 cases = 64 per cent.) one exposure, the dose of which I will discuss later, sufficed to establish amenorrhoea. Three cases were given a second treatment before amenorrhoea was established, and one case required three exposures. Late recurrence took place in some of these cases, but they will be mentioned later. Of the 200 cases, 14 (7 per cent.) in all required two exposures, and 6 (3 per cent.) required three exposures before the menopause was induced, but they occurred for the most part in the younger women. The ages were as follows:

		Cases.	
16-29 years	...	18	= 9 per cent.
30-35 "	...	20	= 10 "
36-40 "	...	52	= 26 "
41-45 "	...	46	= 23 "
46-50 "	...	42	= 21 "
51-55 "	...	22	= 11 "

It is important to notice that practically all the cases which were refractory to a single treatment occurred in young women. In two cases (Nos. 76 and 110) hysterectomy was done.

Case 76.—A single woman, aged 21, had haemorrhage of a severe type ¹⁰⁻¹¹ for some years, which had gradually got worse. Two years before she came under my care she had her appendix removed, after which the periods lasted fourteen days, and four

months before I saw her dilatation and curettage was performed. Following the last operation the haemorrhage did not cease and she lost more or less daily. On July 17th, 1923, I examined her under an anaesthetic, and found a small firm uterus, $2\frac{1}{2}$ inches in length, which yielded no scrapings and gave the characteristic rasp of fibrosis uteri. I decided to try and modify the periods rather than abolish them, and introduced 50 mg. of radium bromide into the uterus for twenty-four hours. She had a prolonged show through August and September, which became severe at the end of this month and the beginning of October. On October 8th I again introduced 50 mg. into the uterus for twenty-four hours. She remained free for a month and then had irregular losses, becoming gradually worse until January, 1925.

On January 23rd, 1925, I introduced 100 mg. of radium bromide into the uterus for twenty-four hours, but she continued having irregular losses until July; she then came determined to have hysterectomy performed, and if I would not agree she was going to another surgeon. On September 16th I performed complete hysterectomy. I now think it probable that had I given her a large dose at the outset the subsequent history would have been different.

Case 110.—A single woman, aged 51, had severe and irregular haemorrhage for nine months. Dilatation and curettage were performed. The uterus was retroverted and enlarged $3\frac{1}{2}$ inches. Scrapings were sent for microscopic section. The report was that there was no malignancy. Ten days later I introduced 100 mg. of radium bromide into the uterus for twenty-four hours. She had two shows after this, followed by amenorrhoea for ten months. She then began losing again, and consulted another surgeon, who performed subtotal hysterectomy. The uterus contained no growth and the endometrium was hard and firm. I did not see the patient again after the treatment by radium, but judging from the condition of the uterus after removal, I think the cause of the recurrent haemorrhage ten months after radium would be found under the group "causes of late recurrences," to be discussed later.

Thirty cases were complicated with fibroids, all small in size and no larger than a Tangerine orange, some of which were only diagnosed by the curette; all did equally well with the non-fibroid cases. In the ordinary way I believe that any case of fibroid tumour of the uterus which calls for treatment at all requires either myomectomy or hysterectomy, according to the age of the patient, and should not be treated by any form of radiation; for although the tumour shrinks and the haemorrhage ceases, the character and extent of degeneration in the tumour cannot be foretold, and it is much wiser to remove than to leave it. There is one exception to this view—a patient who is very anaemic through loss of blood should have the haemorrhage controlled by radium pending the restoration of her blood picture. Cases have been recorded where fibroids the size of a five months' pregnancy have been irradiated, with the result that the tumour has shrunk into a pelvic tumour; this is not entirely satisfactory, for I have operated upon one such case in which the pelvic fibroid was producing pressure symptoms.

I have treated 16 young women (18 to 26 years of age) with the object of modifying the period rather than abolishing it; 12 became normal after varying periods of amenorrhoea, 3 remain amenorrhoeic (five, seven, and nine months), and one had hysterectomy performed.

The group between the ages of 30 and 35 numbered 20 (10 per cent.): 6 of these required two exposures before amenorrhoea was established; 6 others after varying periods of amenorrhoea became normal in type; 4 were given prolonged exposures (forty and forty-eight hours) so as to ensure amenorrhoea; the remainder behaved normally, amenorrhoea being established after the initial dose. In this group again it was found that the younger the patient the larger the dose required, and it emphasizes the observation that it is difficult to induce amenorrhoea in young women by medium doses.

Technique.

Various methods have been described—namely, placing the radium in the uterus, vagina, and upon the abdominal wall. Blacker² describes application to the abdominal wall as well as to the interior of the uterus; any action produced in this way must necessarily be upon the ovary, which we desire to avoid, and, in addition, it must be very uncertain. Since his paper was published I note that the annual report from University College Hospital indicates that this method has been abandoned.

Prolonged exposures in the vagina are fraught with danger of fistula formation, and I know of two cases of vesico-vaginal and recto-vaginal fistulae produced by this method, both from the same clinic. I have no experience in these two last methods, all my cases having been

treated by the intrauterine method, and I have never seen a fistula follow it. Finally, the results from radium *in utero* are so constant and satisfactory as to place other methods which are open to criticism beyond the scope of clinical practice.

Anaesthesia.

Whatever treatment be adopted for this condition, anaesthesia is required for an imperative exploration of the uterus, and the radium in suitable cases is introduced at the same time. Where a second or third exposure is required it can be introduced into the uterus without another anaesthetic after softening the cervix with glycerin plugs.

In all cases dilatation of the cervix and an exploratory curettage is done, and any tissue removed is referred for microscopic examination. In all cases the radium is screened in brass or lead to exclude all except the gamma ray, and the tube is then surrounded with rubber tubing 2 to 3 mm. in thickness to exclude secondary rays. The radium is placed in the uterus, and the vagina is plugged with gauze soaked in liquid paraffin, with the twofold object of keeping the radium in position and maintaining the bladder and rectum as far as possible from the source of energy. A further precaution is taken to maintain the bladder in a flaccid condition by the introduction of a self-retaining catheter into the viscus and leaving it there until the radium is removed. In some cases it is necessary to stitch the vulva in order to support the vaginal plug. In cases of advanced anaemia the patients are kept in bed for three weeks, but in ordinary cases the patients are allowed up at the end of three days and sent home at the end of a week.

Dosage.

The determination of the adequate dose cannot be stated in a general way, for each case must be considered on its merits. While excessive dosage does not show itself in the same way as the narcotics do, nevertheless radium is capable of producing severe burns if administered in ill considered doses; and such burns, although *in utero*, may subsequently declare themselves as a source of infection, producing symptoms which are difficult to explain unless such a lesion is considered. Later, following such burns, pyometra may result.

In women at or near the menopause 100 mg. of radium bromide, enclosed in 0.5 mm. silver and 1 mm. brass or lead wrapped up in rubber tubing 2.3 mm. thick, is given for twenty-four hours, and is commonly successful; but when a great deal of blood has been lost and it is of urgent importance to stop the haemorrhage the radium may be left in for thirty-six or even forty-eight hours. Again, in cases of fibroids I give a minimum exposure of thirty hours; these doses invariably prove satisfactory, and a second treatment is rarely required.

In dealing with young women I was much less sure of my ground. In my early cases I was afraid of producing permanent amenorrhoea, and gave treatments of 50 mg. of radium bromide for five, six, eight, or ten hours, and was surprised to find how small an effect was produced; but with increased experience I found that it was a much more difficult problem to induce amenorrhoea in them than in the menopausal women. In certain urgent cases I gave exposures of 100 mg. for twenty-four hours, which succeeded in establishing amenorrhoea for a short time, but then the periods returned (Case 66). Several other cases behaved similarly, and now I have little fear of producing permanent amenorrhoea in them.

Symptoms during and following Exposure.

While the radium is in the uterus the patient may complain of a pain which she likens to the onset of a period, or to the pain complained of whilst a stem pessary is in position. It is tiresome but not unbearable, and is immediately relieved when the radium is removed; it is due to contraction of the uterus in an effort to expel a foreign body. In sensitive patients it may require the administration of a sedative, and there is no reason for withholding it.

Vomiting may be a pronounced symptom and take the form of a prolongation of anaesthetic vomiting; it never

becomes serious, and ceases abruptly with the removal of the radium.

Temperature.—There may be a small rise of temperature to 100°, which persists for a day or so, and is probably due to some absorption from the closed uterus.

Haemorrhage.—When the exposure is given immediately before the onset of a period, the haemorrhage consequent upon the curettage may pass directly into the monthly flow. This period is prone to be a very severe one, accompanied by flooding, and may necessitate plugging as in Case 28. The common history, however, is a prolonged show of two to three weeks' duration, followed later by a second show, and then amenorrhoea. A fair number will experience a third period, or two or three irregular losses, but where one exposure is going to succeed there is rarely more than this. Generally speaking, three months must elapse before the full result can be estimated, and where haemorrhage persists beyond this further treatment will be necessary.

Leucorrhoea invariably follows the treatment, and in some cases produces irritation of the vulva. I order all patients to douche themselves with two quarts of salt and water daily for six weeks, and at the end of this time the leucorrhoea has practically disappeared; but in cases complicated with a fibroid the discharge may last longer.

After-History.

There is not infrequently a complaint of painful micturition, which quickly passes off with the administration of barley water and a mixture of urotropine, and is probably due to the irritation produced by a catheter in the bladder. I have not met late rectal or vesical symptoms in these cases, probably on account of the moderate dose employed and careful packing of the vagina. Bonney³ frequently quotes fistula formation as an after-result; if this were a danger in the intrauterine method it is quite certain that I should not have escaped the experience in 230 cases, of which somewhat less than 1 per cent. are unaccounted for.

Contraindications.

The sole absolute contraindication to the use of radium in this condition is the presence of pelvic inflammation, and this is a very real danger, for the pelvis may become filled with an inflammatory tumour, the nucleus of which is a deeply seated abscess and the walls composed of uterus, bladder, and bowel, which renders any operation very difficult and pregnant with risk to the patient. I have experienced a case of this kind in treating a carcinoma of the cervix, when I had to risk the evil to combat the growth. Relative contraindications are patients bled white through loss of blood, where the red blood count is reduced by one-half, the leucocytes increased by one-half, and pulse and temperature warn us that the patient is at a low ebb. In these cases I always keep the patient in bed for two to three weeks on a free diet, injections of iron, sodium cacodylate, and large quantities of lemon water to drink.

Causes of Bleeding some Months after Amenorrhoea.

Chief among the causes of late recurrence are: (1) septic foci, pyorrhoea, etc.; (2) cystic ovaries; (3) pelvic inflammation; (4) high blood pressure associated with contracted kidneys.

Recurrence of symptoms at a late period (a year and more) at the menopausal age was found in 7 cases. One of these occurred two years after amenorrhoea was established, and took the form of a blood-stained discharge; examination showed the cervix to be normal and the body of usual size. Some carious stumps with pyorrhoea were found on routine examination; the former were removed, and the discharge disappeared with a simple douche. Two more cases were associated with pyorrhoea, and the haemorrhage ceased after removal of the teeth. In two other cases the recurrence was associated with chronic nephritis and increased blood pressure. Two were associated with ovaries which had become enlarged and cystic. Apart from these cases there was no recurrence. Two of this group had been treated with two exposures to radium and one with three exposures.

Recurrence in patients between 30 and 40 years of age took place in 10 cases, in 5 of which radium had to be used a second time, but they were more a continuation of the

original haemorrhage than a recurrence. One, aged 35, had a recurrence after eight months and became normal; two (aged 32 and 37) after a year and became normal; one (aged 38) recurred after four months; and one (aged 39) after seven months.

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- ¹ Blacker: Menorrhagia treated by Radium, *Lancet*, 1923, vol. i, p. 423.
² Idem, *ibid.* ³ Bonney: BRITISH MEDICAL JOURNAL (Annual Meeting), September 8th, 1923, p. 410.

THE IMPORTANCE OF BENCE-JONES ALBUMOSURIA IN DIAGNOSIS.

BY

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THE subject of Bence-Jones albumosuria is an old one, but from recent experience I am sure that it is by no means always recognized, nor is the importance of its presence sufficiently appreciated, not only as a diagnostic or even pathognomonic sign, but also as an indication of a serious condition of affairs in what may appear to be a simple and straightforward case. These points are illustrated by the three following cases I saw in 1925.

CASE I.

A man, aged 60, consulted me on February 20th, 1925. He said that six months previously he had pains over the left shoulder and down the arm, which gradually got worse and then slowly improved, but were still present. These were apparently due to an ordinary brachial neuritis affecting the fifth and sixth cervical roots. He then said that for three weeks he had had pains across the front of the upper abdomen, which he put down to dyspepsia. I found no abnormal physical signs anywhere (the spine being freely movable) except a small gland the size of a hazel-nut, just above the left clavicle; it was painless and indeed had not been noticed by the patient. On testing the urine as a mere matter of routine, I was surprised to find large quantities of Bence-Jones albumose present. I wrote to Dr. Walter Buck, who had recently seen the patient, and warned him that it might turn out that the pains were caused by a myeloma of the vertebrae. An x-ray photograph revealed nothing abnormal.

The pains got worse; a surgeon was consulted some weeks later, who thought there was some thickening in the lower cervical region. I saw him again at his home with Dr. Buck on May 2nd. His left arm was now partially paralysed, and the pains down the spine were intense. He afterwards had constant vomiting, intense pains in the head, and died of exhaustion in July last. Unfortunately no *post-mortem* examination was made.

CASE II.

A compositor, aged 49, was sent to see me by Dr. Baker of Preston on September 24th, 1925. In the previous April he had complained of pain in the left side of the chest, which was thought to be due to diaphragmatic pleurisy, but there were no physical signs. In August the pain got worse, and extended round from back to front on both sides in the area of distribution of the fifth to the seventh dorsal roots. A specimen of urine was sent to a pathological research laboratory, and the report was that the urine contained a trace of albumin and a "substance of a balsamic nature of uncertain origin." An x-ray report stated that disease of the fourth to the seventh dorsal vertebrae was present (? growth in the vertebral bodies or in the posterior mediastinum). There was a marked prominence of the fifth and sixth dorsal vertebral spines, and the pain in the back was very intense. On examination of the urine I found that the "substance of a balsamic nature" was an immense quantity of Bence-Jones albumose.

Dr. Baker kindly wrote to me on January 26th, 1926, stating that the patient has much improved as the result of deep x-ray therapy applied by Dr. Rayner of Preston, and with the assistance of a spinal support had been able to return to work, as the pain was so much less, but x-ray photographs show a rather more marked angular curvature, and the Bence-Jones albumosuria is still present.

CASE III.

On November 29th, 1925, I was asked by Dr. T. Gregory of Manchester to see a clerk, aged 19. He had been first seen by Dr. Gregory in October, 1924, suffering from rapid heart and dyspnoea, with no obvious cause. The symptoms continued, and in January, 1925, the suprascapular glands on both sides were found to be enlarged. In July the spleen was enlarged, as well as the left axillary glands, and in August occasional rises of evening temperature up to 100° F. began, with enlargement of the right axillary glands and pains in both iliac fossae and

over the sacrum. Bence-Jones albumose was found in the urine for fourteen days.

In September the albumosuria recurred occasionally, and he got rapidly worse, with much anaemia; the evening temperature sometimes reached 102° F. During November the albumosuria was present in increased amount, and the whole spine was found to be a uniform convex (backwards) curve from end to end; any movement caused intense pain in the spine and round the abdomen and chest, and sometimes in the arms and legs. The temperature rose irregularly each evening to 102° or 103° F., and he died on December 4th.

This was obviously not a case of pure myeloma, but rather one of acute lymphosarcoma affecting many parts, including the spine, or of acute Hodgkin's disease become malignant.

The presence of this peculiar albumose was first described by Bence-Jones in the *Philosophical Transactions* of the Royal Society in 1848 as found in the urine from a case said to be of "mollities ossium" [but much more probably of myeloma—E. S. R.]. As the reactions given are somewhat different from those of other albumoses found in the urine, it is always best to refer to this substance as "Bence-Jones albumose." Its source is probably the cells of the tumour. An excellent and full paper on the subject, containing a detailed description of the reactions obtainable, was written by Bradshaw in the *Transactions* of the Royal Medical and Chirurgical Society for 1898 and 1899; and another paper by Anders and Boston (based on three cases) was published in the *Lancet* in 1903.

Chemical Characters.

The essential reactions are as follows: On applying heat to the slightly acidulated urine a white precipitate occurs at a temperature of about 55° C. (132° F.). On further heating this precipitate dissolves, and reappears on cooling. It will, of course, be remembered that serum albumin is only precipitated at about 80° C. (176° F.), and does not disappear on further heating. Cold nitric acid causes a dense precipitate of Bence-Jones albumose, and this precipitate disappears on heating and reappears on cooling. Even when the urine is diluted with twenty times its volume of water hydrochloric acid causes a sharp white ring to appear at the place of contact, and this ring disappears on heating and reappears on cooling (albumin is only precipitated by hydrochloric acid in excess).

Now in ordinary clinical work most of us do not use thermometers when testing urine by heat, nor we do as a rule use hydrochloric acid. So I wish to point out a very easy observation which will infallibly indicate Bence-Jones albumose. Take about 4 inches of urine (slightly acidulated if necessary with acetic acid) in a test tube, and apply heat gently to the top inch. If Bence-Jones albumose is present it is astonishing to note how soon a precipitate forms, and how this precipitate, which is at first of a particularly fine grain, spreads rapidly down the urine. On further heating this fine precipitate dissolves; but in my experience not by any means entirely, as much of it clings together in thick masses, sticking to the side of the test tube. If the cold nitric acid test is now tried, by pouring the acid very gently down an inclined test tube containing the urine, a dense precipitate will form at the place of contact, and this will rapidly spread up the urine as a fine-grain precipitate. These simple experiences are entirely different from those obtained with an ordinary albuminous urine, and once seen are never forgotten.

It is, of course, principally in cases of myeloma that Bence-Jones albumose is formed. The myeloma itself may not be evident, as it may occur in the vertebrae and it may not be discernible by x rays; moreover, the only symptoms may be definite root pains, such as occur in an ordinary local neuritis, or there may be vague pains relating to the vertebral column; in such cases the presence of Bence-Jones albumosuria at once indicates the seriousness of what at first sight appears to be a slight illness.

This condition is supposed to be very rare; but I can recall five other cases I have seen in hospital or in consultation within recent years, in addition to the three cases mentioned above. I am therefore inclined to think they are commoner than is usually supposed, but that they are not always recognized (even in pathological research laboratories), and for that reason I have written this note to revive some old knowledge.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

FLOATING APPENDIX.

DURING the last few years I have operated upon three cases of appendicitis, the pathology of which I have not seen described, though the symptoms are very characteristic of the condition.

The patient complains of a very acute pain in the abdomen, not specially located to the right iliac region; in two of the cases there was vomiting. Seen shortly afterwards one finds a board-like condition of the whole of the abdomen; there is perhaps more pain on palpation towards the appendix region, but the noticeable point is the extremely marked rigidity. The temperature and pulse rate are slightly raised, or may be unaffected. The patient's appearance is not that of anxiety, or of being very ill, such as is expected in a case of ruptured viscus, nor is there any sign of collapse.

Operation.—On opening the abdomen the appendix is seen to be quite free, erected and of a vividly scarlet colour, especially towards the tip; there is no sloughing. In the peritoneal cavity is some clear odourless fluid and some congestion of the surrounding peritoneum, but no adhesions of any kind, nor any plastic lymph.

Case I was in hospital; it was cleanly sewn up, and made a good recovery.

Case II was in a nursing home. As there was much clear fluid a tube was put in for drainage; general peritonitis supervened, and the patient became gravely ill. As there was no smell or faecal odour I thought the condition might be pneumococcal, and gave three injections of pneumococcus vaccine; six days later an abscess developed in the left iliac region, which I opened; it was found to be between coils of small intestine. The patient made a good recovery.

Case III occurred in hospital recently; it was cleanly sewn up, and recovery was uneventful.

The last case was diagnosed as a floating appendix, from (1) the board-like condition of the whole of the abdomen, which had been observed in the former two cases; (2) the patient did not look ill, compared with what one would expect with such rigidity; (3) there was no collapse to suggest ruptured duodenum or stomach; (4) the patient lay placid with no complaint of pain after the first sudden onset.

Unfortunately I omitted to take a swab in any of the cases, and I am anxious to know whether any surgeon with more experience can identify this condition of appendix, and give an explanation of the causation—that is, whether it is due to any specific organism (the pneumococcus, for example).

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RAW PANCREAS IN DIABETES MELLITUS.

THE following case, which was under the treatment of Dr. C. Vosper in the Kashmir Mission Hospital, illustrates the value of raw pancreas in some cases of diabetes mellitus.

A Mohammedan lad, aged 16, was admitted on March 9th, 1925, with polyuria and progressive emaciation. The urine showed 12 per cent. sugar. He was put on Allen's treatment, with a weekly fast, and the sugar came down to 4 per cent. Insulin was then commenced. As we had no facilities for estimating blood sugar, the initial dose given was 5 units; this was increased on the fifth day to 10 units. During the first fortnight of April the sugar averaged 8 per cent. The insulin was increased to 15 units on April 14th. But the sugar still fluctuated between 4 and 12 per cent. We then stopped the insulin and resolved to try raw pancreas. There was no definite improvement, but I found that what was being given was not pancreas. Fresh orders were issued and minced raw pancreas administered—2 to 3 oz. daily. On April 20th the sugar was 6 per cent., on April 21st 4 per cent., on April 22nd 2 per cent.; on April 23rd there was no sugar and the urine remained free while the pancreas was being administered. The patient left hospital on May 28th much improved.

The question of the relation of insulin treatment to that by raw pancreas is interesting. Hollins considers that raw pancreas is ineffective when given after, or at the same time as, insulin. This case does not support this view. In Harrison's case a patient with a constant administration of 60 grams of carbohydrate, 70 grams of protein, and 150 grams of fat, and who took 20 units of insulin before breakfast and 14 before tea, over a period of six months,

maintained a fairly level blood sugar percentage. He was then also given 2 oz. of raw pancreas daily. There was no further reduction of blood sugar, so Harrison concluded that the pancreas was inert. He repeated the experiment in a child aged 4, with a similar negative result, and is therefore inclined to discount the value of pancreas. George Graham appears to support Harrison and considers raw pancreas inert. In the case recorded above we administered insulin in small doses, with but little effect. The introduction of pancreas was decisive.

The cases published by Drs. Constance Griffiths, W. Dunn, Robertson Young, Helena P. Kelly, and T. J. Hollins strongly support the view that raw pancreas may be of real value in the treatment of diabetes. Its failure in some cases, whether used alone or in association with insulin, calls for further investigation, but in no way negatives its use in other cases.

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ROUND-CELLED SARCOMA OF PANCREAS IN AN INFANT.

THE following case seems to me sufficiently uncommon and of interest from the *post-mortem* findings to be worth noting.

A female infant, one of twins, at the age of 6 months commenced to vomit occasionally and pass undigested fatty loose stools. The abdomen became distended, with slight dullness in the flanks. Later she had, from time to time, oedema of the eyelids (without relation to crying) and of the feet. She cried a good deal and appeared at times in pain. She became emaciated; her weight varied according to the oedema and abdominal distension, the circumference of the abdomen varying from 14 to 17 inches.

The urine contained no albumin or sugar. Several foods were tried, but certified cow's milk and water suited the child best.

The vomiting increased, but, on reducing the fat in the feeding, both the vomiting and the fatty character of the stools improved for a time. The child became more emaciated and less able to digest its food, even vomiting albumin water. On palpation of the abdomen no tumour could be felt. Death occurred at the age of 11 months.

At the *post-mortem* examination a growth $2\frac{1}{2}$ inches square by 1 inch in thickness, which proved to be a round-celled sarcoma, was found growing from the posterior surface of the pancreas. There was free fluid in the peritoneal cavity. The other organs were healthy.

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AN UNUSUAL PRESENTATION.

THE following details of a rare case of compound presentation, resulting in the birth of a live child, seem to be worthy of record.

A woman, aged 42, who had had fourteen children after normal labours and one miscarriage, was admitted to hospital in the early morning of December 23rd, at the thirty-second week of pregnancy. The membranes had ruptured spontaneously, but there had been no labour pains. The os was the size of a florin, and two feet could be felt presenting, though rather high up. No foetal heart could be heard, and on examination there was great doubt as to the position of the head of the foetus. A diagnosis of breech presentation was made. In spite of treatment with castor oil, quinine, and an enema, no definite labour pains commenced till 3 a.m. on December 27th, when strong and regular pains began. At 6.35 a.m. the os was fully dilated, and a few minutes later the foetus was born spontaneously. The head, feet, and legs were born together, the foetus being doubled on itself and the head being in the left occipito-posterior position. The feet were in advance of the head, and the antero-medial aspect of the tibiae rested against the left frontal bone, deeply grooving the forehead; the tibiae showed marks of pressure for several days. The child weighed 5 lb. 6 oz., and was thriving when the patient was discharged from hospital. There was no perineal tear and no delay in the second stage.

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PREGNANCY IN DOUBLE UTERUS.

THE following case is, I think, of sufficient interest to be placed on record.

A married woman, aged 25, British, consulted me on account of dysmenorrhoea and menorrhagia from which she had suffered since the age of 14. The periods started at that age, and had always been irregular, coming at intervals of from two to three weeks. They usually lasted for about a week, and during that time she suffered from headaches, backaches, and often faintness. She had been married for nine months. I found the vagina to be divided by a fleshy septum running antero-posteriorly and

extending for the whole length of the vagina, which was about 5 inches. The clitoris and labia were normal. A separate cervix could be felt protruding into each division of the vagina. On examination under an anaesthetic the condition was found to be that of complete double uterus (uterus didelphys). The cervixes were quite separate, but the bodies of the uteri were fused together. The length of these uteri felt to be about 1½ inches. A sound could be passed into each uterus for a distance of 1 inch. She missed the next period after the examination, and in three months it was obvious that she was pregnant in the right uterus.

The cervix of the right uterus softened, whereas that of the left remained hard. During the earlier months of pregnancy the enlargement was felt mostly on the right side of the abdomen, but during the later months it occupied a more central position. The patient suffered from slight morning sickness during the second month. Apart from that she was very well, and complained of no discomfort. The pregnancy pursued a normal course, but there was a breech presentation of the foetus. This was probably due to the fact that the left uterus had enlarged, pressing on and restricting the space in the lower pole of the right uterus. It was found impossible to change the presentation by version. The pelvic measurements were: interspinous diameter 8½ inches, intercrural diameter 9½ inches, external conjugate 6½ inches.

On account of the small pelvic measurements, the persistent malposition of the foetus, and the malformation of the vagina, I decided to perform Caesarean section a week before time. I delivered a normal female child of 6½ lb. On opening the abdomen the pregnant uterus was seen to be pear-shaped, with the largest diameter at the fundus. The left uterus, enlarged to a length of about 6 inches, was pressing on the lower uterine segment of the pregnant uterus. The ovaries and tubes were normal. The placenta was situated on the posterior wall of the uterus rather low down. The mother made an uninterrupted recovery and was able to feed her child. Three days after the extraction of the child a decidua, 5 inches in length, in the form of a perfect cast of the uterine cavity, came away from the left uterus.

This remarkable case was also seen by Drs. G. E. Aubrey and J. W. Anderson.

J. C. MacGown, M.B., Ch.B. Edin.

Hong-Kong, China.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

MONMOUTHSHIRE DIVISION.

A MEETING of the Monmouthshire Division of the British Medical Association was held at the County Hall, Newport, on February 26th, with Dr. D. ROCYN-JONES, C.B.E., in the chair.

Puerperal Mortality.

The Chairman intimated that the meeting had been called to consider the questionnaire issued by the British Medical Association in relation to the contemplated report on the causation of puerperal morbidity and mortality, and they were fortunate that afternoon in securing a visit by Sir Ewen J. Maclean, professor of obstetrics and gynaecology at the Welsh National School of Medicine, Cardiff, to address them upon puerperal mortality. On behalf of the Division he extended a most hearty welcome to Sir Ewen to address the meeting.

Sir EWEN MACLEAN then delivered the address which is published in full at page 469. A discussion followed upon the address and upon the questionnaire of the Association, in which the following members took part: The Chairman, Sir Ewen Maclean, Dr. Hamilton, Dr. Sullivan, Dr. Noel Wade, Dr. Catto, Dr. Candy, Dr. Rufus Thomas, Dr. Frost, Dr. Griffiths, Dr. Donaghy, Dr. Verity, Dr. James, and Dr. Morrell Thomas.

Dr. RUFUS THOMAS gave his views upon infantile morbidity and mortality in individual practices. He had kept a record of the last 150 pregnancies, and the results as far as infantile mortality was concerned were as follows: 144 pregnancies terminated between seven months and full term. The remaining 6 cases were abortions, 5 being in the third month, and 1 in the fifth month, in which labour was induced from pernicious vomiting. Two cases had placenta retained and were running temperatures, which subsided as soon as the uterus was cleared out. The case of pernicious vomiting ran a temperature for two days after delivery, but it subsided of its own accord; 148 babies were born, there being four lots of twins. Of these 148 babies, 10 were born dead or died within forty-eight hours;

5 of these were born dead, all the mothers having albuminuria, pre-eclamptic or eclamptic. One died of convulsions forty-eight hours after birth, this mother also having albuminuria and eclampsia. In regard to Question 9, it was certainly Dr. Thomas's experience that operative intervention was very frequently asked for, either by the patient, her relatives, or the nurse, and more particularly in the case of first labours, which were those requiring much longer time for dilatation, and therefore the very ones in which intervention should be postponed to the last moment, commensurate with safety to mother and child. The difficulty of resisting these requests for too early intervention was often very great.

Dr. ROCYN-JONES drew attention to the serious discrepancy which existed in the administrative county of Monmouth between the notification of puerperal fever cases and the registration of deaths occurring from puerperal fever, and gave the following statistics:

Maternal Mortality in the County of Monmouth, 1915 to 1924.

Year.	No. of Cases of Puerperal Fever Notified by District Medical Officers.	No. of Deaths Registered.			Death Rate per 1,000 Births.			Infantile Death Rate per 1,000 Births.
		Puerperal Fever.	Other Diseases or Accidents of Pregnancy.	Total.	Puerperal Fever.	Other Diseases or Accidents of Pregnancy.	Total.	
1915	22	10	44	54	1.0	4.7	5.7	128.5
1916	14	8	33	41	0.91	3.69	4.6	83.4
1917	4	9	30	39	1.07	3.53	4.6	84.3
1918	6	6	26	32	0.65	2.84	3.5	97.6
1919	19	11	36	47	1.29	4.24	5.53	88.0
1920	24	20	42	62	1.85	3.9	5.75	87.9
1921	17	13	29	42	1.26	2.81	4.07	91.5
1922	11	14	33	47	1.6	3.73	5.33	83.4
1923	19	9	29	38	1.03	3.31	4.34	73.0
1924	15	10	23	33	1.19	2.75	5.94	75.6

It should, he said, be noted that the number of cases of puerperal fever notified was not a true record of the total cases which occurred. Many of the deaths registered as due to puerperal fever had not been notified under the Notification of Infectious Diseases Regulations.

Dr. CANDY gave his experience of x-ray work in pregnancy, and drew the attention of the meeting to a new development which he thought had some bearing on the subject under discussion—namely, the recent advance in radiological technique which rendered x-ray examination of the foetus *in utero* a successful and safe procedure. By the aid of x rays the obstetrician could now obtain information of the utmost importance concerning the course of pregnancy which he could not obtain with certainty by any other means. He could thus be forewarned against difficulties and be prepared to deal with them. Not only would it enable the practitioner to approach a case with less anxiety and help to reduce the mortality rate, but also by the routine x-ray examination of all cases in maternity hospitals and ante-natal clinics much new knowledge would be gained concerning the physiology of normal pregnancy. In this way Röntgen's discovery might eventually prove as great an influence in the advancement of the art of obstetrics as, in the past quarter of a century, it had been in the advancement of surgery. Though the possibilities of x rays in obstetrics were far-reaching, he regretted to say that, so far, they had been little explored in this country. He thought that this was due to lack of information among the profession generally upon the subject, and he felt the occasion was not inopportune to draw attention to it.

The meeting tendered a unanimous resolution of thanks to Sir Ewen Maclean for his admirable address and for his visit, the resolution being moved by the CHAIRMAN, seconded by Dr. HAMILTON, and supported by Dr. MORRELL THOMAS. Sir EWEN MACLEAN briefly responded.

Reports of Societies.

IODINE THERAPY IN EXOPHTHALMIC GOITRE.

SEVERAL Sections of the Royal Society of Medicine combined on March 3rd for a discussion on exophthalmic goitre. The subject on this occasion was considered solely from the point of view of iodine therapy, leaving for another evening a discussion of the general management and indications for operation. Dr. GEORGE GRAHAM, President of the Section of Therapeutics and Pharmacology, was in the chair.

Professor E. MELLANBY, in opening, said that it was a strange thing that a discussion on the treatment of exophthalmic goitre should be initiated by a consideration of the action of iodine in this condition, because, in the previous discussion in the Society in 1921, iodine was quite unmentioned. It was known at that time that iodine had a profound influence in exophthalmic goitre, but it was also recognized that it could do a great deal of harm, and therefore it was left out of account. But if a substance was to be completely rejected as a therapeutic agent because it did harm, then the sooner they all became homoeopaths the better. Practically every drug used—mercury, digitalis, ipecacuanha, for example—could do a great deal of harm. It was necessary in using any drug to have regard to the conditions under which it could produce baneful effects. From a laboratory point of view it might be expected that iodine would have a profound influence on exophthalmic goitre. He showed lantern views of the thyroids of dogs which had been on experimental diets. The only difference in the diet as between two series of dogs was that the one had had cod-liver oil, which contained a quantity of iodine, and the other had had butter. In the former the glands were small, in the latter greatly enlarged. A gland from one dog which had been denied iodine weighed forty-four times as much as that from a dog which received this substance in its diet. Moreover, iodine had a profound influence in regulating not only the size but also the structure of this gland. Clinically, iodine in hyperthyroidism brought about some significant changes; in the course of a few days the heart was made to beat much more slowly, sweating was greatly reduced, tremors were also reduced or disappeared, and the patient, from being restless and semi-demented, became placid and almost normal. Iodine affected not only the pulse rate but also the whole metabolism. The basal metabolism was greatly reduced after the administration of iodine, but it tended to rise again, though not to the previous level, and the symptoms might return. On cutting off the iodine, no matter how long it had been continued, the symptoms recurred with some severity, and if the iodine treatment was then resumed the relief, although notable, was not so great as at first. That was the usual effect of this treatment in exophthalmic goitre, but in some cases there was a different result. The first action of the iodine in relieving the symptoms was followed in these cases by a very sudden and acute exacerbation, although the iodine was being given all the time. There was a recovery from this exacerbation in the course of a few days, only to be followed by a second exacerbation, and so forth. The cases in which this contrary result was found were described as cases of toxic adenoma, or, to adopt Williamson's new nomenclature, secondary Graves's disease. They were people who had had large thyroids, often for a long time, without symptoms, and then developed symptoms; the glands were hard and "nobbly," as well as large. Professor Mellanby, after showing the charts of some cases, discussed the advantages and disadvantages of iodine therapy. The advantages were the very rapid disappearance of symptoms—not only, of course, a good thing in itself, but also valuable as a preparation for surgery; an improvement in the condition of the patient during the whole of the time that the iodine was administered, and in some cases a complete recovery. As to these last cases, he admitted that it was quite possible that many of these people might have recovered without iodine,

but, on the other hand, he had a very strong feeling that iodine had played a part in the recovery. The disadvantages were that in some cases, more particularly cases of secondary Graves's disease, there were certain definite dangers from the sudden exacerbation of symptoms; that in "normal" cases, whenever the treatment was stopped, there was exacerbation; and that with iodine treatment there was a possibility of getting asphyxiation—that is, if there were any pressure symptoms in the first place, these would almost certainly be made worse by this form of treatment. In addition to giving iodine in these cases, he tried to regulate the diet to some extent. The diet included all the ordinary foodstuffs, with plenty of milk, but he tried to keep the caloric value of the diet low, because he had found in animals that the more food they were given the bigger did the gland become. Altogether, while fully alive to the disadvantages and dangers of iodine treatment in certain exceptional cases, he regarded it as a valuable adjunct in dealing with exophthalmic goitre.

Dr. J. W. McNEE thought that in cases being prepared for operation iodine treatment was of great importance. *The correct time for the operation to be undertaken after the administration of iodine was begun* was now quite well recognized—somewhere about ten or twelve days—and the period could only be gauged by paying attention to the pulse rate, without even the need of basal metabolism determinations, although naturally these were of use. It had been stated that a fall in the pulse rate and a general improvement of the patient could be attained by rest in bed alone. This was not so. Frequently the pulse rate could be reduced, and a certain improvement brought about in that way, but on giving iodine the pulse rate fell considerably more, and the improvement was much greater. After ten or twelve days' iodine treatment he believed that the operative risk was much lessened, and he believed also that surgeons could remove with greater safety than before a much larger part of the thyroid gland. He had been struck with the frequency of a return of symptoms in cases in which a hemithyroidectomy had been done. During the last few months he had seen four such cases, in one of which the operation took place six years ago, and in the others three or more years ago. In all these cases there was a great exacerbation of symptoms, with much enlargement of the other lobe, and second operations were required. Although the optimum period for operation appeared to lie between the tenth and the fourteenth day after iodine had been commenced, even after this period, although the pulse rate might rise again, the symptoms were never so severe, and his surgical colleagues told him that they felt perfectly safe in operating even after the optimum period had elapsed. He desired also to say a word about the use of iodine in the control of the so-called crises in exophthalmic goitre. He had not seen in this country crises anything like the astonishing exacerbations that he had seen in America, especially during a visit to the Mayo Clinic, where there were cases from the Mississippi valley, a region in which exophthalmic goitre was notoriously severe. There he saw patients with such pronounced exophthalmos that the eyes lay right out on the cheeks, and the patients were really acutely insane. Crises less severe were seen in this country, and in these the effect of iodine in restoring tranquillity and mental alertness was quite astonishing. Another point was the treatment of cardiac failure in Graves's disease. He had had the opportunity of trying iodine in two cases of cardiac failure, and even with large doses he obtained no effect at all. The usual effect was obtained with digitalis, but with iodine not the slightest. So far he had not had a chance of treating cases with iodine medically over a very long period of time. In the bulk of his cases iodine had been given with the deliberate intention of preparing for operative intervention, but so far as his experience of medical treatment with iodine had gone he could not say that he had been impressed with the results.

Dr. GUSTAVE MOXOD described the case of a female patient, aged 45, who was admitted to a hospital in Paris with most definite symptoms of Graves's disease. The basal metabolism was greatly increased. The patient

was submitted to x-ray treatment with no result. She then developed glycosuria, and insulin was administered in large doses. As might be expected, the diabetic symptoms cleared up immediately, but there was great improvement in the exophthalmic goitre symptoms also, which went on to perfect cure. Unfortunately the patient a few months later developed pneumonia and died. Exophthalmic goitre cases were highly tolerant of insulin.

Professor F. R. FRASER said that at his hospital during the last five years fifty cases of exophthalmic goitre had been treated with iodine. At the beginning of that period he and those working with him had no idea what dosage ought to be given, so that harm was done in a certain number of the cases. Doses were tried of 30 minims of 10 per cent. solution of iodine in alcohol a day, and this was increased in some cases to 60 minims and above. The result in some cases was an immediate remission, but with the very large doses harm was done. In some cases a great enlargement and hardening of the thyroid gland was produced, with much increase of tachycardia and palpitation and a sensation of choking. They had now learned that they could get good results with much smaller doses. The preparation used mainly at present was a 10 per cent. solution in 95 per cent. alcohol. There was some danger in prescribing tincture of iodine, which contained a great deal of iodide as well as iodine, and great care was necessary when using the word "tincture" as to the proportion actually employed. The general practice of himself and his colleagues was to keep the patient in bed for some time, to commence on 5 minims of the alcoholic solution three times a day, then, when a maximum result had been attained, to reduce it to 5 minims twice a day, and before the patient left the hospital to bring it down to 5 minims once a day; the patient was never sent out on a larger dose than that. Even with this careful cutting down of the doses it was found that occasionally harm was done if a very close watch was not maintained, and the cases in which this harm was done were those which had been described as secondary Graves's disease. Cases in which there were symptoms of intoxication with a thyroid already damaged, or in which there had been a simple goitre for many years beforehand, did not tolerate iodine in the same way as the others. The dramatic results obtainable in the other cases were not forthcoming here, and, in some, definite harm might be done. In such cases the dose was brought lower still, sometimes to 2 minims a day. He believed that every case of thyroid intoxication could be benefited if only the right dose were found to suit the patient. Dr. McNea had spoken about cases with circulatory failure not responding well to iodine; that also was his experience. These cases again were almost always of the secondary Graves's disease type. He had some cases which had been on iodine for four years, not quite continuously, for every now and then the administration had been stopped for a few weeks, and in every case the patient, returning after that interval, had asked to be put back on iodine. As for results, he had no doubt that by means of iodine carefully adjusted in the way described the disease ran its course at a lower level of intoxication. If the disease was going to recover spontaneously it did so recover, having run a milder course. The effect of iodine in preparing a patient for surgery was most valuable. There were a great many derelicts in exophthalmic goitre, no matter what medical measures were used; these derelicts required surgery, and by means of iodine the operation could be made much safer. After operation iodine over a prolonged period of time had a distinct value. Many of the operated patients declared that while they were improved after the operation they began to improve much faster once iodine was recommenced. Iodine, however, would not "hold" a case against such crises as tonsillitis, or emotion and excitement due to domestic worry. In conclusion he hoped that no one would think that iodine therapy in exophthalmic goitre was a simple and easy treatment. It must be used with the patient under daily observation, the dose carefully regulated with the patient in bed, and if the patient was allowed to take iodine without supervision he must first have been carefully studied to learn exactly how much he could take and how he reacted to it.

Mr. T. P. DUNHILL said that the operation for exophthalmic goitre should never be an operation of emergency; the patient must be brought into a proper condition before it was attempted. Cases that had come to hospital for operation had been made enormously better by treatment by this method. After the patient had been in hospital for a little while the pulse dropped to some extent, but if, after the greatest drop that could be obtained by rest, iodine in the appropriate dose was administered, the patient began to look and feel better and the metabolic rate was lowered. When the operation was performed it was undoubtedly fraught with less risk and the patient lost less blood. Many of the troubles associated with operation for exophthalmic goitre were due to the amount of blood lost at the operation. After iodine treatment the gland was smaller, harder, and definitely less vascular. The gland felt almost like a piece of brick when handled, and in freeing the outer margin, if care was not taken, the trachea was rotated and the patient felt pressure; it was also easy, again, unless great care was taken, to encroach on the region of the laryngeal nerve. He thought it might be possible for surgeons to remove less of the substance of the gland than they had been in the habit of doing, and for the patient, with the help of iodine, to be restored to normal. He could not help thinking that operation in exophthalmic goitre was in any case a temporary expedient, and not an ideal to be striven after. He went on to point out a striking difference between the primary and secondary types of goitre in respect of the great amount of fibrosis in the latter. In the secondary type the channels of communication were interfered with. If the secretions from the gland were shut up in that way the effect of iodine on the gland cells and units could not be quite the same as in a thyroid in which the channels were quite freely communicating with one another. Before iodine was given the patients should be got into bed, and kept under close observation.

Dr. J. A. RYLE said that he had not enough experience of iodine therapy to speak critically, but he was an opponent of any overzealous attempt to find a specific method of therapy for a disease which was essentially non-specific. It was exceedingly difficult to draw conclusions about the effect of any line of treatment, even in the case of a disease due to some specific germ, and in the case of a non-specific disease like exophthalmic goitre much more difficult. Extraordinarily little was known about the cause and pathology of this disease; probably several factors were at work—physical, metabolic, infective, and, in almost every case, a strong emotional factor. If that emotional factor were predominant it was necessary to be very careful before seeking a chemical answer to the problem or treating it by a physical means like operation. The essential preliminary to any treatment was a familiarity with the natural history of the disease. The results of an investigation into the natural history of exophthalmic goitre were recorded in the *Archives of Internal Medicine* in 1923, and seemed to bear out the wisdom of treating these cases with "skilful neglect." The patients were placed in good surroundings, in a ward with a cheerful sister, and the only special treatment was the removal of obvious focal sepsis. Out of 50 such patients, 41 returned to their ordinary life socially and economically restored. It was necessary to be more familiar with the psychological aspects of this disease, and there was real danger in disseminating observations about such ultra-specific methods of treatment as iodine and surgery. Iodine played only a very small part in treatment; it was valuable as a preparation for surgery, and had a more limited value as an aid to medical treatment, but personally he would prefer to treat a case with optimism rather than with iodine.

Dr. H. E. B. CALVERT said that if iodine were pushed so as to make the thyroid gland stony hard the best results were not obtained. It was desirable to make the gland just firm. This disease was not primarily thyrogenic; it was a reaction to some metabolic disorder. He gave an account of two remarkable cases which had improved under iodine treatment.

The CHAIRMAN commented on the difference in dosage of iodine, and pleaded for some standard prescription. Professor MELLANBY, in replying to the discussion, spoke

of the unanimity among workers who had been using this form of treatment under as nearly scientific conditions as it was possible to obtain clinically. The only critic was Dr. Ryle, whose remarks had been academic rather than based on experience.

ANAESTHESIA AND DISORDERS OF THE CIRCULATION.

At a meeting of the Section of Anaesthetics of the Royal Society of Medicine on March 5th Dr. C. E. LAKIN read a paper entitled "Anaesthesia in relation to disorders of the circulation."

Dr. Lakin said he would not touch on the subject of Graves's disease, which had been discussed at a recent meeting, nor deal with spinal anaesthesia in cardiac cases, as his experience of this form of anaesthesia was too little to enable him to draw any conclusions. He would confine his remarks to general anaesthesia in cardiac disorders. Definite signs of myocardial degeneration were frequently found *post mortem* in patients who had had no obvious lack of cardiac compensation during life. People suffering from valvular disease rarely succumbed during anaesthesia. The important points for the anaesthetist were alterations in the character and rhythm of the heart sounds. A healthy first sound was low-pitched, dull, and booming, whereas in the diseased heart it was short and higher-pitched and resembled more the second sound of the normal heart. In advanced myocarditis the rhythm resembled that of a ticking watch. When the sounds were sharp, short, and weak, the muscular power of the heart was in abeyance owing to lack of tone, and this might be due to myocardial degeneration or merely to anaemia. In the middle-aged, if there was a tick-tack rhythm, low blood pressure, and a 1:1 ratio with the differential stethoscope, a condition unduly prone to ventricular fibrillation was present. Chloroform was often fatal in such cases. From experience in the *post-mortem* room the speaker was inclined to doubt the dictum that the healthy heart was more prone to disaster with this drug than was the diseased, and again, prolonged anaesthesia with chloroform produced a toxic condition more likely to prove fatal to the diseased than to the healthy heart. A tick-tack rhythm with shortened first sound was not always of serious import, for it was frequently found in anaemic women who reacted quite well to anaesthetics. In the acute rheumatism of childhood, especially when the first sound was almost inaudible, the administration of an anaesthetic was a serious matter. The condition of pulsus alternans, where every alternate beat was smaller than the one preceding it, was usually indicative of severe myocardial degeneration. This condition should not be confused with pulsus bigeminus, which was due to irritability of the myocardium and was not necessarily of serious import. Although pulsus bigeminus was frequently due to an extra-systole replacing each third rhythmic beat (the extra-systole being appreciable at the apex, though it did not reach the wrist), yet it was sometimes attributable to heart-block, each third ventricular contraction being lost. Such cases should be further investigated, since heart-block was an expression of myocardial degeneration. Epileptiform seizures, the so-called Stokes-Adams syndrome, might be present. Chloroform was, then, not the anaesthetic of choice. A slow pulse did not necessarily mean heart-block. Exercise had no influence on the pulse rate in heart-block. The slow pulse of the athlete might be recognized by the fact that with exercise it did not become faster by degrees as did the pulse of the normal person, but was quickly doubled in rate. Children showing sinus arrhythmia behaved to anaesthetics exactly as did normal children. Extra-systoles had no anaesthetic significance if they were the only phenomena found on examination. If, however, they occurred with other signs of myocardial disease, their significance was much more serious. Atrial fibrillation was evidence of cardiac failure. Rest in bed for ten days or more with the exhibition of digitalis might allow of an anaesthetic being given ultimately, as was also the case with pulsus alternans. In either case only operations of the utmost urgency should be undertaken

without preliminary treatment by rest. There were certain simple tests of cardio-vascular disability which should be practised by the anaesthetist. The patient should take a deep breath and hold it; if he was unable to do this for thirty seconds it was probable that he had some cardio-vascular defect. The effect of exercise on pulse rate and pulse pressure should be watched, the latter being the difference between systolic and diastolic pressure. In cardiac cases the systolic pressure, and less commonly the diastolic pressure, might fall as the result of exercise, the pulse pressure thus falling instead of rising. Blood pressure should be taken first with the patient lying down and then compared with the pressure sitting up. In myocardial disease there might be a higher blood pressure lying down than standing up. If these simple tests showed any abnormal results further tests with x rays, the electrocardiograph, and the polygraph should be made. Systolic and diastolic observations should be undertaken in cases of high blood pressure. If the diastolic pressure was only in the region of 90 mm. of mercury and no obvious arterio-sclerosis was present, it was possible to reduce the systolic pressure by 15 to 20 mm. in a week if the patient was put to bed and given daily salines with iodides; an anaesthetic might then be safely administered. If, however, the diastolic pressure was also high it was significant of increased peripheral resistance due to arterio-sclerosis, and an anaesthetic might be dangerous. Anaesthetics such as ether and nitrous oxide and oxygen, which tended to raise the blood pressure, should be avoided. If in addition to arterio-sclerosis there was renal disease, it meant that the end-products of nitrogenous metabolism were being retained, and uraemic coma might supervene upon anaesthesia. It should be remembered that people with a low blood pressure were liable to be much upset by morphine.

Dr. J. BLUMFIELD doubted the efficacy of morphine as a sedative in nervous cases; if a sedative was required, he preferred to give a fairly large dose of scopolamine. He also related the successful administration of an anaesthetic to a patient with heart-block, against the advice of the physicians.

Dr. A. L. FLEMMING also condemned morphine, and inquired if there was any danger in putting myocardial cases in the Trendelenburg position. He also wished to know whether it was justifiable to bleed patients with high blood pressure where the operation was urgent and there was no time for other treatment.

Dr. F. E. SHIPWAY deplored the fact that it was so seldom that the opinion of the physician was helpful to the anaesthetist. He also insisted on the necessity of maintaining an absolutely free airway in the case of myocardial disease. The Trendelenburg position often caused cessation of breathing in the case of old men suffering from renal and bladder diseases. In cases of high blood pressure he had found chloroform essential and morphine invaluable, especially if combined with scopolamine. In cases of aneurysm he preferred ether per rectum, together with morphine and hyoscine. Ether with oxygen was often quite suitable, especially if the induction was made with a chloroform-ether mixture.

Dr. HUGH PHILLIPS reported the case of a patient who took the anaesthetic quite well, but had since been hiccupping practically continuously; he was 67 years of age and very nervous, but his blood tension was only 140 mm., although he had a trace of albumin in the urine. The operation was for a new growth of the bowel, and Dr. Phillips asked whether the hiccupping was of cardiac origin.

Dr. H. P. CRAMPTON asked about the suitability of cases of paroxysmal tachycardia for anaesthetics, and Dr. R. E. APPERLY inquired whether preliminary doses of atropine had any effect on cardiac conditions.

Dr. LAKIN said, in reply, that the Trendelenburg position should be assumed very gradually in cardiac cases. Blood-letting was valuable in urgent cases with high blood pressure. Hiccup was not of cardiac, but probably of surgical origin. When paroxysmal tachycardia was present anaesthetics should be avoided if possible, as such cases were liable to cause trouble during anaesthesia. Atropine certainly had effects on cardiac cases.

AIRS, WATERS, AND PLACES.

At a meeting of the Section of Balneology and Climatology of the Royal Society of Medicine, held at 1, Wimpole Street, on March 4th, and presided over by Dr. C. W. BUCKLEY, Dr. F. G. CROOKSHANK read a paper on "Airs, waters, and places."

Dr. Crookshank said it would probably not be disputed by those interested in hydrology, balneology, climatology, and allied branches of medicine that two tendencies had lately become manifest at places where what was known as spa treatment was carried out. The first was the tendency to afford scientific explanations of the inexplicable, and the other the tendency to set up artificial substitutes for what was only successful when natural. In the textbooks written towards the end of the last century—in the days when it was thought the stethoscope and the *post-mortem* room, with the aid of the microscope, would teach all that it was necessary to know about life, death, and disease—spa treatment was mentioned only in terms of depreciation, with hints about a "pervading atmosphere of quackery" and gentle gibes about those who believed in the efficacy of the "water chemicals." Such scepticism was natural enough to physicians who really refused to believe what, as they said, they could not understand. It was, however, a fact that since the days to which he referred medical men, not content with observing the benefits accruing from spa treatment simply, naturally, and conscientiously carried out, had seemed to derive some kind of moral support from alleging those benefits to arise from radio-activity and what not, as if such alleged explanations made the matter any clearer! Those concerned were, indeed, no nearer the ultimate understanding of the curative processes initiated at Bath or Harrogate than they were a hundred years ago, when crude chemical analyses were first put forward as explanations.

In Dr. Crookshank's view the advantages derived from treatment or residence at any spa, in like manner to the physical or psychical conceptions of birth and life in particular regions, were not fairly to be attributed to any isolated factor, but were a function of the *milieu* in the sense of Auguste Comte: a function of a totality of exterior circumstances necessary to provoke the characteristic reaction on the part of the individual. The tyranny of the theorists who declared that only in the laboratory could experience be gained had lasted too long. Experience in the field was every whit as truly "experimental" as experience in the laboratory, and, for the physician and epidemiologist, more directly relevant. Indeed, if true progress was wished for there must be a return, sooner or later, to Hippocrates; and that a strong current of thought, avowedly based upon Hippocratic doctrines, had lately set in was illustrated by the school in France now engaged upon building up a new science of morphology which sought to observe man, not as a static thing, disjunctive to surroundings which compelled him to life or death as he was or was not fit to survive, but as constituting, with his surroundings, one definite continuity that exhibited a perpetual flux of adjustment and readjustment. The Hippocratic writer not only recognized the correlation between seasons and times and those disorders of adjustment to environment termed "being ill," but recognized a definite correlation between climates, the physical peculiarities of places, and types of mankind. Thus, in the quality of mineralization of the water and so of the food, both vegetable and animal, in special districts, was to be seen the explanation of the similar quality of mineralization, and so of physique of the inhabitants. That question was intimately linked with that of the endocrine glands and their influence on physique, for it was becoming more and more recognized that the activity of the thyroid was linked up with iodine in the food and drink, that of the parathyroid with calcium, and so on.

One of the advances of the future, Dr. Crookshank suggested, would be a recognition of the part played by minute traces of silicon, of fluorine, of arsenic, of copper, and of other minerals in food and drink in their relation with the activities of particular glands, and so forth, in the production of physical and perhaps racial types of varying kind. At any rate, it was becoming more and more

recognized that environment, while yet a unitary factor, was nevertheless of extreme complexity. But those questions were no less complicated than the epidemiological questions raised by the work *Airs, Waters, and Places*, and it would seem that in both respects it would be wiser to seek to balance the older empiricism with its synthetic judgements and simplified inductions rather than spend time and energy in a vain endeavour to isolate this or that specific factor or to secure victory for this or that theory. It might be said that Hippocrates did not in the work to which he had alluded make any express recommendations of a therapeutic order. Nevertheless, the therapeutic usage of airs, waters, and places, so far as it was rational, was a direct outcome of the Hippocratic study of the influence of *milieu* upon the health and character of the inhabitants, and it certainly involved a greater recognition of the thought of Lamarck than it was usual to accord in England. Those holding to the Lamarckian philosophy and the Hippocratic tradition might wonder whether the complexity of modern life and the luxuriant mechanisms of the present age were not co-operating to destroy what physicians would earnestly wish to conserve—the local characteristic and individuality of the environments to which they sent their patients. Local characters in respect of airs, waters, foods, habits, and so forth should be far more jealously guarded. It was idle to attempt to enlist Nature in a partnership in which the *raison d'être* was a sophistication of Nature's methods. He was not sure that even the spa physician himself was not more successful—in the right sense—when he was a native and an inhabitant, with local colour and local tradition, rather than a fashionable and fugitive visitor during the high season. At any rate, the closer the link between the physician and the locality the more valuable would be his contributions to epidemiology and to the knowledge of the play between airs, waters, and places and states of health and disease. There was more and more need for observation of such a nature as only the cultivated physician, attached to the soil and observant of Nature and Nature's methods, could give. The laboratory by itself was bound to fail. There was, however, no reason why investigations in the laboratory should not be prosecuted side by side with observation in the field of Nature—no reason except that when prosecuting observations in the field of Nature one could not be quite so confident of attaining ultimate explanations as could those who worked in the laboratory. And even if investigators were driven, like Hippocrates and Sydenham, to invoke "occult" and "hidden forces," it would not mean that there was a return to superstition and darkness. It would, on the contrary, indicate a more truly philosophic and scientific attitude than that taken by those who made glib use of the verbal "explanations" that passed current to-day, but which obscured rather than indicated the operations of Nature and man's reactions to Nature of which he formed part.

OBSCURE PYREXIA IN ADULTS.

At a meeting of the Medical Society of London on March 8th, the President, Sir HOLBURN WARING, in the chair, a discussion was held on obscure pyrexia in adults.

Sir THOMAS HORDER, opening the discussion, dealt with the subject from the point of view of a series of inquiries made by anyone faced with a case of obscure pyrexia. These inquiries or considerations came under the main headings of general and special. The first general consideration included the main causes of obscure pyrexia with few signs or symptoms. The essential cause in most cases was microbic, but there were certain other metabolic or nervous causes operating—for example, in Graves's disease, following severe muscular exercise, or in the curious "serum sickness" occurring seven days or so after the injection of horse serum. Certain exogenous foreign proteins also caused pyrexia, and there was no reason why endogenous protein bodies should not do the same. After a severe haemorrhage fever commonly followed and led to difficulties if infection were suspected. After a bout of haemorrhagic purpura, for example, fever frequently occurred, and also after post-partum haemorrhage pyrexia often led to difficulty. The nervous origin of pyrexia was important, there

probably being in certain cases an unstable thermotaxic centre. In these cases the underlying neurosis should receive careful treatment, and it was important to avoid too many pathological investigations. Alcoholism, the morphine habit, pregnancy, and a continued state of fever were all also causes of instability of the heat-regulating mechanism: a sort of pyrexial habit seemed to remain in certain cases after actual infection had passed off. The prevalence of an epidemic provided diagnostic indications sometimes, but sporadic cases of all infections were apt to be difficult, and the possibility of "imported" cases often rendered valueless a negative conclusion as regards an epidemic etiology. Certain chronic diseases in the patient were important: chronic nephritis, for example, seemed to render patients more likely to run a temperature for trivial causes. After surgical procedures in septic conditions—for example, a gangrenous appendix—pyrexia often presented a difficult problem, and the conditions to be considered were septicaemia, subphrenic abscess, empyema, or septic pyelophlebitis. A second consideration was whether the infection was exogenous or endogenous. In most acute pyrexial conditions exogenous infection was the cause, the majority of subacute infections being endogenous in origin, but acute endogenous pyrexia did occur—as, for example, in coliform infection of the urinary tract. Where the infection appeared to be exogenous the next consideration should be with regard to the portal of entry, but since there was often nothing left to incriminate the mouth and throat, for example, the next consideration became important—namely, the avenue of spread. The physician should pass under review the various paths by which infection might have spread and each system should receive attention. Despite many negative findings in certain regions, a positive fact often emerged strikingly from a methodical and complete examination. The next consideration concerned the organs particularly affected. The infection was by now embedded and often "cryptic"; certain deep-seated tissues should always be carefully considered in these "cryptic" cases. Bone, for example, was notoriously "silent," while the liver, perinephric and subphrenic regions should also receive careful attention. Sir Thomas Horder had been impressed with the importance of the pleura in certain cases of obscure pyrexia, and pointed out that pleurisy over an aneurysm might cause a very puzzling pyrexia. Certain other considerations were important; for example, the nature of the organism and the type of pyrexia produced should be carefully considered. In this connexion a study of the temperature chart often gave assistance. Lastly, Sir Thomas Horder dealt with certain clinico-pathological features in diagnosis. He pleaded for a thorough clinical examination before pathological investigations were undertaken, and insisted that pathological findings should be carefully interpreted in the light of clinical facts, quoting in this respect the unfortunate result of a laboratory diagnosis of acute lymphatic leukaemia in a case of infective mononucleosis.

Dr. C. E. LAKIN dealt first of all with certain instances of common diseases in an unfamiliar form, and described a case of tuberculous caries of the spine secondarily infected with streptococci and *B. coli*, which ran a curious pyrexia for many months. Another case was that of a middle-aged man with symptoms very like those of typhoid fever, but with persistently negative Widal reactions after several weeks. *Post mortem* it was found to have been a typical case of typhoid, the organism being recovered. Dr. Lakin stated that he had had several cases of typhoid fever recently under his care with negative agglutination reactions. Another common disease sometimes found in an unfamiliar form was pyelitis, and Dr. Lakin described a case of this in which pyrexia was present over a long period, due to a small amount of pus in the pelvis of one kidney. Another group of cases were those in which one condition was superimposed on another. An abscess in connexion with malignant disease of the colon was one such case, and in another malignant disease of the lung with secondary sepsis caused a curious pyrexia. In conclusion, Dr. Lakin quoted two rare cases—one of multiple abscesses in the spleen, and the other an abscess in the psoas muscle caused by *B. pyocyaneus*.

Mr. ZACHARY COPE, speaking from the surgical aspect, stressed the importance of a central pulmonary embolism as a cause of pyrexia in some cases, and also pointed out that malignant disease, especially sarcoma, frequently gave rise to pyrexia.

Dr. DES VOEUX described a case of obscure pyrexia in a woman due to a tapeworm, and pointed out that syphilis was not an uncommon cause of fever of unknown origin. A curious case he had watched for some years consisted of pyrexia in an old woman due to a tuberculous abscess just behind her manubrium sterni.

Dr. HERBERT FRENCH asked for information as to the value of agglutinating reactions in determining which of several isolated organisms was the cause of the patient's disease; secondly, as to whether modern methods of blood culture showed any improvement in recent years; and thirdly, whether any value could be attached to the finding of organisms in the urine of patients, since in any disease the kidney was supposed to try to get rid of the offending organism via the urine.

Dr. F. PARKES WEBER emphasized that tertiary syphilis, especially when affecting the liver, was a frequent cause of pyrexia. Dr. F. G. CHANDLER dealt with the value of a leucocyte count, which enabled a diagnosis between a subphrenic or perinephric abscess on the one hand and typhoid fever and tuberculosis on the other to be made with some certainty. He described one difficult case, and asked for suggestions as to diagnosis. Dr. G. W. GOONHART agreed with Sir Thomas Horder as to the modern regrettable tendency to rush at pathological investigations in these cases. He uttered a word of warning about leucocyte counts, describing a case of paratyphoid infection with a polynuclear leucocytosis. Dr. W. J. ADIE mentioned encephalitis lethargica as a cause of pyrexia in certain cases. Mr. J. E. H. ROBERTS described a case of typhoid fever with considerable leucocytosis which had caused difficulty in diagnosis, and mentioned an abscess in the anterior mediastinum as a curious cause of pyrexia after a mastoid operation. The PRESIDENT mentioned the middle-aged patient with a chronic gall-bladder infection as a type which sometimes presented a curious pyrexia.

Sir THOMAS HORDER, in reply, dealt with various points which had been raised, and, in particular, answered Dr. French's questions. He thought that blood culture methods had not improved in the last ten years; that urine cultures from catheter specimens were of much positive value in obscure pyrexia; and with regard to the agglutination reactions he pointed out that all pathological results were either absolute or relative. Agglutination tests supplied relative data to which undue weight should not be attached.

EXCRETION OF ALCOHOL BY THE URINE IN DRUNKENNESS.

At a meeting of the Medico-Legal Society held in London on January 10th, with Sir WILLIAM WILLCOX in the chair, Dr. GODFREY CARTER and Dr. HERBERT W. SOUTHGATE made a communication, illustrated by lantern slides, on the excretion of alcohol in urine as a guide to alcoholic intoxication. A joint paper by Drs. Carter and Southgate on this subject is printed in the present issue of the JOURNAL at page 463.

The CHAIRMAN, opening the discussion, said that the tests for drunkenness used in this country at the present day were most unsatisfactory, and any scientific method by which an estimate might be made of a man's sobriety would be of the utmost value. The evidence which was produced as regards the quantity of alcohol taken was most fallacious as a rule, and one really could hardly believe a word the accused person said in many cases of drunkenness. The proposed tests of blood and urine were, so to speak, in their infancy, and it would require a large number of observations before absolutely reliable rules could be laid down.

Dr. MACKENZIE WALLIS confirmed as the result of his own investigations the figures given by Dr. Southgate, using the same methods. He had himself found a considerable quantity of alcohol in the urine in tests he had made. But

there was an enormous amount of work to be done before they could generalize, because every case differed as regards tolerance to alcohol. He considered, however, that a case had been made out as to the relation of concentration of alcohol in the blood and urine. Then there was the question of the time of day at which the investigation was made, and the question of the subject's fatigue. There was, he thought, much less tolerance for alcohol in the morning than in the night. There was, further, the question of food. One ought to investigate the effect of the same dose of alcohol on different foods. Dr. Southgate had confined his attentions to bread-and-milk dietaries, and so he suggested that the subject should be given a heavy meal, and then see what concentration there was of alcohol in the blood and in the urine.

Dr. ROCHE LYNCH asked whether any tests of blood and urine had been made in cases of diseases like nephritis. Further, he would like to know whether, if an analysis of the urine or the blood was made four hours after the original dose was taken, and when the graph curve was on the down grade, how far that curve could be made use of to predict the amount of alcohol in the urine or the blood at one hour after the dose was taken when the graph was on the upward grade. Then Dr. Southgate had shown that a lower concentration of alcohol was found in the blood and urine of a heavy drinker than in an abstemious person, and he would like to know how the maximum heights, as shown by graph curves, compared in these cases.

Dr. MORGAN FINUCANE said, as a divisional police surgeon in the metropolis, he was anxious to know how far the tests described could be applied to his own work. He drew attention to the book issued by the Board of Control during the war entitled *Alcohol: its Action on the Human Organism*. It was a scientific investigation of all known tests of the effects of alcohol, and its conclusion was that little or no alcohol was excreted in the urine. He did not see how a standard could be fixed. What they had just heard was an absolute contradiction of all contained in that book, issued by a committee composed of distinguished men like Sir George Newman and others. He could not imagine any police station in London setting up convenient urinals for the purpose of getting specimens of urine—nor could he imagine the Treasury providing the money. They must be practical people. It seemed to him that this was as far-fetched a theory as the examination of the spinal fluid suggested by a distinguished physician a few months ago on the subject of drunkenness. He thought they must rely upon experience and common sense and upon the evidence, which in most cases was trustworthy. He did not believe that there was a public demand at all for the boiling down of drunkenness to scientific tests or to one or two symptoms. It could not be done. It was not what the public wanted or what courts of law would allow. The test of drunkenness was really the conduct and the behaviour of the individual when the accused had passed through the whole gamut of arrest and observation by the police. In his experience the police were absolutely fair and just and humane men engaged in eliciting the truth. He was not a partisan of the police. Very often he had stood between the prisoner and the police. Dr. Finucane referred to the symptoms of flushed face, dilated pupils, congested eyes, rapid pulse, which, he said, were in themselves trivial. It was above everything the conduct, the loss of control, the self-criticism of the individual, the application of common sense, and the effect on the nervous and muscular systems of the prisoner—these gave a picture of which they could seldom be mistaken if experienced in these matters, and bearing in mind the whole history of the case. The lecturer had said that in cases of chronic alcoholics there was little or no concentration of alcohol in the urine. Motorists were usually people constantly drinking, and therefore he suggested that the concentration of alcohol in such cases would not exist in the same way as it would in the urine of abstainers. As a police surgeon engaged in this sort of work, he maintained that nothing would come of this private inquiry. Every case ought to be decided on its merits, and they could with confidence leave the decision to magistrates possessing wisdom and experience,

who always gave the accused the benefit of any reasonable doubt.

Dr. A. S. WOODWARD said he would like to know the result of scientific investigation into the question of how far food neutralized high concentrations of alcohol in the blood and in the urine.

Sir BERNARD SPILSBURY suggested that the concentration of alcohol in the urine might vary considerably according to the amount of urine secreted before drink was taken. A man was not at all likely to empty his bladder just a few minutes after his arrest in order that a specimen should be taken of his urine. An enormous amount of work was still to be done before a reliable test could be placed before them.

Dr. B. A. LEVINSON thought a person accused of drunkenness should be given an opportunity of standing the test. Magistrates must long for some standard whereby the police evidence could be tested.

Dr. CORBETT said it was pathetic to see two doctors ranged against each other on a question of drunkenness. If, in cases where patients entered hospitals, records were kept of urinary and blood tests, such records would be invaluable for use in High Court actions.

Sir WILLIAM WILLCOX reminded the audience that it was as a result of a test of a specimen of urine sent to the Home Office in the Armstrong murder case that he was able to say that a fatal dose was given three days before. That showed what could be done in cases of arsenic in the urine.

SOLID TUMOURS OF THE VULVA.

At a clinical meeting of the North of England Obstetrical and Gynaecological Society at Sheffield on February 19th, the President, Mr. W. GOUGH (Leeds), in the chair, Mr. A. LEYLAND ROBINSON (Liverpool) showed two solid tumours of the vulva.

Mr. Leyland Robinson said that the two patients with tumours of the vulva were operated upon within a short time of each other, and both were sent to the hospital with a diagnosis of Bartholin's cyst, but proved to be solid tumours of an uncommon type. A fibromyoma of the vulva was removed from a multipara aged 33, who complained of a lump which had been present for five or six years. On examination a hard, smooth, discrete, and freely mobile tumour was found beneath the skin of the right labium majus with the labium minus stretched over its median surface. The position of the lump closely resembled that of a Bartholin's gland. There was nothing pertinent in the past history and, in particular, no evidence of gonorrhoeal infection. The lump was excised without difficulty, and as its chief point of attachment was at the upper or inguinal pole it was probable that the tumour arose from the terminal vulval fibres of the round ligament. Microscopically it was clearly a fibromyoma, and would be called a dermoid by some pathologists. Dermoids were described as connective tissue tumours of the female abdominal wall, which displayed active growth during pregnancy, and were related pathologically to the fibrosarcomata. The probability was that dermoids were merely fibromyomata, arising in the round ligaments, or some outlying or displaced rest of myometrial tissue, which grew in unison with the uterine muscle during pregnancy, and that the cellular appearance produced by this decidua or pregnancy reaction had been mistaken for malignancy, and led to the incorrect inclusion of these tumours among the sarcomata. The second case was one of carcinoma of Bartholin's gland removed from a widow aged 55, seventeen years past the menopause. There was no history of gonorrhoea or any serious illness. There had been four abortions, the last one twenty years ago, and no full-term labours. The patient complained of some dragging pain in the vagina, and of a lump in the vulva which was first noticed four months before she had sought advice; it had been getting bigger lately. A swelling the size of a hazel nut was found in the right labium majus, in the anatomical position of Bartholin's gland. It was slightly tender and solid in consistency. The overlying skin was perfectly normal in appearance and mobility. No glands could be felt in either groin. Local excision only was performed—

partly because the patient's general condition was very poor, and partly because the diagnosis of malignancy rested on suspicion alone. There were no enlarged glands, and it was thought that, this type of malignant disease being very rare, the lump might turn out to be a simple adenoma. A small secondary haemorrhage occurred on the ninth day of convalescence, but otherwise the patient made a smooth recovery, and remained well at the present time, seven months later, during which period she had been under treatment by x-ray therapy. Herbert Spencer in 1913 had published a similar case, and included in his paper thirteen collected from the literature, of which only one had been published in English periodicals. The published records of this condition were, therefore, extremely rare, and Mr. Leyland Robinson believed that his case was the first reported to the society. Spencer had stated that these tumours were harder than an inflamed gland, nodular on the surface, and associated with bluish discoloration of the skin and oedema of the hymen, but fourteen cases were too few for dogmatism, and practically none of these points were seen in the case now reported. Of the fourteen examples collected by Spencer, in only one was there any positive history of gonorrhoea, and in only three was leucorrhoeal discharge a feature, so that previous infection had little, if any, etiological significance. Congenital abnormality was noticed in two cases, Bartholin's gland being apparently absent on the opposite side of the tumour. The pathological appearances varied greatly, and little agreement existed among the fourteen authors. In three cases the growth was described as "carcinoma" only; in two as "cylindrical carcinoma," and the remainder as follows: "melano-carcinoma," "tubular carcinoma, partly scirrhus," "carcinoma parvi cellulare," "canerose carcinoma," "adenocarcinoma," "villous carcinoma," "squamous-celled carcinoma," and "adenocarcinoma, resembling squamous." Spencer had pointed out that these pathological differences were associated with the fact that the epithelium lying around the acini and ducts varied considerably in shape and arrangement, and hence the gland might well give rise to tumours of diverse appearances. He quoted Jambon and Chaboux, who examined the glands of several young adults after death. They stated:

"The excretory ducts appear in the middle of the gland in the form of irregular cavities, reaching even to the middle of the acini. They present an epithelium either of one or several layers of cubical cells. Generally as the duct increases in calibre and importance its epithelial lining becomes thicker. The cells are only half the size of the secretory cells of the acini, and consist of a large nucleus surrounded by a thin layer of granular protoplasm; near the termination of the common duct the superficial layers of the lining epithelium tend to become squamous."

These authors said nothing about distinctly cylindrical epithelium in the duct, though this was mentioned by de Sinety, Klein, and Langerhans.

In the present case there could be no doubt that the tumour was an adenocarcinoma. These growths were said to be of great malignancy, and of the fourteen patients mentioned by Spencer, only one, Trotta's, was alive and well for so long as six years after operation. It was interesting to note that no glands were removed in this case, as in Mr. Robinson's, whose progress he hoped to report to the society at some later date.

Ovarian Cyst in a Girl of Eleven.

Mr. Leyland Robinson also showed a specimen removed from a healthy, well developed girl, 11 years of age, who had complained of abdominal discomfort for one week. A tumour formed a marked prominence in the lower abdomen, extending up to the umbilicus. It had all the physical signs of a simple serous cyst, and the diagnosis presented no difficulty. A vaginal examination, which was made under anaesthesia immediately before operation, disclosed a typical dermoid consistency of the lower pole of the swelling, and suggested the dual pathological nature of the tumour. Removal was easy, and convalescence uneventful. It was noticed at the operation that while the conformation of the external genitalia was normal, the uterus was noticeably narrow and elongated, the probable result of pressure from the tumour, and perhaps of hypofunction of the ovary. The specimen proved to be a bilocular cyst, the lower loculus showing the usual

characters of a dermoid, and the upper one those of a serous cystadenoma. The cases were not very uncommon in children under 10 years of age, for Bland-Sutton had collected 100 cases, and Howard Kelly published 126 cases in 1901, of which 55 were unilocular or multilocular cystadenomata; 47 were dermoids and 24 solid tumours of the ovary. Many tumours had been successfully removed from quite young infants. D'Arcy Power operated on a child of 4 months, and MacGillivray in 1908 described a very interesting operation at which he had successfully removed a cyst completely filling the abdomen of an infant of 11 months.

So far as Mr. Robinson was aware, the last time the subject was discussed in the society was in 1910, when Mr. Cuff showed a dermoid removed from a child of 9 years. During the discussion Mr. Lloyd Roberts had related three cases, all dermoids, Dr. Rabagliati two, also dermoids, and Professor Donald one case of a solid tumour, said to be a sarcoma, although the patient was free from recurrence for three or four years after operation. The chief points of interest in the present case were that although the tumour was of a fair size there was an almost complete absence of symptoms which were generally those of an acute abdomen, and due to torsion; there was also the association of a dermoid cyst with a serous adenoma, and the attenuated appearance of the uterus, with the possibility of persistent infantilism as a result of the loss of the left ovary. Such a condition would appear to offer an excellent opportunity for the use of glandular extracts during pubescence. Mr. Robinson thought it would be interesting to know how many cases of this type the fellows and members of the society had seen during this interval of sixteen years.

Double Placenta with Placenta Praevia.

Dr. D. DOUGAL (Manchester) showed a specimen of double placenta from a case of placenta praevia.

The patient, a primipara, 30 years of age, had a severe attack of ante-partum haemorrhage at the thirty-fourth week, and was admitted to hospital. On admission the haemorrhage had ceased, and there was no dilatation. The foetal heart sounds could be heard well; the head was presenting, but high up, and there was a distinct resistance felt in the lower uterine segment, which was thought at the time to be due to a placenta praevia, or possibly to concealed haemorrhage. There was no further bleeding, and the patient was kept at rest for three weeks. At the end of that time she had slight pains, and the membranes ruptured. Vaginal examination showed the cervix to be very little dilated. A few hours later the cord prolapsed; an anaesthetic was given, and attempts made to replace it. During these attempts, which proved unsuccessful, there was profuse haemorrhage, and the pulsations in the cord ceased. The child being dead, and no further bleeding taking place, the patient was allowed to deliver herself, and this she did about ten hours later.

The specimens shown were the placenta, membranes, and cord. The placenta was double, but the two halves approximated each other at their distal extremities, and both lobes reached the edge of the opening in the membranes. The insertion of the cord was at the inferior margin of one lobe, the vessels to the other lobe covering an intervening area of membrane. One lobe was supplied by the main trunks of the umbilical arteries and vein, but the other lobe obtained its supply from a subsidiary branch of one artery and vein. The vein to this lobe ran along the edge of the opening in the membranes, and would be very liable to pressure or actual injury during delivery or intra-uterine manipulations. Dr. Dougal thought it very possible that something of this sort happened during attempts to replace the cord. With the number of anatomical abnormalities present in this case—namely, placenta praevia, marginal and velamentous insertion of cord, and an exposed vein on the edge of the opening in the membranes—the chances for the child were evidently very poor indeed. The combination of placenta praevia and low insertion of the cord not only favoured prolapse of that structure, but also made replacement difficult, if not impossible.

Chronic Inversion of the Uterus.

Dr. DOUGAL also reported a case of chronic inversion of the uterus. A married woman, aged 24, consulted him in October, 1925. She complained of constant bleeding, which commenced six weeks after her confinement, fourteen

months previously. At the confinement the child was born without intervention, but the placenta was retained, and had to be removed manually. She stated that she was in a condition of shock at the end of the labour, and that her convalescence was slow. The patient was extremely anaemic. On vaginal examination a soft swelling was felt protruding through the cervix, and there was a fair amount of bleeding on handling this tumour. The fundus of the uterus could not be felt in its normal position, so a diagnosis was made of chronic inversion, and the patient admitted to hospital for treatment. Dr. Dougal tried to reduce the displacement with a repositor, but was unsuccessful, and therefore decided to perform Spinelli's operation, which was really an extensive anterior hysterotomy, but he found it somewhat awkward to carry out, owing to the inverted structures. He had to incise the anterior wall of the uterus as high as the fundus before it was possible to reduce the displacement. There were no adhesions present at the neck of the sac, but the peritoneal surfaces about the fundus were adherent to one another, and on separating these he found the remains of a partially atrophied fibroid, about the size of a bean. He excised this tumour, and then stitched up the uterus. There was a good deal of oozing, which he was unable to control completely, so he was compelled to leave a narrow gauze drain in contact with the anterior uterine wall. The vaginal wall was then sutured in the usual way, a small part being left open for the gauze to pass through. The patient made an uneventful recovery, and was now, three months later, menstruating regularly and losing a normal amount of blood at these times. There were one or two interesting points about the case. The inversion might have been caused by extracting a partially separated placenta, but on the other hand it might have been spontaneous, the fibroid tumour at the fundus of the uterus playing some part in the process. The failure to replace the uterus with the repositor was no doubt partly due to the fact that the anterior and posterior surfaces of the uterus were adherent in the neighbourhood of the fundus.

Ruptured Uterus.

Dr. C. P. BRENTNALL (Manchester) reported a case of ruptured uterus in a woman, aged 38, in her sixth pregnancy.

The first four labours were normal and at full term, the fifth was premature, and the child was stillborn. There was a minor degree of pelvic contraction, the transverse measurements being normal, and the conjugate slightly reduced; the external conjugate measured less than seven inches. There were no abnormalities during pregnancy, and labour began about the estimated date. Pains started at 8 a.m., and continued all day until about 5.30 p.m. They were probably not severe, as the woman did not summon the midwife until the afternoon. There was a prolonged interval between the pains at this time, and the woman was still going about the house when her husband returned from work at 5.30. The membranes ruptured shortly after this, the uterine contractions recommenced, and she went to bed. She stated that she bled a good deal during the evening, but this was doubtful, as the midwife did not send for a doctor until about midnight. The pains continued without intermission until 2.30 in the morning. She was seen by two doctors about midnight, and was immediately sent off to hospital with the diagnosis of impacted breech; there appears to have been no attempt at any operation. She arrived at hospital at 2.30 in the morning. Labour had then lasted eighteen and a half hours, and the membranes had been ruptured nine hours; she was very pale, and in a state of shock. Abdominal examination revealed the obvious fact that the uterus was ruptured. The body of the foetus could be felt to one side, and the contracted uterus to the other. The lower abdomen was very tender, and she complained of pain in the left shoulder. The foetal head was quite low down in the pelvis, lying in the transverse diameter, and there was a depressed fracture of the posterior parietal bone; the foetus was delivered by craniotomy and the placenta removed manually. Dr. Dougal had considerable doubt whether the woman would stand an abdominal section, but it appeared her only chance. On opening the abdomen he found a longitudinal tear of the uterus, extending from about the attachment of the round ligament, and involving also the upper part of the vagina. Both layers of the broad ligament were torn across, but the Fallopian tube and infundibulo-pelvic ligament were intact. The uterus was removed as rapidly as possible by panhysterectomy, and the vaginal wound closed. The pelvis was drained by a rubber tube in the lower angle of the incision.

There were one or two unusual features about the case. Ruptures of the uterus were of more frequent occurrence in the minor than in the major degrees of contracted pelvis,

and they were commoner in multiparae than in primigravidae. But in such cases there was generally a history of dystocia, and the supposition was that some undetected injury to the soft parts gives way at the subsequent labour. In this case the pelvic contraction was of a very minor degree, the pelvis being of the simple flat variety, and all the previous confinements had been completed without difficulty or undue delay. There was no early rupture of the membranes, and if it was assumed that the second stage of labour began when the waters broke its total duration was not more than nine hours. The most unusual feature of the case appeared to be that the head had passed the brim, and was well down in the pelvis.

Professor W. FLETCHER SHAW (Manchester) read a note on two cases of Wertheim's hysterectomy complicated by double ureter. The PRESIDENT showed a specimen of carcinoma of the cervix in a woman, aged 29, and described a case of adenomyoma of the uterus. Professor J. S. C. DOUGLAS and Mr. W. W. KING (Sheffield) jointly demonstrated a specimen of mucocele of the appendix.

ERRATUM.

In the report of the meeting of the North of England Obstetrical and Gynaecological Society on February 6th (p. 243) the name "Miss Brookfield" should have been "Mr. R. W. Brookfield."

UTERINE IMPLANTATION OF THE HUMAN OVUM.

At a meeting of the Edinburgh Obstetrical Society held on February 10th, with the President, Dr. R. W. JOHNSTONE, in the chair, Dr. JAMES YOUNG read a paper on the embedding changes in the uterine mucosa as studied in an early human ovum.

Dr. Young said that the ovum was situated in a completely closed implantation chamber, but extending from its outer surface through the entire thickness of the mucous membrane there was a narrow stalk of trophoblast which indicated the track of entrance. Externally it measured 1.5 by 0.77 by 0.6 mm., and the trophoblast consisted of the usual dual cellular elements. There was no evidence of the vacuolation of the syncytium present in the Bryce-Teacher ovum, which Dr. Young believed to be probably abnormal. The blastocyst measured 0.44 by 0.3 mm.; it was filled by mesoblast and there were no villi. The embryonic area was too badly damaged to allow of a satisfactory study. The ovum in its general features resembled the two earliest ova so far described—namely, those of Miller and Kleinhans. The maternal changes were similar to those which Dr. Young had described in 1910. To understand these changes it was necessary to remember that the uterine mucous membrane was unique among the tissues of the human organism in so far as its function, both during the menstrual cycle and during pregnancy, was fulfilled by a discharge of blood from its vessels. The mucosa thus bled in anticipation and it bled again with realization. Despite the unique character of this phenomenon it had often been believed that the menstrual bleeding and the bleeding of pregnancy were necessarily two different processes. In one case it was due to the ovarian "hormone," whilst in the other it was thought to be due to the active destruction of the vessel walls and the mechanical liberation of the blood. But if the bleeding that was essential to placentation could be accomplished in this mechanical way, why, it was asked, had there been built up all the physiological and structural complex, the obvious function of which was an immediate opening up of the vessels and a discharge of the blood at the very regions where the ovum could be expected to appear? In his previous work Dr. Young professed to have solved this obvious dilemma by showing that the bleeding of the menstrual cycle and the bleeding round the engrafted ovum were essentially similar and were due, in each case, to the response of a specially constructed and specially sensitized tissue to a biochemical material. He had shown that during pregnancy the vessels opened up in a way which was exactly similar to that operating in the premenstrual phase. His views published sixteen years ago regarding the essential similarity of the menstrual and placental "hormones" in so far as the uterine changes were concerned

had been supported by the recent work of Allen and Doisy and others, who had shown that pro-oestral changes in ovariectomized animals could be induced by both ovarian and placental extracts. Dr. Young had previously shown that the ease with which this "bleeding" response occurred was due to the fact that the stroma of the mucosa consisted of a soft undifferentiated tissue, in which the vessels were devoid of any supporting elements—muscle or fibrous or elastic tissue. The nature of the maternal reaction in his present very early ovum confirmed Dr. Young's previous results. In a wide zone round the implantation chamber the vessels were expanded in a sinus-like manner, and in areas distant from the trophoblast their contents were being poured freely into the stroma. The result of this bleeding response to the chorionic secretion was a virtual advance of the nourishing blood fluids towards the ovum, and, in the immediate vicinity of this, a pouring of the blood into the implantation chamber from vessels, which were thus like rivers that had overflowed their banks. Only by an understanding of these phenomena could the function of the decidua be appreciated. It was obvious that these maternal changes were temporary and had as their sole purpose the meeting of the needs incidental to embedding. After this had been accomplished and a sufficient blood supply was provided it was clear that the active displacement of tissue which they implied had to be arrested. This later and entirely different phase in placentalation could only be possible in one or other or both of two ways—by a suspension of the chorionic secretion or by a protective mechanism on the part of the maternal tissues. Dr. Young in this connexion showed sections of pregnant tubes in which the only regions where the tissues were protected against a tearing up by the oedematous and haemorrhagic escape provoked by the chorionic secretion were the regions, in the mucous membrane, where a decidual reaction had occurred. He believed that in the uterus in normal pregnancy the decidua acted in a similar way. A recognition of these facts could alone explain why the whole mucosa—the whole of the sensitive tissue—must necessarily undergo a decidual change.

SANOCRY SIN IN TUBERCULOSIS.

At a meeting of the Leeds and West Riding Medico-Chirurgical Society on February 26th, Mr. A. L. WHITEHEAD, the President, in the chair, a paper was read by Professor T. R. ELLIOTT of University College Hospital, entitled "Sanocrysin in tuberculous infections."

Professor Elliott described briefly the pioneer work by Professor Moellgaard and Dr. Secher, and narrated the progress of clinical observations with sanocrysin in Great Britain during the past fifteen months. The earlier observations had emphasized the serious dangers that might arise if a case of heavy infection were treated, or if the drug were pushed repeatedly at too close intervals, such as in 1-gram doses every three or four days. Later experience, both in Denmark and in England, had shown that the dangers could be lessened by milder treatment with 1/2 or 1 gram doses at intervals of from one to two weeks. By this method dangerous conditions of tuberculous intoxication were lessened and there was rarely need to use the special serum; there was also less probability of metallic poisoning of the kidneys, liver, or skin. Fournier and Mollaret in Paris, using a similar gold salt, on Levaditi's suggestion, in human syphilis, found that intensive dosage arrested the syphilitic infection and reversed the Wassermann reaction, but milder treatment failed to abort the lesions or to affect the Wassermann reaction; it was therefore probable that the milder method in tuberculous infections might be similarly much less effective. Professor Elliott described four consecutive cases in which great improvement followed the use of sanocrysin; the best results were seen in patients with recent and active tuberculous inflammations. It was absolutely necessary that the patient should be in bed under constant medical supervision so that any untoward development could be observed at once and the treatment modified.

Dr. DE CARLE WOODCOCK (Leeds) thought that the time was ripe for the introduction of some drug in the treatment of tuberculosis. He himself had hoped that manganese

would prove useful, and although the results were disappointing, yet he thought that one of the heavy metals might be found as effective as arsenic had been in syphilis.

Dr. RAWDON VEALE asked for information as to the value of the drug in the treatment of lupus. Dr. E. SMITH (Harrogate) inquired whether it had been tried in cases of renal and bladder tuberculosis.

Professor ELLIOTT thought it unlikely that sanocrysin would prove useful in lupus and in renal tuberculosis.

Mr. H. B. SCARCELL (Leeds) demonstrated a series of radiographs by means of lantern slides, and Dr. T. WARDNOR GRIFFITH (Leeds) gave a lantern demonstration on the action of quinidine sulphate in auricular fibrillation.

ENDOCRINOLOGY AND OLD AGE.

A MEETING of the Nottingham Medico-Chirurgical Society was held on February 18th, the President, Mr. H. BELL TAWSE, in the chair, when Dr. LEONARD WILLIAMS gave an address on endocrinology and old age.

Dr. Leonard Williams stated that the diseases and disorders of old age might be reduced to a common denominator in the word "circulatory." The circulation was complete and fully equipped at birth; it underwent no evolution and knew no respite. It was the commissariat of the bodily economy. Its only vice was its capriciousness; in one case it might give a vigorous digestion and a sluggish brain, in another a brilliant mind and chronic dyspepsia. It determined growth and muscular development, and it was by its default that man, having waxed, began prematurely to wane. The delicate highly organized structures were the last to be developed and were often the first to fail. Man grew old "in bits," and the portions of him which lasted longest were those which were most fully employed. A man's brain might thus continue active at the expense, as it were, of his muscles, joints, and other tissues. So far as existence was concerned the stomach was a key industry, which the higher centres were not. The only key industry in the brain was the medulla. When the stomach required more blood the higher centres resigned their rights. The circulatory system was in a large measure subservient to other systems, especially to the endocrine system, the oldest in the evolutionary series being the suprarenal, which presided over the circulation, muscular activity, assimilation, excretion, and reproduction. Alone among the endocrine organs, it hypertrophied with advancing years; the others atrophied. In the first half of the second month of intrauterine life the suprarenals were twice as large as the kidneys, and the disproportion in size was due entirely to an excess of cortex over medulla. The adrenal had been called the gland of fight and flight; a large cortex implied a combative disposition, a thin cortex a submissive nature. Dr. Leonard Williams instanced constipation as one of the minor penalties of advancing years, and one which occasionally so upset the patient's nerves as to send him definitely off the rails, and recalled the advice of Sir George Macleod, who used to say to his students, "Beware of the man who carries his head in his rectum, for one day he will commit suicide." He suggested three remedies, all sedatives, which were usually efficacious—petroleum and agar-agar, taxol, and belladonna. Although a convinced disciple of Arbuthnot Lane, he had not infrequently thought that Nature conferred a measure of constipation on old people for a very beneficial purpose. A man dug his grave with his teeth, and overeating hastened old age. In most mental hospitals overfeeding was rampant. Referring to the modern methods of rejuvenation, he remarked that it was extraordinary that physiologists had not been able to decide whether the testicular hormone was secreted by the interstitial glands or in the tubuli seminiferi. At the moment opinion seemed to be in favour of the tubules, and if this were correct Steinach's operation would be deprived of all physiological support. Whether the results of this operation were good or bad, there was this to be urged against it, that it was a mutilating operation. With Voronoff's grafting operation it was far otherwise. It could be repeated half a dozen times on the same patient, and often led to an increase in

strength and a prolongation of life; he had not yet come across one case which had been a failure, though he had heard of such. Some patients were more benefited than others, and some took longer than others to experience the benefit. The operation was designed to conserve mental and muscular vigour in the declining years; it was not designed to restore copulative capacity to senile impotence, and it never did so.

At a meeting of the Liverpool Medical Institution on February 18th Dr. FRANK H. BARENDT read a short paper on prurigo, and showed a male patient, aged 13, suffering from prurigo ferox s. agria. He gave a brief history of the term, first used by Hebra to describe this inveterate skin disease, frequently called Hebra's prurigo. Dr. Barendt drew attention to, and afterwards demonstrated on the patient, the salient features: the thickened skin of the shins; the scattered scratched papules, and the presence of the so-called "prurigo buboes." The differential diagnosis between urticaria, eczema, and especially scabies, was set forth, for these sufferers were frequently treated for these diseases, especially scabies. There were remissions at times, but cure *in sensu stricto* could not be effected. Dr. Barendt considered that the clothing next to the skin should be cotton or linen, not wool, bathing should be used sparingly, and the integument should be kept emollient continuously. It was his experience that such measures alleviated the intolerable itching. Internal treatment was of no avail, although bromides were sometimes useful in allaying the restlessness at night, when this condition was superadded to the pruritus.

Reviews.

THE COCAINE HABIT.

PROFESSOR HANS W. MAIER of the Psychiatric Clinic, Zürich, in his book *Der Kokainismus*, deals exhaustively with all aspects of the cocaine habit. The first chapter contains a description of the use of coca leaves by the natives of South America, and the next two give a short account of the chemistry and pharmacology of cocaine.

The main portion of the book is devoted to a detailed description of the cocaine habit. Its establishment among white races is an interesting but very sad chapter in medical history. Tschudi first brought coca leaves to the notice of European science, and their action in stimulating the central nervous system was at once recognized, and Samuel Percy observed the local anaesthetic action of the leaves on the tongue as early as 1856. In 1860 Niemann isolated the alkaloid cocaine, and also noted its local anaesthetic action, but it is a remarkable fact that no general use was made of cocaine as a local anaesthetic until 1884. Meanwhile, however, the drug had attained notoriety because, in 1878, certain doctors in the United States tried it as a cure for the morphine habit, and found that it had a marked action in relieving the desire for morphine in habitués. This discovery attracted very general attention, and the new cure for morphinism was taken up with enthusiasm in Italy and in Germany. It was not long before it became manifest that the cure was worse than the disease, because the cocaine habit was even more destructive than the morphine habit. In 1885 Erlenmeyer drew attention to these dangers, and pointed out that the spirits brought in to help were really destroying fiends. In this manner, however, the cocaine habit first became established on the Continent and in the United States. Apparently the habit died out again in Germany, for in 1899 Leudesdorf suggested the use of infusion of coca leaves as a cure for alcoholism. This is an interesting example of the shortness of the memories of medical men, because only fourteen years before the whole medical press of Germany had been filled with warnings against the use of cocaine in the treatment of drug addiction.

The cocaine habit spread steadily but slowly in the first decade of this century, and by 1914 its use was very common among the prostitutes in the large towns of Europe. The war led to a rapid spread of the habit, and after the war it extended with most alarming rapidity. In the United States official figures show that the use of cocaine is diminishing, and in England it does not appear to be increasing, but in Germany and Switzerland the habit appears to be spreading very fast.

The author describes the psychological effects produced by cocaine in considerable detail, and his general descriptions are supplemented by accounts of experiments carried out by himself on cocaine addicts and others. Cocainism is essentially a sociable vice, for the cocaineists usually form clubs and take the drug in company. In this respect cocaine resembles alcohol and differs from morphine. The general effects of cocaine administration are a feeling of euphoria and a subjective sense of activity and excitement. Psychological tests on cocaineists show that the administration of cocaine actually produces a true stimulation of the higher centres of the brain, and increases the speed with which numerous tests can be performed.

One special action for which the drug is much used by cocaineists is, however, its effect in producing sexual excitement. This action is most marked in women; in them cocaine produces an increase of sexual desire and also an increase of sexual powers; indeed, often it produces a condition resembling nymphomania. In men sexual desire also is increased, but usually the sexual powers are reduced. The author gives extensive reports of cases which illustrate the habits and morals of cocaineists. The general picture is one worthy of the pen of Swift, and, indeed, reminds us of his Yahoos. The old statement that cocaine produces more rapid moral, mental, and physical degeneration than any other habit-forming drug appears to be, if anything, an understatement. Nevertheless, the author concludes that cocaine is not as powerful a habit-forming drug as morphine, since the removal of the drug from an addict does not produce a violent physical reaction such as occurs if a morphinist is suddenly deprived of his drug. For this reason the author concludes that abrupt withdrawal of cocaine from addicts is practicable, and that no doctor should prescribe cocaine even to the most confirmed addict.

The legal aspect of cocaine addiction is discussed in the last chapters of the book. The terms of the Hague International Convention of 1912 are discussed, and an account is given of the various conferences on dangerous drugs that have been held at Geneva under the auspices of the League of Nations, a subject with which our readers are familiar. The book concludes with the following urgent warning as to the possible dangers of any extension of drug habits: "People talk much of the horrors of gas warfare, but do not realize sufficiently that the threatened spread of the abuse of such violent poisons as cocaine might develop into a much greater danger to the community. To-day it should still be possible to nip this developing pest in the bud. Let us hope that this may happen, and that this description of its origination and nature may soon be of interest only to the historian either of medicine or of the social evils of our epoch."

CHRONIC PANCREATITIS WITH JAUNDICE.

Is a monograph much on the lines of a good inaugural thesis, though it does not appear to be one. Dr. PIERRE MALLET-GUY discusses all the features—etiological, clinical, diagnostic, and surgical, for, as the cure is drainage, he considers it a surgical disease—of chronic pancreatitis accompanied by jaundice, with special reference to the value and the remote effects of the operation of cholecystogastrostomy. This study has entailed much labour, for he accepts, after critical consideration, 106 cases of this syndrome, and gives extensive references, including important English writings, which extend over more than forty pages. In addition, a large number of cases, some of them previously unpublished, are quoted in illustration of his arguments.

² *Pancréatites chroniques avec ictere (causes, diagnostic et traitement): valeur et résultats éloignés de la cholecystogastrostomie.* Par Dr. Pierre Mallet-Guy. Préface de M. le Professeur Bérard. Paris: Masson et Cie. 1925. (Roy. 8vo, pp. 307; 8 plates, 15 figures. 25 fr.)

¹ Dr. Hans W. Maier. *Pathologie, medizinische und behördliche*. Dr. Hans W. Maier. Leipzig: G. Thieme. 1925. 22 figures, 12 plates. Paper cover, R.M. 10; bound, R.M. 17.50.)

The condition may occur at any age between 8 and 74, but the average age is between 40 and 45, and the female sex provides a majority of the victims. The important causes are, in the first place, infection of the biliary tract, a view which is thoroughly accepted, and in the second place syphilis, of which examples are brought forward. This symptom-complex, which most often imitates a calculus in the common bile duct or carcinoma of the head of the pancreas, cannot, Dr. Mallet-Guy insists, be diagnosed on clinical grounds with certainty. The gall bladder may be distended or collapsed, probably corresponding respectively to its being healthy, as was recorded in 70 per cent. of the cases, or small and collapsed. The operative treatment is very exhaustively discussed. Cholecysto-gastrostomy, first systematically employed by Jaboulay, has the advantage first of simplicity, rapidity, and freedom from risk at the surgical operation, and secondly of not interfering with gastric digestion; on the other hand, an ascending infection, usually confined to the cavity of the gall bladder, is common. On the whole the operation of choice is regarded as simple cholecystostomy. The monograph is well illustrated with radiograms, showing especially the appearances in cholecysto-gastrostomy.

OPHTHALMOLOGY.

SWANZ's *Handbook of the Diseases of the Eye*, edited for some years by Mr. LOUIS WERNER, has now reached its thirteenth edition.³ The handbook is too well known and too well appreciated by English-speaking students to require more than a short note. The present edition conforms very closely with its predecessors, only a few minor alterations and additions having been made to bring it up to date since the appearance of the last edition in 1919. These have, however, entailed an increase in bulk of some twenty-five pages, which is unfortunate, perhaps, since for its purpose the book is large enough. The main changes affect the chapter on the diseases of the uveal tract and retina, diseases of the choroid having been transferred *en masse* from the former to the latter. Five new illustrations have been added, and the index has been revised and enlarged; even yet this latter would be greatly improved by further elaboration. The handbook has attracted a very large public in the past, and to-day it is one of the best and most convenient treatises of its kind in the language.

The literature on ophthalmic plastic surgery is extensive, but hitherto it has remained scattered in the periodical journals of various countries, while in the ordinary textbooks on ophthalmology, and even in those confining themselves to the operative aspect of this branch of surgery, sufficient space has not been allotted for the proper exposition of what is admittedly a very specialized and very technical branch of the subject. Dr. SPAETH's book, *Newer Methods of Ophthalmic Plastic Surgery*,⁴ is the first in English literature to gather together and systematize this scattered knowledge; at the same time he adds largely to it from his own intensive and extensive experience, gained largely in the great war, and continued since then in the modified conditions of civilian life. The first part of the book deals with the general methods of plastic surgery of the face, the formation of flaps and grafts of various kinds, the use and choice of prostheses, and the highly specialized technique which experience has shown to be necessary if results of any cosmetic value are to be obtained from these difficult procedures. The second part deals with individual types of deformity and their appropriate treatment, ranging from such small and relatively minor conditions as ectropion and trichiasis to complete restorations and reconstructions of the socket, whether after injury or after the extensive removal of tumours. The well known methods of operative ophthalmic surgery that are connected with pathological changes are not

included as a general rule, inasmuch as their treatment is already established and well understood, but in several cases where methods of grafting are advised, as in symblepharon, or where newer methods have been introduced, as in ptosis, these conditions have also been considered.

The tragedy involved in the deformed face is difficult to realize adequately, and its consequences, both from a psychological and an economical standpoint, are very serious. Moreover, in many cases an eye with all its value is sacrificed, when by bold and imaginative plastic surgery it could be saved. As a general rule the practising ophthalmic surgeon has not the experience of these cases which would enable him to put at the service of his patient all the knowledge to which this specialized department has attained. The book is planned to suit the needs of the general ophthalmologist in his everyday practice, but we think that the author is somewhat optimistic in his contention that the results attained in each case should closely approach 100 per cent. perfection. The building up of a reconstructed face is not a matter that can in any sense be done by rule of thumb; each case must be thought out and treated only after the most careful and individualistic study; to get results at all approaching perfection the operator must combine dexterity in the "carpentry of surgery" with the art of the sculptor and the imagination of the artist, and must be assisted by no small amount of patience and sympathetic co-operation on the part of the patient. As a basis whereon to build up a technique, and as a guide to the most auspicious method to employ, this book should prove valuable; it undoubtedly fills a gap in English ophthalmic literature. It is well written and well printed, profusely illustrated, and by no means its least valuable feature is the excellent bibliography it contains.

HEALTH MANUALS.

The Health of the Workers, by Sir THOMAS OLIVER, is one of the series of Modern Health Books⁵ now being produced under the editorship of Professor D. FRASER HARRIS. The author sets out to meet the growing interest taken by the public in the medical and social problems connected with industrial occupations. The result is an entertaining, if somewhat discursive, little book, wherein the worker may learn much of the diseases and injuries incidental to various occupations: the efforts made by medical inquirers to unravel their cause; and the measures that have been taken during the last hundred years, by the State or in other ways, to remedy the conditions. Sir Thomas Oliver describes what factories are, and what they might be. He tells of the diseases incidental to industry, and of industrial accidents. In the chapter on industrial poisons we have the story of the inquiry by Sir Thomas Oliver and Sir T. E. Thorpe into lead poisoning in the Potteries, and the great reduction in the prevalence of plumbism that followed the adoption of their recommendations. In the chapter on dust there is an interesting discussion of the cause of the high mortality from pulmonary phthisis amongst printers; and in the chapter on miners the public is reminded that coal miners are healthier than average males of the population, though their liability to death by accident is two and a half times greater. As is natural in the medical expert of the Home Office Special Committee on Dangerous Trades, Sir Thomas conveys to the reader an impression of the beneficent results of State action in industrial affairs; and even the individualist may admit that in many of the problems of the health of workers the universal adoption of measures of improvement is beyond the power of individual effort.

No series of health books, of course, would be complete without a volume on food. Consequently there has been added to this series a volume on *Food: Its Use and Abuse*. It is doubtful how far the healthy individual will feel inclined to read and digest such a manual, and it is arguable whether the unhealthy, and possibly neurotic,

³ *Swanz's Handbook of the Diseases of the Eye and their Treatment*. Edited by Louis Werner, M.B., F.R.C.S.I. Thirteenth edition. London: H. K. Lewis and Co., Ltd. 1925. (Demy 8vo, pp. xv + 693; 276 figures, 9 plates, 21s.)

⁴ *Newer Methods of Ophthalmic Plastic Surgery*. By Edmund B. Spaeth, M.D., F.A.C.S., Major, M.C., U.S.A. Philadelphia: P. B. Kistner's Son and Co. 1925. (Med. 8vo, pp. xxiii + 253; 170 figures.)

⁵ The Modern Health Books. Edited by Professor D. Fraser Harris, M.D. Vol. 4, *The Health of the Workers*. By Sir Thomas Oliver, M.A., M.D., D.Sc., LL.B., D.Ch., F.R.C.P. Vol. 5, *Food: Its Use and Abuse*. By Kate Platt, M.D., B.S. London: Faber and Gwyer, Ltd. (The Scientific Press). 1925. (Fcap. 8vo: Vol. 4, pp. 224; Vol. 5, pp. 232. 2s. 6d. each volume.)

person will benefit by its perusal. But if such books are, in the circumstances, necessary, it may be said that Dr. Kate Platt has produced something which is readable, reasonable, and unprejudiced. For example, although she has a chapter on vitamins, she does not allow her imagination to run away with her reason. She adopts instead the attitude of the late Professor Michael Foster on many physiological questions, that "the matter is not yet ripe for dogmatic statement." Similarly restrained is Dr. Platt's chapter on alcohol; and in the chapter on food systems and food fads, while admitting that some individual may suddenly find that a special system of diet suits him admirably at a particular time, or even permanently, she points out that when he imagines that what is good for him is good for everyone he becomes a food faddist. Possibly many people will incline to the view, within limits, of the lady patient who held that "what the stomach fancies, that the stomach can digest."

Dr. PALFREY, who is instructor in medicine at Harvard University, divides textbooks on medical treatment into those of high authority but of too great size, and those which are condensed for student use, but are of less authority and reliability. In his *Art of Medical Treatment** Dr. Palfrey tries to combine the merits of both classes of book. The chief novelty in the author's method of dealing with his subject is the introduction, at the end of each description of the treatment of a disease, of a paragraph indicating the information which may be given to a patient and his friends. To combat unreasonable excesses of sensation and emotion, says Dr. Palfrey, Christian Science and other methods of inclining the subconscious mind to optimism have arisen. Spartan courage and Christian faith also protect from mental exaggerations. Regret is expressed that in the treatment of neurasthenia visits of the clergyman, more customary in past generations, are now less in vogue. Under the title "Information" Dr. Palfrey gives hints upon which the psycho management of patients and their friends may be based. To combat the tendency of the chronic invalid to resort to quacks and to the professors of cults, it is suggested that medicine must obtain greater command over non-fatal disorders, which are vaguely classed as "myalgias" and "neuroses"; and that the public must be given a clearer insight into the general facts of medical science. In describing treatment diseases are divided into septic infections, diseases due to physical agents or poisons, diseases of nutrition and metabolism, and diseases of various tracts or systems. Synoptic studies of this kind make somewhat uninteresting reading; but the treatment suggested seems to be on sound and common-sense lines.

THE CHEMISTRY OF COLLOIDS.

Dr. EMIL HATSCHEK's *Introduction to the Physics and Chemistry of Colloids* was, when it appeared in 1913, one of the first textbooks in the English language dealing with this subject, and it is pleasant to note that his book has retained its well deserved popularity and has now reached its fifth edition.[†]

The text of the present edition is substantially that of the fourth edition, which was reviewed in these columns four years ago (March 18th, 1922, p. 442), but the book has been revised and various important recent advances in the subject have been incorporated. This work has such a well established reputation that it is unnecessary to say more than that the present edition has been brought completely up to date and that the book remains the best introduction in English to the difficult subject with which it deals.

The second of a series of monographs on colloidal problems, which are being prepared under the editorship of Professor R. Zsigmondy, deals with colloidal gold in biology and

medicine.[‡] It is by Dr. ERNST JOEL, and discusses in an exhaustive manner the properties of colloidal gold, and especially the conditions determining the precipitation of gold sols by proteins. A full account is given of all the factors influencing the gold sol reaction with the cerebro-spinal fluid. In an introduction Professor Zsigmondy states that Joel's researches provide a basis for a rational interpretation of the reactions between gold sol and gelatin globulins, and other hydrophilic colloids; hitherto these reactions have appeared to be extremely contradictory. The researches described are of considerable theoretical interest, and also should prove of direct practical value in rendering less variable the results obtained with the gold sol reaction, when this is used for clinical diagnosis. The monograph concludes with six pages of references to the literature of the subject.

THE NATURE OF TUMOUR FORMATION.

THE Erasmus Wilson lectures which Dr. G. W. NICHOLSON delivered before the Royal College of Surgeons of England last spring have been published in a little book entitled *The Nature of Tumour Formation*.[§] They will provide pleasant reading to all who are surfeited with the rich fare of cancer discoveries, for here is a pathologist who provides explanations and does not presume to offer causes, who doubts whether there is any one cause of tumours. His main theme is that tumours are essentially malformations, and that these arise in healthy tissues. Excessive growth, and therefore tumour formation, is one of the physiological potencies of every healthy cell. It finds its scientific explanation in a change of environment.

The book consists of an introduction, three chapters, and an appendix. The first chapter is on the structure and functions of tumours, and contains observations on various tumours which lead up to the opinion that the structure and behaviour of tumours indicate that they are parts of the tissues of the body, and cannot be separated from them upon anatomical or physiological grounds. The second chapter deals with tissue malformations and their relation to tumours. Dr. Nicholson considers that tumours cannot be separated from malformations; both consist of healthy cells, the growth and differentiation of which agree with those of the normal cells of the body. There are, it is true, certain differences, but these are slight, and can be satisfactorily accounted for by changes of environment. The third chapter, on sequence in tumour formation, traces certain sequences of events which appear to end in tumour formation. The appendix contains an interesting discussion of the relationship of Dr. Nicholson's theories to parasitic theories of cancer. Apparently the work of Dr. Gye and Mr. Barnard was published whilst Dr. Nicholson was engaged in writing these pages. At first sight it would seem that the parasitic theory was opposed to Dr. Nicholson's views, but the two points of view are not incompatible, provided they are not pushed to an extreme.

NOTES ON BOOKS.

VARIOUS members of the Institute of Industrial Welfare Workers have contributed to the book *Welfare Work in Industry*,^{||} edited by ELEANOR T. KELLY, which gives a good account of the activities of the welfare department in factories. In the present state of industrial unrest it is refreshing to find that the importance of welfare work is being more and more appreciated both by employers and employees, for nothing offers greater promise of removing distrust than such work. It is no longer necessary to appeal to humanitarian motives in order to stir an employer to a lively interest in the health and contentment of his staff, for he is now familiar with the fact that ill health spells wastage and discontent diminishes production. To provide for the comfort of the factory hand is as essential as oil to

* *The Art of Medical Treatment*. By Francis W. Palfrey, M.D. Philadelphia and London: W. B. Saunders Company. 1925. (Med. 8vo, pp. 463, 21s. net.)

† *An Introduction to the Physics and Chemistry of Colloids*. By Emil Hatschek. Fifth edition. Textbooks of Chemical Research and Engineering. London: J. and A. Churchill. 1925. (Cr. 8vo, pp. 183; 22 figures. 7s. 6d. net.)

‡ *Das kolloide Gold in Biologie und Medizin*. By Dr. Ernst Joel. Leipzig: Akademische Verlagsgesellschaft. 1925. (Demy 8vo, pp. 115; 21 figures. M.6; bound, M.7.50)

§ *The Nature of Tumour Formation*. By G. W. Nicholson, M.A., M.D. Cambridge: W. Heffer and Sons, Ltd. 1926. (Demy 8vo, pp. xviii + 93; 43 figures. 6s. net.)

|| *Welfare Work in Industry*. By members of the Institute of Industrial Welfare Workers, edited by Eleanor T. Kelly. London: Sir I. Pitman and Sons, Ltd. 1925. (Demy 8vo, pp. viii + 119. 5s. net.)

the machinery, and the neglect of either leads to friction and expense. This is a short book, easily read from cover to cover in two or three hours. It gives a very clear picture of what needs to be done and how it can be done. Technicalities such as the management of cauteans, the provision of lavatories and cloakrooms, heating, lighting, and ventilation are reserved for an appendix so as not to interrupt the development of the argument. This book will be useful to medical officers of health and all other medical men whose work brings them into contact with factory life.

Dr. J. M. LYNCH and Dr. J. ELSEN, in their book *Tumors of the Colon and Rectum*,¹¹ set out plainly what is at present known of the pathology of these new growths and give a reliable account of the best modern means of diagnosis and treatment. The fact that so many cases of cancer of the rectum are inoperable when the patients first present themselves at hospital shows the need for well expressed descriptions of the early signs of disease. The authors—one the surgical director and the other the pathologist of the St. Bartholomew's Hospital, New York—seem to have written as much for the general practitioner as for the specialist surgeon. Their book does not contain much information which could not be gathered from standard textbooks of pathology and surgery, and the descriptions of pathological lesions and surgical technique are not so clear as those contained in the special books on the diseases of the lower alimentary canal with which we are familiar in this country. The volume contains 123 illustrations. Those showing the different steps in surgical treatment are good but unnecessarily large. There are more than twenty reproductions of views of cancer seen through a microscope, but all that is represented by these could have been quite well expressed in three or four selected photographs or drawings. Quite half the photographs of gross specimens are likely to remain unsolved mysteries to most readers: they need some device for pointing to the pathological lesion because the photographs have been taken after fixation and distortion of the tissues. We think also that the arrangement adopted of interrupting the text with clinical histories and full-page photographs is not good, because it inconveniences the faithful reader.

Dr. RABAGLIATI of Bradford is a medical Don Quixote. He is possessed with an idea, and he goes forth into the highway to establish it. His pen he wields with much vigour and no little skill, as will be evident to the readers of his book *Human Life and the Body*,¹² of which a new edition has just been issued. His argument is sometimes a little hard to follow, for his enthusiasm causes him to make derivations into physical science, biology, theology, and manifestations of human activity of all sorts. He rejects equally the Miltonic presentation of creation and the theory of evolution. He states that—

"when the time arrived, when all things were now ready for the occurrence of the mutation, the force of man-life appears to have procreated the human form, whether black, yellow or red or white, at all ages and stages simultaneously, specimens of both sexes appearing or arising as old, middle aged, mature, adolescent, juvenile, infantile and unborn simultaneously. . . . Man is the incarnation of anthropino-zoo-dynamic or man-life. Man-life is distinguished from horse-life or hippo-zoo-dynamic."

and so on, for each species, he holds, has its own specific life-force; although "each of these varieties of energy is a manifestation of the one infinite pan-dynamic." He applies the idea to bodily health and to therapeutics. He rejects the common presentation of the body as an internal combustion engine converting foodstuffs into heat and energy. He believes that "the heat of the body is dependent on the force of man-life procreating and inhabiting it, and that food has little if any more use than the replacement of small losses by wastage." He rejects the microbic origins of disease, and his rule of life and of therapeutics is to eat little, for little is needed; if in disease the patient starves the clogged mechanism will be freed once more to function and health will return. We may agree that there is an element of truth in this conclusion without admitting that Dr. Rabagliati's premises are sound.

Dr. S. J. HICKSON, professor of zoology in the University of Manchester, has written a book on *Recent Corals*,¹³ which appears as No. 4 of the Biological Series of the publications of the University of Manchester. In this book, which is lavishly illustrated, Dr. Hickson has given a very interesting

account of the different varieties. Corals excite a universal interest because of their rare beauty. We notice from Dr. Hickson's book that many varieties of coral have been accredited with magical properties, and that some have been recommended as remedies in the treatment of disease.

The increase in the numbers of the medical profession is reflected in the *Medical Register*¹⁴ for 1926, which contains 52,531 names, as compared with 49,858 in the previous issue. During the year 2,569 names were added; in 1924 the additions numbered 2,795. Of the new names in the present issue 1,246 were registered in England, 736 in Scotland, and 406 in Ireland; 175 were colonial and 8 foreign. The number of names removed from the *Register* was 947, as compared with 978 last year; of these 947 the number removed on evidence of death was 794; 146 were removed because of failure to reply to the inquiries of the Registrar as to cessation of practice or change of address, and 6 were struck off the *Register* under the disciplinary powers conferred on the General Medical Council by the Medical Act of 1858.

The forty-second annual issue of *The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland*¹⁵ shows very little change in the general arrangement of its contents. The official returns have been brought up to date, and the book enables all interested in scientific progress to take a bird's-eye view of advances made during the year concerned. In the case of each society a list is given of its officers, places, and dates of meetings, membership conditions, and papers read or published during the year under review. The British Medical Association section occupies four pages, and includes a list of papers communicated to the Sections of the Annual Meeting at Bath.

¹⁴The *Medical Register*. London: Published for the General Medical Council by Constable and Co., Ltd. 1926. Priced 2s.

¹⁵The *Year-Book of the Scientific and Learned Societies of Great Britain and Ireland*. London: C. 1925. (Extra post 6ro, pp. vii + 407. 15s. net.)

PREPARATIONS AND APPLIANCES.

Cholecystography.

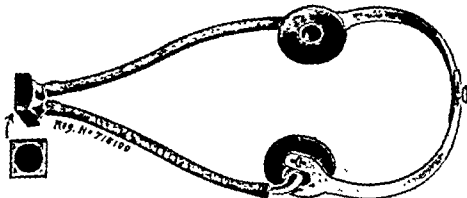
In our issue of December 26th, 1925 (p. 1234), we gave some account of two new preparations introduced by Mr. W. Martindale designed to render the gall bladder visible to x-ray examination. The substances are sodium tetrabromophenolphthalein ("bromoray") and sodium tetraiodophenolphthalein ("iodoray"). The method depends on the fact that phenolphthalein and its derivatives are excreted by the liver into the gall bladder, and that bromine and iodine compounds of phenolphthalein are fairly opaque to x rays. The dose of the first was stated to be 2.5 grams in 20 c.cm. of distilled water, and of the other 3 grams in 28 c.cm. of distilled water. Mr. W. Martindale now sends us the following note, which is a further warning against using too large a dose:

"As the use of these compounds is so new, I venture to draw attention to the results recently obtained in America with an average dose of 2.5 grams in 2 per cent. dilution in normal saline (*Journal of the American Medical Association*, January 23rd, 1926, p. 239). The dose and strength is less likely to produce violent reactions than the quantities hitherto employed, and will probably give adequate shadows."

An Improved Stethoscope.

Dr. A. F. G. SPINKS (Newcastle-on-Tyne) writes: The binaural stethoscope shown in the accompanying figure has been designed to give increased comfort and cleanliness when in use. The present custom of using stethoscopes with penetrating earpieces is not a clean one, nor is it free from the risk of infecting the ear passages, as the occurrence of many painful ears among members of the medical profession has proved.

Briefly, the advantages claimed for this new pattern are: (1) It is much more comfortable in use, and especially in prolonged use, than the present patterns with penetrating earpieces. (2) It cannot affect the ears, and the earpieces do not come into contact



with the ear wax, so that it remains always clean. (3) The spring, which is detachable and adjustable, rests on the head, and therefore does not intervene between the eye and the chestpiece, as is the case with most of the present patterns of binaural stethoscopes. (4) The square chestpiece is more comfortable to hold than the prevailing round pattern, and is better adapted for the intercostal spaces.

The stethoscope has been made from my specification by Messrs. Allen and Hanburys, Ltd.

¹¹*Tumors of the Colon and Rectum*. By Jerome M. Lynch, M.D., and Joseph Elsen, M.D. New York: P. B. Hoeber, Inc. 1925. (Imp. 8vo, pp. 211 + 250. 12s. 6d.)

¹²*Human Life and the Body*. By Rabagliati, M.A., M.D., F.R.C.S. Ed. 1925. (Cr. 8vo, pp. 171. 5s. net.)

¹³*Recent Corals*. By Sydney J. Hickson. (Med. 8vo, pp. xiv + 257. 15s. 6d.)

British Medical Journal.

SATURDAY, MARCH 13TH, 1926.

REPORT OF THE ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.

NATIONAL Health Insurance is a gigantic business—gigantic not only in its own volume, but in the possibilities of its relationship to other national health services and of its effects on national well-being. The existing scheme was in some respects unfortunate in its beginnings. Purely political matters had a disproportionate influence, and a reckless opportunism was not without deleterious effects on its structure. Its authors deserve the credit for vision in conceiving and skill in establishing so great a scheme, and many workers in all spheres connected with it are equally praiseworthy for their success in the difficult task of preventing a breakdown in unexpected conditions, and of securing so large a measure of beneficent effect. It has, however, been manifest for years that the whole scheme was disadvantageously complicated, and that in designing its peculiar machinery and arrangements certain fundamental factors had been forgotten or not properly allowed for—time, migration, occupational change, for instance. Some of the great basic features of the scheme were evidently conceived on the assumption that everyone would do what has to be done approximately at the time it should be done, and that there is a predominant stability in the residence and occupation of insured persons. Without these conditions these features largely lose their usefulness, and have become ill adapted to progressive development. Moreover, the scheme was established without relationship to other health services then existing, and additional health services have since been established without effective relationship with it. Further, it became evident that the financial possibilities of the scheme had been greatly underestimated, and that circumstances had led to the accumulation of balances and of credits much in excess of those anticipated, so that there were vast funds which should, and probably would, have been freely available for national health purposes, if the authors of the scheme had foreseen this result from the first.

Here, then, after thirteen years' experience, was an opportunity for a comprehensive survey of the whole field, and for the exercise of an imaginative vision and constructive ability which might remould the national health services into a really effective and much more orderly and less wasteful form. It should have been possible to discover and set out what are the essential national health services, what additional services are desirable though less essential, which of such services lend themselves to provision on a basis of contributory insurance, how the other services should be best provided and financed, how the administration of all these services should be unified or co-ordinated, how far the work and help of the medical profession as a whole would be needed for these purposes, and what, broadly, are the proper conditions under which the co-operation of the profession could be asked or expected. This opportunity has been missed. Instead, in the Report of the Royal Commission on National Health Insurance there are set out a number of conclusions to indicate that, on the whole, all is well, and a few suggestions for timid amendment which no

doubt, so far as they go, are calculated to produce a certain improvement in the insurance scheme itself. This was, perhaps, to be expected.

It will be remembered that when, about two years ago, the medical profession asked for and secured the appointment of such a Commission, it was promised that the Commission should be impartial and free to report on the whole system, and that when later the names of the members were announced we expressed our disappointment and our doubts, on various grounds which we set out (July 12th, 1924), as to whether a fairly unanimous or broad-minded report could possibly be secured from a Commission so constituted. These fears have been largely justified. To begin with, there is a Minority Report which it was highly desirable to avoid, and, though we may be in agreement with many of the conclusions embodied therein, no one, not even the signatories themselves, would claim that those who sign it constitute a body of persons whose opinion is of any very outstanding weight or value. Again, the timidity so manifest throughout the Majority Report may partly be explained by the evident dominance of official or departmental influences. This is scarcely to be wondered at, seeing that three of the more prominent members of the Commission were themselves, as departmental officials, largely concerned with or responsible for the financial or some other main features of the system under review. Colonel House wrote of President Wilson: "He dodges trouble. Let me put up something to him that is disagreeable, and I have great difficulty in getting him to meet it." The general impression left by the Report is that the Commission acted somewhat like the President. It looks as though it had adopted the plan that any proposal to which any member particularly objected should be dropped. Its unanimity on certain of the proposals is, therefore, all the more satisfactory. By far the most interesting part of the Report is the so-called reservation signed by Sir Andrew Duncan and Professor Gray, but even this, it appears, is submitted merely "to prepare the way for a more fruitful discussion," whereas it might reasonably have been hoped that the Report would embody the fruits of such a discussion.

In these circumstances it is satisfactory to note the general approval expressed of the insurance medical service as such, and to note with agreement the main positive proposals of the Report so far as they affect the medical profession. (1) That financial alterations and adjustments can, and should, be made so as to provide the money necessary to continue at least the present capitation fee for a term of years, and to release additional funds which will allow of some extension of the scope of medical services; (2) that this extension should take the form of the provision of consultant and specialist services and of laboratory services on the general lines laid down by the Association in its evidence; (3) that where an additional treatment benefit is widely adopted the organization and supervision of such benefit should not be in the hands of approved societies, and that negotiations as to any terms and conditions of professional service with regard thereto should be undertaken by the Ministry of Health. The further main proposal that Insurance Committees should be abolished—a proposal on which the Commission is unanimous—has been endorsed by the medical profession only in conjunction with suggestions for substituting an acceptable alternative body or committee. This must be insisted upon, for the alternative proposed by the Report is very vague and tentative. It

is probable that in this matter, as in others, the Commission felt itself handicapped by the fact that the Royal Commission on Local Government was considering an aspect of the general situation which is really inseparable from that which was the subject of its own consideration.

It will doubtless be advisable in the early future to comment further on some of the findings of both the Majority and the Minority Reports; but it may be found on more detailed examination through the proper channels that none of the positive proposals of the Royal Commission need be objected to by the medical profession. The objections are rather to what has not been done, and to the absence of other proposals. Two things are particularly disappointing. One is the painful search for excuses to justify the postponement of any further extension of the scope of benefit, after the very useful discussion under the heads of "Maternity Services" and "Dental Benefit." The other is the unsatisfactory argument and meagre result of the consideration given to the British Medical Association's proposals as to disciplinary procedure on complaints. The statement in paragraph 446 that "the matter was not placed before us by the Association in sufficient detail to enable us to express an opinion" is specially ingenuous, since it was manifest to all the witnesses that they were being heard under a strict time limit and that their examination was both hurried and perfunctory.

The immediate business of the British Medical Association and the profession, in view of the Report, would seem to be (1) to negotiate with the Ministry of Health with regard to further modifications of disciplinary procedure and the principles which should govern it, for this matter cannot be allowed to remain as it is; (2) to negotiate with regard to the methods, terms, and conditions of the proposed specialist service; (3) to formulate carefully, in view of later developments, the proposals the Association may wish to make on those matters which the Commission suggests should be postponed or on which it makes no recommendation.

ADVICE TO MEDICAL STUDENTS.

To a student entering on his professional course and faced with the long list of subjects in which he has to satisfy the examiners it may appear that, especially at the outset, there are a number of obstructions, like bunkers, barring the way to the acquisition of the knowledge which he regards as essential to his real life-work. This failure to see the bearing of, say, physics on physic, to correlate his early studies with his eventual goal, and to realize the educational unity and continuity of the curriculum, is perhaps not unnatural when all things are new, and the immediate aim is to pass examinations and get on with the next subject. Examinations, though necessary for the disciplinary control of the weaker brother, no doubt exert an evil influence on the best students. It is highly desirable that the student should grasp the purpose of the preliminary subjects and the use that a living knowledge of their essential principles will be to him in the later stages of his course, to which he is looking forward with pardonable impatience.

To supply this need Mr. Alexander Miles, who has taught and watched many generations of Edinburgh students, has written a message in simple language, wisely explaining technical terms as he takes the student over his course. In his *Guide to the Study*

of Medicine¹ the scheme of medical education is succinctly summed up under five headings: general education, natural sciences, professional scientific subjects, clinical subjects in relation to the individual, and medicine in relation to the community.

On leaving school the student of medicine should realize that he enters on a new stage in his educational career, and should not, as often happens, continue on the same lines as before. The time has now come to think more for himself, to depend less on his teachers for his deductions, and to form his own independent judgements. It is well that the importance of chemistry, physics, and biology in preparing the way and laying a sound foundation for medical practice should be impressed on the student, who, when he understands this, will turn to these studies with more energy and goodwill than if he imagines they are nothing more than a means of training his powers of observation and reasoning. At no time has the fundamental bearing of chemistry been clearer than in the light of modern medicine, with the phenomenal rise of biochemistry and the study of metabolism, and the era of functional tests. Biology not only leads on to anatomy and physiology, but it lays the foundations of parasitology and bacteriology, and it must be remembered that no clinical problem can be solved except in terms of anatomy, physiology, and pathology. In truth, the clinical subjects have the same claim to be "scientific" as the earlier laboratory courses, and the curriculum is essentially a correlated whole; for to the wards the student should bring the same scientific spirit of inquiry that the earlier work has inculcated.

But beyond what Mr. Miles so thoroughly explains to the student, clinical work has a broader human interest, and deals with fellow men, whose personalities, habits, thoughts, and aims demand attention. In this respect the study of psychology no doubt will help; but this is not all, for in no profession is the motto "*Homo sum; humani nihil a me alienum puto*" more appropriate, and in order to qualify in this respect too it behoves the student, much tried as he is by classes, sore let and hindered by examinations, and therefore with little time to think for himself, to obtain a broad knowledge of the world. Otherwise the increasing demands on his time by the character of his work may narrow the student's horizon and isolate him from all but his fellow slaves, and there is no small risk of his vitality, mental and physical, becoming impaired. Literature, the arts, and healthy exercise must not be sacrificed entirely to work, and, indeed, some time devoted to them will not only benefit the man but improve him as a student of medicine.

PUERPERAL MORTALITY.

THE address, published elsewhere in this issue (p. 469), on puerperal mortality by Sir Ewen Maclean, chairman of the Committee on Causation of Puerperal Morbidity and Mortality, is opportune in that it heralds the completion of the preliminary phase of the Committee's arduous task. The reference to the Committee by the Council of the British Medical Association was "to consider and report on the causation of puerperal morbidity and mortality, and on the administrative action, if any, that should be taken in connexion with the matter." Truly a far-reaching reference, and one which, as the chairman said, may well demand the influence of the Association in initiating research; its unrivalled capacity, through the Divisions,

¹ *A Guide to the Study of Medicine.* By Alexander Miles, M.D., F.R.C.S., LL.D. Edinburgh and London: Oliver and Boyd. 1925. (Cr. 8vo, pp. vii + 92. 3s. net.)

in influencing clinical methods; and its experienced medico-political skill. The Committee has propounded a bacteriological problem to the Medical Research Council. It has urged the intensification of research into the resistance aspect of the problem; and on the basis of the interim report and questionnaire published in the SUPPLEMENT of January 9th last (pp. 13 et seq.) it has established close contact, through the Divisions, with the members of the Association, as is evidenced by the address of Professor Louise McIlroy to the St. Pancras Division, also published in this issue (p. 471). The next phase of the Committee's work will be the analysis of the replies and recommendations of the Divisions; the consideration of these and of the recommendations of the Government reports; and a frank discussion of the whole problem at the joint conference mentioned in the chairman's address (p. 470). The material submitted to the conference and the proceedings thereof will form the basis of a further report to the Council, whose comments and recommendations will come before the Divisions. The discussion which took place at the meeting of the Monmouthshire Division after Sir Ewen Maclean had delivered his address we also publish (p. 477); it illustrates what has been very general in the Division meetings as a whole—namely, the appreciation of the fact that notification is a prominent or even a dominant factor in the administrative side of the problem. Its many difficulties are readily apparent, and the valuable contribution of Dr. Rodyn-Jones to the discussion at the Monmouthshire Division on this point is well worth noting. The further report of the Committee will be awaited with interest, and meanwhile we would remind members that comments and suggestions directed to the Medical Secretary on any of the various aspects of the problem will be welcomed.

THE COURTAULD INSTITUTE OF BIOCHEMISTRY.

MR. SAMUEL AUGUSTINE COURTAULD, who in 1924 endowed the chair of anatomy at the Middlesex Hospital Medical School with the sum of £20,000, has now presented to the hospital £30,000 for the provision of an institute for education and research in biochemistry. It is proposed to erect a seven-story building on a site adjacent to the hospital; it will be placed under the administrative charge of Dr. E. C. Dodds, professor of biochemistry in the University of London. This Courtauld Institute of Biochemistry will be a complete department of medical chemistry, and will be closely associated with the Bland-Sutton Institute of Pathology directed by Professor James Mackintosh. It will thus be possible to co-ordinate research in physiological and pathological chemistry, and it is not easy to overestimate the benefits that may accrue to the hospital and to humanity from this generous gift, which springs from the donor's recognition of the importance in preventive medicine of systematic and co-ordinated research. Our knowledge of the chemistry of living tissues, though very imperfect, has yet been rapidly extended during recent years, thanks to systematic research, with the result that the conditions of health and disease are now much better understood, while new and potent remedies have been added to the pharmacopoeia of the clinician. New vistas of research have opened. The dream of isolating the important internal secretions which play so large a part in human life is now approaching realization, and, following the acquisition of accurate knowledge about their chemical nature and the conditions of their activity, their synthetic preparation may be expected. An even more pressing need of the moment is the creation of some system of standardization for the various organic preparations now on the market, and this is already the subject of intensive research. Chemotherapeutical investigations provide another vast field from which great practical results may be expected. With

abundance of clinical material for study, with the obligation of teaching students, combined with the duty of acquiring new knowledge, the institute will occupy a most favourable position for its own work, and should itself supply a great stimulus to research elsewhere. Since medicine now looks to biochemistry to solve some of its most difficult problems, the medical profession as a whole is deeply indebted to Mr. Courtauld for his wisely guided generosity. Congratulations are due also to the Middlesex Hospital, where previous devotion to practical research has prepared the way for the Courtauld Institute to realize to the full its possibilities.

SIR CHARLES BELL.

THE work of Sir Charles Bell in relation to modern neurology formed the subject of Dr. H. Campbell Thomson's presidential address to the Section of Neurology of the Royal Society of Medicine in October last, and the address has now been published in *Brain* (December, 1925). To Sir Charles Bell belongs the credit of discovering the difference in function between the anterior and posterior spinal nerve roots, an event the importance of which has been compared with Harvey's discovery of the circulation. When Bell started his experiments on the spinal roots about 1810, little advance in knowledge of nerve physiology had taken place since the time of Galen. Bell was primarily an anatomist, but, not satisfied with demonstrating the structure and relations of the nerve roots, he attempted to determine their functions by section and by galvanic stimulation. He established clearly the motor character of the anterior roots, and showed the probable sensory function of the posterior. The observations had an even wider significance than demonstrating the functions of the roots, as they led to further experiments on the cranial nerves and to the enunciation of the general principle of the specificity of function of nerves. Experiments similar to Bell's were carried out independently by Magendie, and their names are associated as authors of this important law, the general truth of which remains unchallenged as one of the principles of neurology. Bell recognized that the specific action of a nerve does not depend upon the structure of the nerve itself, but upon the end organs with which the nerve is connected and upon the central connections of the nerve. Thus, while the optic nerve normally conveys light impulses only from the retina, stimulation of the nerve in its course by any other means gives rise to a sensation of light because of the central connexions of the nerve. Further illustrations of the fact that it is not the nerve fibres themselves which are specific in function have been found in the results of operations of transplantation of the peripheral end of one nerve into the central end of another—for example, the successful grafting of the facial nerve into the central end of the spinal accessory for the cure of facial paralysis. Minor exceptions to the Bell-Magendie law respecting the spinal roots have been discovered in recent years—for example, the demonstration by Bayliss of vaso-dilator fibres in the posterior roots conveying impulses peripherally from the spinal cord to the skin (that is, in the opposite direction to the sensory impulses). Another apparent deviation from the law is suggested by the occasional failure of posterior root section to cure the lightning pains and gastric crises of tabes dorsalis; the suggestion from this failure is that some sensory impulses must reach the cord through the anterior roots. Dr. Campbell Thomson mentions other examples of Bell's observations on the nervous system which show the breadth of thought by which he anticipated truths which have later been confirmed. He observed the retention of certain involuntary movements on the paralysed side in cases of hemiplegia, anticipating the fact of the bilateral representation in the cortex of certain movements—for example, those associated with respiration. He recognized

the existence of sensory impulses from muscles giving a knowledge of the state of muscle contraction—in other words, the existence of muscle sense. Perhaps most remarkable of all was his recognition of the phenomenon of inhibition—namely, that the action of a nerve may be to cause a diminution or cessation of activity in the structure supplied. He thus anticipated the principle which was later exemplified by the Webers in the inhibitory action of the vagus on the heart. Bell further found that contraction of a muscle was accompanied by relaxation of opposing muscles, foreshadowing the law of reciprocal innervation of muscles which Sherrington showed to be of such importance in reflex and voluntary movements. Bell was elected surgeon to the Middlesex Hospital in 1814, and was the founder of the medical school of that hospital; in 1835 he was appointed to the chair of surgery in the University of Edinburgh. The second article in the issue of *Brain* for December, 1925, describes a careful study of the morphology of the Gasserian ganglion carried out by Dr. Edward Whitehead in the Carnegie Laboratory of Embryology, Baltimore, Maryland. In an introduction Dr. Charles H. Frazier describes the object of the investigation, which was mainly to give a scientific basis to the operation of subtotal resection of the sensory root for trigeminal neuralgia. Dr. Frazier has performed section of the sensory root 396 times, and during the past ten years in 25 selected cases has modified the operation by leaving undivided the two inner fasciculi of the sensory root; the motor root was, of course, isolated primarily in all the cases. In no instance did keratitis or recurrence of pain follow upon this operation. This successful result suggested that the Gasserian ganglion must be anatomically and physiologically not a single but several distinct units, representing respectively the ophthalmic, maxillary, and mandibular portions. Dr. Whitehead's investigations show that the ophthalmic division is early differentiated from the others by its precocious development, and the site of development of the ophthalmic nerve is widely separated from that of the maxillary and mandibular nerves, which are close together. The fibres from the ophthalmic division remain differentiated from the others in the sensory root, and there is no tendency for the fibres to intermingle.

SURVIVAL AFTER GASTRECTOMY FOR CANCER.

DR. GEORGES HAYEM has recently reported the case of a patient who lived for more than twenty-seven years after resection of the stomach for cancer.¹ The operation was performed in 1898, the patient being at that time 41 years of age. Every succeeding year the patient wrote to his surgeon with praiseworthy but unusual fidelity, till in the year 1925 no letter arrived from this punctual correspondent. Inquiries were made, and it was found that he had died of pneumonia in a provincial hospital. Here certainly, as Dr. Hayem remarks, was a definite case of surgical cure of cancer of the stomach. This interesting story appears to have directed attention to the question of survival after gastrectomy for cancer, and in the next number of the *Bulletin*² Dr. Henri Hartmann describes the results of a statistical inquiry. Out of 100 patients operated on for gastric cancer 35 survived one year or more afterwards, and of these 35, 28 passed the three-year period without recurrence. Taking a period of three years' survival as evidence of cure, it seems from this series that about 30 per cent. of the patients were cured by their operation. It is interesting to compare this series of cases with the results of surgeons in this country. James Sherren, in Choyce's *System of Surgery*, gives an account of 84 patients on whom partial gastrectomy was performed, with 6 deaths, and adds that at the present time the mortality should not

exceed 10 per cent. Of his cases, 21 remained free from recurrence for more than three years after operation; 3 after more than ten; 4 more than six; while 1 died of another disease seven years later. The average duration of life after partial gastrectomy in cases with recurrences is about eighteen months. Recurrence is rare after two years, and if life is prolonged beyond four years there is good prospect of cure. From the collected statistics of H. J. Paterson,³ it appears that 15 per cent. of the patients operated upon lived five years or more. In 140 resections of the stomach for carcinoma reported by Kocher (1910) 20 per cent. remained well for over four years. Returning to Dr. Hartmann's communication to the Académie de Médecine, he makes some observations which deserve brief mention. He found that it was exceptional for recurrence of cancer to appear after the second year. No relation was traceable between the histological characters of the tumour and the likelihood of recurrence, nor did the presence or absence of free HCl before the operation seem to have any bearing on the after-history of the case. He believes, however, that the technique of the operation is more concerned in the case mortality than was formerly realized, and in particular he refers to the danger of implanting cancer cells in neighbouring organs at the time of operation. He concludes by insisting on the importance of early diagnosis and operation if recurrence is to be still further diminished.

ARTIFICIAL LIGHT CLINICS IN GLASGOW.

TREATMENT of tuberculosis, rickets, and malnutrition in children by ultra-violet rays is now being carried out at several centres in Glasgow, and a report on the methods employed has recently been issued by the public health department. Dr. Alexander Smith, who reports on artificial sunlight therapy at Robroyston Sanatorium, gives a good description of how a clinic can be organized and of the results which can be expected. "The fitful appearance of the sun and the relatively weak actinic value of its rays" is given as a reason why in northern countries heliotherapy is difficult to carry out and resort must be made to artificial sources of ultra-violet rays. He might have added that the cloud of smoke which overhangs the city robs the citizens of a good percentage of the rays the sun intended for them. The clinic at Robroyston is an indoor one, and mercury vapour lamps of 20 to 75 amperes are employed. Eight sitting patients can be grouped round the two 75-ampere lamps, while two recumbent or from four to six sitting patients can be irradiated by the three 20-ampere lamps. The treatment given consists of general irradiation, the patients being entirely naked save for very short pants. They sit at a distance of about 1 metre on either side of the lamps, which are not covered by glass. The initial exposure is usually of twenty minutes or less, the patients being instructed to turn every five minutes, so that the back and front are alternately exposed. Every fourth day an additional exposure of five minutes is given, until a maximum of two or two and a half hours is reached. All ambulant patients, save where there are special contraindications, receive a tepid to cold spray on emerging from the light room. Bed patients are sponged down by the nurse, a procedure which, apart from its tonic effects, prevents the patients from catching cold. Up to the present 102 patients have been treated, chiefly cases of lupus and tuberculosis of the glands, joints, bones, and lungs. Dr. Smith remarks that one of the most striking features of the treatment is the rapid improvement in general health. Flabby muscles soon gain in tone, and the muscular atrophy which is such a common feature around tuberculous joints is not nearly so noticeable as in patients

¹ *Bulletin de l'Académie de Médecine*, January 11th, 1926.
² *Ibid.*, January 18th, 1926.

³ *BRITISH MEDICAL JOURNAL*, 1910, vol. ii, p. 953.

who receive the ordinary treatment without generalized light baths. In only two or three cases did they fail to show a steady gain in body weight. Turning to the effects of the treatment on different tuberculous lesions, we note that 13 cases of lupus have been treated, most of them of an extensive nature and of long duration. Carbon dioxide snow, sulphanilic picric acid, x rays, etc., had previously been used without avail. All but three patients have shown very remarkable improvement, and 6 have been dismissed as cured. Twenty-three cases of glandular tuberculosis, mostly cervical, have been treated. Of these, 18 had sinuses and surrounding scrofulous ulcers; 2 were complicated by abscess formation; and 2, though extensive, had not broken down. In all improvement has resulted. In the sinus cases healing has been rapid, the scars firm and elastic, and puckering and contraction of tissue have been less noticeable than when ordinary routine measures were adopted. Excellent results were obtained also in tuberculosis of the elbow, ankle, and wrist. In tuberculosis of the lungs light therapy must be used cautiously. The 10 cases selected for treatment are reported as gaining in weight and improving in general condition, but sufficient time has not yet elapsed to allow of a prediction of the ultimate results. The report published by the Glasgow public health department contains accounts of work done in four other centres in the city, and in these too it appears that very useful work is being done with different forms of artificial light and x-ray treatment.

INDUSTRIAL PSYCHOLOGY.

IN a recent lecture delivered by Dr. C. S. Myers, director of the National Institute of Industrial Psychology, under the auspices of the Jewish Health Organization, an interesting survey of the development of this science was given. One department of "vocational guidance" was concerned with careful physical and mental examination of young people choosing careers, and another department dealt with the selection of the right person for a vacancy. Such scientific procedure eliminated a considerable amount of discontent and loss of time and money, both as regards employers and employees. Dr. Myers pointed out the error involved in omitting tests of practical intelligence and relying only upon mental ability. In dressmaking, for instance, speed, accuracy, power of observation and of design, and ability to carry out instructions, were necessary. In Germany ingenious methods of testing imperviousness to distraction had been introduced, the candidate being required to do several things simultaneously, so that the co-ordination might be tested. France and Germany were both using tests for motor-car drivers, with valuable results as regards saving of life, time, and energy; these tests had not yet been adopted in this country. The lecturer remarked that many industries in this country, such as engineering, weaving, glass-blowing, and dressmaking, had, however, developed psychological tests, and in Manchester and Glasgow great use was made of tests for capacity in assembling mechanical parts. Again, an investigation of breakages in certain catering establishments showed that these were due to psychological causes, and reduction followed attempts to make the danger points "foolproof." Dr. Myers explained how the total output was increased by the adoption of shorter hours of work, and benefited the industry as a whole. The drop in the afternoon and evening output of a ten-hour plant was greater than in an eight-hour plant. The real output of an industry increased from Monday to Wednesday, then fell from Thursday to Saturday, when the drop was so great that many factories found it advantageous to close for the whole of Saturday and to use that day for putting the place in order. The inexperienced worker became more tired than the expert one,

and his output declined more rapidly after Wednesday than did that of an efficient employee. Curves showed that forty hours a week seemed to be the average at which the best hourly output could be obtained: fewer or more hours led to a decline. The seasons also played a large part in output, more work being done in summer than in winter. Industrial psychology was not endeavouring to speed up work; its aim was to detect the difficulties, both physical and mental, which confronted the worker; when these were removed output was automatically increased, leaving the worker less tired and more able to give his best. By improving the illumination of certain mines the output had been increased by 12 per cent., and by studying physical movements an increase of 16 per cent. had been obtained, many valuable suggestions being received from the miners themselves. The National Institute of Industrial Psychology had been enabled by the Carnegie Fund to give vocational guidance in the King's Cross area to 600 children, whose careers would be followed and compared with those of 600 children apprenticed without such care.

THE OPIUM EVIL IN INDIA.

IN a booklet of sixty-three pages issued by the Student Christian Movement, entitled *The Opium Evil in India: Britain's Responsibility*,¹ Mr. C. F. Andrews essays to show "the true extent of the opium evil for which the Government of India must be held responsible." From personal investigations in the chief cities of India, in Assam, and in Burma, Mr. Andrews is led to conclude that in industrial centres there is a growing addiction to the use of "Government monopoly opium." Assuming the League of Nations figure of 12 lb. per 10,000 of population as representing the medical and legitimate amount of the drug required, he finds the quantity consumed in Bombay to reach 88 lb., in Rangoon 216 lb., and in Calcutta 288 lb. per 10,000. The doping of children with opium pills by mothers working in cotton mills is said to be unduly prevalent. In Assam, with a population largely of Mongolian origin, the consumption of opium was also excessive until the non-co-operation campaign of Mahatma Gandhi effected, it is claimed, a marked reduction in the consumption of the drug if not in the revenue derived from it. The justification of the Assam Government's opium policy attempted by the district officer, Mr. Cosgrave, in a recent speech to the Legislative Assembly at Delhi, appears to have been discounted by the evils attributed by the civil surgeon of the same district to the opium-eating habits of its people. Unlike Assam, the consumption of opium in Burma is mainly by way of smoking, and although a system of registration of existing addicts with a view to eventual prohibition was inaugurated, this appears to have broken down owing to the open sales still allowed to others than Burmese. Lastly, the continued export of Indian Government opium to the Far East, well knowing that it is to be used for smoking, is severely criticized as being in contravention of the spirit, if not of the letter, of the Hague Convention. This policy was defended at the recent Geneva conferences by Mr. (now Sir) John Campbell and Lord Cecil. That this should have been the case is the more remarkable in the light of the new policy just announced by the Government of India, whereby exports of opium, except for strictly medical purposes, are to be annually reduced and finally extinguished. The Assam Opium Inquiry² was undertaken at the instance of the All-India Congress Committee with the assistance of Mr. C. F.

¹ *The Opium Evil in India: Britain's Responsibility*. By C. F. Andrews. London: Student Christian Movement. 1925. (Cr. 8vo, pp. 63; 1 map. 1s. net.)

² *Assam Congress Opium Inquiry Report*. September, 1925. Santiniketan, Bolpur, Bengal: C. F. Andrews; London: Student Christian Movement. 1925. (64 x 91, pp. 165; 1 map. 2s. post free.)

Andrews. It traces the opium habit to its introduction into Assam by Rajput troops in 1794. The habit became widely diffused and firmly established. There were in 1873-74 some 5,000 opium shops in the province; and in the district of Lakhimpur the consumption amounted to 378 lb. per 10,000 of the population. The report suggests that the opium habit is by no means as innocuous as it has been represented, and that opium smoking is practised in other parts of India as well as in Burma. The committee of inquiry frankly admits its political sympathy with the non-co-operation movement, and attributes the reduction in opium consumption since 1921 to the influence and teaching of Mahatma Gandhi. These two works support the view, which resolutions passed not only by the National Congress but also by the Assembly at Delhi confirm, that native opinion in India is hostile to the official opium policy as formulated by the Royal Commission of 1893-95; and it would seem that by the recent pronouncement of a change of policy the Indian Government is making a virtue of necessity.

BIOLOGY IN SHAKESPEARE.

PROFESSOR FRASER HARRIS, M.D., D.Sc., formerly lecturer on physiology at the University of Birmingham, and afterwards professor of that subject at the Dalhousie University, Halifax, Nova Scotia, delivered the last of a series of Monday evening lectures at the Midland Institute on March 8th. His subject was "Biology in Shakespeare," and he explained that he used the word "biology" as meaning all knowledge concerning life, vegetable and animal, both in health and disease. For the purposes of the lecture he would not study any references to botany, zoology, or medicine. He did, however, include one or two allusions to surgery, the most interesting of which were the lines spoken by the Archbishop of York in *Henry IV*:

"If we do now make our atonement well,
Our peace will, like a broken limb united,
Grow stronger for the breaking."

References to the physiology of the following were studied in the plays: sleep, the heart, arteries, veins, and nerves; fainting, the doctrine of the three kinds of spirits, the *halitus sanguinis*, the action of alcohol, digestion, starvation, the description of Falstaff's death, infection, first aid, the *vis medicatrix naturae*, the pia mater, and the visceral distribution of the emotions. Professor Fraser Harris discussed also the physiological psychology of visual hallucination, trophism of nerves, sense before motion, retinal fatigue, the Sanson images, giddiness, psychical blindness, and paraphasia. His most interesting lecture closed with a detailed analysis of all that is implied in the lines in *Hamlet*:

"The glow-worm shows the matin to be near,
And 'gins to pale his uneffectual fire."

THE CAPACITY OF CHILDREN TO UNDERSTAND LANGUAGES.

A SHORT article on the intuitive capacity of children to understand spoken language, from the pen of Dr. J. W. Tomb, was published last year in the *British Journal of Psychology*. It gives the writer's experience of English infants in India between the ages of 9 and 18 months, whom he found could receive instructions and directions from their mothers in English, from their ayahs in Bengali, from the house servants in Hindustani, and so on, before they are able to speak any of these languages themselves. Again, English children of 3 or 4 years of age conversed freely with their parents in English, and with servants of different types in Bengali, Santali, and Hindustani. This facility for speaking and understanding several languages

or dialects is contrasted with the labour expended and difficulty experienced by adults in acquiring them; and the author states that the facts can only be satisfactorily explained on the hypothesis that children possess the capacity of intuitively placing the correct meanings on spoken sounds, a capacity which they retain up to a certain age, but, in the majority of instances, lose altogether as they approach adult life. This is no doubt true; but would it not be equally true of adults who set themselves to acquire a limited knowledge of a language by sound only instead of by the laborious method of studying grammars and printed books? After all, the vocabulary an infant acquires is extremely limited, and in the acquisition of the meaning of words the child is greatly assisted by the gestures and repetitions of parent, nurse, or servant, all of whom conspire to be his teacher. Had an adult the same method of acquiring an equally limited vocabulary the chances are that he would learn it much more rapidly than the infant. Children learn mainly by imitation; their minds are more receptive, and more insistent in expressing themselves in words than is the case with adults, who have many other occupations and distractions and less time or desire to pay attention to the acquisition of the language of any foreign country in which they may happen to be living. Although the subject, therefore, of the difference between the capacity of children and that of adults to speak and understand languages of their environment is of considerable interest, the cause of the difference does not seem to rest on any deep or obscure psychological basis, but to depend more on imitation than on the intuition suggested by Dr. Tomb. Remove the child from the environment of the language which was learnt by imitation, and the memory of it is gradually lost, whereas the adult who has learnt a language by concentration of effort retains a memory of it over a long period of time.

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE Oxford Ophthalmological Congress will be held on Thursday, July 15th, and two following days. On the first day a discussion on sympathetic ophthalmia will be opened by Mr. Malcolm Hepburn, surgeon to the Royal London Ophthalmic Hospital, followed by Mr. S. H. Browning, bacteriologist to that hospital, and Dr. T. Harrison Butler, surgeon to the Birmingham and Midland Eye Hospital. The Doane Memorial Lecture will be delivered on Friday, July 16th, by Dr. Thomson Henderson, surgeon to the Nottingham and Midland Eye Hospital. The subject of the lecture is the anatomy and physiology of accommodation in mammalia. It is proposed to devote one afternoon entirely to demonstrations in the scientific and commercial museums of the Congress, and members are invited to bring novelties of any kind—pathological specimens, operations, or apparatus. It is asked that those who desire to contribute papers or demonstrations, or to take part in the discussions, will notify the honorary secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton, as early as possible. The members will assemble at Keble College on the evening of Wednesday, July 14th, and the official dinner of the Congress will take place on the evening of Thursday, July 15th, in the hall of that college.

MAJOR-GENERAL T. H. SYMONS, C.S.I., has been appointed Director-General of the Indian Medical Service in succession to Sir Charles Macwatt, who has held the office since 1922. Major-General Symons, who received his medical education at Charing Cross Hospital, where he was house-surgeon, house-physician, and resident obstetric officer, entered the I.M.S. in 1896. He was appointed surgeon-general with the Government of Madras a little over two years ago.

Canada.

[FROM OUR SPECIAL CORRESPONDENT.]

HOSPITALS IN MONTREAL.

THE financial position of the hospitals in Montreal, and to some extent throughout the Province of Quebec, has been the subject of much public discussion. It has been maintained that the cost of caring for indigent patients is being borne in too large proportion by private charity, with the result that such a large city hospital as the Montreal General Hospital is faced each year with a large deficit. The arrangement at present is that the cost of such patients is divided equally between the Provincial Government, the city of Montreal (in the case of its own hospitals), and the hospital—that is, private charity. The daily cost, which so far has been placed at two dollars a patient, is now declared to have risen to three dollars, but the amounts paid by the Government and municipality have not been increased, with the result that private charity has been making up the difference. The Government has therefore been requested to pay for each indigent patient at the rate of two dollars, instead of 1.34 dollars. Another matter which adds to the burden of the hospitals in Montreal is the caring for indigent immigrants. This city has an especially large floating population, not only because its size attracts many, but also because it is directly in the path of the stream of immigration. Many of these people find their way into the public wards, but few can afford to pay for their treatment. The cost in such cases falls entirely on the hospitals, since the municipal allowance only covers citizens, and the definition of citizenship is quite rigidly defined. It has been suggested that this particular problem be handled by the Department of Immigration and Colonization. The position taken by the Provincial Government in the face of these demands is that of sympathetic consideration, which so far, however, has not produced anything more concrete than the statement that the Government is quite willing to listen to proposals for the raising of the necessary funds for the extra expenditure called for. There has, by the way, been a request also that an allowance be made for outdoor patients of 35 cents per treatment. It has been suggested that the money be raised in various ways, such as by increasing the price of alcoholic beverages (the sale of which is under Provincial control), or by placing a small tax on automobiles. Neither of these proposals has been received with favour, since it is felt that the excise duty on alcohol is already very high, and that there is no reason why the owner of a car should be singled out for the support of the hospital, especially as he probably pays for his own treatment therein. Still, the problem is being freely discussed, and a general petition is being circulated for signatures, requesting the Government to formulate some special small tax to meet the needs of the situation.

DR. FRANCIS J. SHEPHERD.

A portrait of Francis J. Shepherd, M.D., LL.D., F.R.C.S. Eng. and Edin., has recently been presented to McGill University, and has been placed in the assembly hall of the medical building among the portraits of other men who have helped to build up the medical faculty of McGill. The portrait was subscribed for by the medical faculty and by students and house-men who worked under Dr. Shepherd. The presentation was formally made by Dr. F. G. Finley, who recalled Dr. Shepherd's long and brilliant career. He had been not only a great surgeon, but also a great teacher of anatomy, and it was through his unceasing labours that the department of anatomy at McGill University had been built up into what it was. He had, too, the instinct of a true collector, and had brought together a splendid anatomical museum, but this, unfortunately, had been lost in the fire which destroyed the old medical building. He had seen surgery in the pre-antiseptic days, and had been the first to give up the carbolic acid spray and to do away with elaborate moist dressings. His reputation as a dermatologist was also very high, and was another instance of width of interests. The

portrait (painted by Miss G. DesClayes) was received for the university by Dr. Charles F. Martin, dean of the medical faculty, who said that it would serve as an inspiration and a symbol of what a man of wide culture and attainments might become. Dr. Shepherd, who has for some years retired from active teaching and work, spoke in appreciation of the honour done him, and of the signs of respect and affection shown him by those whom he had taught and who had worked with him.

MEDICAL LEGISLATION IN ALBERTA.

The Provincial Legislature is considering a bill which vitally concerns medical affairs. One of its provisions is the appointment of an appeal board of laymen who will deal with disciplinary questions of the medical, legal, and dental professions which have been adjudicated upon by the administrative bodies, or any of these organizations in which appeal is asked for. The decision of the board is to be final, and will do away with a Supreme Court action. Another provision is that any physician styling himself a "specialist" in any branch of medicine or surgery will have to substantiate his claims. Attempts will also be made to curtail the number of operations and to prevent fee-splitting. The radical nature of these proposals suggests that they have about them an element of political tactics, and they are being discussed with a warmth that ensures that they will meet with a good deal of opposition.

Scotland.

REGISTRAR-GENERAL'S REPORT FOR SCOTLAND.

THE vital statistics of Scotland for the fourth quarter of 1925 have just been published. An examination of the annual figures shows a low and falling birth rate, a low marriage rate, and a low death rate. The birth rate of the year was 21.3 per 1,000, the marriage rate 6.6, and the death rate 13.4. The deaths among children less than 1 year of age numbered 9,429, and as the registered number of births during the year was 104,137, these deaths equal an infantile mortality rate of 91 per 1,000. This rate is 7 less than in 1924, but 12 more than in 1923; it is 8 less than the mean of those of the preceding ten years. During the year 1925 there were registered in Scotland the deaths of 65,505 persons, a number 4,852 fewer than in all years from 1862 to 1922, with the exception of those in 1923, which they exceeded by 2,222. The death rate of 13.4 per 1,000 is 1.0 per 1,000 less than that of the previous year, but is 0.5 more than that of 1923. This is the third year in which a Scottish annual death rate of less than 14 per 1,000 has been recorded, the two previous years being 1921 and 1923. The principal epidemic diseases produced a death rate for the year of 0.84 per 1,000, being 0.17 less than that of the previous year, 0.15 less than the mean of the five preceding years, and 0.26 less than the mean of the preceding ten years. The death rate from tuberculosis of the respiratory system was 76 per 100,000 and from all forms of tuberculosis 110. The former rate is 4 less and the latter rate 6 less than in the previous year. Both these rates are the lowest yet recorded from tuberculosis. The principal epidemic diseases produced death rates varying from 1.70 in Dundee, 1.36 in Coatbridge, 1.18 in Edinburgh, and 1.14 in Glasgow, to 0.38 in Kirkcaldy and in Ayr and 0.61 in Dunfermline. Deaths from influenza numbered approximately half what they did in the previous year, deaths from cancer showed an increase of 175, the figure being 5,673 as against 5,498 in the previous year, and the number is the largest yet recorded in any one year. Deaths from tuberculosis of the respiratory system numbered 3,733, which is the smallest number yet recorded. Deaths from encephalitis lethargica numbered 154, which is 27 fewer than in the previous year, and those from cerebro-spinal meningitis numbered 83, which is 4 fewer than in the previous year. In regard to the causes of death during the last quarter of 1925 as compared with the preceding quarter, deaths from scarlet fever were 56 more, from diphtheria 76 more, and from measles 110 more. Deaths from influenza during the

quarter numbered 293 as compared with 90 in the previous quarter, and with 509 in the fourth quarter of the previous year. Deaths from pneumonia, exclusive of those associated with influenza, numbered 1,935 during the quarter, constituting 10.9 per cent. of the total deaths and equalling a death rate of 157 per 100,000.

THE MORISON LECTURES.

The first of the Morison Lectures for 1926 was delivered by Dr. R. D. Clarkson, F.R.C.P.Ed., in the Hall of the Royal College of Physicians, Edinburgh, on March 1st. Professor George M. Robertson, President of the College, occupied the chair. The lecturer took as his subject mental deficiency, and in the first lecture dealt with the definition of mental deficiency and with the classification of mental defectives. In this he followed Tredgold's system. In the second lecture Dr. Clarkson considered the causes of mental deficiency. The microcephalic type, which was not common, might be divided into cases in which an excessively small head was due to a defect of large areas of the brain, and into cases with small head and large face, sloping forehead and simple brain with unusually small cerebral hemispheres, which was supposed to be a reversion to an ancient prehistoric type of ancestor. The mongolian type was responsible for about 5 per cent. of cases in institutions, but this did not represent the true proportion, because most of this type of defectives were of an affectionate, lovable type, who were not sent to institutions; moreover, they died early. The cause of this type was not known; the prevailing idea that they generally formed the last member of a large family was not always true. Defect of various endocrine glands had been blamed, but the fact remained that no effect had been obtained from treatment by extract of any gland. The condition was certainly not syphilitic, but there were often bodily defects, such as congenital heart abnormalities. The simple primary type of amentia had been supposed from the time of Morel to be hereditary, such children being the offspring of mentally defective parents. The lecturer made a strong protest against this prevailing view; he had only been able to discover 6 out of 3,500 cases in which the parents of mentally defective children had been certified or certifiable as mental defectives. He believed there was a certain amount of confusion in regard to primary simple mental defect as to what was meant by hereditary and congenital influences respectively. Environment was just as important, and he attributed considerable influence to the effect of alcohol in regard to mothers who were soaked in it during the period of pregnancy. He also thought that there was some evidence for what might be termed the operation of incompatibility between the male and female germ plasma. The theory of heredity had been largely based upon certain well known and, in some cases, appalling family histories. The lecturer criticized these records, and quoted statements from several modern writers commenting upon them very adversely. Mental defect should not be regarded as a unit character, amenable to transmission according to Mendelian laws; he declared that there was no evidence that the neuropathic diathesis was transmitted by Mendelian law, and further, no evidence that mental defectives were unusually prolific. In the third lecture Dr. Clarkson dealt with the general treatment of the individual. The faulty memory which was so difficult an obstacle in teaching was due to lack of interest, and the child forgot at once facts told to him but with which he had no association. Pride and ownership were two primitive instincts useful in training; for example, it was bad to provide uniform institution clothing to each child. Each should have its own clothing in which, therefore, it developed a sense of ownership and pride in keeping the clothing tidy. The instinct towards constructiveness was of great importance, and the child should be taught to do things with his hands. Even destructiveness, which could be turned into useful channels, was better than apathy. The lecturer gave several instances, as, for example, one of a child who had been quite incapable of reading or writing, but who, being put in the joiner's shop, developed interest and became an excellent carpenter, thereafter teaching himself to read labels and other signs necessary for the work in which he was interested. Another example was that

of a girl who had not the mentality necessary to read and who forgot the letters from one day to another, but who became interested in crocheting. She learned to work elaborate patterns, and later taught herself to read the complicated information given in pattern journals. Play, the lecturer said, formed the character of children more than anything else, and the child learned the most important lessons from its fellows. It was impossible for a mentally defective child to play with normal children, who either teased it or ignored it, and were constantly showing up its defects. The question therefore arose whether a child should go to an institution or be brought up at home. This question must be decided in each instance. The advantages of an institution were many; thus a child found in an institution children of its own calibre with whom it could play on equal terms. At home, too, a child often had a bad effect on its mother, both by causing her to neglect the rest of the family, and also by making her nervous from the constant strain required in attention on the defective child. The mentally defective child had, however, little effect on other children, except that, seeing he was usually favoured and not held responsible for his acts, a sense of injustice was raised in normal children. The education authorities at the present time provided special schools in the cities for the instruction of mentally defective children, but the entrance to these should be restricted to children who showed a prospect of being capable of advancement to a fairly normal standard by the age of 16. Children of lower mentality should go to institutions, and there should be far more of these than existed at present. Boarding out, which was so successful in the case of mildly insane persons, was very successful also in the case of mentally defective boys, but was not so suitable for mentally defective girls. The institutions which would be built in the future should be large, because this offered advantages of cheapness in management. It also permitted of classification of mental defectives according to their grade, and gave a chance for providing occupations for the children, which was a matter of great moment in their instruction and development.

SCOTTISH NATIONAL MEMORIAL TO QUEEN ALEXANDRA.

An appeal has just been issued for £150,000 to raise a fund to secure the continued usefulness of the Queen Victoria Jubilee Institute for Nurses in Scotland, and to assist the local district nursing associations, of which there are 400 branches in Scotland. This is to be called the Scottish National Memorial to Queen Alexandra. The appeal points out that the institute was founded by Queen Victoria in 1887, and that the Scottish Council now supplies 700 Queen's nurses, who minister in every part of Scotland to those unable to afford a private nurse, as well as to the necessitous poor, and also provides special courses in district work, infant welfare, midwifery, school, and tuberculosis visiting, and other branches of public health work. The institute provides a home of rest for the nurses free of charge during any period of convalescence, and guarantees to its nurses after training regular employment and a minimum salary and keep, and provides them with small pensions on retirement. The number of nurses trained by the institute has increased from 65 in 1919 to 102 in 1925, and as the cost of board and uniform and other expenses has steadily risen, the council has for some time been faced with a yearly deficit. Many towns and districts are understocked with nurses, and there is a pressing need for extension of services. It is estimated that to cover the whole of Scotland effectively 600 additional nurses are still required.

CONFERENCE ON THE CRIPPLE PROBLEM.

A conference called by the Edinburgh Cripple and Invalid Children's Aid Society will be held in the City Chambers, Edinburgh, on Tuesday next, March 16th, at 3 p.m., at which the Lord Provost will preside. The conference will be asked to appoint a committee to consider every aspect of the question, including the number of existing cripples, the home visiting of cripples, the institution of clinics, the following up of patients after discharge from hospital, and perhaps the provision of beds for the treatment of crippled children and adults.

ANTITUBERCULOSIS MEASURES IN EDINBURGH.

The annual meeting of the Royal Victoria Hospital Tuberculosis Trust was held on March 3rd in Edinburgh. Sir Robert Philip, LL.D., vice-president of the trust, presided, and, in moving the adoption of the annual report, referred to methods of treatment at the Southfield Colony. In the laboratory of this institution they had the fullest opportunities through clinical cases for testing new remedies. Every now and then new remedies were boomed in the press unduly. A large number of authorities had taken the trouble to send them this or that new remedy in order that it might be tested, and their results had tended to corroborate or to lead them to distrust some of these remedies. He wished that that method of testing remedies could be adopted more thoroughly. At the farm of Gracemount a supply of clean milk of the highest character had been secured and a herd of tubercle-free cattle created, thus showing the dairy farmers what could be done on sound commercial lines. He referred to the grant made in aid of tuberculous patients and households as one of the most significant parts of the trust's work. If the mortality figures which prevailed in 1887, when the trust began its work, had prevailed last year, there would have been approximately 13,000 deaths in Scotland from all forms of tuberculosis, whereas the actual figure was 5,389. If the old figures had prevailed in relation to pulmonary tuberculosis, there would have been 9,300 deaths, whereas the mortality was 3,733. While the trust did not claim that all this was due to its activities, it suggested that it was a hopeful line of work in which they were engaged. Colonel P. S. Lelean, professor of public health in the University of Edinburgh, in seconding the adoption of the report, said that at Southfield there was one of the most completely equipped laboratories in Scotland, but the question arose as to who was to endow this necessary work.

The report records several interesting cases of advanced tuberculous disease which had benefited very greatly. It also describes the treatment by sunlight and open air which has been pursued since 1894. The committee has been so convinced of the beneficial effects of this treatment that it has erected a considerable building as a "sun bath," capable of accommodating some fifty patients, which will be completed early in the present year. An artificial sunlight equipment has also been installed. Attention is drawn to the fact that the committee has undertaken the production of tubercle-free milk at Gracemount Farm, Liberton, which has been established to produce clean milk of the highest grade; to raise a herd of tubercle-free cattle; to maintain a dairy farm on sound financial lines; and to serve as a propaganda station in the interests of dairy farmers and of the general public. All these purposes have been successfully accomplished and the demand for the milk has grown continuously. It is calculated that of all milking cows in the country, probably 40 per cent. are infected with tuberculosis, and the difficulty of securing non-tuberculous cows can only be realized by those who have had practical experience. The demand for tubercle-free cows is, however, steadily increasing, and the tubercle-free herd belonging to the Tuberculosis Trust already contains some seventy cows. The trust, in the course of two years, it is expected, will be in a position to sell annually a considerable number of guaranteed tubercle-free animals. Attention is also directed to the laboratory investigations carried out at the Southfield Colony at the request of the Medical Research Council. Much work was carried out with regard to treatment by sanocrysin, and the trust wishes it to be generally known that one of its functions is the investigation of new remedies and lines of treatment.

INFECTIVE JAUNDICE AMONG MINERS.

An important decision was given in a case which came before the sheriff at Dunfermline, relating to the death of a miner from infective jaundice. This is the first case brought under the Workmen's Compensation Act to establish liability of the employer for compensation. The plaintiff was the widow of a colliery foreman who died in 1925 from what was admitted to be spirochaetosis icterohaemorrhagica. Rats caught in the pit had been found on laboratory examination to show the spirochaetes of this disease. The sheriff, in giving judgement, said that the

disease in this case had been contracted by infection from a rat or rats in the pit, and the condition therefore arose out of and in the course of the employment. If the disease had been common in the coal mines of Scotland as it was, for example, in Japan, it might have been regarded as a risk which the coal-miner took as a normal incident of his employment and for which the employer was therefore not liable to pay compensation. As all coal-miners in this country were not exposed to liability to contract this disease, it was held that the death was "an unlooked for mishap or an untoward event, which was not expected or designed," and a sum of £280 was accordingly awarded to the widow of the deceased miner as compensation.

Ireland.

SMALL-POX AND VACCINATION.

The following resolution was adopted by a unanimous vote at a meeting of the Royal College of Physicians of Ireland held on March 5th:

"That the President and Fellows of the Royal College of Physicians of Ireland have had before them the most recent figures as to the prevalence of small-pox in the North of England, and they recognize the risk of the introduction of the disease into Ireland. The President and Fellows deem it to be their duty to urge upon the public health authorities and the public the necessity which exists for vaccination of infants and for revaccination of young adults. These preventive measures, in the opinion of the College, have been proved to promote—if not to secure—immunity against a dangerous infection which in times past was one of the most fatal and dreadful of pestilences."

INCORPORATED ORTHOPAEDIC HOSPITAL.

At the annual meeting of the Orthopaedic Hospital of Ireland the report read by the senior physician, Dr. T. P. Kirkpatrick, stated that this was the hospital's jubilee year. The hospital was founded in the year 1876 at Usher's Island by the efforts of the late Surgeon R. L. Swan and Messrs. B. Journeaux and T. W. Fisher. It began with six beds. In 1883 it was moved to Great Brunswick Street, Dublin, where 48 beds were available. The fame of the hospital spread all over Ireland, and a steady stream of deformed children began to flow in. In 1902 Dr. Swan moved the hospital to its present site in Upper Merrion Street, where 80 beds were available, devoted solely to the treatment of deformities. It was the only hospital in Ireland treating deformities in children exclusively. During the fifty years of the hospital's existence 30,000 crippled children had been treated. Last year 1,576 patients were treated in the hospital—1,375 in the out-patients' department and 201 were given special operative treatment as in-patients. The daily average number of patients was 69. The attendance at the dispensary was the largest on record. Very young children, if brought regularly to the dispensary, could in most cases be cured of club-foot and rickety deformities by manipulative and plaster appliances, thus saving the beds for the more serious cases. There was a gymnasium and national school attached to the hospital. The ordinary expenditure during the year exceeded the receipts by £280, and with a debt of £88 from the year before the governors had now to face 1926 with an overdraft of £368. The Linen Guild, under Mrs. Haughton and Miss Riordan, had a successful year. The governors offered their very special thanks to Sir Neville and Lady Beatrix Wilkinson for the sum of £111, being part of the proceeds of the exhibition of Titania's Palace, held during the summer. This money the governors wished to have allocated to furnishing an outdoor ward. Thanks were also offered to Miss Sweeney, her staff, and pupils of Mount Temple School, who forwarded the sum of £57, the proceeds of a sale of work. That sum was being used, at their request, to buy an Alpine sun lamp. Thanks were also accorded to other friends of the hospital for their services. The Chief Justice, Mr. Hugh Kennedy, said that the hospital had a history of great and growing usefulness. It was astonishing to find that actually 30,000 crippled children had passed through the hands of the skilled staff, and had received attention and treatment which had made many of them

capable of earning their living. The past year, as they would see from the report, was one of record achievement. The financial overdraft with which they were starting the year was an indication that the work had been expanding. The report also gave them a line as to the future growth of the hospital. Experts were all agreed that if the best results were to be achieved a country home was necessary at least as an adjunct of the work being carried on. He appealed to the public to bear in mind the nature of the work and the extent of the relief that had been afforded during the last fifty years, and in particular during the past year.

MOTHER AND CHILD WELFARE.

The report of the mother and child welfare department of the St. John Ambulance Brigade in Ireland shows that with the limited amount of money which the executive committee had at its disposal help was given to many of the poor at a time when not only nourishment was necessary, but when relief from trouble and anxiety was most essential. The daily dinners served to expectant and nursing mothers numbered 7,205; in this branch also 9,452 half-pints of soup were issued. To women attending for these daily dinners seventy-nine babies were born, and all but one of these were alive and healthy. Remembering that many of these mothers were in a state of semi-starvation brought about by the dearth of employment which unfortunately exists in the city of Dublin, it was considered that the Brigade had justified itself in deciding to reorganize the welfare department, and feed the mothers on the premises instead of issuing food tickets as heretofore. Besides the actual feeding, assistance was given in 208 maternity cases; this consisted of double sets of baby clothes, parcels of food, and milk for two weeks, and in some cases when the mothers were unable to nurse their babies patent foods were issued, and continued for nine months. Through this department 204 sick children were helped by the issue of milk, food parcels, and warm clothing. At a recent meeting Sir John Lumsden, F.R.C.P.I. (chairman), urged the committee to use its best endeavours to bring the work of the welfare department before the charitable public of Dublin; its resources were so slender that it was only able to help a very small proportion of the victims of the economic conditions prevailing in the city to-day.

England and Wales.

MR. ALBERT LUCAS OF BIRMINGHAM.

MR. ALBERT LUCAS, who until recently was senior surgeon to the Birmingham General Hospital, has retired under the age rule. On March 5th he was presented with an illuminated address and his portrait at a meeting of the governors, medical and surgical staffs, and the officials of the hospital, at which Sir Gilbert Barling, president of the hospital, took the chair. On the same occasion Mrs. Lucas, who is chairman of the Samaritan Committee, was presented with a piece of jewellery. Mr. W. S. Houghton, chairman of the House Committee, read the address, which was in the following terms:

As representatives of the Board of Management and of the medical staff of the General Hospital, we tender to you our profoundest thanks for thirty-five years' invaluable service to this institution, in the development of which you yourself have played the part of a leader. Your skill as a surgeon, your ability as a teacher, your counsel in committee, together with the happy relations which have always existed between you and your colleagues, and your wide experience of voluntary hospitals generally, and in the affairs of your own profession, have all been of considerable advantage to the hospital.

We should not do justice to your career if we failed to place on record the respect and affection which is felt for you by those who have been associated with you in the great work which gives us a common and binding interest. We wish to add our appreciation of the quiet but effective work of Mrs. Lucas as member and chairman of the Samaritan Committee. We are glad that

as consulting officer you will maintain for a time active association with the hospital, and we hope that both you and Mrs. Lucas will long be spared in health and happiness to enjoy the retirement which your long and valuable services to the city entitle you.

Mr. Houghton said that Mr. Lucas had come to the hospital as resident surgical officer in 1892, and gratitude mingled with love and admiration was due to him for all he had done; he was glad to think that the hospital was not to lose the services of Mr. and Mrs. Lucas altogether. Sir Gilbert Barling handed the address to Mr. Lucas, and expressed the hope that he would have many years yet of activity and health. Mr. L. P. Gamgee, senior surgeon, said that Mr. Lucas had always put the interests of the General Hospital at the forefront of his endeavours and had worked single-minded for its good. He had himself become connected with the hospital soon after Mr. Lucas. A more kindly and loyal colleague it would be impossible to have, for Mr. Lucas was always ready to sacrifice his own interests in assisting his colleagues.

Mr. Lucas, in returning thanks, said that he had received during the whole period of his service many kindnesses. The surgical work of the hospital had greatly increased; in his first year there were 600 operations and in the last year 8,000. He had faith in the voluntary hospital system, and he knew that Mr. Neville Chamberlain, who had at one time been chairman of the hospital, and in that way gained much knowledge useful to him in his present position as Minister of Health, would gladly make a large grant for the enlargement of hospitals if the financial position of the country permitted. The General Hospital, however, required a certain amount of enlargement, and if its needs were better known he felt sure they would be supplied. The General Hospital had always been the first thing in his thoughts; he had put the best years of his life into the service of the institution, and his work had afforded him the greatest gratification.

Mrs. Rickards then presented Mrs. Lucas with a piece of jewellery on behalf of the subscribers, who were very glad to know that the hospital was not to lose her services as chairman of the Samaritan Committee. Mrs. Lucas suitably acknowledged the gift.

"DISTRICT NURSING IN LONDON.

At the annual meeting, on February 25th, of the Central Council for District Nursing in London the executive committee reported that there had been a satisfactory increase of work during the year. New associations had been established in Norwood, Willesden, Heston, and Twickenham, and certain existing associations had extended their borders. The committee decided to distribute £1,350 during 1925, allocating part of this sum for specially necessitous areas. The trustees of the London Parochial Charities had entrusted the council with £2,600 for distribution, and provided £300 for administrative expenses. They also gave £100 for midwifery training bursaries, to be awarded to nurses in federated associations who were prepared to undertake midwifery or maternity nursing in London. Three nurses had entered for training during the year, making a total of nineteen trained in this way since the grants were first made. The Association for Promoting the Training and Supply of Midwives had again been willing to make arrangements for the booking of vacancies at suitable institutions; these bursaries had been found to be of great value. The new housing estates established by the London County Council present fresh problems as regards district nursing, since, although in some cases they are situated outside the county area, their population is almost wholly drawn from the metropolis. The executive committee, therefore, felt it necessary to secure nursing provision for the Becontree estate, and it conferred with the Essex County Nursing Association, who agreed to establish a branch home at Dagenham, and to provide district-nurse midwives for the inhabitants. The difficulties of the Tottenham area have been overcome temporarily by two neighbouring associations extending their sphere to cover the greater part of the district; it is hoped that eventually a local association will be established. The Southgate association, which, received a grant to

enable it to extend its work to a particularly poor area, has now repaid this grant, which becomes available for a needy district elsewhere. A census of district nurses in relation to population has been prepared by Sir Arthur Newsholme, from which it appears that the average for the entire metropolis is one district nurse to 18,120 persons; thirteen boroughs are above this average and fourteen below it. It is recognized that more nurses are required in London, but at present the associations are unable to extend owing to lack of funds. Grants and donations have been received from the trustees of the Peabody Donation Fund, the trustees of the Guinness Trust, the Ministry of Health in respect of midwifery and maternity nursing, from the Fishmongers' and Ironmongers' Companies, and certain private individuals. The representatives of the British Medical Association on the central council are Mr. E. B. Turner, Dr. T. W. H. Garstang, and Dr. William Paterson.

DR. JAMIESON HURRY AND READING.

Dr. Jamieson B. Hurry, on the occasion of his leaving Reading, has presented the royal borough with another historical picture dealing with Reading Abbey. The picture was painted by Mr. Stephen Reid; it was exhibited in the Royal Academy in 1924, and subsequently for a time in the House of Commons. It depicts the Parliament of King Henry VI at Reading Abbey in 1453. The King is seated on his throne, the bishops and mitred abbots are seated in rows on his right hand, and the lords temporal on the left. In the centre of the picture is an inner square of four woolsocks for the chancellor and various judges; behind them are the clerks of Parliament and the Crown. Dr. Hurry has now presented ten pictures in all to the borough, each of which has been painted by an artist after careful historical research. The series thus comprises a valuable guide to the history of Reading Abbey, and includes such incidents as the burial of Henry I, the founder of the Abbey; the consecration of the abbey church; the execution of the last abbot of Reading in 1539; and the enthronement of Elizabeth, Queen of Edward IV—Dr. Hurry's previous gift, which we mentioned on July 19th, 1924 (p. 135). Dr. Hurry has been a resident in Reading for forty years, and has made numerous gifts to the town, including books dealing with the history of the Abbey, and benefactions in connexion with the Forbury Gardens, the swimming baths, and the gymnasium. He was formerly surgeon to Reading dispensary and medical officer of University College.

CENTRAL MIDWIVES BOARD.

The Central Midwives Board for England and Wales met on March 4th for a penal session, followed by the ordinary meeting. Dr. R. A. Lyster was appointed to represent the Board at the congress of the Royal Institute of Public Health. Approval was given to the scheme of training submitted by the Tynemouth Guardians. It was agreed that the approved lecturer at Lambeth Hospital should be invited to co-operate with Dr. E. W. G. Masterman, medical superintendent of St. Giles's Hospital, Camberwell, in the delivery of lectures to pupil midwives. The suggested amendments of the Midwives Act, 1902, and the alterations in the rules of the Board were considered, and it was resolved that the Minister of Health should be asked to provide for the amendment of Section 1, Sub-section 2, of the Midwives Act, 1902, by the addition of the following clauses:

1. Any unqualified person rendering assistance to a woman in childbirth in a case of emergency shall, without delay, summon a qualified medical practitioner or a midwife to the case.
2. Any person failing to comply with the foregoing clause shall be liable on summary conviction to a fine not exceeding £5.

The Board approved the form for recording ante-natal notes, and decided that this should be printed by the Board's printers both in card and book form and be placed on sale. The following re-elections to the Board were announced: Dr. J. S. Fairbairn, Miss M. E. Pearson and Miss A. A. L. Pollard by the Midwives Institute, and Dr. J. J. Jervis by the Association of Municipal Corporations.

Correspondence.

HOSPITALS FOR THE MIDDLE CLASSES.

SIR,—I read with much interest your leader in the *BRITISH MEDICAL JOURNAL* of February 27th (p. 385). It summarizes very ably the need of the middle classes for skilled medical service at reasonable cost, and the difficulties that a satisfactory solution of the problem presents, that were the outstanding features of the recent correspondence in the *Times*, in the *Spectator* last summer, and in a recent long letter to the *Western Daily Press* by Professor Morton of Bristol.

A fundamental error in the minds of nearly everyone taking part in the discussion is the belief that the solution of the problem lies in the provision of inexpensive nursing home accommodation. The nearly twelve years' experience of St. Chad's Hospital proves that an institution equipped to fulfil the requirements of modern medicine in the investigation and treatment of disease cannot be "cheap" either in respect of initial or maintenance cost. Nor, if it were possible, would it solve the real difficulty—namely, a reduction of at least 50 per cent. in the total cost of treatment in ordinary nursing homes at ordinary fees.

A cheap nursing home or private hospital involves inadequate equipment, poor nursing, and conditions that would not be tolerated, as you rightly point out, either by the patients or the medical staff. Money sufficient to provide and maintain an institution on proper and efficient lines must be provided from some source.

In Birmingham the total cost of an ordinary major operation involving three weeks' stay in a nursing home is about seventy-five guineas. The cost of a similar operation in a voluntary hospital is about twelve guineas, provided partly either directly or indirectly by the patient, or from charitable funds. The problem is to provide as satisfactorily for the large numbers of people to whom the ordinary cost is prohibitive or excessive, and who are yet in a position to pay a moderate inclusive fee—for example, £40 to £50. Nursing home charges average eight to ten guineas a week, and no possible reduction in these would materially help to reduce total cost.

The experience of St. Chad's proves that the cost of the nursing institution cannot be reduced beyond seven guineas a week without sacrifice of efficiency. This provides for a resident medical officer and all the departments and equipment of a voluntary hospital. If relieved of capital charges, rates, taxes, etc., that a voluntary hospital has not to meet, the cost might be covered by five guineas a week, which must be regarded as the minimum cost of maintenance for paying patients even in a voluntary hospital. When the ordinary maintenance cost is about £4 a week it is ridiculous to think that a better class of patient can be received and satisfied for three or four guineas a week unless they are to involve a drain upon, instead of adding to, the general income of the hospital. If it is accepted that cheap nursing institutions are undesirable and would not solve the real difficulty, a great advance will have been made. A charge of one guinea a day allows of the provision of a modern hospital replete with the equipment necessary for satisfactory investigation and treatment of disease in an environment that provides the amenities expected by paying patients. It allows of a moderate return on capital invested and provision for gradual repayment of such capital. In other words, such an institution is economically sound and requires no help from charity nor subsidy from the State or rating authorities. If this ideal is sacrificed and an attempt made to provide for patients at an uneconomic rate, endless difficulties are encountered. The difference in cost to a patient on a three weeks' stay between the full economic charge and the bare cost of maintenance in a hospital ward is only about nine guineas, and does little to reduce the total fee.

I am convinced that the problem can only be solved satisfactorily by allowing an adequate sum for the upkeep of the nursing institution, whether this be an annexe of a voluntary hospital or a separate hospital for paying patients only. The real benefit in the way of reduction in

total cost can only be given by a modification in the professional fees agreed to by the medical staff with the assistance of an almoner.

The question of insurance that you raise in your article is an all-important one. Insurance would make it possible for a far larger number of patients to obtain the advantages of treatment in a pay hospital than is the case when necessity arises without provision having been made to meet the cost. If machinery for the treatment of insured persons were available at a fixed rate, the problem of insurance would be a very simple one and protection against illness requiring expensive treatment secured at low cost.—I am, etc.,

Edgbaston, March 4th.

WILLIAM BILLINGTON.

SIR,—Respecting your leading article, "Hospitals for the middle classes," in the *JOURNAL* of February 27th (p. 385), many West End specialists have told me of their dissatisfaction with existing homes, and the need for a home with facilities for diagnosis and treatment.

In consultation with a number of these specialists, a scheme has been worked out in detail for a high-class home having the following features:

1. A good, open position, away from traffic and dust; good bedrooms with a good outlook, and garden, lounge, and sitting-rooms for such patients as are able to use them.
2. Within fifteen minutes of the West End.
3. An up-to-date theatre, x-ray and electrical plant, and a pathological laboratory.
4. A resident medical superintendent to control the home and be available in emergency. The home would, of course, be open to any medical man to attend his patients.
5. Fees not above, and in many cases below, those of existing homes.

A house is available in an excellent position, having nothing of the "institution" style, and with unique features and amenities. There is ample room for extension beyond its present capacity, which is about twenty-five patients.

The necessary capital is still to be found, amounting to about £25,000. As a commercial proposition it would be very remunerative; if, on the other hand, some philanthropist would be satisfied with, say, 6 per cent., a reduction of fees would be possible, and a very great step forward made in the interests both of science and of the public.

I shall be glad to give full details to anyone interested.—I am, etc.,

E. C. PLUMMER, M.R.C.S., L.R.C.P.

Ealing, March 2nd.

THE DEVELOPMENT OF VAGINAL OPERATIONS FOR GENITAL PROLAPSE.

SIR,—I am very glad that the second volume of my book, *The Statics of the Female Pelvic Viscera* (Lewis, 1925), which Dr. Fothergill recently reviewed,¹ has stimulated him to give the lecture published in your issue of February 13th. I could not have been paid a greater compliment: and I thank Dr. Fothergill, sincerely and gratefully, for referring to my work. But we are as much opposed as in 1907. Dr. Fothergill believes the pelvic viscera are retained in the pelvis by their connective tissue attachments; I believe they are retained because the pelvic floor—a musculature—prevents them from being pushed out.

If in reading Dr. Fothergill's lecture I have a regret, it is that the distinguished author did not refer to my conception of "genital prolapse"—that it is an extrusion, a true hernia, comparable with any other hernia. I called the condition "pudendal hernia"; and I gave reasons for such change in name. I still have hopes that the profession in general, and Dr. Fothergill in particular, may come in time to recognize that genital prolapse is a hernia, and that it must be treated like a hernia. The matter is of importance—not simply from the point of view of curing the patient, but because it raises the conception of the intra-abdominal pressure into prominence, and thus sheds a light on the whole of internal medicine. All the world

knows that the "negative" intrathoracic pressure is essential to life—that it profoundly affects "general metabolism": not all the world knows that the "positive" intra-abdominal pressure is as important from the same point of view. The moment we see this—that the intra-abdominal (positive) pressure is as important—what changes in juxtaposition of ideas of abdominal visceral disease must we make? It is not only that the so-called "toxaemic" states in pregnant women become illuminated, it is that even in the non-pregnant light is shed on visceral aberration. My conception is based on a study of the whole of vertebrate evolution. In 1910 I showed that the pelvic floor muscles are not essentially tail-movers, but exist for the purpose of maintaining an internal pressure within the abdomino-pelvic cavity, adequate for the needs—that is for the general metabolism—of the individual.² It is supported by clinical studies in man—by the occurrence of neurasthenic states with diminished pressure, and the rise of eclamptic phenomena when the pressure is unduly raised.

While my conception leads to further issues with which professors of medicine in time will have to deal, Dr. Fothergill's conception, as far as I can see, leads nowhere. Nor is his conception whole-heartedly supported by surgery. No one, as far as I know, has cured a case of marked genital prolapse—that is, of extrusion—by operating on the visceral connective tissues alone. Even Dr. Fothergill himself performs a perineorrhaphy or colpo-perineorrhaphy—an operation in which he probably, and most other surgeons certainly, performs a myorrhaphy of the levators. Why does Fothergill do this if his conception is sound? Again, in his lecture, as in his operative work, Fothergill advocates resection of a "wide portion of the vaginal wall," so that the connective tissues lateral to the genital organs, can be reached and dealt with. But Chipman, at the Congress of Obstetrics and Gynaecology held in London in April, 1925, read a paper in which it was stated that wide resection was unnecessary. I was present, but to my regret Dr. Fothergill was not. Professor Chipman (I understand) also conforms to Dr. Fothergill's hypothesis; but he also (I believe) performs a perineorrhaphy in which a myorrhaphy of the levators is done. But how, if in genital prolapse but a narrow strip of the vagina is removed, can the parametria or the paracolpitic tissue be dealt with?

The proof of the pudding is in the eating; and I was bound to try the effect of my own ideas in prolapse. I have had few cases, but in such as have come my way I have put my ideas to the test, staking all on the result. In 1919 I exposed the levator ani in the dead; and in the same year began treating patients suffering from genital prolapse by dealing with this muscle, which is so often severed from its normal attachment anteriorly, on one side or on both, by childbirth, and found displaced laterally. My idea was to alter the position of the muscle to give it a more median position. My earlier operations all failed because I did not know how to make the muscle stick to the bone, but subsequently I have had successes. I cite three cases.

A young woman, after childbirth, in which forceps were used, found herself "all to pieces." A ring had to be inserted; it did not altogether relieve, and larger rings were used, which, however, could not be retained. I was asked to see the patient, and operated. I exposed the left levator ani, and altered its position, giving it a more median attachment. The attachment held, and the patient has since been able to do everything she wanted, to walk miles, without the use of any pessary.

A patient of my own had a precipitate labour. Subsequently she found herself "all to pieces." I operated; the operation failed. Even before leaving her bed, on vaginal examination one found that the more median attachment of the muscle had disappeared. She had a bath-chair convalescence. I advised a further attempt. In six months, in spite of invitation to go to some other centre at which orthodox gynaecological precepts would have been followed, she consented to try at my hands her luck again. This time the operation succeeded, and the patient has been so pleased with the result that she has more than once stated she would willingly submit to examination by any who may be dubious.

A patient with marked cystocele was sent to me; I operated first on the left side, and later on the right; the patient has been cured of her trouble, and when I last saw her told me she could not only do her own washing, but took in the washing of neighbours to augment her income.

² Hunterian Lectures: "The Evolution of the Pelvic Floor in the Non-mammalian Vertebrates and Pronograde Mammals," *Lancet*, May 21st and 28th, 1910.

¹ *Journ. of Obstet. and Gynaecol. British Empire*, vol. 32, No. 4, 1925, p. 744.

In none of these cases were the connective tissue attachments of the genital organs touched. Even in the interposition operation, an operation of value in many post-climacteric cases, and which cures the symptoms, the connective tissue attachments are not touched. Dr. Fothergill ought to consider the effect of the last operation on his conception of prolapse, but he does not do so. In my own operation cases, thirty-five to date, I have had sufficient successes to confirm my view.—I am, etc.,

Rugby, Feb. 13th.

R. H. PARAMORE.

CARBON DIOXIDE IN ANAESTHESIA.

SIR,—In your editorial on the carbon dioxide control of anaesthesia (BRITISH MEDICAL JOURNAL, February 27th, p. 387) there appears to be a slight misconception. The contradiction between Professor Yandell Henderson's figure of 25 per cent. of carbon dioxide and Dr. Lundy's figure of 5 per cent. is only an apparent one. Professor Henderson recommends the use of cylinders containing 25 per cent. of carbon dioxide and 75 per cent. of oxygen. In practice this is diluted with air or other gases, and when given at such a rate as to produce the optimum amplitude of respiratory movement the resultant mixture, as actually inspired by the patient, would contain approximately 5 per cent. of carbon dioxide.

During the past few months a number of Edinburgh anaesthetists have been using cylinders of pure carbon dioxide, the gas passing through a flow-meter and being delivered under an ordinary Schimmelbusch mask. It has been found that when carbon dioxide is used in this manner for adults of average size, at a rate of 2 litres a minute, the respiratory minute volume is approximately trebled and the induction or deepening of anaesthesia with ether alone is greatly facilitated.

In order to produce the desired increase of pulmonary ventilation with a mixture containing only 5 per cent. of carbon dioxide it would be necessary to exclude air almost completely. As in these circumstances the respiratory minute volume would, in ordinary adults, be approximately 15 to 20 litres a minute, this would necessitate, except in apparatus where the gas is conserved during the expiratory phase, a rate of flow of from 30 to 40 litres a minute. This would be extremely wasteful, and at this rate a large 100 cubic foot cylinder would last only about an hour and a quarter. Moreover, the oxygen percentage would be unnecessarily high. Therefore, from the point of view of economy as well as of portability and convenience, the higher percentages are to be recommended.

One can readily confirm the reports of the advantages of the use of carbon dioxide. It is a most valuable and powerful respiratory stimulant. Although in the use of gases, as in other therapeutic procedures, exact quantitative methods of administration are highly desirable, yet in the case of carbon dioxide ease and delicacy of control are the chief essentials. The immediate and easily observed respiratory response renders it possible to use carbon dioxide with the simplest appliances, the optimum amount being the minimum which will produce the required clinical result rather than any arbitrary percentage or rate of flow.—I am, etc.,

H. WHITRIDGE DAVIES.

Department of Therapeutics, University
of Edinburgh, March 2nd.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

SIR,—I hope you will allow one who is not a member of the medical profession to ask those readers of your paper who have special knowledge to give their opinion on a subject of health which is of enormous importance to Europeans who live in the tropics. The subject is: What is the cause of the upset of mental balance which is so common in the tropics? This upset ranges from excessive irritability or loss of judgement to lunacy or suicide.

The frequency of deterioration and breakdown is all the more remarkable because countries such as British Malaya are now distinctly healthy, but "nerves" are as frequent a cause of breakdown as ever. Take the position in British Malaya, where my work has been for sixteen years. The

total number of Europeans in Government service in the superior grades is now less than 1,100. Ten years ago it was much less. For the last eleven years (the period during which I have taken special notice) there have been about two cases a year regularly among Government servants of insanity or suicide, and many others among the other white persons here. During the last six months two have been invalided out of the service for "nerves," and two others who were in positions of great honour and responsibility have shot themselves. It is sometimes supposed that irregular living is a disposing cause in such cases. Nothing could be farther from the truth than this. I have known for years each of the four persons just mentioned. I believe that each one was a scholar of his college at Oxford or Cambridge; at least three out of four had won distinction in sport; each, I believe, was beyond reproach as regards regularity of life.

Nor is it only in extreme cases of breakdown that this tendency shows itself. Everyone who is in charge of any large body of Europeans knows how carefully he has to consider any signs of those under him becoming "nervy." I find also that the difficulty is not confined to our part of the world. Dr. Norman Leys, in his book on Kenya Colony, describes exactly the same difficulty. After giving two very revolting instances of the effect of loss of self-control by Europeans in that colony, he goes on: "Few of us who have lived in Africa have no reason to be ashamed of what we have done to Africans on such occasions" (p. 165). Later (p. 167) he talks of the "excessive irritation in Europeans" caused by faults in Africans. Conversation with those who have lived in that colony or visited it on business had given me the same impression before I read Dr. Leys's book.

The tropical colonies and dependencies of the empire are of great importance to us, both in producing wealth and in providing honourable careers for our young men. I think, therefore, that it would be a benefit if doctors and others who have experience of different tropical countries would give their opinion founded on observation as to the cause of this strain on the nervous system. We should then be in a position to take such steps as would minimize the harm in the future. Dr. Leys says that "the tropical sun can scarcely be blamed, as the peculiar type of crime under discussion is unknown in many tropical countries. Altitude is perhaps a likelier factor. Living in the Kenya highlands at first produces a feeling that encourages one to expect from oneself and from others more in the way of both mental and physical exertion than is ever done." Personally, I do not believe that altitude in itself has much to do with the matter. As far as I know, dwellers in Ootacamund or the other South Indian hill stations, or in Newara Eliya in Ceylon, or in the Java hills, do not suffer in this way, though all these places are within the tropics. In Simla the difficulty did not arise at all. In British Malaya we look to a visit to the hills to abolish the feeling; and the effect, as Dr. Leys describes it, of beginning life in the Kenya highlands is exactly the same as comes during one's first few months at sea-level in British Malaya. Comparatively few in Malaya ever go to any height above sea-level. None live permanently more than 200 feet up.

In Malaya it is usual to ascribe this effect of "nerves" to the sameness of the climate all the year round, and to the perpetual moist heat. But whereas in Singapore the temperature (in the shade) only varies from a maximum of 94° to a minimum of 70°, in Kenya the temperature varies considerably and for many months there is dry weather. So that explanation will not account for a similar effect in the two countries.

A different explanation was given me by a man of ability who had studied conditions in Kenya. It was, he said, the bright light of the long period of rainless days which is a feature of the Kenya highlands. To me that seems possible, particularly as, in spite of frequent showers, we live mostly in bright light in Malaya the whole year round, and this seems to have been felt very much by some Europeans who had to be sent to the asylum, whereas most of us find cloudy days soothing. But although many considerations make me inclined to accept this explanation, I do not feel that I have enough data to put forward any theory with

confidence. It is, therefore, with the hope that others from different parts of the tropics will state the effects of their observation that I write this letter. If excessive light is the cause, would its ill effects be prevented merely by the use of dark glasses, which are common in the plains of India, but not in Malaya? Or should other precautions be taken too?

I must apologize for the length of this letter. But the subject is of such importance to those whose work lies in the tropics that I hope that you will admit it to your columns in spite of this defect.—I am, etc.,

C. J. SINGAPORE.

Bishopscourne, Singapore, December, 1925.

UNIVERSITY REFORM IN LONDON.

SIR,—In his review upon Mr. Humberstone's book on London University your reviewer makes certain misstatements of fact which I beg your leave to correct, more especially as the whole review bears the aspect of an attempt at propaganda, which I am especially concerned to controvert. I have not read Mr. Humberstone's book, and do not know whether your reviewer has obtained his information from that volume or from his own inner consciousness. I submit that it is inexcusable to repeat Mr. Fisher's statement of January, 1925 (which he quotes), because I publicly corrected that statement in a letter published in the *Times*, and my correction was not disputed by Mr. Fisher.

Your reviewer, following Mr. Fisher, says the site of "eleven and a half acres" near the British Museum was a "present" to the University. The site available for building offered by the Treasury is eight and one-third acres, not eleven and a half, and it was in no sense a "present" but, in fact, an exchange, extremely disadvantageous to the University, which was asked to give up the site and buildings at present occupied respectively by King's College and by the headquarters of the University, in exchange for the bare site at Bloomsbury. How grasping the "bargain" proposed by the Treasury really was may be gauged from the significant fact that, some four years later, the Treasury was shamed into adding to its original offer the payment of £370,000 as an equivalent for the buildings of King's College, for which it had in the original offer suggested no compensation whatever. Inasmuch as the buildings of King's College had been independently valued by the surveyor to the London County Council at the sum of £800,000, it is not surprising that even this additional offer was politely declined by King's College. Your reviewer disputes my assertion that "if King's College declines to shift the whole Bloomsbury scheme must fail." This statement was made by me before the decision of the Senate of June last year; the complete accuracy of my assertion is demonstrated by the action it took, when this resolution was passed *nomine contradicente*: "As it is certain that the expense of rebuilding King's College on the Bloomsbury site . . . would far exceed the sum of £370,000, and, as the Lords Commissioners of His Majesty's Treasury are not able to hold out any hope that Parliament could be asked to contribute a larger sum than £370,000 . . . the Senate find themselves compelled to decline the offer (contained in Mr. Fisher's letter of April 7th, 1920) conditionally accepted by the Senate on October 20th, 1920."

Your reviewer seems to view with complacency the composition of the departmental committee appointed by the Labour Government under Lord Haldane's inspiration in 1924. Your reviewer's complacency is not shared by Convocation. At one of the largest meetings of that body ever held (October 14th, 1924) it was resolved, *nomine contradicente*, "that this House protests against the appointment of a departmental committee on matters connected with London University, and, further, against the omission of any representative of Convocation from its personnel." As a result of this resolution I was invited, as member of Parliament for the University, to approach the present President of the Board of Education with a view to adding to the committee at least one person who might be regarded as being not avowedly hostile to the existing constitution of the University. In response to this request from my

constituents I did, in fact, interview the President upon this question some short time after his assumption of office. The President refused to make any additional appointment to the departmental committee upon the ground that he was in no way responsible for the formation of that committee, and wished to avoid all personal responsibility, which might attach to him if he now made any appointment.

Your reviewer analyses the personnel of that committee, which, from his point of view, is doubtless entirely satisfactory. I submit that, inasmuch as one of the terms of reference of that committee was "to indicate what are the principal changes now most needed in the existing constitution of the University of London," it is unfortunate that so many members of that committee had publicly expressed extreme discontent with the existing constitution and are notoriously prejudiced against its maintenance. In this respect they are in direct conflict with the great majority of members of the Senate, and of members of the University as well. In support of these statements I adduce the following evidence:

The Senate, at its special meeting of October 9th, 1924, passed a resolution declaring its opinion "that such changes in the organization of the University as are necessary may be more readily effected by amendments promoted by the University than by a statutory revision of the University as constituted by the Act of 1898."

This view was upheld by the joint report submitted in identical terms by the delegates from the Academic Council and the Council for External Students to the departmental committee in March, 1925. These two councils command a permanent majority of the Senate. That the large majority of the members of the University are similarly opposed to the reconstruction of the University by an outside dictation is, I think, sufficiently proved (1) by the resolution of Convocation quoted above; (2) by my own election to Parliament, for the University issue was the predominant issue in that election. All my competitors found themselves ultimately obliged (sometimes belatedly) to endorse my own views against that reconstruction; I was elected because I was regarded as the most consistent exponent of those views.

May I, in conclusion, point out that renewed discussion of the Bloomsbury site is at the present moment rendered somewhat fatuous, in view of the probability that upon the first of next month the option upon the Bloomsbury site, secured for a period by the Government in 1920, automatically lapses? This assertion may be disputed, but it has the authority of the Chancellor of the Exchequer, who plainly told us in March, 1924, that unless King's College and the University administration could agree within the time limit (April 1st, 1926) to remove to Bloomsbury the question would be decided by the cessation of the option and the return of the site to the Duke of Bedford.—I am, etc.,

London, W.1, March 5th.

E. GRAHAM LITTLE.

* * The reviewer thought that in Mr. Humberstone's book *University Reform in London* there had at length been found an impartial statement of the long and confused history of the University of London, and is inclined to adhere to that opinion. Dr. Graham Little might do well to read the book before so vehemently controverting some of the statements it contains. The point about the area of the site is dependent on whether or not roadways are provided. Dr. Graham Little, in his letter published in the *Times* of January 17th, 1925, deducting the roads, made the site to be "a fraction over eight acres." Mr. Fisher, in the next issue of the *Times*, adhered to his statement that the site measured "eleven acres and over." In another letter to the *Times* (January 28th, 1925) Dr. Graham Little quoted, from a report of the official valuer of the London County Council made in July, 1920, the statement that the figure eleven and a half acres could only have been arrived at by including the area of the public streets Torrington Square and Keppel Street, together with the open place at the rear of the British Museum, and also the gardens of Torrington Square. He estimated the building site at about eight and a half acres, the area of Torrington Square adding about one acre.

The second point made by Dr. Graham Little, in January, 1925, was that in the event of the removal of the University from the Imperial Institute, Kensington, and of King's College from the Strand, to Bloomsbury, the Government would enter into possession of these two buildings. This, so far as it went, seemed a reasonable proposal. Undoubtedly a greater difficulty exists in the third point raised by Dr. Graham Little in his letter of January 17th, 1925—namely, that neither the University nor King's College has funds to meet the erection of the new buildings which would be necessary. Mr. Fisher, in his reply to Dr. Graham Little, pointed out that the University had not yet appealed to the public for the sum required to develop the Bloomsbury site, and expressed the view that "when it does it will not find the task so difficult as Dr. Little desires to make it." So far as we are aware or can ascertain, the University at present occupies its offices at the Imperial Institute on sufferance. Surely everyone will agree that it ought to have its own site and buildings. The Senate is reported to have accepted the original offer subject to the condition that the move was not to take place until accommodation was provided equal to at least 50 per cent. more than was at present occupied, and that maintenance charges were met by the Government. From correspondence between the Treasury and the University, published in our issue of July 4th, 1925, it appears that the Treasury has accepted the refusal of King's College to move as final, but has asked the University whether it can suggest any practicable alternative for an increase, without undue cost, in the accommodation of the University's central offices. The Treasury added, however, that it might be possible to make arrangements with the vendors of the Bloomsbury site whereby at least a part of it might be occupied for other university purposes. It appears that last October the Senate asked whether any portion of the site would be granted as a gift, or, alternatively as is understood, for increased accommodation at the Imperial Institute. The matter must be put thus conditionally, because it is not referred to in the excerpts published in the *London University Gazette* from the minutes of the meeting of the Senate held on October 21st. For this proposed extension at South Kensington the Senate has, it is stated, obtained architects' plans.

THE ACTION OF CERTAIN ALLEGED INTESTINAL ANTISEPTICS.

SIR,—In the *JOURNAL* of February 27th (p. 367) you publish an article by Dr. Lawrence P. Garrod on the action of certain alleged intestinal antiseptics. As the conclusions arrived at, in so far as our own product dimol is concerned, are in direct opposition to the clinical evidence, we would ask you to give publicity to the following facts, not only in justice to ourselves, but also in the interests of thousands of medical men prescribing dimol successfully.

It is evident that the author of this paper is not familiar with the literature. We hold no brief for three of the products mentioned, but when he says "their composition is unstated" he is misleading his readers; the composition of dimol has been published for over five years. As regards the efficiency of dimol, we are prepared at all times to demonstrate the accuracy of our claim to a Rideal-Walker coefficient of 35.0: from this it follows that by the ingestion of four pulverettes or tablets the patient receives the bactericidal equivalent of 140 grains of pure phenol, which is not absorbed; after doing its work it is voided with the faeces, from which it can be recovered.

It is well known to all investigators that the methods available at the present time of enumerating the colonies of living bacteria in the faeces (including the one described by Dr. Garrod) are probably not accurate to within 100 per cent. In Table I, according to Dr. Garrod's own figures, the count increased from 40 millions per gram before administration to 100 millions during administration—that is, 150 per cent. The futility of attempting to draw any conclusions under such conditions must surely be obvious to all unbiased minds. The mass of clinical evidence which has been accumulating during the past five years in support of the claims made for dimol is perhaps the best reply to

Dr. Garrod. This shows that the dosage above referred to may be repeated four or five times a day without affecting the appetite or digestion, and without any action on the mucosa; and, moreover, that the dosage is so regulated that the *B. coli* normally present are not affected, whereas it destroys the causal agents of infection and putrefaction.

Any investigation based solely on the *B. coli* count is, therefore, to be ignored in connexion with the normal dosage of the dimol pulverette or tablet. If Dr. Garrod is really interested and would like to learn how the entire flora in the fluid portion of the intestinal tract can be destroyed by dimol when taken in the form of a lavage, without injury to the mucosa, we should be very pleased to furnish him with full particulars.

According to Dr. Garrod, dimol destroys all *B. coli* in the dilution of 1 in 200, but only a proportion of the hardy saprophytic streptococci of the normal faeces at 1 in 200. We are at a loss to understand how this result was arrived at, and can only assume that the solution of dimol used was improperly made, as would appear to be the case, as he states that he did not obtain complete solution.

In conclusion, we should like to refer Dr. Garrod to the following extract from one of the many reports received from distinguished bacteriologists who have employed dimol:

"I have been using dimol a lot in the treatment of the secondary infections. Here in Bengal when any infection occurs in the intestine, the flora is often completely altered. Instead of getting the colonies of lactose fermenters, the plate is often crowded with minute colonies of streptococci, yeasts, and late lactose fermenters. The administration of dimol in a few days' time alters this plate picture and the colonies then are more like the coliform organisms.

"Calcutta, May 30th, 1923."

"—, Major, I.M.S.

—We are, etc.,

London, E.C., March 4th.

DIMOL LABORATORIES LIMITED.

We have referred this letter to Dr. Lawrence Garrod, who writes:

SIR,—I find in the letter from Dimol Laboratories Limited no criticism of my article the proper reply to which cannot be found in the article itself, except their reference to the composition of dimol. I was aware that the formula of their product had been published, and to have included it in the observation that "the composition of these drugs is unstated" is an oversight which I regret. At the same time, I would again direct its manufacturers' attention to the fact that a "pulverette" described as containing 1 grain weighs, after removal of its sugar coating, about 4 grains, so that another substance is presumably mixed with the active bactericide. This affects the question of solubility to which their letter refers: I can only say that the entire contents of a dimol pulverette do not dissolve in water at 1 in 200, and if the bactericide proper was not completely dissolved in my solution it was not because that solution was "improperly made," but because the drug is not soluble in that dilution. I invite the Dimol Laboratories to state the solubility of dimol in water.

With their references to clinical evidence, and the effect of intestinal lavage, I have no concern, since these subjects are definitely outside the scope of my article. Nor does it appear necessary to dispute their criticisms of the method employed (although I do not admit that it is inaccurate), because they themselves admit that "the *B. coli* normally present are not affected." The remainder of this sentence in their letter expresses the claim which, I again submit, demands authoritative and detailed substantiation. This will not be forthcoming if the Dimol Laboratories rely solely on information of the vague and unconvincing character to be found in the letter which they quote. What organisms are meant by "the causal agents of infection and putrefaction," and what evidence is there that dimol administered by the mouth will destroy them? That *B. coli*—which, as my experiments showed, is many times more susceptible to the action of dimol *in vitro* even than streptococci—should survive in the bowel while such a resistant "putrefactive" organism as *B. welchii*, for instance, can be killed by it, I find entirely incredible.—I am, etc.,

London, W., March 6th.

LAWRENCE P. GARROD.

FINAL NURSING EXAMINATION.

SIR,—I am glad to see that some comment is being made on the examinations for nurses conducted by the General Nursing Council. The following two questions are taken from the last two examinations in fever nursing:

1. A patient has been ordered a hypodermic injection of 1/10th grain of morphia. How would you prepare and administer this from a 1/4th grain tablet?

2. A solution contains 15 grains of chloral in each fluid ounce. The doctor orders ten grains to be given. How much of the solution would you give?

It would be interesting to know the precise reason why such questions are set. They are obviously only simple illustrations of the rule of three, and are no indication of a candidate's knowledge of fever nursing. If an examination is to be held in simple arithmetic it would appear better to have one paper specially for that subject.

There is, however, a much more serious side to the matter, and that is that such questions encourage nurses to dispense dangerous drugs. It is to be remembered that the vast majority of the nurses to be examined in fever nursing have only had two years' experience in a fever hospital. From time to time one reads of disasters occurring from nurses making mistakes with drugs entrusted to them. Here, however, we have the General Nursing Council not simply expecting such partially trained nurses to know the precautions necessary in the administration of dangerous drugs, for these questions will cause the nurses to think that the actual dispensing of such drugs is a part of their duty. Surely this is not the practice in the hospitals of the examiners who have set the papers. It would appear very desirable that the questions set at these examinations should be laid before a properly constituted Board of Examiners in order to prevent such *fauz pas* being made.—I am, etc.,

Iford, Essex, March 6th.

A. H. G. BURTON,
Medical Officer of Health.

SIR,—I have just had my attention called to the two letters in the JOURNAL, from Dr. Bradley (February 13th, p. 305) and Mr. Morton (February 20th, p. 350), with criticisms of the recent nurses' examination papers. May I be allowed to add the point of view of a trained nurse?

I think both these gentlemen are inclined to forget that, when a nurse has finished her training, she does not always remain in hospital, but often works further afield as a private or district nurse. In these cases she often sees the early symptoms of a disease before the doctor is called in and can give him much more intelligent help if she can recognize them. Also she can induce her patient to seek medical help in time.

This especially applies to the third question referred to—that of recognizing the symptoms of a displaced uterus. Although this is not actually mentioned in the examination syllabus (it is mentioned in the original General Nursing Council lecture syllabus for nurses), it is nevertheless one of the conditions which a nurse meets with outside hospital far more than the more serious diseases mentioned in the syllabus.

Any experienced trained nurse will agree with me that many women will far sooner confide their symptoms to a sympathetic nurse whom they know than go straight to a doctor. In this case a nurse's training will help her to recognize the symptoms complained of and to persuade her patient to seek medical aid at once instead of delaying too long as is so often the case.

I agree with Mr. Morton that it is not necessary for a nurse to learn to treat a retroverted uterus herself, but she can be of far more help to the doctor if she knows what sort of treatment he is likely to carry out. Also, in the event of a woman consulting her, it is very necessary that she should be able to help her in the matter of attention to pessaries, etc.

I think the great trouble at present is, not that the nurses are being taught too much, but that in a great many cases, instead of the theoretical work being taught with a view to helping the nurse with her practical work as it should be, the theory and practice are kept entirely separate, which means that the nurse often simply gets a slipshod smattering of each.

I quite agree with Dr. Bradley in his plea for the difficulties of a small provincial hospital, which I fully recognize; but I suggest that, if a nurse trains in a hospital for three years without seeing either of such very common cases as a gastric ulcer or a retroverted uterus, that hospital is hardly worth being called a training school.

May I also remind your correspondents that in all the General Nursing Council examinations' alternative questions are given, so that if a nurse finds one question which she cannot answer she can leave it for another?—I am, etc.,

O. M. BILLINGHURST,
Sister Tutor, St. Marylebone Hospital.
London, W.10, Feb. 25th.

COMMON SENSE IN RELATION TO DOUBTFUL TUBERCULOSIS.

A Plea for Observation Sections in Sanatoriums.

SIR,—Dr. E. Weatherhead puts very fairly in his letter (February 27th, p. 401) the serious ill effects that may visit a patient who is labelled "tuberculous" but who is not so. There is, of course, the possible good effect of an open-air rest cure, even in a doubtful case, but this is obtained at an unwarranted cost if the patient is associated residentially and intimately with definite open and positive cases of pulmonary tuberculosis. I believe the cumulative and widespread evidence of personal infection by the tubercle bacillus, in constant and heavy doses, has convinced the majority of the profession that close association does play a very definite part in the spread of the disease. The point I wish to stress is that all sanatoriums should have separate sections for "suspects" who are under "observation" and are non-diagnosed and non-notifiable. Unfortunately, such separate accommodation does not generally exist. I know several sanatoriums in the West of England and elsewhere where at least 50 per cent. of the cases are open or "positive," and which have no "observation" wards at all, and where "open" cases and "suspects" live freely together. The authorities shelter themselves under the erroneous dictum that the Ministry of Health will only pay the 50 per cent. of the maintenance costs if the patients are notified as tuberculous, and thus short-sighted physicians diagnose tuberculosis in order to get patients admitted. The Ministry, on the contrary, advises the provision of such "observation" sections as definitely in tuberculosis as in other infectious fevers.

Hence my experience and decided view is that the combination of risks and evil consequences which follow the sending of doubtful cases to sanatoriums, without separate provision for observation, throws a grave responsibility on the medical officer or practitioner in diagnosis. The patient should be kept under close observation until a diagnosis is arrived at, either at the clinic or sanatorium. If the diagnosis cannot be made at the clinic by a combination of all modern methods, including radiological, then admission to an "observation" section of a sanatorium is indicated, without delay.

It is only by training in and practice of accurate diagnosis by up-to-date, thorough, and scientific methods, including radiological, that it will be possible to avoid the distressing and often tragic and discreditable instances of (1) patients dismissed by the doctor as non-tuberculous, or "to come again in six months," when the last stages of the disease render it manifest, and (2) patients who are non-tuberculous suffering the grave risks and serious after-life limitations of those who are notified, and who pass in and out of certain well known sanatoriums.—I am, etc.,

F. G. BUSHNELL, M.D.,
Medical Officer, Plymouth and District Hostel
for Children of Tuberculous Parents; Medical
Officer of Health, Torpoint U.D.C.

March 3rd.

TREATMENT OF SPLENIC ANAEMIA IN YOUNG CHILDREN.

SIR,—In your issue of March 6th (p. 411) is an article by Ashby and Southam entitled "Splenic anaemia of young children treated by splenectomy." They quote three cases of this disease from whom the spleen had been removed, and who recovered. They ignore the effects of the transfusions they also gave, and appear to ascribe the recovery from the disease solely to the operation. The

reference to a control series of cases treated on medical lines contains no statement as to whether these included transfusion.

There is probably no disease of childhood where transfusion has a more dramatic and lasting effect than in von Jaksch's anaemia. It may, indeed, be true that splenectomy is also beneficial, but by their procedure Ashby and Southam have clouded the issue. The only logical deduction that can be drawn on their evidence is that it is possible to remove the spleen with safety in this disease.

Of four cases in my personal experience, three recovered—two after transfusion and one with arsenic, fresh air, and sunlight. One patient who was admitted to hospital with a haemoglobin percentage of 12 died, in spite of several transfusions, with a secondary bronchopneumonia. A surgical operation here would not have been tolerated.

Arguing from the splenic anaemia of adults, splenectomy may theoretically be of use also in von Jaksch's anaemia, but there is as yet no evidence.—I am, etc.,

London, W.1, March 5th. GEOFFREY BOURNE, M.D.

NEPHRECTOMY IN INFANCY.

SIR,—My attention has been drawn by Professor Francis Dixon of Dublin to an error which occurred in my article "Nephrectomy in infancy," published in the JOURNAL on February 27th (p. 371).

He has kindly pointed out to me that he has observed a case of three normally developed kidneys in an adult male subject in the anatomical department of Trinity College, whereas I was unaware that any such case had been recorded. The specimens are described in the *Journal of Anatomy and Physiology*, vol. 45.

Examples of supernumerary kidneys have been reported from time to time, but the accessory organ has been either lobulated or very small.—I am, etc.,

London, W.1, March 4th. A. CLIFFORD MORSON.

LEUCIN CRYSTALS IN URINE.

SIR,—Under some such title a correspondent in your columns nine or ten years ago described what he thought to be leucin crystals occurring in patients who frequently suffered from colds. I write now to confirm this view, and to extend its scope to a great number of disorders other than just colds or catarrhal affections.

Some four or five years ago, during the routine chemical and microscopical examination of urines, I began to notice, about October and November, that patients suffering from catarrhs, colds, etc., gave evidence of the presence of intestinal toxæmia, with or without evidences of disturbed hepatic function—namely, indican +, oxalates +, bile + or —, *Bacillus coli* + or —, together with round or oval opalescent bodies, mostly homogeneous, but often with faint concentric markings and radiating striations, which I was inclined to regard as impure leucin, as it seemed identical with what is figured as such in Simon's *Clinical Diagnosis* (p. 423).

Numerous attempts to get these verified at several clinical laboratories failed, as nothing like what I described was ever found. The only conclusion I could come to was that they had disintegrated while in transmission through the post. Further specimens were sent to an eminent member of the profession, who found what he thought I was describing, and said that they were degenerate epithelial cells, whose nuclei he had been able to stain. Coming from such a source, I took the decision as final, and had to look out for some other explanation for this "degenerate epithelium." It seemed strange, however, that as the patients' symptoms cleared up these disappeared also, and returned the next year almost in as widely "epidemic" numbers as the catarrhs and other illnesses that the cold season brought with it.

During the past few months, when there have been many catarrhs, influenzal cases, rheumatic and neuritic conditions, and dyspepsias of various types, these bodies have returned. I suggest that this is the true nature of these bodies because of two specimens I have seen lately. One showed bodies of varying size in the same field of the microscope (this would not be the case if they were epithelial in origin, which would require them to be of fairly uniform size) and no other cell present. The other showed, beside the amorphous opalescent bodies, chains of tiny rounded globules, sometimes arranged like gigantic streptococci, others in clusters, like gigantic staphylococci. The cases in which these were present were of the most varied description: catarrhs, colds, so-called gastric influenza, dyspeptic cases, heart irregularities, apoplexy,

haemorrhages (epistaxis, menorrhagia, haematemesis), bronchitis, and laryngeal catarrhs, to mention only some of those seen. A recent French writer on infection *versus* anaphylaxis, who remarks how frequently these nasal catarrhs, anginas, etc., are futilely treated with douches and gargles, because they are a result of anaphylaxis caused by indican, seems to be supported by the urinary findings in this series of cases.

The presence of an increased intestinal toxæmia with hepatic disturbance was indicated by the urinary and clinical findings, but whether they were secondary to the naso-pharyngeal condition I could never be certain. The finding of other cases, however, at or about the same period, showing purely abdominal symptoms without catarrhal signs, suggested that a large factor at any rate was the abdominal source.

That certain atmospheric conditions, such as cold, damp, and high barometric readings, can alter the bacterial activity of intestinal germs I have no doubt; how otherwise can one explain "epidemics of appendicitis," using the term to mean the occurrence of many acute cases requiring operation all in a short space of time? The other side of the question—is it due to disturbance of the liver metabolism as a result of chill?—might also help to explain the appearance of these leucin crystals.—I am, etc.,

Darlington, Feb. 1st. R. CHALMERS, M.D., F.R.C.S.Ed.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE electors of the Weldon Memorial Prize have reported to the Vice-Chancellor that they have awarded the prize to Major Greenwood, F.R.C.P. The prize is awarded every three years to the person who, in the six years preceding the date of the award, has published the most noteworthy contribution to biometric science. Dr. Major Greenwood is Reader in Medical Statistics in the University of London.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on March 6th the degrees of M.B. and B.Chir. were conferred on G. W. Bamber.

UNIVERSITY OF LONDON.

Hutchinson Triennial Prize.

THE subject set for the triennial Hutchinson prize, of the value of £60, open to full students of the London Hospital, is suppuration in the lungs and pleura. The dissertations for the prize must be delivered at the hospital not later than March 31st, 1929. Candidates are eligible to compete until the expiration of ten years from the date of registration as a student of the hospital. The number and importance of original facts will be considered principal points of excellence, the object of the prize being to encourage clinical and surgical work and original investigation. No award will be made if, in the opinion of the examiners, the essays have not attained a sufficiently high standard of excellence. Further information may be obtained from the secretary of the London Hospital Medical Council.

UNIVERSITY COLLEGE.

The annual report for 1926 of the committee of University College states that during the session 1924-25 the total number of students enrolled was 3,033. Of these 2,431 were taking day courses, 388 evening courses, and 214 vacation courses. The day-course students included 520 post-graduate and research workers. Of the total 2,415 came from homes in the United Kingdom, and 230, including 83 post-graduate and research workers, from various parts of the empire. From European countries there were 244 students: Germany 51, Switzerland 39, France 32, Holland 21, Russia 19, Sweden 14, Norway and Poland 11 each, Czechoslovakia 9, Italy 8, Belgium and Denmark 5 each; 52 students came from the United States of America (26 undergraduate, 24 research, 1 evening, and 1 vacation course). From other countries the largest number (41) came from Japan, and of them 11 were doing research work. There were 1,234 students in various stages of degree courses. Of these 295 passed examinations leading to degrees, 299 obtained degrees (244 bachelor degrees, 195 with honours), 55 higher degrees (24 masters, 15 Ph.D., and 16 doctors). The College has for many years provided public lectures, at which the approximate aggregate number of attendances during the session 1924-25 was 14,840.

An appeal for £500,000 in connexion with the celebration of the centenary of the College in 1927 was formally launched about six weeks ago. Of the total amount £225,000 is required for the endowment of teaching, £25,000 for the completion of the Gower Street front, and £30,000 for the provision of a great hall. At the inaugural luncheon at the Mansion House, London, on January 29th, under the chairmanship of Prince Arthur of Connaught, gifts to the amount of £39,000 were announced.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At the monthly business meeting of the College, held on March 5th, the President duly admitted Joseph O'Mahony to the licences in medicine and midwifery. The following candidates have passed an examination for the Conjoint Diploma in Public Health: W. McCarthy, J. I. E. McCormack.

Medico-Legal.

LUNACY LITIGATION.

THE liability of a medical practitioner to an action for damages at the instance of any mental patient whom he has certified in pursuance of the Lunacy Acts raises the question whether the medical practitioner is at present afforded sufficient protection against litigation which is not merely vexatious but may be ruinous to his professional career. The South African Department of Justice recently issued a circular¹ to the effect that as medical practitioners who certify patients under the Mental Disorders Act of that Dominion do so in discharge of a duty which is imposed on them by statute, the Minister of Justice has agreed that they should be dealt with in the same manner as a Government official if civil proceedings are instituted against them as a result of their signing such certificates. There is this proviso, however—that the Minister of Justice retains in each case the right to decide whether there are good reasons for holding the medical practitioner concerned personally liable for any costs or losses incurred or resulting from such proceedings. In this country Section 330 of the Lunacy Act of 1890 is the medical practitioner's shield against vexatious litigation. Subsection (1) says he shall not be liable to any civil or criminal proceedings, whether on the ground of want of jurisdiction or on any other ground, if he has acted in pursuance of the Lunacy Acts in good faith and with reasonable care. Subsection (2) goes much further. Such proceedings can be stayed upon summary application if the court is satisfied that there is no reasonable ground for alleging want of good faith or reasonable care, upon such terms as to costs as the court may think fit. Consequently the medical practitioner may meet such litigation at two stages—first, when it is still interlocutory, by throwing the onus of proving a *prima-facie* case of absence of good faith or reasonable care on to the plaintiff; and secondly, if the action is not then stayed, by pleading at the trial that he has acted *bona fide* and with reasonable care. It can scarcely be doubted that discharged mental patients would be a productive source of vexatious litigation were it not for the existence of Subsection (2) of Section 330. But are the safeguards provided by that Section adequate?

Hume-Spry v. Smith and Watson.

A striking illustration of the actual working of Section 330, Subsection (2), was provided in the Court of Appeal on February 26th, when Lords Justice Bankes, Warrington, and Atkin concurred in allowing the appeal of Captain F. Hume-Spry against the decision of a Master in Chambers (Master Ball), which had been affirmed in Chambers by Mr. Justice Bateson, granting a stay of proceedings in an action against Dr. R. Percy Smith and Dr. A. H. Watson for damages for alleged negligence in certifying Captain Hume-Spry to be a lunatic in pursuance of the Lunacy Acts. It appeared that Master Ball stayed the proceedings because he considered the defendant medical practitioners had acted in good faith and with reasonable care, but the Court of Appeal construed Subsection (2) to mean this: That the duty of the Master in Chambers was, not to decide whether the defendants had or had not acted in good faith and with reasonable care in pursuance of the Lunacy Acts, but to decide whether the plaintiff had disclosed a *prima-facie* case of negligence to go to a jury. Here the plaintiff had produced affidavits supporting his contention of sanity from Dr. Risien Russell and Sir James Purves-Stewart, showing clearly a *prima-facie* case. Therefore, it might well be that in lunacy litigation doctors who have a defence *prima facie* may still be put to heavy law costs because Subsection (2) only affords protection where the plaintiff has not disclosed a *prima-facie* case of negligence. The question to which Master Ball and Mr. Justice Bateson addressed themselves in Chambers is the one which will ultimately be submitted to the jury: Did the medical men act in good faith and with reasonable care? It is the exact converse of the one to which the Court of Appeal addressed themselves: Has the plaintiff disclosed a *prima-facie* case of negligence? The affirmative answer in Chambers to the query

of *bona fides* and reasonable care shows that in the Hume-Spry case there is, *prima facie* at all events, a defence. Subsection (2), therefore, only protects doctors from frivolous and vexatious litigation. That appears to be the moral of the proceedings in the Court of Appeal on February 26th.

ALLEGED NEGLIGENCE.

Norris v. MacWilliam.

THE hearing took place in the King's Bench Division before the Lord Chief Justice and a special jury, on March 3rd and subsequent days, of an action brought by Mrs. Florence Norris, the wife of a tourist clerk living at Thornton Heath, against Dr. W. A. MacWilliam of Norbury, for damages for an alleged breach of contract and for personal injuries resulting from the alleged negligence of the defendant in treating her during childbirth. There was a claim of £430 for special damages. The defendant denied negligence, and counter-claimed for £8 8s., his fees for attending the plaintiff.

The jury returned a verdict for the defendant both on the claim and counter-claim, and judgement was entered accordingly.

Mr. Charles, K.C., and Mr. Humphrey Edmunds appeared for the plaintiff; Mr. Neilson, K.C., and Mr. H. C. Dickens (instructed by Messrs. Hempsons on behalf of the Medical Defence Union) for the defendant.

Mr. Charles, in his opening, said that on May 10th, 1924, Mrs. Norris, a young married woman, gave birth to her second child, and that Dr. MacWilliam, who was engaged to attend her, arrived at the house shortly afterwards. The confinement was not an easy one, and on May 12th the plaintiff's temperature rose to 101° F., and she was seized with a fit of shivering. The defendant did not call as he should have done. When he did come, on May 13th, he was informed by the nurse of the plaintiff's symptoms, but apparently he did very little. On May 21st the plaintiff's temperature rose to nearly 105°, and the nurse was so alarmed that she administered a douche. The doctor did nothing except give the plaintiff two bottles of medicine during all this time. On May 27th Mrs. Norris had an extreme pain in her right groin and the doctor prescribed medicine which seemed to do less than good, and he caused the plaintiff to walk from room to room, although she really needed complete rest, she was in such agony. On June 18th the plaintiff, with the nurse, went to Clacton, where two local doctors diagnosed that she was suffering from puerperal sepsis, requiring an immediate operation. She returned to London and a serious operation was performed, resulting in the plaintiff being unable again to bear a child, and this, she alleged, was due to the negligence of Dr. MacWilliam in his treatment of her.

The plaintiff gave evidence in support of her counsel's opening statement. Cross-examined by Mr. Neilson, she said Dr. MacWilliam attended her at the birth of her first child. She admitted she had a bad time the night before she went to Clacton, and that it might have been prudent to have asked Dr. MacWilliam's permission to undertake the journey. A day or two before she went to Clacton she had been out for a two hours' motor ride.

Mr. H. C. Norris, the plaintiff's husband, said Dr. MacWilliam said a temperature of 104° was nothing to be alarmed over if the pulse was not very fast.

Mrs. Brock, certified midwife, said Dr. MacWilliam examined the plaintiff internally and externally two or three times before her journey to Clacton. She agreed that Mrs. Norris was unwise to undertake a four hours' journey to Clacton in the condition she was then in.

Dr. Percy Coleman and Dr. J. Coxhead Cook, who examined the plaintiff at Clacton, said they found an abscess in the region of the ovary and advised an immediate operation. Dr. F. G. Pailthorpe of Norbury said that the patient's condition precluded the possibility of her having another child.

Mr. Neilson, opening for the defence, said there were two schools of thought among doctors on the method of treatment of cases of childbirth, and the defendant was with those who believed that after a childbirth the subsequent healing processes should be left to Nature unless it became apparent that the professional attendant should interfere. This was a normal birth, and he contended that there was no evidence to justify a charge of negligence.

Dr. MacWilliam said he had been in practice thirty years, and had spent eleven years at Norbury. He had attended over 4,000 maternity cases. The plaintiff's pulse was steady all the way through, and that was a very important point. Had he known she had passed a sleepless night and suffered great pain before starting for Clacton he would not have allowed her to go. Cross-examined by Mr. Charles, the defendant denied that he treated the case too lightly.

Dr. John S. Fairbairn, obstetric physician and lecturer on midwifery at St. Thomas's Hospital, said, from the evidence he had heard and the documents he had seen relating to the case, he thought Dr. MacWilliam had done everything necessary. Both temperature and pulse were important indications; but a high pulse rate was the more important. He would not have dissented from the plaintiff taking an ordinary drive, but when she drove to Clacton a "bumpy" road might have aggravated her condition. There was nothing, in his opinion, to lead Dr. MacWilliam to discover the presence of an abscess in the ovary.

Mr. Ross Wyatt, assistant obstetric physician at St. Thomas's Hospital, also gave evidence on behalf of the defendant.

The jury returned a verdict as stated.

¹ South African Medical Record, January 23rd, 1926, p. 45.

RECORDS OF DANGEROUS DRUGS.

At the Mansion House, before the Lord Mayor last week, Dr. J. C. Kingsbury, who is both a registered medical practitioner and a barrister-at-law, was summoned at the instance of the Director of Public Prosecutions for declining to disclose either in the record that, under the schedule of the Dangerous Drugs Act, 1920, has to be kept, or in the day-book, the name and address of a patient to whom he was supplying morphine. Dr. Kingsbury, who appeared in person, contended that any physician who was supplying the drug under his direct personal control and supervision could not be deemed to be supplying it within the terms of the regulations. After hearing the arguments and Dr. Kingsbury's evidence the Lord Mayor said that he had come to the conclusion that there had been a breach of the regulations, and as he regarded the matter in the nature of a test case he would impose only a nominal penalty of 25 guineas with 10 guineas costs. Dr. Kingsbury informed the Lord Mayor that he would ask him to state a case, and this being so we refrain from commenting on the matter.

Obituary.

GEORGE BOOTH, M.D., M.R.C.S., L.R.C.P., J.P.,
Honorary Consulting Physician, Chesterfield and North
Derbyshire Royal Hospital.

THE death of Dr. George Booth has deprived Chesterfield of one of its principal citizens, and the medical profession in North Derbyshire of a most distinguished member. Dr. Booth passed away on February 18th, after a short illness, in his 86th year, having remained in active practice until a few weeks previously. The son of a minister of the Primitive Methodist Church, he received his early education at Chesterfield Grammar School. Through lack of means, his father having died, he was obliged to begin work as an apprentice in the shop of a Chesterfield pharmacist, where he quickly obtained promotion and became a partner in the business. He had now developed a keen interest in the practice of medicine, and entered as a medical student at the Sheffield School of Medicine and Charing Cross Hospital. He obtained the diplomas M.R.C.S. in 1881 and L.R.C.P. in 1887, graduating, finally, M.D. (Durh.) in 1897. After completing his hospital studentship he began general practice in Chesterfield, and took at once a prominent position in the public, professional, and artistic life of the town owing to his remarkable energy and versatility. He built up a large and important practice in Chesterfield and the neighbourhood, winning the esteem and affection of his professional colleagues. He was the first honorary physician appointed to the Chesterfield Royal Hospital, a position he retained until a few years ago, when he became honorary consulting physician. He freely devoted his time and energy to the interests of the hospital, and much of its successful development and progress is due to his activities. He was a loyal and valued member of the British Medical Association, and a member of the executive committee of the Chesterfield Division from its formation in 1912 until last year, when he retired under the new rule as to periodical retirements. He was invited on more than one occasion to become chairman, but felt that age prevented his accepting the post.

Dr. Booth was elected a town councillor in 1882, subsequently an alderman, and became mayor in 1887, relinquishing his municipal activity only in 1920. He was a member of the Chesterfield School Board in 1871, and chairman from 1880 to 1901. He retained the office of chairman of the managers of the Girls' High School until last year, when on his retirement he was appointed president of the school. He was also vice-chairman of the governors of the Boys' Grammar School for many years, where he helped to start the science and art classes, and was a justice of the peace for the borough and county. The Chesterfield Primitive Methodist Church received his active support and sympathy, and for fifty years he was superintendent of its Sunday school. A musician of wide knowledge, and a no mean performer on the violin and 'cello, he was twice appointed by the Primitive Methodist Church to edit their national hymnal; his own setting of the hymn "Rock of Ages" was sung at his funeral service. He

had also strong sympathies with the Church of England, with which he remained in close association. A most courteous gentleman, a loyal colleague, a gracious and charming personality, a valued counsellor, he will be greatly missed by his professional colleagues in the Chesterfield Division. He was married three times, but leaves no children.

H. W. P.

SUTHERLAND SIMPSON, M.D., D.Sc.,

Professor of Physiology, Cornell University, Ithaca, U.S.A.

WE regret to report the death, on March 2nd, of Professor Sutherland Simpson at Ithaca, New York, U.S.A. Rather more than a year ago he was incapacitated from work by a serious illness from which he never fully recovered.

Sutherland Simpson was an Orcadian by birth, and spent his early years on the small island of Flotta, helping his father on the croft, and, like the other island lads, spending much of his time at sea. During a visit to Leith in 1884 he saw an advertisement in an Edinburgh newspaper which had been inserted by the late Professor Rutherford, who required the services of a laboratory assistant in the department of physiology. Simpson was successful in his application, and so a career which was to end in a famous American university began in the department of medical science, to which he was destined to devote his life. He spent about fifteen strenuous years assisting Professor Rutherford in the work of the department. Edinburgh students of the eighties must have vivid recollections of the part played by Simpson in the lecture demonstrations. The work of the department then centred largely in the elaborately prepared lecture, and the arrangement and successful issue of the demonstrations depended mainly upon the laboratory assistant. The duties of such a post would have overtaxed the strength and strained the good nature of anyone less robust and genial than the young Orcadian. Naturally dissatisfied with his prospects in such a post, he made up his mind to take a regular science course, and, by hard work during any spare time, he was able to take the B.Sc. degree in 1894. Shortly after this he determined to take the medical course, and in 1899 he graduated M.B., Ch.B. (Edin.).

In that year Sir Edward Sharpey-Schafer went to Edinburgh, and on Simpson's appointment as a demonstrator in the department his true life-work commenced under conditions which were most congenial to him. From this time onwards until he was appointed to the chair of physiology in the Cornell Medical School, Ithaca, he was actively engaged in teaching and research in the Edinburgh department. Under the stimulating leadership of the newly appointed head of the department he carried on a large number of important investigations on pyramidal tract degenerations, diurnal variations in the body temperature of different animals, secretion pressure of bile and pancreatic juice (in collaboration with P. T. Herring), and the functions of the thyroid gland, the last mentioned being the subject which was afterwards to occupy so much of his attention in America. He proceeded M.D. (gold medal) in 1901, and D.Sc. in 1903. From 1909 to 1924, as professor in the Cornell Medical School, he devoted himself whole-heartedly to the development of his subject, organizing and equipping excellent laboratories, and always gathering around him a band of keen research workers. During this period his work mainly dealt with the effects of thyroidectomy on growth, but many other problems connected with the thyroid, parathyroids, and pituitary also engaged his attention. A very elaborate piece of research by Boring, on cutaneous sensation after nerve section, was achieved in the physiological and psychological laboratories of Cornell during 1915. Many ingenious forms of apparatus of value both for practical class-work and for research were also devised by his departmental staff. The life, although strenuous, was greatly to Simpson's liking, the open spaces around the college not only being more attractive to him than life in a city laboratory, but the local conditions also enabled him to carry out on a large scale his experiments on thyroidectomy and thyro-parathyroidectomy on sheep and goats.

Professor Simpson's last visit to this country was in 1923,

when he attended the International Congress of Physiology, which met in his old department in Edinburgh. He gave then a most interesting cinematograph demonstration on the thyroidectomized sheep. This visit to the home country he enjoyed immensely, as he was able to spend some happy days again on Flotta, and so to recall the days of his youth. After a short visit to certain Continental schools he returned to Ithaca, and up to the end of 1924 he still continued actively engaged on the thyroid researches which have contributed so largely to our knowledge of this subject. His loss will be deeply felt by his numerous friends, not only in America but also in this country.

He is survived by his widow, a daughter, who is on the staff of the Cornell physiology department, and a son, who is a medical graduate of Harvard.

Dr. EDWARD MOLYNEUX, who died at his residence in Little Neston, Cheshire, on February 11th, received his medical education at University College, Liverpool. He graduated M.B., Ch.B.Vet. in 1889, and in the same year obtained the diplomas of the English Conjoint Board and the L.S.A. He was medical officer of the Garston Accident Hospital for some little time, and also held the posts of house-physician and house-surgeon to the Liverpool Royal Infirmary, as well as assistant demonstrator in physiology and histology, and house-physician to the gynaeccological department of this institution. After subsequently practising in Cressington he removed to Southport over sixteen years ago. His professional duties did not prevent him from taking an active interest in local affairs in that town, and he served as a member of the board of guardians. In 1920 he was elected to the town council as a representative of the Craven ward, and was vice-chairman of the health committee. He was a conservative in politics, and had been chairman of the Southport Conservative Club. Dr. Molyneux was a member of the Southport Division of the British Medical Association.

Dr. GABRIEL MAUNOURY, a well known surgeon of Chartres and formerly president of the French Congress of Surgery, has recently died at the age of 76. He was a brother of the celebrated Marshal Maunoury.

The deaths are reported of Professor Piffle, head of the German Ophthalmological Clinic at Prague, on his 60th birthday, and of Professor Julius von Eröss, a well known Hungarian paediatrist of Budapest, at the age of 70.

THE NATIONAL INSTITUTE FOR THE BLIND.

The annual report of the National Institute for the Blind (224, Great Portland Street, W.1) for the year ended March, 1925, shows a steady progress in the work of that admirable institution. It is the largest institution of the kind working for the blind in any part of the world. Its balance sheet is some indication of its activity, for the grand total of its financial commitments for the year exceeds £300,000.

The institute strives to meet all the needs of the blind not covered by statutory provision, both in the educational and practical fields. It is both a university for the blind and a maid-of-all-work. It includes the publication of Braille embossed books, magazines, and newspapers, and of Moon embossed books and periodicals—Moon type being easily learnt by the aged blind; the preparation by hand of textbooks in Braille for blind students, and the maintenance of a students' library; the publication of embossed music, and of the works of British blind composers; the general welfare of blind musicians; the provision of apparatus for the blind, such as writing machines, mathematical boards, games, Braille watches, models, etc.; the maintenance of three homes for blind babies at Chorley Wood, Southport, and Leamington Spa, a college for blind girls at Chorley Wood, a massage school in London, homes for blind women at Clifton and Brighton, a guest house for the aged blind at Chester, a blind women's hostel in London, and a convalescent and holiday home at

St. Leonards-on-Sea; the relief of the blind poor; training and after-care of the adult blind and of blind ex-service men who are ineligible for pensions, and their blind dependants; the visitation and training of the blind in their own homes; the support of home industries for the blind, including supply of materials at cost price, sale of goods, augmentation of wages, etc.; technical and research work which may tend to lessen the burden of blindness; the employment of the blind; and assistance to local institutions and societies for the blind throughout the country in the form of financial assignments and allocations.

We regret to note that since the publication of this report the institute has lost by death its indefatigable secretary-general, Mr. Henry Stainsby. His memorial is in the institute, which was largely his personal work. It is to be hoped that his successor will be a man of like calibre and devotedness.

ROYAL MEDICAL BENEVOLENT FUND GUILD.

The annual meeting of the Royal Medical Benevolent Fund Guild was held on February 27th at 47, Brook Street, Lady BLAND-SUTTON presiding over a very large assembly of subscribers and their friends. Lady FRIPP, chairman of the council, reported a great increase in activity, necessitating the appointment of a general secretary-accountant to replace Miss Thomson, whose resignation after fifteen years' zealous work was deeply regretted. Reports were given of the development of the various provincial branches of the Guild, some of which, notably Edinburgh, Glasgow, Bath, Cardiff, Reigate and Redhill, and Preston, had made good progress in obtaining new subscribers or in raising funds by means of entertainments or sales. A new branch had been formed at Great Yarmouth. Among the London districts Hampstead and St. Pancras were prominent, and five new districts had been formed—North London, Harrow, Pinner, Barnes, and Mortlake. In the unavoidable absence of Mrs. Scharlieb, M.D., the report of the honorary treasurer was read by Lady BRADFORD. She said that though donations this year had amounted to the record total of £3,753 the amount (£1,288) derived from annual subscriptions, which formed the only really reliable source of income, did not meet the often inadequate help given to older beneficiaries, quite apart from the money required for educational grants. The Care Committee had appealed for a 50 per cent. increase in the monthly maintenance grants to the older beneficiaries, and new subscribers were urgently needed to this end.

Mrs. A. ORMOND, chairman of the Care Committee, in a moving report of cases relieved, gave examples of the benefits conferred on the younger persons, from a grant to enable a girl left fatherless to complete her medical course, to the provision of one square meal a day to a lad apprenticed to a firm of engineers. During 1925 24 girls and 16 boys had been educated entirely or partially at the cost of the Guild. Observation of children living in homes where money is pitifully short has convinced the committee that, where possible, boarding-schools are to be preferred. The depressing atmosphere of such homes, a too limited and monotonous diet, and the absence of any money, even for trivial amusements such as bus rides, are bad for children, and the care-free atmosphere of school life is much more desirable.

Mr. PETT RIDGE and Miss MADGE TITHERIDGE spoke eloquently on behalf of the Guild: and cordial votes of thanks were given to Sir John and Lady Bland-Sutton and to the officers of the Guild.

At the invitation of the Medical Insurance Agency, which has this year again given a donation of £525, a representative of the Guild, in the person of Mrs. Ormond, has been appointed to serve on the subcommittee of the Agency dealing with the education of girl beneficiaries.

Legacies received during the year include £100 from the late Miss E. J. Humby, £200 from the George Macbain Trust, and £300 from the late Miss Constance Turner. The Stock Exchange male voice choir again, in 1925 and in 1926, devoted the proceeds of their annual concert to the Guild, and in 1925 the sum accruing from the third of the successful golf competitions organized by Lady Rigby, under the auspices of the Ladies' Medical Golfing Society, completed the £200 for an annuity scholarship which these competitions were started to provide. Special efforts such as these are of value, not only for the money they bring in, but for the interest they excite in those previously unfamiliar with the work of the Guild. Those who are prepared to help in propaganda work in any form, or to send parcels of old clothes, are asked to communicate with the Secretary of the Guild, 58, Great Marlborough Street, London, W.1.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week resumed discussion of the Air Estimates, commenced that on the Navy Estimates, and took estimates for other expenditure. The report of the Coal Commission and the text of the Government's Economy Bill were published. The second reading of the Bethlehem Hospital Bill was moved on March 8th, but objection was again taken and the bill further postponed till March 29th, nothing being said concerning the purchase of the site for public use.

The text of the Midwives and Maternity Homes Bill, introduced by Dr. Fremantle, was due for issue on March 10th. A new clause has been added to the bill providing for the inspection of maternity homes by county councils or county borough councils, except in the case of public hospitals or of homes controlled by registered medical practitioners. The bill, which has been prepared in consultation with the Ministry of Health, has already been read a second time.

Mr. Tinne and Dr. Fremantle, the mover and seconder of the Births and Deaths Registration Bill, which has also been read a second time, are, in company with Sir Richard Luce, to meet representatives of the British Medical Association at the House of Commons next week to discuss the measure.

The Unionist party's Health and Housing Committee, under the chairmanship of Dr. Fremantle, will next week discuss the operation of Section 46 of the Housing Act, 1925, which deals with compensation for slum clearance.

The Government generally approves the recommendations in the Majority Report of the Royal Commission on National Health Insurance, but sees no prospect of passing any legislation based on them this session, save to provide for the remuneration of insurance medical practitioners after December 31st.

The Parliamentary Medical Committee, with Dr. Fremantle in the chair, received on March 3rd a deputation from the British Medical Association which included Sir Robert Bolam, Dr. H. B. Brackenbury, Mr. Bishop Harman, Dr. H. L. Eason (medical superintendent, Guy's Hospital), Dr. J. W. Bone, Dr. G. W. Kendall, Dr. G. C. Anderson, and Dr. C. C. Lord. The deputation came to present its views on the proposed Opticians Bill. This measure, which has not yet been introduced into the House of Commons, is drafted to establish a register of opticians and to prevent unqualified persons from practising that craft. The members of the deputation were opposed to the bill if it conveyed a right to opticians to diagnose and prescribe in eye disorders, though they did not object to a register of dispensing opticians. In dealing with the provision of ophthalmic benefit under the National Health Insurance Acts, the deputation pointed out that 700 ophthalmic surgeons were already registered as ready to examine panel patients, and that this list could be much extended, because many young medical men were now specializing in ophthalmic work. The Parliamentary Medical Committee determined that before forming an opinion on the Opticians Bill it would arrange to hear a deputation of opticians on March 17th.

Small-pox.

Answering Mr. Compton, Mr. Neville Chamberlain stated that in 1924 the deaths per 100 notified cases of small-pox were 0.35, and in 1925 0.17. For encephalitis lethargica the deaths per 100 notified cases in 1924 were 27.9, and for the first three quarters of 1925 50.6. In reply to Captain Nuttall, Mr. Chamberlain said that during the seven weeks ended February 20th, 1926, 2,200 cases of small-pox were notified in England and Wales. Of these, 1,699 were stated to have been unvaccinated prior to infection by small-pox, while in 12 cases information on the vaccinal condition was not yet available. These figures were subject to revision.

Mr. Trevelyan Thomson asked the Minister of Health whether the English doctors who attended the conference of the commission of members of the Health Committee of the League of Nations at the Hague from January 4th to 7th, to examine questions in connexion with small-pox, alastrim, and vaccinia, were present as representatives of the English Ministry of Health; and, if not, in what capacity they were there. Mr. Chamberlain replied that this conference was convened by the Health Committee of the League of Nations. Sir George Buchanan attended in his capacity of British representative on that committee. Dr. Gordon and Dr. Blaxall were invited by the committee as experts possessing special knowledge and experience of the subjects to be discussed.

On March 8th Sir Kingsley Wood, in reply to Mr. W. Thorne, gave details in regard to the number of vaccinations per cent. of births, small-pox deaths, small-pox rate per 100,000, and the number of deaths from vaccination for England and Wales for the financial years 1921, 1922, 1923, 1924, and 1925 respectively; the small-pox deaths and the rate per 100,000 in London; and the vaccination per cent. of births for Leicester and small-pox deaths in Leicester for the same years. He said that the figures were not

available for the financial years: the information contained in the following table was for the calendar years in question.

	1921.	1922.	1923.	1924.	1925.
ENGLAND AND WALES.					
Successful vaccinations per cent. of births	38.3	40.3	47.8	*	*
Number of deaths from small-pox ...	5	27	7	13	9
Small-pox rate per 100,000 population	0.01	0.07	0.02	0.03	0.02
Deaths certified as due to vaccination	3	4	8	1	3†
LONDON.					
Deaths from small-pox ...	—	20	1	—	1
Small-pox rate per 100,000 population	—	0.44	0.02	—	0.02
LEICESTER.					
Vaccination per cent. of births	2.78	3.0	4.21	3.82	*
Deaths from small-pox ...	—	—	—	—	—

* Figures not yet available.

† Provisional figures.

On March 8th Mr. Groves asked the Minister of Health for figures showing the number of children born, the number vaccinated, and the number in respect of whom certificates of conscientious objection to vaccination had been furnished by the parents from 1920 to 1925. Mr. Chamberlain replied that the following table gave the required particulars for the years 1920 to 1923. The figures for 1924 and 1925 were not yet available.

	1920.	1921.	1922.	1923.
Number of children born ...	958,568	849,060	780,277	758,404
Number of above children successfully vaccinated	378,414	324,864	314,550	362,832
Number of above children in respect of whom declarations of conscientious objection to vaccination were received	416,306	382,157	347,511	280,236

Mr. Chamberlain told General Brooke that he had received suggestions from local authorities that powers relating to vaccination should be transferred to the public health authorities. His own intentions were indicated in the provisional proposals for the reform of the Poor Law.

On March 9th Mr. Groves inquired if the Minister of Health could state whether the medical advisers of his department proposed to make any report in explanation of the higher fatality rate which occurred among vaccinated as compared with unvaccinated cases of small-pox in England and Wales. Sir Kingsley Wood replied that reference to this subject would be made in the next annual report of the chief medical officer of the Ministry of Health.

Colonial Medical Service.

The Secretary for the Colonies was asked by Mr. W. Baker, on March 8th, if he could now state his decision regarding the proposal to appoint a medical director in the Colonial Office to act as a liaison officer between the Crown Colonies and the Civil Research Committee. Lieut.-Colonel Headlam also put a similar question. Mr. Amery replied that he proposed at an early date to appoint, in the Colonial Office, a chief medical adviser, whose duty it would be to advise him on all medical and health questions; and to see that all important information bearing on these matters was collected and circulated. The chief medical adviser, whose coming appointment at the Colonial Office Mr. Amery announced, will not, it is understood, be the head of a medical department, nor conduct research, but, besides advising the Secretary of State, will see all papers of importance, will keep the Colonial Office in touch with the Ministry of Health, and will be available for consultation to medical officers returning from the Colonies.

On March 8th Mr. Snell asked the Colonial Secretary what was the amount of money devoted exclusively to research work in the Crown Colonies and Protectorates for medical, veterinary, or horticultural purposes. Mr. Amery, Secretary for the Dominions, replied that the estimates of the Colonial Governments did not, as a rule, show separately the provision made for exclusively research work under the heads indicated. If Mr. Snell wished it, it would be possible to give him a statement of the provision made in the estimates of some of the larger colonies for typical research institutions, such as the Medical Research Institute in the Federated Malay States.

Tuberculosis.—Dr. Vernon Davies asked the Minister of Health if men invalided from the Army, Navy, or Air Force, suffering from pulmonary tuberculosis, were granted benefits under the National Health Insurance Act. Mr. Chamberlain said all men serving in the forces of the Crown were insured under the National Health Insurance Act, and on discharge became entitled, subject to the ordinary conditions, to all the normal benefits of the Act—namely, medical, sickness, disablement, and maternity benefits. Any discharged man who had been for the necessary qualifying period a member of an approved society which provided additional benefits became entitled to participate in such additional benefits.

Industrial Fatigue.—Answering Mr. Neil McLean, Sir Arthur Steel-Maitland said that tests had been carried out for the Industrial Fatigue Research Board at Glasgow, South Side; Glasgow, Central, Bridgeton; Govan and Springburn. Sir Arthur added that, as was well known by Mr. William Graham, who was chairman of the organization, the tests were extraordinarily effective. The results would be published by the Board in due course.

He understood that the tests of applicants at the Glasgow Employment Exchanges had been completed. Lady Astor asked whether it were not true that these tests had led to great social reforms in other countries. Several hostile supplementary questions were asked from the Labour benches, and Mr. McLean asked the Speaker to understand the resentment felt by members who were consulted in their constituencies by women who had been sent to be medically examined without being told that it was voluntary.

Industrial Accidents.—The Home Secretary states that the number of persons reported as killed during 1925 by industrial accidents in factories, docks, and other premises under the Factory Acts, or in mines and quarries or in the railway service, was 2,471. Those reported injured in premises under the Factory Acts were 158,778. Figures of non-fatal accidents in the other industries mentioned were not yet available.

Silicosis and Fibrosis.—Mr. Cecil Wilson asked the number of men who were not affected by the Silicosis Act but who, when examined by officers of the Home Office during the last five years, had been found to be suffering from silicosis. Sir William Joynton-Hicks said no routine examinations of workers were made by the medical inspectors of factories, but during the period in question sample examinations were made in connexion with special inquiries into the grinding and other industries. Approximately 1,106 workers employed in processes which involved exposure to silica dust, but which did not come under the existing scheme of compensation for the refractory industries, were so examined. Of these, 556 were found to be affected by fibrosis of the lungs, which, he was advised, must be attributed to exposure to silica dust. The degree of fibrosis, however, varied greatly, and so far as could be judged on a clinical examination a large proportion were in the early stage; 528 of the 556 men were employed in the grinding industries, and the remaining 28 at steel works.

Convalescent Homes for Insured Persons.—Mr. Briant asked the Minister of Health if, in considering the distribution of surpluses of approved health societies, he would take into account the necessity of the provision of sufficient convalescent homes. Mr. Chamberlain said it rested with each approved society having a disposable surplus on valuation to decide what additional benefits should be provided for its members out of that surplus. Among such benefits were the provision and maintenance of premises suitable for convalescent homes, and the payment of the whole or part of the cost of maintenance and treatment of members in convalescent homes. The latter was one of the most widely adopted benefits. Societies generally were fully alive to the advantages of convalescent home treatment.

Opium Traffic.—On March 8th, in an answer to Mr. Campbell, Earl Winterton (Under Secretary for India) said that in opening the Council of State, on February 9th, the Viceroy of India made the announcement that the Government of India intended, subject to the approval of the Legislature, to reduce progressively the export of opium to all destinations, so as to extinguish the trade altogether within a definite period, except for strictly medical purposes. This policy would involve a corresponding reduction in the amount of opium produced. The period within which extinction would occur had not yet been fixed, and the position of the cultivators must be taken into account. The new policy, if approved by the Indian Legislature, would go far beyond the international obligations of India. Mr. R. S. Hudson asked if Lord Winterton would see that adequate publicity was given to this decision in those countries where we had been attacked for our opium policy, and particularly in the United States. Earl Winterton did not think that lay within his power. Dr. Fremantle asked if there was any guarantee that China would not take up at once the production of opium which was being restricted in India. No answer was given to this question.

Infectious Diseases.—On March 8th Mr. Whiteley asked the Minister of Health the provisional number of cases of diphtheria, scarlet fever, chicken-pox, pneumonia, enteric fever, small-pox, and encephalitis lethargica notified during the year 1925. Mr. Neville Chamberlain replied that the figures asked for, with the exception of those for chicken-pox, which was not universally notifiable, were, for England and Wales: Diphtheria, 47,723; scarlet fever, 91,357; pneumonia, 55,960; enteric fever, 2,779; small-pox, 5,363; encephalitis lethargica, 2,637. Mr. Whiteley also asked, on March 8th, how many deaths from influenza, measles, diphtheria, scarlet fever, and enteric fever were registered in the year 1925. Mr. Chamberlain replied that reliable figures were not yet available, but the provisional figures for England and Wales, derived from the registrars' quarterly returns, were: Influenza, 12,587; measles, 5,221; diphtheria, 2,716; scarlet fever, 981; enteric fever, 373.

Health of School Children.—Answering a number of questions regarding the establishment or maintenance of open-air schools, Lord Eustace Percy, President of the Board of Education, denied that he was endeavouring to prevent expenditure for these purposes. He also denied that his policy was to discourage the establishment of dental centres by local education authorities. He had particularly asked these authorities to take proposals for orthopaedic treatment into consideration when preparing their programmes.

Artificial Limbs for Pensioners.—Major Tryon informed Mr. Buchanan that twenty-six firms were making artificial limbs for ex-service men under contract with the Ministry of Pensions. All were British with the exception of one American firm. Twelve firms were supplying artificial metal legs.

Voluntary Hospitals Commission.—In reply to Mr. Campbell, Mr. Chamberlain said that, despite the decision of the Government not to adopt the recommendation of the Voluntary Hospitals Commission to provide out of public funds additional beds for voluntary hospitals, he had asked the Commission to continue its work. He desired it both to act as a link between the

Government and the voluntary hospitals and also to keep in touch with the local voluntary hospital committees throughout the country and facilitate communication between them. The Commission would advise him on questions relating to voluntary hospitals, and would collect and circulate information likely to be of assistance to local committees, such as the circular on hospital construction now in course of preparation.

Adoption of Children Bill.—This bill was read a second time by the House of Commons on February 26th, without a division, and was sent to a Standing Committee. During the discussion the Home Secretary said the Government was satisfied that the bill was an experiment well worth making. Mr. Palin referred to the register of adopted children, which the bill proposed should be kept by the Registrar-General, and said he thought a copy of the entry should be deposited with the medical officer of health where the foster-parents lived. These children should be subject to the same supervision on the part of the medical officer of health and his women inspectors as in the case of all working-class children or of children cared for in poor neighbourhoods. An orphan child, if adopted, should not be deprived of medical skill and assistance which the child in a poor neighbourhood had, and such supervision would be an additional safeguard to prevent children being cruelly treated by their foster-parents.

R.A.F.M.S.—During the debate on the Air Estimates, in Committee of Supply of the House of Commons, on March 8th, Mr. Basil Peto said that he had been looking into the separate medical staff of the Air Ministry. He found that the total of the medical staff was 1,377, and the gross cost was £347,500, or, deducting all that was allowed for the part of the medical staff that was paid under other Ministry votes, it was £209,000 net. The real figure was £347,500, and the 1,377 members of the medical staff worked out at 1 for every 26 of the whole personnel of the Air Service. Sir Samuel Hoare, Minister for Air, said that they were trying, even with the existence of the three services—the Army, Navy, and the Air Force—to reduce overlapping. The Air Ministry did not desire to set up hospitals anywhere where Army and Navy hospitals were providing treatment for Air Force officers and men. To-day, in England, there were only three Air Force hospitals, in each case where there were no facilities for the officers and men of the Air Force in the near neighbourhood. There were two hospitals for men and one hospital for officers. In Iraq, where the command was an air command and where the main responsibility was an Air Ministry responsibility, there were no Army hospitals, and the Air Force hospital in Iraq was doing all the work for the British and Indian battalions. Sir Samuel Hoare said that in the previous debate Lieutenant-Commander Kenworthy had challenged the Air Ministry about a dental service. They had no dental service. They used the dental officers of the Royal Army Medical Corps.

Milk and Dairy Produce.—On March 9th Mr. Beckett asked leave to introduce a bill to enable local authorities to produce and supply milk and dairy produce. He explained that he was bringing the measure forward because the interim report of the Food Commission showed that undoubtedly there had been considerable false dealing in the supply of milk and dairy produce. It was of utmost importance that children should have a proper supply of pure dairy produce. Leave to bring in the bill was refused by 222 votes to 129.

Workers and Weights.—Mr. J. Hudson asked the Home Secretary whether he was aware that, though the Woollen and Worsted Textiles (Lifting of Heavy Weights) Regulations, dated July 27th, 1925, required that the maximum weight to be lifted by one man should not exceed 150 lb., beams of 360 lb. and 460 lb. weight which, by reason of the narrow space between the looms, could only be lifted into the looms by two men, were still used at certain mills in Huddersfield. The Home Secretary said he was advised that the regulations did not fix any maximum limits for weights lifted jointly by two or more workers. All they required was that no worker should, by himself, lift by hand any weight exceeding the prescribed limits, and this requirement was enforced at all mills. He had not yet received any representations from the Joint Industrial Council for an extension of the regulations to weights lifted by more than one worker. He was prepared to ask the Joint Industrial Council whether in its opinion there was a flaw in the regulations.

Notes in Brief.

So far as is known, no foreign Power has yet signed either the Opium Agreement or the Dangerous Drugs Convention concluded at Geneva in February, 1925. British ratifications were lodged on February 17th, 1926.

In the financial year 1924-25, £37,882,282 was spent in England and Wales on poor relief. The figure for 1925-26 is not yet ascertained.

In 1924 there were 30,048 convictions for drunkenness in the Metropolitan Police district, and 389 in the City of London. In 1925 the figures were 29,581 and 394 respectively.

The Home Secretary is considering the extension of the Silicosis Act to other grinding trades and to portions of the steel industry.

The committee appointed in 1924, under the auspices of the Sanitary Institute and the Society of Medical Officers of Health, to consider the methods of food handling in this country, have been submitted to the Minister of Health.

Lord Buckmaster has given notice that in the House of Lords he will ask the Government if it will withdraw all instructions given to, or conditions imposed on, welfare committees for the purpose of causing such committees to withhold from married women in their district information when sought by such women as to the best means of limiting their families.

Medical News.

At the meeting of the Metropolitan Asylums Board on March 6th Dr. J. D. Rolleston and Dr. G. A. Borthwick were appointed medical superintendents in the Board's infectious hospitals service. Dr. Rolleston, who has been senior assistant medical officer at the Grove Hospital, Tooting, since February, 1921, took over the duties of medical superintendent of the Board's Western Hospital on March 8th. Dr. Borthwick, at present port medical officer and medical inspector of aliens, Plymouth, will become medical superintendent of the Board's Northern Hospital, Winchmore Hill, in succession to Dr. C. E. Matthews, who will shortly retire on superannuation.

THE Minister of Health received on March 9th a deputation from the Central Committee of Poor Law Conferences. The deputation stated that their desire was to assist and not to obstruct proposals for the reform of the Poor Law. They agreed that the present system led to confusion and overlapping and that some reform was necessary. But they were afraid that the Government's proposals would overburden the councils of counties and county boroughs so that the poor would not get the care and attention which was secured under the present system, and they urged that before the proposals for the reform of the Poor Law, circulated by the Government, were proceeded with, further inquiry should be made into the effect of legislative and social changes which had occurred since the report of the Royal Commission and of the Maclean Committee. The Minister said that he doubted whether any useful purpose would be served by further inquiry. The materials had been thoroughly sifted by the Royal Commission and by the Maclean Committee, and the broad outline of the present scheme was not, he understood, unacceptable to the authorities to whom the control of public assistance was to be transferred. In any event, the proposals he had circulated were only provisional, and his object in circulating them was to get the criticism and help of all bodies entitled to speak on the subject. He thought some inquiry into the principles underlying the Poor Law might be desirable at a later date.

THE January number of the *Revue Franco-Russe de Médecine et de Biologie*, which is published monthly in Paris, and devoted to medical and other scientific progress in Russia, contains an article by Professor Sémachko on the general state of health in Soviet Russia. In Leningrad, whose population in June last year was 1,320,000, the tuberculosis mortality is on the down grade, after having increased by rapid strides between 1911 to 1920; there has been a closely parallel rise and fall in Moscow. Infantile mortality has diminished, not only in the large towns such as Moscow, where the death rate is much lower now than before the war, but also in the provinces, and even in some neighbourhoods, such as Vladimir and Leningrad, where the rate had been previously very high. Elsewhere in this issue of the *Revue* statistical notes are given about the Ukraine; at the beginning of 1925 there were sixty-nine tuberculosis dispensaries and fifty venereal clinics in operation. It is also reported that during the first nine months of 1924 about 23,000 cases of small-pox were notified in the Union of Soviet Republics, as compared with nearly 42,000 during the corresponding months in 1923. In 1925 the number of scarlet fever cases in Moscow had diminished by 40 per cent., as compared with 1924: good results had been obtained by prophylactic inoculation. In Siberian towns there is an average of one hospital bed for 198 inhabitants, and in the country parts one bed for 2,342.

At a meeting of the Society of Medical Officers of Health to be held at 1, Upper Montague Street, Russell Square, W.C.1, on Friday, March 19th, there will be a discussion on cancer. The point of view of public health administration will be introduced by Dr. W. D. Champneys; that of the surgeon by Professor G. E. Gask; that of the research worker by Dr. W. D. Newcomb; and that of the general practitioner by Dr. F. E. Allen. Others who have promised to take part are Mr. C. J. Bond and Lieut.-Colonel A. B. Swallow. The President, Dr. G. F. Buchan, will take the chair at 5 p.m., and the meeting is open to any member of the profession.

A THREE months' course of lectures and demonstrations in hospital administration, together with clinical instruction in infectious diseases for the D.P.H., will be given by the medical superintendent, Dr. E. W. Goodall, at the North-Western Hospital, Hampstead, N.W.3, on Mondays and Thursdays at 4.45 p.m. and alternate Saturdays at 10.30 a.m., commencing Thursday, April 8th. The fee for the course, which complies with the requirements of the revised regulations of the General Medical Council, is £4 4s., and £3 3s. for the course under the old regulations.

SIR HAROLD STILES has been elected into the Athenaeum under Rule II of the club, which empowers the annual election of persons of distinguished eminence in science, literature, the arts, or for public service.

At the annual meeting of the Society for the Study of Inebriety, to be held at 11, Chandos Street, W.1, on Tuesday, April 13th, at 4 p.m., Sir William Willcox will open a discussion on the prevention and arrest of drug addiction.

MR. H. W. CARSON will lecture on hernia for the Fellowship of Medicine on March 18th at 5 p.m., at 11, Chandos Street; the lecture is free to members of the medical profession. From March 15th to 27th the Brompton Hospital will hold an all-day course on the various forms of pulmonary diseases. At the London School of Hygiene and Tropical Medicine bi-weekly demonstrations during four consecutive weeks will be given at 2 p.m. by Dr. Low and Dr. Manson-Bahr, commencing on March 16th. The Hampstead General Hospital has organized a late afternoon course (4.30 to 6) with systematic teaching in all departments. From April 14th to May 5th Dr. Heald will give four lecture demonstrations on successive Wednesdays at 5.15 p.m., at the Royal Free Hospital; on recent advances in medical electrical treatment. St. Mark's Hospital will hold an intensive course in proctology from April 19th to 24th, with daily sessions from 10.30 a.m. to 6 p.m., including Saturdays. As the course will not be given unless ten entries are received by April 12th, early application is requested. Copies of all syllabuses and of the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE annual meeting of the Elizabeth Garrett Anderson Hospital, Euston Road, N.W., will be held on Monday, March 15th, at 3 p.m. The chair will be taken by the Countess of Carlisle, and Lady Barrett, M.D., M.S., will speak.

THE next meeting of the North-Western Tuberculosis Society will be held in the surgical theatre of the Medical School, Liverpool, on Thursday, March 18th, at 3 p.m., when the Vice-Chancellor (Dr. Adams) will read a paper. Medical practitioners and students interested in tuberculosis are cordially invited.

THE annual meeting of the Mental After-Care Association will be held at the Fishmongers' Hall, London Bridge, E.C., on Tuesday, March 16th. The chair will be taken by Sir Charles C. Wakefield, Bt., president of the association, at 3 p.m.

THE Secretary of the Department of Scientific and Industrial Research announces that the department has recently established a small research laboratory at Dudley House, Endell Street, in the vicinity of Covent Garden fruit and vegetable market. The laboratory will work in close connexion with the Low Temperature Research Station, Cambridge, which is the headquarters of the fruit and vegetables section of the department's organization for food investigation. The object of the laboratory is to bring the station into closer contact with the trade in fruit and vegetables, and with the practical aspects of the problems of their transport and storage.

WE are asked to state that hospitals in the County of London or within eleven miles of St. Paul's desiring to participate in the grants made by King Edward's Hospital Fund for London for the year 1926 must make application before March 31st to the honorary secretaries of the Fund, 7, Walbrook, E.C.4. Applications will also be considered from convalescent homes which are situated within the above boundaries, or which, being situated outside, take a large proportion of patients from London.

MARTIN HOPKINSON AND CO., LTD., announce for early publication *Medical Aspects of Birth Control*, edited by Sir James Marchant, and containing contributions by Dr. R. C. Buist, Dr. Letitia Fairfield, Dr. Arthur Giles, Professor Leopold Hill, Dr. H. Crichton Miller, Sir Arthur Newsholme, Sir John Robertson, and Dr. Mary Scharlieb.

THE RIGHT HON. STEPHEN RONAN, lately Lord Justice of Appeal in Ireland, has left estate valued for probate at £83,907. After making several bequests he directed that the bulk of the property should go to the Medical Research Council for assisting and promoting scientific research, and, without limiting the discretion of the Council, he expressed the wish that special attention should be given to the relief, cure, and prevention of physical pain by physical means.

DR. THOMAS LAWSON CRAIG has been appointed a member of the Executive Council of Gambia, and an official member of the Legislative Council of that colony.

THE monument to the 323 French pharmacists killed in the war was recently unveiled at the Paris Faculté de Pharmacie by M. Painlevé in the presence of M. Lapie, Rector of the Académie de Paris, and Professor Radais, Dean of the Faculté de Pharmacie.

PROFESSOR CHARLES RICHET of Paris has recently been nominated Grand Officer of the Legion of Honour.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 3361, 3362, 3363, and 3364** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Reclillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

INCOME TAX.

"T. D. N." will find that the point raised in his previous question was further discussed in our reply to "J. A. S." and "A. M. I." in our issue of February 27th. At present we are unable to assist him further, but will keep the matter before us in the hope that we may be able to do so at a later date.

A. B. and C. are in partnership; B replaced a car in 1924 and A in 1925, claiming allowances of £390 and £212 respectively. They have since claimed depreciation allowances (in respect of the new cars, of course), presumably for 1925-26, and the Inspector, in making that allowance, has cancelled the previous *general* allowances to the extent to which they affect the 1925-26 assessment.

In an old Scottish case, *Caledonian Railway Company v. Banks* (18 Sco. L. R., 85), the judges seem to have laid down the principle that renewal expenditure and depreciation cannot be allowed simultaneously in arriving at the same assessment. The firm attracts by law one single assessment, and therefore it seems to follow that where depreciation is claimed and allowed the renewal expenses are not allowable. So far as we have been able to ascertain the practice approved by the Board of Inland Revenue, it would appear that they are willing to concede the point, so far as concerns those years for which the figures enter into the average for 1925-26, but not for future years; in other words, that they would in such a case as this be willing to see the simultaneous allowance of depreciation and of renewal deductions where the expense was, in fact, incurred before the books were made up for the practice at April 5th, 1925, but not such depreciation and subsequent renewals. If we have correctly interpreted the attitude of the Board, A, B, and C's inspector of taxes will apparently be able to obtain authority to restore the cancelled deductions for renewals.

"E. S. B." poses a set of facts somewhat similar to those referred to by A, B, and C, but in this case one of the partners renewed his car after the books had been made up for the year 1925, and the account first affects the financial year 1926.

The old car was presumably replaced because it had become obsolete for its purpose; if so, we are of opinion that an obsolescence allowance can be claimed in respect of it—Rule 7, Cases I and II, Schedule D—representing the net cost of renewal less the amount of depreciation allowed on it, in income tax assessments. This, however, will not affect the 1925-26 assessment.

LETTERS, NOTES, ETC.

Dr. S. D. BHABHA (Greenwich), whose account of the *Spies-Drager apparatus* was printed in the **JOURNAL** of January 16th, writes to inform our readers that he has severed all connexion with the clinic mentioned in that note.

INVESTIGATION OF STATUS LYMPHATICUS.

Dr. W. HOWEL EVANS, secretary of the committee undertaking a collective investigation of status lymphaticus, asks us to correct a mistake in the notice sent to us by him and published in our issue of February 27th (p. 395). The interim report of the original investigation was published in the *Journal of Pathology and Bacteriology* for January, 1925—not April, 1925.

INDIVIDUAL OVERDOSE OF ULTRA-VIOLET RAYS.

Dr. ELIZABETH M. ANDERSON (London, W.) writes: With reference to Dr. Ferguson's letter in the **JOURNAL** of February 27th (p. 402), in which he suggests that cataract may be due to ultra-violet and not heat rays, as formerly supposed, I should like to point out that the available evidence is strongly opposed to this view. Dr. Ferguson mentions the incidence of cataract among glass workers, iron smelters, and the like, but the open furnaces to which these workers are exposed emit chiefly heat rays, the ultra-violet rays being negligible in amount or absent. In the tropics, where cataract is of frequent occurrence, the chief constituent of the solar spectrum is heat, the actinic rays being filtered out by moisture. It is well known that dogs who are allowed to sit before domestic fires develop cataract, yet no actinic rays are given off by coal. In the Alps, where ultra-violet radiations are present in comparatively large amounts, the incidence of cataract is no higher than in smoky towns, where they are practically absent. Lastly, in certain cases of incipient cataract, actinotherapy has been used with benefit as a remedial agent.

SUNSHINE RECORDS.

Dr. H. D. BISHOP (M.O.H. States of Guernsey) writes: Of the eighty-two stations recording sunshine recognized by the Meteorological Society, there were only eight that recorded more than 1,900 hours of bright sunshine during the year 1925. They were as follows:

Guernsey ...	...	...	...	...	1,999 hours.
Woolthing ...	...	...	...	...	1,956 "
Salcombe ...	...	...	...	...	1,955 "
Plymouth ...	...	...	...	...	1,923 "
Jersey ...	...	...	...	...	1,923 "
Littlehampton ...	...	...	...	...	1,915 "
Paignton ...	...	...	...	...	1,912 "
Teignmouth ...	...	...	...	...	1,906 "

All these stations are situated in the English Channel or on the south and south-westerly coasts. The average amount of sunshine in Guernsey during the past thirty-two years was 1,905 hours, a figure considerably exceeding that of all other English stations.

A SCHOOL FOR MYOPE.

We are informed by a leading London ophthalmologist that Mrs. Bridge, B.A., formerly principal of a school in Brighton, has opened a school for myopes at the Manor House, Pildown, near Newick and Uckfield, Sussex. The aim of the school is to give defective eyesight. The teaching is largely adapted wherever possible. Much and sedentary work is reduced to a minimum, and is built for the purpose and suitably adapted in the L.C.C. myope schools are used. The curriculum includes dancing, eurythmics, musical appreciation, and certain handicrafts, beside the usual English subjects and French. Advantage is taken of the wireless and of good gramophone records. Outdoor occupations and interests and simple home duties alternate with the ordinary lessons, so that the time which may not be spent in reading is both usefully and happily filled. At present only ten children can be received.

CARS ON LOAN DURING REPAIRS.

THE Medical Insurance Agency some two years ago decided as a result of many inquiries to initiate a scheme by which the expert advice of a responsible firm of motor engineers should be available without cost to members of the medical profession. In the report of the Agency at the time the hope was expressed that this service would prove of considerable use to the profession, and experience since then would seem to prove that it is keenly appreciated by medical motorists. It has now been found necessary to develop the scheme beyond the original limits. Egerton and Co. of Bond Street have now sent a fleet of cars for loan while repairs to doctors' cars are being carried out at their works.

BURGUNDY AND GOUT.

Dr. P. D. CAMERON (Wellington, N.Z.) writes with reference to the note on "Wine and gout" by our Paris correspondent (*Journal*, December 5th, 1925, p. 1036): The question arises: Does the Australian red burgundy produce the same toxic effect in gout as the French wine? It would be interesting to find out whether geographical considerations or some innate quality of the wine is the factor concerned.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 46, 49, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 47 and 48.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 51.

A British Medical Association Lecture

ON

DIET AND DISEASE,

WITH SPECIAL REFERENCE TO THE TEETH, LUNGS,
AND PRE-NATAL FEEDING.*

BY

EDWARD MELLANBY, M.D.CANTAB., F.R.S.,

HONORARY PHYSICIAN, ROYAL INFIRMARY, SHEFFIELD; PROFESSOR OF
PHARMACOLOGY, UNIVERSITY OF SHEFFIELD.

(With Special Plate.)

EIGHTEEN months ago I delivered a British Medical Association Lecture at Bradford^{1a} in which I discussed the subject I was actively investigating at the time—namely, the part played by modern dietary in the production of disease as found in this country. I should not have chosen the same subject for this evening's discourse were it not that it is still being intensively investigated all over the world, with results that only emphasize its importance.

Modern experimental work on animals, backed up by clinical observation, has brought to light the fact that the dietary of the people of this country is defective in two important respects: (1) that it includes too little of the substances which contain fat-soluble vitamins, and (2) that it contains relatively too much cereal. Each of these dietetic mistakes tends, among other things, to bring about a certain pathological defect of structure and function in the body, so that their combined influence in this respect is very great and produces widespread disability.^{1a, b, c} For instance, one of the fundamental effects of a fat-soluble vitamin is to stimulate calcification of bones and teeth, while, on the other hand, excess of cereal in the diet interferes with the calcification of these organs. It can be imagined, therefore, how potent must be the destructive action on developing bones and teeth of a diet deficient in calcifying vitamin and containing an excess of cereal. The meagreness of the sunshine in this country and its poor quality so far as ultra-violet radiations are concerned only serve to make matters worse; for, arising from the observations of Huldchinsky² on the effect of ultra-violet radiations on the calcification of bones of rachitic children, we now know that deficiency of antirachitic vitamin in the diet can be made up to some extent by exposure of the body to ultra-violet light, while I have shown elsewhere that excess of cereal in the diet, which interferes with bone calcification, can also be antagonized by exposure to these rays.^{1c}

To-night I propose to return once more to the same subject, and, by other illustrations of the action of these dietetic factors on the body, try to drive home, not only how widespread are the diseases for which these specific dietetic defects are responsible, but also show that it is only by feeding in such a way as to avoid these defects that success can be obtained in the control and elimination of much illness.

TEETH.

I propose, first of all, to deal with the subject of the teeth, and to provide some evidence obtained by May Mellanby^{3a-c} which suggests strongly that much of the dental defect of this country is due to the dietetic mistakes mentioned above. Incidentally the results also indicate the means for combating this serious state of affairs.

It will be clear that if the fundamental cause of dental defect is due to the fact that the dietary of the people in this country is exceptionally low in calcifying properties, then the teeth ought to be badly formed. The test can be made at once. Before, however, dealing with the point, it may be well to state that the ordinary accepted teaching by dental authorities of the structure of, for instance, children's teeth in this country is that, on the whole, they are well formed, only something of the order of 2 to 3 per cent. being recognized as defective in structure. This, if true, would at once disprove the suggestion made above as to the cause of dental defect. But is it true? The 2 to

3 per cent. of defect observed in the deciduous teeth of children are cases of gross hypoplasia of the enamel, smaller abnormalities being passed as normal. It was only when teeth were examined microscopically after being ground down to thin sections that the real structure of the teeth was appreciated and correlated with the naked-eye appearance of the enamel. When this was done it was at once evident that a large proportion of human deciduous teeth were badly formed—not the 3 per cent. suggested, but something like 80 to 90 per cent.^{3b} The following table sums up the results as to the structure of children's temporary teeth after being ground down and examined microscopically.

TABLE I.—Relation between Structure and Caries in the Teeth of Children.

Type of Tooth.	Number Examined.	Good Structure.		Defective Structure.	
		No Caries.	Caries.	No Caries.	Caries.
Incisors ...	100	53	11	1	30
Canines ...	70	5	0	25	40
Molars ...	466	2	11	2	451
Total ...	636	65	22	28	521

The different ratios of abnormal to normal teeth in the various types is interesting. In the case of the molars, for instance, only 13 out of 466 teeth examined were well formed, while in the case of the incisors no less than 69 per cent. were of good structure. It will be also noticed that there was some correlation between the structure of the teeth and caries, for out of the 636 teeth examined 521 were of defective structure and carious, while 65 were of sound structure and non-carious. That is to say, 586 of these 636 teeth, or 92.14 per cent., were in agreement with the hypothesis that a sound tooth is less liable to caries and an imperfectly formed tooth more likely to be carious. Of the 636 teeth, 50, or 7.86 per cent., were in a condition opposed to this generalization. This subject has been discussed by May Mellanby elsewhere,^{3d} and it was pointed out that the exceptions could be explained by the fact, which can also be demonstrated experimentally, that even after eruption the reaction of the teeth to harmful stimuli can be varied by the same dietetic influences which control the formation of the teeth. Thus a badly formed tooth can be made to resist more potently if the diet is made good, whereas the resistance of a well formed tooth is lowered by a defective diet.

The point I wish to make now, however, is that a very large percentage of human deciduous teeth are badly formed, and not the 2 or 3 per cent. as usually stated. In Figs. 1 and 2 can be seen cross-sections of two molars of children: Fig. 1 is a photograph of a perfectly formed molar tooth—a rarity nowadays in this country; the structure of the tooth in Fig. 2 is obviously very imperfect, and a small spot of caries is evident, yet this tooth was described by a dental surgeon as well formed judging by its external macroscopic appearance.

It is clear that children's deciduous teeth in this country are not only very susceptible to caries, but that they are very defective in structure.

The question now arises, Can the structure of teeth be controlled experimentally by diet during development, and, if so, are the dietetic factors controlling the formation of teeth of the same nature in children as in experimental animals? It is now possible, according to the experimental work of May Mellanby, to produce any degree of perfection or imperfection in the structure of the teeth of dogs by means of the diet eaten during the development of the teeth. The most important variables of the diet that are altered to bring about these differences include (1) the amount of fat-soluble vitamin,^{3a} (2) the variation in the amount and type of cereal eaten,^{3c} and (3) exposure of the animal, or in some cases the food, to a source of ultra-violet radiation.^{3e} The more deficient the diet is in the calcifying vitamin, the more it consists of cereal, especially oatmeal, and the less the animal is exposed

* Delivered to the Mid-Cheshire Division, November 12th, 1925.

to ultra-violet radiations, the worse formed will be the teeth. On the other hand, the more the fat-soluble vitamin and the less the cereal eaten, and the greater the exposure of the animal to ultra-violet radiations, the better formed will be the teeth. These facts are demonstrated in the illustrations (Figs. 3, 4, and 5), which are a few examples showing the effect of these dietetic and environmental factors in dental structure. For instance, the difference between the teeth and jaws in Fig. 3 is simply due to the fact that the diet of A contained some cod-liver oil, which is a rich source of calcifying vitamin, the diet of B contained a corresponding quantity of butter with a smaller vitamin content, whereas the diet of C was very deficient in this vitamin, as linsed oil formed the fat content of its diet. Except for these differences everything in the diet and environment of these three puppies, who were members of the same litter, was constant.

The destructive effect of cereals on teeth formation, and especially that of oatmeal, is seen in Fig. 4. Except in the case of A, the diets of these animals, though deficient in fat-soluble vitamins, were constant in this respect, and the variable tested was the cereal. It will be seen that when oatmeal was the cereal eaten (Fig. 4, B) the teeth were very badly formed. The abnormality was least when white flour was eaten (Fig. 4, C), and rather worse when wheat germ was substituted for 10 per cent. of the white flour (Fig. 4, D). Even the potent action of oatmeal, however, was completely antagonized by 10 c.cm. of cod-liver oil eaten daily by the dog whose jaw is represented in Fig. 4, A. The diets of the animals whose teeth are represented in Fig. 4, A and B, both contained oatmeal and were identical in other respects except that 10 c.cm. of cod-liver oil daily was eaten by A, and 10 c.cm. of olive oil by B. The tooth illustrated in Fig. 4, A, is perfect in structure.

The effect on the structure of the teeth of exposing an animal to a source of ultra-violet radiations can be seen in Fig. 5 (A and B). Both of the animals whose jaws are represented in Fig. 5 were brought up on identical diets deficient in the calcifying vitamin, and lived under the same conditions, the only difference being that one (Fig. 5, B) was exposed thrice weekly for twenty minutes to the rays of a mercury vapour lamp. The improvement in the calcification of the teeth produced thereby is obvious.

I have now shown you some evidence which indicates (1) that the deciduous teeth of children are for the most part badly formed, and (2) that the structure of dogs' teeth can be controlled at will by varying certain specific factors of diet and environment. The question arises, How do these facts bear upon the widespread scourge of caries in the teeth of children? One method of answering the question would be to feed children from birth along the lines which animal experiments have indicated as resulting in perfect tooth formation, determining the amount of caries in the temporary dentition, and after the shedding of these teeth from the sixth year onwards grinding them down and examining microscopically. A number of children are being brought up on a diet which, from birth onwards, includes milk, egg-yolk, and cod-liver oil, and up to the present, so far as is known, caries has not appeared in the teeth of these children, but the oldest is now only 5½ years of age, so the test is still in its early stages.

In order to attack the point in a direct fashion with the idea of seeing whether the results obtained with animals could have any bearing on the teeth of children after eruption and after being fully formed, the following preliminary investigation was made by May Mellanby, C. Lee Pattison, and J. W. Proud.⁴ A number of children in an institution were placed on diets which, according to animal experiments, varied in their effect on calcification. Group A were given a diet which contained much milk and some cod-liver oil, less cereal (none of it oatmeal), in addition to other food-stuffs. The diet of Group B contained less milk, more cereal (including oatmeal); while in the case of Group C an intermediate diet from the point of view of calcification, and one which was usually the standard diet of the institution, was given. The children were arranged in groups so that the average age of each group was about the same. Before the diets were started the mouth of each child was carefully charted, the amount and type of hypo-

plasia, the carious points, their extent and degree of hardness, the missing teeth, etc., being noted. After seven and a half to eight and a half months of the diets the condition of the teeth was again charted, and the following results were obtained.

TABLE II.—Effect of Diets A, B, and C on the Initiation and Spread of Caries in Children.

Diet.	Main Dietetic Difference.	New Points of Caries.	No. of Children in Group.	Average New Carious Points per Child.
A	Abundant calcifying vitamin and calcium	13	9	1.4
B	Poor in calcifying vitamin; less calcium, more cereal, especially oatmeal	51	10	5.1
C	Intermediate between A and B	38	13	2.9

It will be noticed that there was nearly four times as much new caries per child on Diet B as in the Diet A group. Since all other conditions of hygiene and mode of living were constant, it is probable that the differences in diet were responsible for the changes in the teeth of the children. If this be true, then the results observed experimentally on the teeth of dogs can be applied to children. The numbers of children observed in this investigation were small; a bigger investigation of a similar nature is necessary before the results can be regarded as definitely established. On the other hand, the amount of difference of developing caries in the various groups seems too big to be explained by inaccuracies of observation and chance.

To sum up, the experimental work demonstrating the conditions of diet which bring about the production of perfect and imperfect teeth in dogs, taken in conjunction with the investigation on children outlined above, makes it almost certain—

(1) that the widespread development of caries in children's teeth is primarily a problem of defective feeding which results in imperfect formation of their teeth;

(2) that the dietetic factors which result in good and bad formation of teeth also confer upon or take away from the erupted teeth of children the power of resistance to the carious process;

(3) that foods containing fat-soluble vitamins, such as milk, egg-yolk, butter, animal and fish fats, and especially cod-liver oil, bring about the formation of good teeth, while cereals, and especially oatmeal, in the absence of calcifying vitamin, bring about the formation of defectively calcified teeth.

THE INFLUENCE OF THE MATERNAL DIET DURING PREGNANCY ON THE SUSCEPTIBILITY OF THE OFFSPRING TO DISEASE.

It would be a generally accepted proposition that the feeding and nutritional condition of a mother during pregnancy modifies the metabolic changes and consequently the well-being of the offspring. If it were only a question of insufficient nourishment supplied to the mother, evidence on this point would be difficult to obtain, for the ability possessed by the maternal organism of sacrificing her tissues for the supply of the fundamental nutriment of the developing foetus is certainly very great. There is, however, better evidence that the malnourished as opposed to the starved maternal organism transmits undesirable weakness and tendencies to pathological change to its offspring.

In the case of rickets, for instance, the maternal factor has appeared so important to some that heredity has even been advocated as the prime cause of this disease. This view has not, however, received much support. The congenital influence which has been stressed by Kassovitz is supported by such facts as the special tendency of premature babies and of twins to develop rickets. It is true, as Schmorl⁵ pointed out, that newborn infants do not show rachitic changes of bone, but it is not improbable that the osteoporotic condition as evident in the craniotables seen in infants soon after birth is a closely related state and may be due to malnourishment of the mother.

Experimentally Korenchevsky and Carr⁷ showed that, in the case of rats, rachitic changes of the bones could be

produced more rapidly, and more certainly, if the mother during pregnancy, as well as the offspring, were fed on diets deficient in antirachitic vitamin and calcium. Hess and Weinstock⁵ have also studied this problem and found that, although improving the diet of mothers during pregnancy and lactation mitigated the development of rickets in infants, it did not prevent it.

In the experiments now to be described the mothers during pregnancy were certainly not insufficiently fed. From the point of view of energy-bearing dietetic constituents the diets were not greatly dissimilar. Even as regards many of the actual foods comprising the respective diets they were identical in kind and in amount eaten. On the other hand, specific differences were introduced of such a nature that one bitch (A) received a diet which, from earlier work, would be expected to result in good health, while the second (B) received a diet which experience had taught would lead to malnutrition. The diets were as follows:

Bitch A.	Bitch B.
Bread (white flour), 150 to 200 grams.	Oatmeal, 100 to 150 grams.
Cod-liver oil, 10 to 20 c.cm.	Olive oil, 10 to 20 c.cm.
Separated milk, 400 reduced to 100 c.cm.	Separated milk, 400 reduced to 100 c.cm.
Meat, 100 grams.	Meat, 30 to 100 grams.
Yeast, 15 grams.	Yeast, 15 grams.

These animals lived throughout the experimental period under identical conditions and became pregnant at approximately the same time, the father being the same in each case. The diets were started in February, 1923, and continued throughout pregnancy, which ended on June 6th and 11th respectively, and during the period of lactation, which lasted until July 23rd and 28th, when the progeny in each case were removed from the mothers and lived separately.

After weaning, the diets were so arranged that two puppies (one puppy from each litter) were given the same food. The following table illustrates the conditions of the experiments. All puppies received the same amount of lean meat, separated milk, orange juice, salt, yeast, together with the special substances indicated in the table for each puppy.

TABLE III.

No. of Puppy.	Diet Variables.	Mother.	Father.	X-Ray Result.
698	Oatmeal, linseed oil, and 0.5 gram calcium carbonate	A	R	Nearly normal.
709		B	R	Moderately bad rickets.
699	Oatmeal and linseed oil	A	R	Slight rickets (Fig. 6, A).
706		B	R	Very bad rickets (Fig. 6, B).
730	Oatmeal and cod-liver oil	A	R	Normal bones.
704		B	R	Normal bones.
701	White flour and cod-liver oil	A	R	Normal bones.
703		B	R	Normal bones.
703	Oatmeal and cod-liver oil, heated and oxygenated 72 hours	A	R	Slight rickets (Fig. 7, A).
707		B	R	Bad rickets (Fig. 7, B).

The only results that need be referred to here are those of the dogs on diets which would be expected to interfere most severely with bone calcification. These are 698 and 709 (oatmeal, linseed oil, and calcium carbonate), 699 and 706 (oatmeal and linseed oil), and 703 and 707 (oatmeal and cod-liver oil, heated and oxygenated seventy-two hours). Since there is little or no calcifying vitamin in linseed oil, and that present in cod-liver oil is destroyed by seventy-two hours' heating and oxygenation, none of these diets contained the necessary amount of vitamin. The results obtained in the case of 699 and 706 (oatmeal and linseed oil) can be seen in Fig. 6 (A and B), where the radiographs after ten weeks of the diet are shown. It will be seen that 706 (defectively fed mother—Fig. 6, B) has advanced rickets in the radiograph, whereas the radiograph of 699 (well fed mother—Fig. 6, A) shows only slight rickets at this time. Since the only difference in the life-history of these two dogs is that the mother of

one (706) was defectively fed during pregnancy and lactation, while the mother of 699 had a good, strongly calcifying diet, it is probable that this is responsible for the increased susceptibility of 706 to develop rickets as compared with 699.

A similar result was obtained with 703 and 707, where heated and oxygenated cod-liver oil was the fat eaten by both. It will be obvious in Fig. 7, A and B, that 707 (defectively fed mother—Fig. 7, B) has developed more severe rickets than 703 (well fed mother—Fig. 7, A), and the reason for this is probably the same as in the case of the preceding pair. Animals 698 and 709 (radiographs not shown) reacted in the same way: 709, having the defectively fed mother, developed much more severe rickets than 698 (well fed mother).

It was a matter of interest to know how long the influence of the defective diet of the mother would be evident in the offspring, and more information was obtained from other puppies in these litters in the following way. Animals 701 (well fed mother) and 708 (badly fed mother), after weaning, were given a good diet containing an abundance of antirachitic vitamin. This continued for four months, and by this time the puppies were in excellent condition and about 6 months old. The diet of each was then changed to a defective one by the substitution of oatmeal for white flour and olive oil for cod-liver oil. After six weeks of this defective diet it will be seen that the bones of 708 (defectively fed mother—Fig. 8, B) and of 701 (well fed mother—Fig. 8, A) were still practically normal. These animals were now 7½ months old and well grown dogs. However, after three months more of these defective diets, when they were 10½ months old, there was a great difference between these two animals, which is obvious in the radiographs and photographs of these dogs (Fig. 8, C and D, and Fig. 9, E and F). It will be seen that 708 (Fig. 8, D, and Fig. 9, F) is very rachitic in appearance as compared with 701 (Fig. 8, C, and Fig. 9, E). The rachitic changes in 708 (Fig. 8, D, and Fig. 9, F) are comparable to those of late rickets seen occasionally in adolescents.

The greater resistance of 701 to the development of late rickets and the susceptibility of 708 to this disorder must have been due to the difference of the maternal feeding during pregnancy and lactation; for, since weaning at the age of 6 weeks, the diets of each and all the other conditions of life have been identical. It seems clear, then, that the influence of a defective diet given during pregnancy and lactation is not only evident in the offspring during early life, but that, even after a prolonged period of perfect feeding, the tendency to the development of defect is still obvious in the case of dogs whose mothers have a bad diet. It is surprising that the defective diet effect should be so lasting, and that it should be so difficult to overcome by a period of excellent treatment of the puppy.

Summary.

If bitches are fed during pregnancy on diets which, in the case of puppies, will lead to rickets, then the offspring have a greater tendency to develop this disease. This tendency in the young is not removed by a period of good diet, but may become evident again at a later period of defective feeding.

THE RELATION OF DIET TO SUSCEPTIBILITY TO INFECTIONS OF THE RESPIRATORY TRACT.

Attention has been drawn by many recent workers on dietetics to the increased susceptibility of animals to infection as the result of diets which, while good as regards their protein, fat, carbohydrate, and energy content, are defective in quality. McCarrison,⁸ for instance, has described the frequency of a catarrhal condition of the intestine, especially in the form of colitis, found in animals whose diet was deficient in vitamin B. In the course of my own work I commented on the readiness with which dogs succumb to distemper and the great intensity of mange when these diseases appear in animals whose diets are deficient in vitamin A.¹⁰ Drummond⁹ has described a lowering of resistance of adult rats to bacterial infection, manifesting itself sometimes in the form of an inflammatory

condition of the lungs, when they were fed on diets deficient in vitamin A. Cramer and Kingsbury²⁰ have also called attention to the mortality of rats from bronchopneumonia when these animals are kept sufficiently long on diets free from vitamin A. They consider that the atrophy of mucus-secreting cells in the mucous membrane of the trachea and larynx, observed by Mori,²¹ and in the intestine, observed by themselves, allows the local bacterial infection of these tissues when the diet is deficient in vitamin A. These are a few of the instances in which attention has been called to this important problem. Any information on the question of the relation of diet to resistance to infection, especially as it concerns the respiratory tract, seems to me to be of such great practical importance that I think it necessary to give my own experience on the subject.

At one period in the course of my experimental investigations on dogs, the work was greatly hampered by the development of an inflammatory condition of the lungs. Another condition of the lungs found *post mortem* in some of the dogs was that of local collapse, especially along the margins of the upper lobes of the lungs. This was often associated with patches of emphysema in other parts of the lungs. This condition, as a general rule, was not accompanied by congestion. It was usually found in dogs which, on account of their diet, had become either very lethargic or had developed muscular weakness or both.

Many of the experiments have been made with the object of elucidating the effect of diet on bone formation, so that the number of animals developing bone defect has been large. This, no doubt, accounts for the frequency with which muscular weakness and the accompanying condition of local lung collapse or atelectasis occur in these dogs.

Lately I have examined microscopically many of the lungs seen to be abnormal at the *post-mortem* examination made at the end of each experiment, and found the inflammatory conditions in all cases represented varying degrees of bronchopneumonia. It then seemed worth while to analyse the results and see in what way, if any, the incidence of the bronchopneumonia was related to the diet. I will briefly tabulate these results and then discuss them.

TABLE IV.—Lung Condition found at Post-mortem Examination of a Series of 330 Dogs in Relation to Diet.

Condition of Lungs.	Diets as regards Vitamin A Content.				
	Vegetable Fat, Vitamin A Deficient.	Butter + Vitamin A.	Butter, Vitamin A Destroyed by Heat.	Cod-liver Oil + Vitamin A.	Cod-liver Oil, Vitamin A Destroyed by Heat.
Normal	155	55	11	24	3
Broncho-pneumonia	43	0	4	0	1
Local collapse ...	23	9	2	0	0
Total	221	64	17	24	4

These results indicate a close relationship between the fat-soluble vitamin content of the diet and the susceptibility of the animal to develop an inflammatory condition of the lungs. All the cases of bronchopneumonia were found in dogs whose diets were deficient in fat-soluble vitamin, and no bronchopneumonia developed when the diet contained either butter or cod-liver oil. Except for the variable amount of fat-soluble vitamin, the diets of these animals would formerly have been considered good—that is to say, they contained an abundance of protein, fat, carbohydrate, and energy. In some cases the calcium intake was only sufficient on the assumption that the diet contained a large amount of calcifying vitamin. For instance, if diets of this nature contained cod-liver oil as the fat entity, and therefore an abundance of calcifying vitamin, the calcium intake was sufficiently high to result in perfectly formed teeth and bones. In fact, it is to be doubted whether any ordinary diet can be so low in calcium content as to lead to defective calcification of the body tissues if cod-liver oil is also ingested at the same time. On the other hand, when butter is the source of fat-soluble vitamin in the diet it is essential, in order to produce well formed teeth and

bones, strongly contracting muscles, and good general activity, that the diet should also be richer in calcium. The reason for this is probably that butter contains a much smaller amount of antirachitic vitamin than cod-liver oil, so that the butter effect on calcification is best seen when there is plenty of calcium in the diet. In the above table it will be seen that local collapse of lung tissue was found in nine cases in which butter was the fat eaten. If the calcium of the diets in these particular cases had been higher, the musculature of the animals would have been stronger, the animals would have been more vigorous, and no local collapse of lungs would have developed. Yet none of these animals eating butter, although some were abnormal in other ways, even as regards the lungs, developed bronchopneumonia. Although, therefore, it is certain that there is an intimate relation between fat-soluble vitamin in the diet and calcium, especially as regards the structure and function of bones, teeth, and muscle, it seems possible to deduce, on the basis of the above statistics, that this vitamin alone confers an increased power of resistance to lung infection even under conditions when bone and muscle structure is defective.

It is necessary, in discussing this question as to the relationship of diet and the resistance of the body to inflammatory conditions of the respiratory tract, to emphasize that, whatever truth there may be in the suggestion that fat-soluble vitamin aids in the defensive mechanism, it is only one point of a more complicated story. Whether there was any special organism which invaded the lungs of these dogs is not yet known, as, up to the present, the subject has not been studied in detail. There are certainly other points of crucial importance in the etiology of bronchopneumonia, but what these are cannot be stated definitely. In some cases, at least, the bronchopneumonia developed in animals which not only had the diet defect described above, but also had been taken out of their indoor kennels into the open air, where it was usually cold and windy and often wet, in order that their running powers should be determined. The opportunity, in fact, was presented to them of catching a "chill." The dogs on the diets containing vitamin A were also placed under the same conditions, but their resistance was apparently sufficient to make the low temperature of the external conditions of no account. It is impossible to state that this change of environment, which lasted only a few minutes, was always a factor in the development of the inflammatory condition of the respiratory tract, but it may have been a causative agent in many cases.

Another condition which commonly develops in puppies when feeding on diets containing excess of cereal and a deficiency of fat-soluble vitamin is diarrhoea. In animals which feed on such a diet for a long enough period diarrhoea generally develops, but this may only happen after severe defect of bone formation is present. On the other hand, diarrhoea may appear soon after the diet begins and before there is obvious bone deformity. It has seemed, although not proved, that the better the puppies are fed during the pre-experimental period, the longer time will elapse before the defective diets are accompanied by diarrhoea. This statement is definitely true of rickets both as regards the pre-natal and post-natal feeding of the mother, and it probably applies equally to the development of catarrhal conditions of the alimentary tract. It may also explain the variable susceptibility of young animals to catarrhal and inflammatory conditions of the respiratory tract.

THE POSSIBLE BEARING OF THE ABOVE RESULTS ON THE "CATARRHAL" CHILD.

The observations described above, dealing with the effect of feeding the maternal organism during pregnancy and lactation on the susceptibility of the young to develop rickets, together with the results showing the altered resistance under similar dietetic conditions to inflammation of the respiratory passage, have impressed upon me the possibility that the so-called "catarrhal" child is probably a product of defective feeding of the mother during pregnancy and lactation. There is general agreement among clinical workers that there is some common factor in the etiology of the diseases which result in the "catarrhal" child, the rachitic child, and the child with enlarged tonsils. So far as my own animal experi-

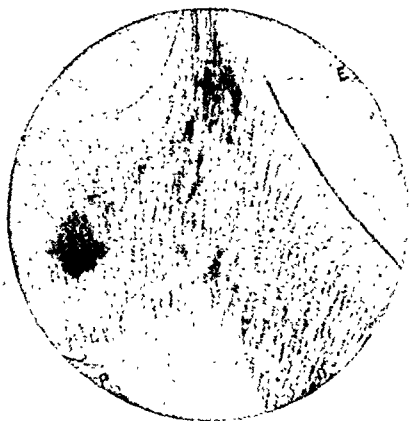


FIG. 1.—Photomicrograph of ground section of a perfectly formed human deciduous molar. Rarely found. (May Mellanby.)

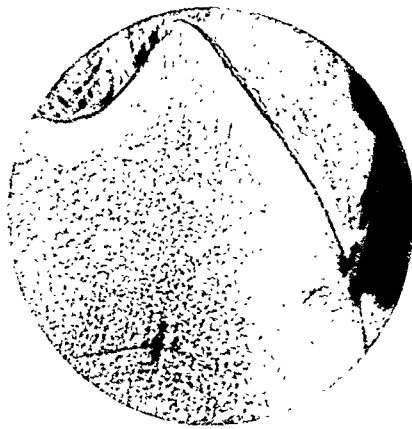


FIG. 2.—Photomicrograph of human deciduous molar. Note defect in structure of dentine. A typical specimen as ordinarily found in this country. (May Mellanby.)



FIG. 3 (A, B, and C).—The effect of the calcifying vitamin. The jaws of three puppies of the same litter brought up on the same diets except that A contained 10 c.cm. of linseed oil daily, B contained 10 grams of butter daily, and C contained 10 c.cm. of cod-liver oil daily. Note the perfect formation of the teeth of C and the imperfectly formed teeth in A. (May Mellanby.)



FIG. 5 (A and B).—The effect of ultra-violet radiations. Photographs of the lower jaws of two puppies brought up on the same diet deficient in calcifying vitamin and living under the same conditions. Puppy A only was exposed thrice weekly for twenty minutes to the radiations of a mercury vapour lamp. Note the better formed teeth of A as compared with B. (May Mellanby.)

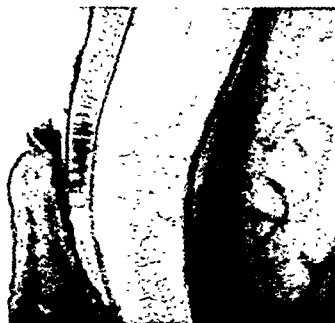
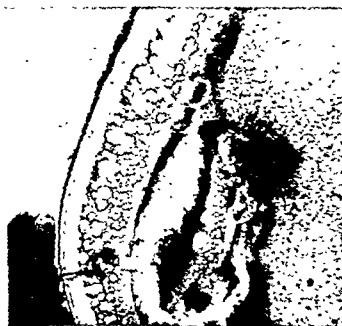
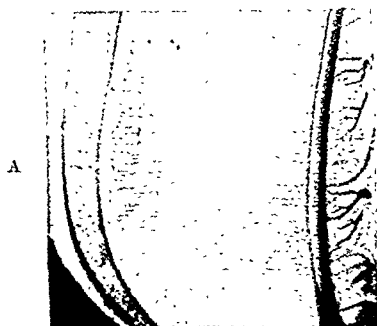


FIG. 4 (A, B, C, and D).—The effect of different cereals. Photomicrographs of ground sections of molar teeth of four puppies of the same litter. The diets of B, C, and D were deficient in antirachitic vitamin and were identical except that B contained oatmeal as cereal, C contained white flour as cereal, and D contained white flour and wheat germ (10 per cent.) as cereal. The diet of A was identical with that of B—that is, it contained oatmeal as cereal, but olive oil in Diet B was replaced by 10 c.cm. of cod-liver oil, which completely antagonized the bad effect of the oatmeal. Note how defective is the dentine in B (oatmeal), also that wheat germ has made the teeth of D worse than C (white flour). (May Mellanby.)

E. MELLANBY: DIET AND DISEASE.

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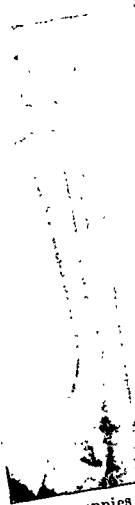


FIG. 6 (A and B).—Radiographs of wrists of puppies (699 and 706) taken after ten weeks of the same experimental diet. A, during pregnancy and lactation the mother of 699 had been well fed—that is, received abundant antirachitic vitamin. B, during pregnancy and lactation the mother of 706 had been fed on defective diet—that is, deficient in antirachitic vitamin.

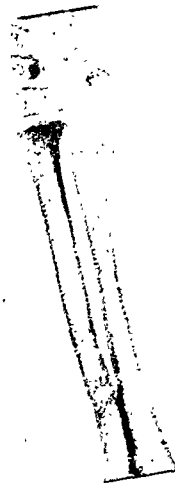


FIG. 7 (A and B).—Radiographs of wrists of puppies (703 and 707) taken after ten weeks of the same experimental diet. The mother of A (703) had been on a diet deficient in antirachitic vitamin during pregnancy and lactation, while the mother of B (707) had had a diet good in this and other respects during the same period.



FIG. 8 (A, B, C, and D).—Radiographs of wrists of two puppies (701 and 708). The mother of 701 (A and C) was well fed during pregnancy and lactation. The mother of 708 (B and D) during pregnancy and lactation had a diet deficient in antirachitic vitamin, and containing, among other things, oatmeal. After weaning the diets of 701 and 708 were always identical; they were well fed from 6 weeks to 6 months old; they were then put on the same rickets-producing diet. Radiographs A (701) and B (708) after six weeks of the defective diet; Radiographs C (701) and D (708) after eighteen weeks of the defective diet. See also Fig. 9, in text.

L. G. PARSONS: IRRADIATED CHOLESTEROL IN RICKETS.

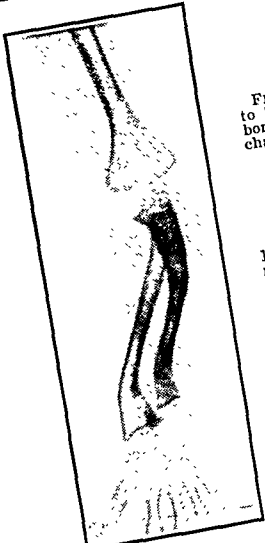
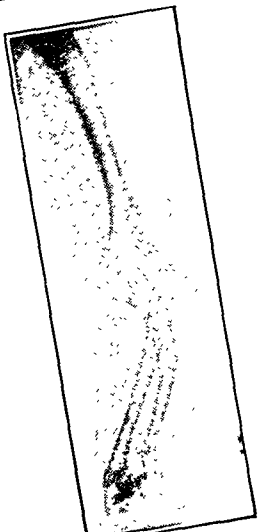


FIG. 1.—Radiogram taken on admission to hospital, September 19th, 1925. The bones show very marked rachitic changes.

FIG. 2.—Radiogram taken November 11th, 1925, showing the result of treatment with irradiated cholesterol for a period of three weeks. A considerable degree of healing has occurred.

FIG. 3.—Radiogram taken January 6th, 1926. The bones have completely healed.

ments are concerned, I have got no evidence that enlarged tonsils of the type seen so commonly in children are produced by dietetic defect, but this may be because dogs do not develop the condition at all, or because I do not keep them long enough on bad diets. Clinically, however, it would probably be agreed that chronic catarrh of the respiratory passages of children, tendency to bronchopneumonia, rickets, attacks of diarrhoea, and, later, enlarged tonsils, are intimately related.

The catarrhal condition in children may develop at any time, but often it appears in the first few weeks of life and before post-natal conditions in themselves could be accounted responsible for the absence of all resistance to this type of infection. It seems to me that such cases can probably be explained on the basis of defective feeding of the mother during pregnancy, and the defects are probably of the type indicated by some of the experimental work on animals described in this lecture—namely, a deficiency in the diet of foods containing fat-soluble vitamin, such as milk, eggs, butter, cheese, animal and fish fat, and a



FIG. 2.—Photographs of two puppies—E (701) and F (703)—after eighteen weeks of defective diet. Animal 703 (half fed mother) has developed severe "adult rickets" as compared with 701 (well fed mother). For radiographs and details as to diet see Fig. 8 in special plate.

relative excess of cereals such as bread, oatmeal, and rice, and other foodstuffs deficient in vitamin A. The basis of this suggestion I have given above, and may be summarized as follows:

- (1) It has been shown experimentally that these defects in the maternal diet increase the tendency of the offspring to develop rickets.
- (2) The same defects in the diet seem, on the basis of the statistics supplied above, to increase the susceptibility of young animals to bronchopneumonia and inflammatory conditions of the respiratory tract, and, in general, to result in puppies of lowered vitality.
- (3) It is well known that the catarrhal child may develop this condition shortly after birth, and that it has a great tendency to become rachitic and to develop bronchopneumonia.
- (4) Puppies which develop rickets when feeding on these experimental diets frequently develop a catarrhal condition of the alimentary tract sooner or later, the time seeming to depend partly upon the kind of feeding of the mother and the puppy in the pre-experimental days.

Not only is there some experimental support for the suggestion, but experience shows that the dietetic defects described are those most commonly met with in human feeding. It is therefore probable that these defects of diet of women during pregnancy and lactation are responsible for some, and possibly much, of the illness and mortality of young infants. The new teachings of diet have been applied to some extent to the feeding of children, and this is no doubt partly responsible for the decrease in infant mortality during recent years, at a time when overcrowding and some other hygienic defects are as bad as, or even worse than, ever; but it is necessary to extend the teaching to the problem of maternal feeding. This would probably show its first effect by reducing the infant mortality of

children under 1 month of age, and, if the foregoing suggestions and experimental results are true, would result in great improvement in the physique of children. It would increase the resistance of infants to those infections which produce catarrhal conditions of the respiratory and alimentary tracts and all the other sequelae so generally recognized as likely to follow. It would certainly result in a better grown and less rickety type of child, and would do something also to improve the structure of the teeth and thereby to reduce the appalling amount of caries in the teeth of children. It would probably also bring about improvement in the general health of the pregnant woman, and do away with some of the unfortunate experiences to which she is liable.

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THE VALUE OF IRRADIATED CHOLESTEROL IN THE TREATMENT OF RICKETS.

BY

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(With Special Plate.)

THE fact that many foods and vegetable oils which have no antirachitic value acquire that property after exposure to ultra-violet rays is now common knowledge. Hess and Weinstock¹ have recently shown that the antirachitic factor is confined to the unsaponifiable fraction of these substances, and that it resides largely in the cholesterol or phytosterol which they contain. During the year 1925 there appeared, almost simultaneously, three papers—one by the British workers Rosenheim and Webster,² in which they produced evidence that irradiation of cholesterol conferred antirachitic powers upon it; the others by two groups of American workers—one by Hess, Weinstock, and Helman,³ proving that irradiation of cholesterol and phytosterol rendered these compounds antirachitic, and the other by Steenbock and Daniels,⁴ showing that irradiated sterols possessed antirachitic properties.

Usually about half the unsaponifiable material from cod-liver oil consists of cholesterol, but Drummond and Coward⁵ have shown that this substance is not responsible for the physiological effects of the vitamins A and D. These results have recently been confirmed by Nelson and Steenbock.⁶ The cholesterol obtained from cod-liver oil, however, can be rendered antirachitic by irradiation.

The foregoing results were all obtained with laboratory animals, but Hess and Weinstock⁷ state that irradiated vegetables and dried milks possess curative value in the rickets of infants, and Cowell⁸ has demonstrated the value of irradiated whole milk.

Hess has given irradiated cholesterol to infants, but I do not know of any observations that have been published on the results obtained by its use in the treatment of infantile rickets.* I am indebted to Hess for the suggestion to use irradiated cholesterol clinically, and also for the method of irradiation. The cholesterol used was pure cholesterol prepared by the British Drug Houses, Ltd. A thin layer of this was placed in a Petri dish and irradiated by a

* Since this was written a paper by Hess and Weinstock has been published (*Lancet*, 1925, i, 12), in which they give the results of the treatment of three cases of rickets by irradiated cholesterol. In each case the inorganic phosphorus of the blood was increased and the radiogram showed slight healing.

quartz mercury vapour lamp (K.B.B. atmospheric type, 220 volts) for one hour at a distance of 1 foot. The irradiated cholesterol was then dissolved in linseed oil so as to make a 3 per cent. solution.

The case chosen for treatment was a child who had received cod-liver oil for a considerable period (five months) as an out-patient, but had shown little improvement. I have no data as to the antirachitic value of the cod-liver oil given, as this treatment was carried out at another hospital. The child was 3 years of age, had well marked bossing of the parietal and frontal bones, considerable enlargement of the epiphyses, antero-posterior bending of the tibiae, well marked Harrison's sulci, and showed florid rickets on radiographic examination. He was admitted into the Children's Hospital in September, 1925. For the first four weeks of his stay the child was given the ordinary hospital dietary, but received neither cod-liver oil nor cholesterol. Leonard Findlay holds that to draw conclusions as to the antirachitic effect of any treatment is fallacious unless such a probationary period of at least three weeks is allowed, because healing during this time may be the result of prior treatment.

Beginning with the fifth week, the child, although on the same diet, was given 3 per cent. irradiated cholesterol dissolved in linseed oil. For the first few days the dose was 1 drachm three times daily, and later 2 drachms three times a day. The results of this treatment were most striking, and are well shown in a series of radiograms of the wrist, for which I am indebted to my colleague Dr. C. G. Teall. All the radiograms taken before treatment was started showed severe rickets. During the first fortnight of the child's stay in hospital a slight degree of healing occurred, probably due to the administration of cod-liver oil before admission. The radiograms taken fourteen and twenty-eight days after his admission to hospital presented almost identical pictures, whereas that taken after treatment with irradiated cholesterol had been given for three weeks showed a most marked degree of healing. The radiogram taken on January 6th, 1926, showed that the rickets had completely healed.

It is important to note that cod-liver oil given throughout the late spring and summer months had failed to produce the cure which irradiated cholesterol produced during the autumn and winter months. Further evidence of the curative action of irradiated cholesterol is shown by the increase in the inorganic phosphorus and calcium of the blood. Before treatment the inorganic phosphorus was 4.67 mg. per 100 c.cm. of plasma, whereas after three weeks' treatment it had risen to 5.85 mg. per 100 c.cm., and in January, 1926, it had risen to the high figure of 6.8 per 100 c.cm. The blood calcium before treatment was 7.15 mg. per 100 c.cm. of serum, and in January, 1926, was 10.4 mg. per 100 c.cm.

Irradiated cholesterol when kept for some time loses its antirachitic power, and therefore it is advisable to irradiate a small quantity at a time. In the treatment of this case only sufficient cholesterol for one week's supply was irradiated at any one time. Hess and Weinstock⁷ found, however, that activated cholesterol dissolved in oil retains its potency much longer than if kept in the dry state or in a watery suspension. It is also of interest to note that these workers found that a 1 per cent. irradiated watery suspension of cholesterol, when injected subcutaneously, protected rats from rickets. One other point of importance in the activation of cholesterol is to avoid prolonged exposure to the ultra-violet rays, for this will render it inactive again.

Research is still being carried on by Drummond, Hess, Steenbock, and their co-workers as to the nature of the change induced in cholesterol by irradiation. That certain chemical changes occur has already been proved, but opinions appear to vary as to whether or not there is an actual photosynthesis of vitamin.

Drummond, Rosenheim, and Coward,⁸ in a paper published in March, 1925, state that irradiation of cholesterol produced vitamin A, the proof being that "administration of as little as 1 mg. of this material produced in most cases a prompt and marked resumption of growth in rats stunted by maintenance on a diet deficient in vitamin A," whereas control groups given 1 mg. of unexposed cholesterol

showed little or no response. Rosenheim and Webster² say in the paper to which reference has already been made that these authors have since found that the growth-promoting effect is not a lasting one, and they make the suggestion that the action of irradiated cholesterol on growth is apparently identical with that of ultra-violet light, and appears to consist in mobilizing the animal's reserves of vitamin A. Nelson and Steenbock⁶ have, however, put forward quite a different explanation, and suggest that vitamin A is not produced by irradiation of cholesterol, but that the growth-promoting effect produced is due to the conferring of antirachitic powers on it. These authors believe that all vitamins are necessary for growth, and that there is no particular reason for speaking of any one of them as "the growth vitamin." They are convinced that when a rat does not grow for some weeks, in spite of an absence of ophthalmia or respiratory trouble, and in spite of the fact that it is provided with an abundance of vitamin B, good protein, salts, and calories, failure in growth is then due to the antirachitic factor. Irradiation of such a rat will promptly reinstate growth, and with this treatment the content of the tissue of the rat in antirachitic factor is increased, but additional amounts of vitamin A will not elicit such a reaction. These authors would therefore seem to regard xerophthalmia, and not lack of growth, as the proof of vitamin A deficiency, and their views have received support from some recently published observations by Rosenheim and Drummond.¹⁰ The latter workers have elaborated a delicate colour reaction for vitamin A, and they found that cholesterol did not give this colour reaction, although they still hold the view that vitamin A is the true growth-promoting vitamin.

It is quite easy to dissolve additional cholesterol in cod-liver oil, and I am now treating a child who is suffering from rickets with irradiated cholesterol dissolved in cod-liver oil. If irradiation synthesizes the antirachitic factor (vitamin D) this should prove a method of enriching the vitamin content of the oil. If, on the other hand, the action of irradiated cholesterol is to mobilize the child's supply of vitamin, it should ensure greater use of the vitamin already present in the oil. Linseed oil is not the most palatable vehicle, and in future I propose to try some other form of solvent. Colza oil has a much less objectionable taste, and cholesterol is, apparently, more easily soluble in it than in linseed oil. Cholesterol also dissolves easily in warm liquid paraffin, but crystallizes out of solution at room temperature, although, according to Rosenheim and Webster, after irradiation it remains more or less in solution, and they used for experimental purposes a 2.5 per cent. solution in paraffin.

These laboratory experiments to which I have referred are of the greatest possible clinical interest, and it is of particular importance to determine whether or not the view that vitamin A is the "growth vitamin" is correct. For instance, in coeliac disease there is marked stunting of growth, which in all probability is due to a diminished absorption of fat-soluble vitamins, consequent upon the inability of children suffering from this disease to absorb fat. Certain cases also show definite clinical and radiographic evidence of rickets, and I have been able to observe healing of the rickets when such cases have been treated by ultra-violet rays. Coeliac disease certainly does furnish some clinical evidence in favour of Nelson and Steenbock's views, for although stunting of growth, rickets, tetany, and scurvy may occur in the course of this malady, I have never seen xerophthalmia develop, nor do I know of any record in the literature of its occurrence. At the present time I am treating two cases of this rachitic type with irradiated cholesterol dissolved in paraffin, and one of them is also receiving treatment by ultra-violet rays. I have chosen paraffin as the vehicle because it is not normally absorbed from the intestine, and therefore should not interfere with the free fat dietary which is essential for the treatment of this disease. If the lack of growth is due to non-absorption of the antirachitic factor, as suggested by Nelson and Steenbock, absorption of irradiated cholesterol should stimulate growth. If, on the other hand, Drummond's contention that vitamin A is thus synthesized, and that vitamin A is the growth vitamin, is correct, then growth should also be stimulated.

Conclusion.

A case of severe rickets is described which has been under treatment during the greater part of the year 1925. From April to the beginning of September the child received cod-liver oil as an out-patient, but with only slight improvement; during the last three months of the year he was admitted into hospital and irradiated cholesterol was administered, with the result that the rickets was cured.

Whilst it is clearly impossible to generalize from one case, the results obtained suggest that this method of treatment is well worth a trial, either alone or in combination with cod-liver oil, in cases which do not respond quickly to cod-liver oil. It is not an expensive method of treatment; the amount of cholesterol used weekly represents a cost of about 2s. 6d.

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THE ETIOLOGY OF GASTRIC AND DUODENAL ULCERATION.*

BY

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THE etiology of chronic gastric and duodenal ulceration is one of the most actively debated pathological problems to-day. A great deal of experimental and clinical research is being done on the subject, but there are many unsettled questions. Among the most important are these: What is the role, if any, of infection? What is the actual part played by the gastric secretion? Is it the prime and sufficient cause of chronic ulceration? If not, what antecedent morbid conditions contribute to the appearance of ulcer? What, if any, is the part played by the nervous system?

INFECTION.

Important in its bearing on the possible part played by infection in the causation of gastric ulcer is the work of Bolton.¹ He employed a serum produced by repeated injections of the gastric cells of one animal into another. In the presence of gastric juice injection of this serum resulted in the appearance of gastric ulceration. If the gastric juice was put out of action by sodium bicarbonate ulceration failed to appear. The serum, therefore, did not produce necrosis, but rendered the gastric cells susceptible to attack by the gastric juice. He considered that other blood-circulating poisons could prepare the way for self-digestion, and that the frequency of gastric ulceration in general intoxication was due to attack by the gastric juice when the resistance of the gastric cells was lowered. It did not appear from his researches that hyperacidity alone was able to produce ulceration, but he found that if a series of animals were injected with serum, and hyperacidity produced in some and not in others, then those with hyperacidity showed much more marked gastric lesions than those without. He further showed that if, in the cat, delay in gastric emptying was produced by putting the animal on a meat diet, the formation of ulcer was more rapid than when the animal was on milk and there was no delay. When there was a definite delay in the emptying time of the stomach, then there was a definite delay in the healing of experimental ulcers.

Bolton's work bears, therefore, on the subject from two directions—first, on the possible influence of intoxications, specific or general, in preparing the ground for auto-digestion; and secondly, on the role played by the gastric secretions. He found that the injection of toxins other than

gastrotoxin—for example, hepatotoxin, enterotoxin, prepared in a similar manner—led to the formation of gastric ulceration.

Reeves² drew attention to certain local circulatory peculiarities of the stomach and duodenum which appeared to predispose to stasis and thrombosis. He stated that along the lesser curvature of the stomach the circulation is carried on through parallel arterioles supplied at both ends by arterial majors, and this condition, he considered, gave an opportunity for some stasis. Further, that a triangular supply throughout the first two inches of the duodenum predisposed to thrombosis. He had in mind that this tendency to stasis and thrombosis might be made actual by infective processes.

As long ago as 1907 Türk³ stated that he had produced peptic ulcers of the stomach and duodenum of dogs in 100 per cent. by feeding the animals on bouillon cultures of *B. coli communis*. On cessation of the feeding the ulcers were found in varying stages of healing. These ulcers for the most part caused the death of the animals from perforation and haemorrhage.⁴ Türk's experiments have not, so far as I know, been repeated and confirmed.

Dawson⁵ in 1912 accepted the proposition that the primary causes of gastric ulceration were toxic and bacterial agencies which acted directly on the gastric cells. He considered that these produced in the first place what he called the mucous ulcer, and that the chronic ulcer was a further development from this. He stated that in a series of personal observations he had found the stomach sterile in cases of chronic ulcer; fourteen such cases were examined bacteriologically, and ten showed sterility.

The work of Rosenow requires examination in some detail. In a paper published in 1913⁶ he stated that ulcer of the stomach or duodenum, or both, was produced by intravenous injection of streptococci in eighteen rabbits, six dogs, and one monkey. In most of the rabbits and "some" of the dogs there was also arthritis, in some myositis and the "picture of an ascending nephritis." Ulcers occurred when streptococci of a middle-grade of virulence were injected. These streptococci were derived from cases of rheumatism. Areas of haemorrhage were found in the mucous membrane within twenty-four hours of injection, and ulceration in forty-eight hours. Some of these ulcers became chronic, but no details as to persistence are given in the paper. In 1916⁷ he reported the experimental production of ulceration and haemorrhage (the percentage of ulcer incidence is not stated) in 60 per cent. of 103 animals injected with eighteen strains of streptococcus derived from human gastric ulcers. The ulcerations were often single and deep, and showed a marked tendency to perforation.

In 1921⁸ he published a further series of observations. Sixty-five animals were injected with streptococci derived from patients suffering from ulcer of the stomach or duodenum. Thirty-two of these were injected with cultures from the tonsils, six with organisms in the pus from the tonsils, seven with streptococci from three excised ulcers, and twenty-three with cultures from infected teeth. The incidence of lesions (that is, ulceration or haemorrhage) was about equally high in each group—that is to say, 80 per cent. The numbers in which actual ulceration developed is again not given. The animals were killed two to three days after the last injection. From actual human ulcers thirty-seven strains of streptococcus were isolated and injected into 168 animals; of these, 68 (45 per cent.) showed "lesions" in the stomach and duodenum; the type of lesion is not stated, nor the comparative frequency of gastric compared with duodenal lesions. Rosenow published a further paper in 1923⁹ giving a parallel series of observations in the hog, cow, sheep, calf, and dog. He stated that streptococci were isolated in pure culture or in predominance from a series of gastric ulcers in these animals. Ulcer, or haemorrhage, or infiltration of the stomach was produced in 86 per cent. of rabbits and dogs injected with freshly isolated cultures. Similar results were obtained with cultures of streptococcus from infected tonsils in the cow and the dog which had ulcer. Rosenow maintained that results such as these had not been obtained with streptococci of similar morphology from sources other than ulcer.

* A paper read before the Pathological Section, Liverpool Medical Institution.

There is so far no confirmation of Rosenow's experimental results. Wilkie has stated that he had been unable to confirm them in certain respects, but I am not aware that he has published any personal investigation. Their bearing on the etiology of the chronic ulcer of the stomach and the chronic ulcer of the duodenum in man is not clear. He appears to have shown two things: that streptococci can be isolated from the majority of chronic gastric and duodenal ulcers; and that streptococci from these sources, and also from many other sources, produce in a large percentage of animals when intravenously injected certain acute lesions in the gastric mucous membrane, sometimes without obvious lesions elsewhere. There is a want of detail in the published experimental results which makes it difficult to judge their significance. Durante (a colleague of Rosenow in the Mayo Clinic) says: "If the results obtained in experimental work do not exclude the possibility of ulcers forming in consequence of bacterial infection, the fact remains none the less that bacteria are found in a limited number of cases only." He appears to incline to the view, in the face of Rosenow's work, that the presence of organisms is the result rather than the cause of ulceration.

Gibson in 1921 described the lesions produced in a monkey by injection of a streptothrix obtained from a case of acholuric jaundice. These included an inflammation of the spleen with thrombo-phlebitis giving rise to infective emboli which in the stomach resulted in ulceration, there being several circular ulcers with sharply defined edges not confined to any area. This, no doubt, was an example of gastric lesions produced by retrograde venous thrombosis, a condition known to surgeons and recognized as the explanation of some cases of gastric haemorrhage in certain abdominal infections.

In supplement to the experimental investigations above noted there is a general clinical view that gastric disorder, chronic gastritis, and also gastric ulcer, are frequently associated with infections elsewhere—dental, nasal, tonsillar, and in the gall bladder and appendix. At any rate it is a clinical experience that must be noted that gastric pain, and also the other signs and symptoms which are usually associated with ulcer, are often ameliorated and not infrequently disappear after the elimination of infection in one or other of these situations.

Rosenow has drawn the conclusion from his work that ulcer—that is, chronic gastric ulcer and chronic duodenal ulcer found in the human subject—is a lesion produced by a specific streptococcus which attacks the gastric wall, reaching it by way of the blood stream, and that this streptococcus is the effectual cause of the disease. Bolton, on the other hand, had an equal experimental success with a variety of toxin inoculations, and considered that attack by the gastric juice was an essential part of the process of ulcer production.

ALTERATIONS IN SECRETION.

That auto-digestion plays a part in ulcer is a view which dates from before John Hunter, who explained the fact that man did not invariably digest his own stomach wall on the ground that the gastric juice could not attack living tissue. Various writers have ascribed ulcer formation to alterations in the chemistry of the gastric secretion, more particularly to hyperacidity and hyperchlorhydria. Until the method of the fractional test meal examination was introduced hyperchlorhydria was credited by many with the chief role in the production of the chronic ulcer. Investigations by this method have led to the abandonment of this view.

According to Moynihan⁹ hyperchlorhydria was demonstrated in 72.7 per cent. of a series of 71 cases of duodenal ulcer; and in 20 per cent. only of a series of 39 cases of gastric ulcer. These figures are approximately the same as those of other investigators. The combined figures of Bell and Hunter, as given by Ryle,¹⁰ are:

<i>In gastric ulcer:</i>			
Normal acidity ...	...	...	57 per cent.
Hyperchlorhydria ...	...	...	33 "
Achlorhydria ...	...	...	10 "
<i>In duodenal ulcer:</i>			
Hyperchlorhydria ...	...	...	70 per cent.
Normal acidity ...	...	...	30 "
Achlorhydria ...	...	...	0 "

In duodenal ulcer in particular the fasting juice shows a high acid curve up to 80 and 100 c.cm., compared with a normal of 20 c.cm.

Busterman¹¹ recorded the findings in two series of gastro-jejunal ulcers. In one series of 47 cases hyperacidity was present in 60 per cent., in a second series of 36 hyperacidity was present in 73 per cent.

It is not necessary to review the numerous observations on the gastric secretions in ulceration which have been recorded by workers using the fractional test meal method. It is generally agreed that in duodenal ulcer the acidity of the resting juice is usually high and that there is generally a climbing curve, after the initial fall which follows the meal, up to about the end of the second hour, and that in the absence of stenosis the curve then usually falls, to rise later to the high fasting level. Further, that in pyloric stenosis there is a climbing acidity curve which usually rises steadily during the third hour and often later. Thirdly, that in gastric ulcer without stenosis there is no acidity curve that can be called characteristic. The figures given by Ryle show, in fact, that the percentage of hyperchlorhydria curves in gastric ulcer cases may not reach the percentage in 100 normal individuals.¹²

	Hyperchlorhydria.	Normal.	Hypo-chlorhydria.
Duodenal ulcer (50) ...	68	23	9
Gastric ulcer (16) ...	13	75	12
Normal (100) ...	15	80	5

I do not know that the proposition has ever been put forward that hyperacidity and a presumed consequent hyperactivity is solely responsible for the initiation and development of gastric and duodenal ulcers. At any rate it is perfectly clear that such a proposition has no basis to rest on, for the following sufficient reasons:

First (I quote Carlson as the authority here). Normal gastric juice is equal in total acidity to the maximum acidity reported by clinical observers for so-called hyperacidity in man. He says: "So far as I am acquainted with the literature there is no evidence that the gastric glands under any pathological conditions are able to or do secrete a juice of higher than normal acidity. Moreover, the presence in the stomach of gastric juice of full acid strength leads by itself and immediately to no untoward results."¹³

Secondly. It has been pointed out by Boldyreff and others that the acidity curve is not a secretory curve, and that its variations depend in the main on the presence or failure of that process of neutralization by regurgitation which appears to have as its object the production of an optimum digestive activity varying with the stages of digestion.¹⁴

Thirdly. The examination of normal individuals has shown that curves varying from high acidity through normal and down to complete anacidity are recorded without any corresponding variations from apparent health. Carlson says:¹⁵ "There is no disease known capable of inducing true gastric hyperacidity, the pathological variations in acid and pepsin concentrations are invariably in the direction of a decrease." Actual hyperacidity in the sense of a gastric juice of greater than normal acidity has not been demonstrated in any disease and probably does not exist; actual hypersecretion does, however, of course occur.

There is, therefore, at present no evidence that a high acidity of the gastric juice is a primary factor in the causation of ulcers, gastric or duodenal. We must not, however, lose sight of the remarkable difference between the average duodenal ulcer acid curve and the average gastric ulcer acid curve; in the explanation of this difference there may be a clue to ulcer formation. The work of Boldyreff and Carlson brings us definitely to the conclusion that the climbing curve of duodenal ulcer and of pyloric stenosis is due in both instances to a failure in neutralization by regurgitation, and this leads up to the study of stomach motility and its disturbances.

DISTURBANCES OF TONUS AND RHYTHM.

Rogers and Hardt,¹⁶ studying the stomach movements by the rubber balloon and x ray, and comparing their results with the contributions of Cannon, Carlson, and Forsell,

conclude that the normal stomach exhibits the following types of muscular activity:

1. A tonic grasp of the upper stomach musculature upon the food. This tonic condition exhibits slow rhythmical variations.
2. Peristaltic contractions of the antrum pylori.
3. Peristaltic contractions (hunger contractions) of the entire stomach.

During normal digestion the peristaltic waves sweep over the lower part of the stomach. In the meantime there are slow rhythmical tonus variations of the upper part of the stomach. As the stomach empties itself the peristaltic waves arise from points higher and higher toward the cardiac end, run over the entire stomach, and culminate in more or less tetanic contractions of the antrum. Both tonus rhythm and peristalsis may be inhibited by introducing food or liquid into the stomach.

Carlson, Orr, and McGrath, studying the hunger contractions of the Pavlov pouch, conclude that these contractions are controlled by a gastric automatism and not by motor impulses through the vagus. It has, however, been demonstrated that section of the splanchnic nerves increases gastric tonus and augments hunger contractions.

What are the variations from normal gastric motility which occur in disease?

It is, I presume, agreed that gastric pain is the pain of gastric muscular spasm or tetanic contraction, and that it is frequently present in the absence of any ulcer lesion in either stomach or duodenum. It is the tetanic contractions of the hunger period which wake the infant; the infant does not cry because he thinks of food, but because his gastric musculature is causing him a discomfort. As in the case of the small intestine, where, contents of a certain kind set up the painful contractions of colic, which contractions cease on expulsion of the said irritating contents, so also in the stomach contents of certain kinds may set up abnormal contractions which may be felt as discomfort or pain. It seems probable also that psychic influences (as shown by Rogers and Hardt) are capable of interfering with the normal course of gastric rhythm. There is less actual clinical evidence that intoxications are capable of interfering in the same way, but nicotine at any rate does so, and it may be the case also in bacterial intoxications. Further, there is much clinical evidence that visceral disease elsewhere—in the gall bladder and appendix in particular—may be associated with abnormalities in the gastric muscular mechanisms. Among actual observations we have the figures given by Ryle showing hypertonus to be nearly twice as common in cases of appendicitis and cholecystitis as in the normal individual.

In putting forward a thesis that alterations in gastric rhythm, produced by one cause or another, are themselves the primary disorders in the process which ends in chronic ulcer, I propose to consider the duodenal ulcer first.

Duodenal Ulcer.

Clinical and radiological observations show that in individuals with actual duodenal ulcer there are the following variations from normal gastric motility:

1. A marked early hypertonus leading to an exceptionally early evacuation.
2. A relaxation of the pylorus.
3. A late exaggeration of hunger contractions which are sensible as pain—that is to say, a late spasm of pars pylorica and pylorus which is often shown radiographically by an unduly long retention of the last portion of the opaque-meal.

Hurst has shown that this composite picture may be regarded as an extreme exaggeration, a vicious exaggeration of a rhythm type commonest in the male, which shows in radiograph the steer-horn stomach outline, in contrast with the J-shaped stomach, commonest in the female.

Certain characteristic alterations in the chemistry of the gastric contents are the consequence of, not the cause of, these alterations in gastric rhythm. As far as the chemistry of the stomach is concerned, in a typical case the gastric juice after the first quarter of an hour shows an increasing acidity owing to absence of neutralization from the duodenum; the failure in regurgitation is no doubt due

to the increased tonus on the gastric side of the pylorus, sufficient to prevent any reflux of duodenal secretions into the stomach. As far as the duodenum is concerned, the effect of the morbid rhythm is the early forcible discharge into this segment of gut of an unneutralized gastric juice.

The effect of unneutralized gastric juice on the wall of the duodenum has been studied experimentally. The most important experimental study is that of Mann.¹⁷ He describes the production of peptic ulcer in the dog by the following method. The pylorus was cut and the distal end closed. The first portion of the jejunum was cut and the distal part anastomosed to the pylorus. The proximal jejunal end was then anastomosed to the ileum. In this way the stomach is made to empty itself into the jejunum and the duodenal secretions into the ileum at least 50 cm. from the pylorus. Following the operation a typical chronic peptic ulcer developed in 90 per cent. of the dogs. Mann satisfied himself that operative trauma was not responsible for the ulcers. They did not begin to heal until after the anastomosis had healed; they did not involve the suture line primarily. In certain other experiments the duodenal secretions were carried to the jejunal loop close to the pyloric anastomosis; ulcer did not form under these conditions. When, however, in the same animals, the duodenal secretions were led away to the lower ileum ulcers developed at the usual site and in the usual time. In these cases the site of the anastomosis was untouched at the second operation and the ulcers could not therefore be ascribed to operative trauma. The same type of ulcer lesion was produced in the duodenum following transplantation of the common bile duct and the pancreatic duct into the terminal ileum. None of the ulcers healed spontaneously, but if the duodenum was reanastomosed to the jejunum close to the pylorus the ulcers healed, and this also occurred when the ulcer area was protected from the impingement of the gastric contents. Mann interprets his results as follows: (1) The operative procedure of draining the alkaline secretions of the duodenum away from the area of emergence of the gastric contents exposes the jejunal mucosa to an acid medium longer than normal. (2) The ulcer develops where the gastric contents primarily impinge on the jejunal wall. He thinks, however, that there must be some underlying primary change in the mucosa, such as infection, though why he thinks so he does not say.

Another less elaborate series of experiments was reported by Brancati.¹⁸ He states that peptic ulcer developed in five out of ten dogs after resection of the pylorus and the pyloric part of the stomach. His experiments appeared to demonstrate that peptic ulcers follow removal of the pyloric part of the stomach and consequent early flooding of the duodenum with gastric secretions.

These experiments lend strong support to the view that, in duodenal ulcer at any rate, the gastric juice, when discharged rapidly into the first part of the duodenum and unneutralized by the duodenal secretions, is capable of initiating and developing ulceration, the ulcer forming where from impact the damage of the mucous membrane is maximal. In support of this view is the fact that surgeons are acquainted with a class of case in which all the symptoms of duodenal ulcer are present along with characteristic radiographic and test meal findings, which prove on operation to be examples not of developed ulcer but of a duodenitis, the wall of the gut showing hyperaemia and organized lymph on the serous coat without actual underlying ulceration.

It is also true that in almost all cases of actual duodenal ulcer there is also duodenitis; it is a common experience to find an ulcer on the posterior wall associated with definite signs of inflammatory reaction on the anterior wall, the serous coat being covered with a vascular organized lymph coating. In other cases, again, there is widespread duodenitis without ulcer. Recently I operated upon a case presenting a complete clinical picture of duodenal ulceration with corresponding radiographic findings and fractional test meal result. I found no ulcer, but the whole of the duodenum was hyperaemic and the first part was overlaid with a vascular lymph coating; the hyperaemic blush extended to the first part of the jejunum. Further, I was able to demonstrate a remarkably patulous pylorus; without any difficulty three fingers were invaginated

through it from the duodenal side into the stomach. With such a condition, given a stomach of high tonus, the gastric contents will early flood the duodenum.

The counterpart of this condition is the "blushing" stomach wall which is commonly associated with pyloric spasm and unduly long retention of gastric contents. This condition I have often observed, in the absence of ulceration, in cases of pyloric spasm and gastric delay associated with such conditions as chronic cholecystitis. The blush may be a vasomotor phenomenon, but I look upon it as probably caused by the irritation of retained gastric secretions; in cases of pyloric spasm it is most marked in the antrum pylori. Recently I operated upon a case of chronic cholecystitis, the chief symptom being recurring attacks of violent vomiting; the radiograph showed a considerable six-hour remainder; the fractional test meal showed a rapidly climbing acid level after the first hour; the pylorus was a tight ring with a lumen of pencil size, and over the antrum pylori was an intense blush sharply defined at the pylorus. Whether this blush is in fact a reaction to irritation, whether it is indicative of a gastritis, cannot, perhaps, be definitely stated, but this is, I think, the view generally held by surgeons.

Gastric Ulcer.

In considering whether this view of ulcer formation will explain the gastric ulcer, reference must be made to the views of Barclay.¹⁹ He remarks that septic conditions in the mouth and from other sources, constipation, mucous colitis, and a variety of other conditions are capable of producing spasmodic contractions of various parts of the stomach. The spasm may be so severe that it produces a narrowing of the lumen which from time to time is of great functional importance, causing a definite obstruction to the passage of food. By some indiscretion of diet or want of mastication something too large to pass easily through the channel has to be forced through by peristalsis. This produces bruising or possibly an abrasion at the point where the lumen is narrowed and where there is constant irritation of food passing over it. It is probable also that the spasm interferes with the blood supply. A surface is exposed that is not structurally fitted to withstand the action of the gastric juice; in this way an ulcer is formed which perpetuates the original spasm that determined the site of the ulcer. Barclay stated that spasmodic hour-glass contraction of the stomach is quite common without ulcer; also that in fully half of the cases of stomach ulcer there is pyloric obstruction. It is not, perhaps, possible to accept the idea of direct mechanical injury by stomach contents, but the suggestion that the primary morbid condition is abnormal gastric spasmodic contractions is noteworthy as the opinion of an experienced radiologist.

Gastric ulcer occurs characteristically in the hypotonic J-shaped stomach. In this type the common alteration from the normal in motility is the appearance, at an early stage of digestion, of exaggerated peristalsis and contractions of the circular fibres of the pyloric region and antrum pylori. When this condition of exaggerated peristalsis is marked we have a type of "dyspepsia" in which early pain is the chief symptom. In ulcer of the lesser curvature the most constant abnormal muscular phenomenon is a spasmodic constriction about the mid-stomach; in ulcer about the pylorus the most constant muscular abnormality is spasmodic contraction of the pylorus itself.

In these spasmodic contractions, occurring in different situations, it is easy to see how the effect of impact in damaging mucous membrane, causing a local gastritis and eventual ulcer, may come into play. In persistent spasm of the stomach body the greater curvature is always drawn up to the fixed lesser curvature by the circular muscle fibres; under these conditions discharging gastric contents will impinge on the lesser curvature and may damage the mucous membrane sufficiently to pave the way for digestion by the gastric juice. The objection that the spasmodic contraction or incisura is the consequence and not the cause of ulcer formation cannot be maintained; radiographers and surgeons are agreed that a fixed spasm of the circular fibres, particularly at the pylorus or at the junction of the fundus and the antrum pylori, is a common finding in cases suspected of ulcer on account of gastric pain, but

proved to be cases of gastric disorder from other causes. In such cases the point of impact of the gastric contents when the stomach contracts will be the lesser curvature near the pylorus or in the antrum pylori, and in these situations, of course, ulcer is most common.

The type of stomach in which gastric ulcer is most common has certain functional peculiarities. This stomach is usually hypotonic so far as peristaltic movements are concerned, but it exhibits an early pyloric spasm, which is clinically shown by early pain and radiographically by delayed emptying—that is to say, the stomach wall is subjected for an unduly long period to the presence of unneutralized gastric secretion. Its characteristics are the exact counterpart of those of the stomach in which duodenal ulcer tends to occur. They may be tabulated as follows:

<i>In duodenal ulcer:</i>	<i>In gastric ulcer:</i>
Hypertonus.	Hypotonus.
Patulous pylorus.	Spasm of pylorus or pars media.
Rapid emptying.	Slow emptying.

In the first case the result of the gastric functional disorder is that the duodenum is early flooded with unneutralized gastric secretions. In the second case the result is a retention of the stomach secretions, unneutralized, in the stomach itself. Bolton found that when there was a definite delay in the emptying of the stomach there was a definite delay in the healing of experimental ulcers. In either case it seems inevitable to conclude that the gastric juice plays a very definite role. That it does so is not only strongly supported by the experimental evidence of Bolton and of Mann, but also by the clinical experience of jejunal ulceration after gastro-enterostomy. Ryle has pointed out that it is particularly in the case of the sthenic or hypertonic stomach that jejunal ulcer is liable to occur, and the explanation appears to be that the ulceration develops in consequence of the flooding of the jejunum by gastric secretions at so early a stage that the alkaline duodenal secretion has not fully developed. The influence of impact* in determining the site of the ulceration is also well illustrated; jejunal ulcers develop either at the edge of the anastomotic ring or on the jejunal wall opposite to the anastomosis.

TROPHIC INFLUENCES.

If it be true that morbid alterations in gastric rhythm play the role in the production of gastric and duodenal ulceration that is suggested, it seems likely that these motor disturbances are associated with some trophic changes, and that such trophic changes may also assist in paving the way to ulcer formation. The work of Durante is interesting in this relation.

Durante²⁰ produced gastric ulceration in dogs by resection or ligation of the median splanchnic nerve. Two types of lesion occurred—a haemorrhagic lesion and a necrotic lesion. The haemorrhagic lesions healed, but the necrotic lesions were traced to ulceration which tended to become chronic. He ascribed these lesions to the action of adrenaline produced in excess by the operative stimulation of the sympathetic. He says: "ulcer may be produced by any agent capable of damaging the sympathetic nervous system, as it is on the integrity of this system, which controls circulation, secretion, and profound sensibility in the stomach, that the very life of the gastric cell may be said to depend."

The ulcers produced by Durante's operative procedure on the sympathetic appear to have been definite chronic ulcers resembling anatomically the chronic ulcer in the human subject.

SUMMARY.

The conclusions to be drawn from this review are as follows:

1. There is no satisfactory evidence that chronic gastric and duodenal ulceration is primarily due to direct invasion of the stomach or duodenal wall by specific organisms.
2. Chronic gastric and duodenal ulceration is not caused by alterations in the chemistry of the gastric secretions.
3. The evidence available points to alteration in gastric rhythm being the primary morbid condition, which when persistent leads to the development of ulceration.

* Professor Glenn has suggested "wear and tear" as an alternative to "impact." It is certainly a better descriptive term.

4. The site of the ulceration is the site of maximum wear and tear by gastric contents whose normal neutralization has been interfered with by the altered gastric rhythm.

5. The gastric secretions, innocuous to the stomach wall under normal conditions, cause irritation and eventual ulceration, when the gastric rhythm is altered; trophic changes may also prepare the way for this action.

6. The fundamental condition on which these morbid changes in gastric motility and rhythm depend is doubtless a disorder of gastric innervation, which may have its origin in toxic influences, or psychic influences, or in reflex influences from disease elsewhere. The innervation of the stomach is not, however, so completely analysed as to make it possible to say whether these influences bear on an autonomic gastric system or whether they affect the stomach by way of the vagus or sympathetic. There is, however, some evidence that in the gastric type, which is usually associated with duodenal ulceration, there is some inhibition of impulses by the splanchnic path, and that in the gastro type, which is usually associated with gastric ulceration, it is the vagus impulse which is depressed.

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THE SURGICAL TREATMENT OF DANGLE-FOOT.*

BY

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In dealing surgically with the residual paralysis of anterior poliomyelitis our endeavour must be to utilize to its best possible advantage the power which remains to us and to make the limb as efficient as possible.

In the leg, where weight has to be borne, we must attempt to provide stability and independence of extraneous supports. In drop-foot many operative procedures have attempted to suspend the foot by slings of silk, tendon fixations, and fascial bands, but the results have on the whole been disappointing, as the constant drag of the pendulous foot in time produces elongation of the artificial ligaments. Many such cases seem to be brilliant successes for a few months, but, seen a year or two later, have to be written off as ineffective.

The commission appointed by the American Orthopedic Association, which inquired into the stabilizing operations on the foot, reported that as regards drop-foot "none of the standard operative measures considered can be recommended as a standard procedure."

Two years ago I began to try a method devised by W. C. Campbell of Memphis, U.S.A., by which the interference with the drop-foot was not provided on the anterior aspect of the ankle in the form of a sling, but at the back of the joint by a "bone stop." In a large percentage of paralytic feet it is necessary to remove bone to correct deformity or to stabilize the mid-tarsal region and subastragaloid joint. The bone thus removed is utilized to build up a bone stop at the back of the ankle.

The usual incision for astragalectomy, and for most stabilizing operations, is used, commencing one inch above the ankle, internal to and parallel with the fibula, and passing down towards the external cuneiform. The deep fascia is divided; the extensor tendons are retracted inwards. The ligaments and periosteum are cut down to bone and the mid-tarsus exposed. The rounded articular surface of the head of the astragalus is removed by osteotomy. A large part, or the whole, of the scaphoid is removed. I have performed this operation at the age of 8 years and upwards, and find that in younger subjects it is better to remove the whole scaphoid. The

* Read before the meeting of the British Orthopaedic Association in October, 1925, when the operation was demonstrated and a series of results shown at the Royal Manchester Children's Hospital.

articular cartilage is now removed from the os calcis and cuboid with enough underlying bone to permit of good apposition of the mid-tarsus. The are next opened and the articular

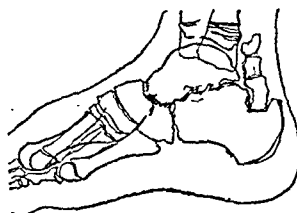


FIG. 1.—A lateral radiographic view of a foot a week after operation; the scaphoid, with its superimposed fragments, can be clearly identified.

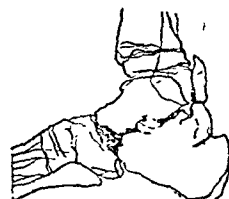


FIG. 2.—Shows the foot three months after operation, when the fusion of the various elements is seen to be complete.

excised. In exposing these joints the pad of fat and connective tissue lying in the subastragaloid fossa should not be removed, but merely turned aside and later replaced so as to leave no "dead space." The removed portions of bone and cartilage are placed in saline, and, while the anterior incision is being closed, an assistant cuts away all cartilage and prepares the bony pieces for the construction of the "stop" behind the joint.

The posterior incision is now made about six inches long directly over the tendo Achillis. The tendon is cleared and divided as for a Z-lengthening operation. The proximal and distal ends are turned up and down. The loose tissue lying between the tendo Achillis and the back of the tibia is now incised in a vertical direction and the back of the tibia and the upper surface of the os calcis exposed. A notch is cut in the os calcis large enough to receive the broader end of the trimmed scaphoid. This is placed in position and tapped down so as to get a hold. The smaller pieces of bone are now grouped together above the upper end of the scaphoid and the suturing of the tendo Achillis holds them nicely in place. The required amount of lengthening of the tendon is made so as to allow a right-angled position of the ankle. The skin is closed and a light plaster cast applied for six weeks. At the end of this time a brace is fitted so as to prevent any movement in the direction of plantar flexion for six months. I am in the habit of using a posterior iron for this purpose, as advocated by Campbell, and find it very effective.

I have now operated on nineteen cases in this manner. The operation which I am to perform at the Children's Hospital this afternoon will be the twentieth of the series. Two patients have had a secondary operation for repair of the bone stop, which had fractured at a point where the scaphoid joined the other fragments, a few months after use of the foot had been permitted. Repair was carried out by means of a small bone pin driven through the stop. If any later cases need repair I intend to cut a strip of bone from the back of the tibia for the purpose. I shall also show this afternoon eight patients upon whom I did this operation more than a year ago, so that you will be able to judge of the stability of the feet and of the effect of the "bone stop" in preventing drop-foot.

THE TREATMENT OF AMOEBIIC DYSENTERY
BY AUREMETINE.

BY

J. GRAHAM WILLMORE, M.D., M.R.C.P.,

AND

W. HARRISON MARTINDALE, PH.D., PH.CH., F.C.S.

In a paper¹ read by us before the Royal Society of Tropical Medicine and Hygiene in May, 1923, the treatment and the results in a series of 503 cases of amoebic dysentery were detailed. It was shown that what might be termed the standard treatment in those days—consisting of 12 grains of emetine by intramuscular injection and 60 grains of emetine bismuthous iodide by the month, given concurrently in twenty days—was followed by a cure (as to the duration of which it was possible only to speculate) in less than one-third of the cases, and we

described the attempts which we had made to prepare drugs which, while pleasant to the patient, might prove more efficient in ridding him of his infection. It was considered that in emetol (a solution of emetine base in olive oil), administered by the rectum, in 6 drachms of ether and 12 oz. of olive oil, and in emetine periodide given by the mouth, we had advanced at least a stage nearer the goal. But the results were not deemed satisfactory, as more than one-third of the cases had relapsed in less than six months, and, as was anticipated, a much larger proportion have relapsed since.

It was therefore necessary to explore other trails, and we tried extensively preparations derived from sources other than ipecacuanha—such as activated quinine base, conesine, stovarsol, Bayer "205," a varied group of so-called intestinal disinfectants, flavine, etc. The results merely confirmed the opinion previously expressed, that efforts for radical cure must centre round emetine in some form or other. Yatren, given by the mouth and enema, caused much disappointment; in four refractory cases it had no effect, even as a temporary palliative. There has as yet been no opportunity of trying it by appendicostomy. Emetren (a compound of yatren and emetine designed for intramuscular injection) failed in the one case in which it was tried. Stovarsol alone held out some hope of success; when given by itself it was followed—even after the fullest course considered safe—by a greater proportion of relapses than was emetine periodide; but when given in combination with the emetine preparations decidedly better results were obtained than with either drug singly.

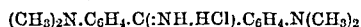
PHARMACOLOGY.

BY

W. HARRISON MARTINDALE.

Stovarsol is acetyl-amino-hydroxy-phenyl-arsenic acid. The emetine salt of this was prepared; it occurs as a sandy-coloured powder soluble in distilled water. Major H. C. Brown very kindly tested it on animals, and against glaucoma and a free-living amoeba. His results showed that a total concentration of 0.5 per cent. failed to kill glaucoma in fifteen minutes, and that amoebic growth was inhibited at 1 in 10,000, but not at 1 in 100,000. It was devoid of any bactericidal power at 1 in 1,000; a mouse weighing 24 grams died in one minute after the intravenous injection of 0.75 c.cm. of a 0.1 per cent. solution in saline, 0.5 c.cm. producing no symptoms. In another series of experiments 2 grains by the mouth made a cat weighing 2.2 kg. exceedingly ill for more than six days, although it did not kill it. It was not considered advisable to try it on human beings.

The potentialities of the aniline dye known as auramine are described in a series of articles² by Fairbrother and Renshaw, on the relation between chemical constitution and antiseptic action in the coal-tar dyestuffs. This substance is the hydrochloride of tetramethyl-diaminodiphenyl-ketonimine, and has the formula:



Fairbrother and Renshaw's experiments showed that this auramine killed paramoecia in fifteen minutes at 1 in 20,000, and it was only surpassed in this property by the Meldola blues, but as the most powerful of these, Meldola blue D (1 in 80,000, 1 in 160,000), contains zinc chloride, it was not further considered. (It is to be noted that the acridine class, with which we had experimented, are enormously less toxic to paramoecia.) They state that auramine killed twelve organisms (including anthrax) at 1 in 5,000 in fifteen minutes; small gold-fishes, however, lived in a solution of 1 in 20,000 for eighteen hours, whereas in brilliant green they died in ninety minutes. In the case of paramoecium, it is interesting to note that a 1 in 500 solution of phenol is necessary to kill in fifteen minutes, as against the 1 in 20,000 of auramine.

Experiments indicated a more moderate germicidal power, but 1 in 500 killed *B. coli* in seven and a half minutes, and we understand that this dye has been used clinically in surgical practice with good results, and without objectionable side-effects.

The next step was to attempt to prepare a compound

of auramine with emetine for oral administration, and after some technical difficulties, due to the rapidity with which the dye is hydrolysed when exposed in aqueous solution, a dark maroon powder, stable and insoluble in water, was prepared. This substance, for which the name "auremetine" is suggested, is a combination of the hydriodide periodides of emetine and auramine, and has approximately the following composition:

Emetine	...	...	...	...	28 per cent.
Auramine	...	...	...	...	16 "
Iodine	...	...	...	...	56 "

Its toxicity was as follows: a cat weighing 3.6 kg. was given a 2-grain capsule by the mouth. It vomited, and took little or no food for five days, its weight falling to 3.4 kg. Thereafter appetite returned, and on the eighth day its weight was 3.55 kg.

Major Brown reported:

"A fine emulsion was made of the insoluble powder (auremetine) in an agate mortar with a 6 per cent. gum solution, and its effect on washed glaucoma was investigated. A total concentration of 0.025 per cent. kills, but 0.005 per cent. fails to kill glaucoma in fifteen minutes. I also investigated the inhibitory action of this drug on the growth of free living amoebae. The varying dilutions were incorporated in the medium, which was planted with a culture of free living amoebae, and the results read after forty-eight hours' incubation at 20° C.:

Total Concentration in Medium.	Bacterial Growth.	Amoebic Growth.
1 in 1,000	+	0
1 in 10,000	++	0
1 in 100,000	++	0
1 in 1 million	++	+
1 in 10 million	++	++
Control plate without drug ...	++	++

Hence this drug is inhibitory to the growth of free living amoebae nearly to the same extent as emetine or conesine under the same conditions."

It is to be noted that the drug contains only 28 per cent. of emetine, the constituent most poisonous to the higher animals.

EFFECT OF PHYSIOLOGICAL ACID AND ALKALI.

In our previous paper we pointed out the readiness with which emetine bismuthous iodide was decomposed by physiological acid, contrary to the view then held, and the vomiting and signs of gastro-intestinal irritation—so commonly observed after its administration—were attributed to this fact. Auremetine, on the other hand, after treatment with 0.2 per cent. hydrochloric acid for four hours at 40° C., only gave 2.4 per cent. of base, removed from the preparation as hydrochloride. This is equivalent to a decomposition of about 5.5 per cent. of the auramine emetine periodide, the liberated base being a mixture of emetine and dye base. The presence of emetine was shown by Fröhde's reagent, which does not react with auramine, whereas all precipitants (such as Mayer's and Dragendorff's) react with both emetine and auramine. Subsequent treatment with physiological alkali for four hours at 40° C. resulted in the liberation of a further 8 per cent. of the mixed bases (equivalent to about 18.5 per cent. decomposition of the preparation). In the human intestine it is probable that an even more extensive decomposition occurs, since its administration is quickly followed by the passage of orange-coloured faeces.

THERAPEUTIC EFFECTS.

BY

J. GRAHAM WILLMORE.

The administration of auremetine has been practically free from any objectionable side-effects, such as vomiting, nausea, abdominal pain, or purging. It is also much less depressing than emetine administered hypodermically, and it is not necessary to keep the patient in bed on this account alone.

For many years past I have been in the habit of administering massive doses of bismuth subnitrate to amoebic cases, after the manner introduced by James and Deekes in the Panama zone, in addition to all other treatment. While I have never found this drug alone to cure—an opinion which, I understand, James and Deekes share—I have found it a most valuable adjunct to any and every form of specific anti-amoebic treatment, and particularly so in that now to be described. In the "acute" cases a heaped teaspoonful, stirred up in soda water, was given every three hours (during the day, not at night) for twenty days, and then three times daily for an indefinite period; in the cyst-carriers it was given three times a day from the beginning. Symptoms of poisoning were never observed, even when it has been continued for months.

The method followed since the summer of 1924 is roughly as follows, though, of course, it is modified to suit individual cases:

1. "Acute" cases—that is, those with blood, mucus, and *Entamoeba histolytica* in the stools, or found in scrapings at sigmoidoscopy—are given:

(a) Auremetine 1 grain in soft gelatin capsule four times daily after food, on alternate days for seven days, and then daily to a total of 40 or 60 grains ingested.

(b) Stovarsol 4 grains three times daily for seven days, on alternate days with the auremetine. Previously we gave 4 grains twice daily for ten days, alternating with the auremetine days, or even to fifteen days.

(c) On stovarsol days a rectal injection of emetol, 2 drachms (=1 grain emetine base), in ether 6 drachms and olive oil 12 ounces. (Time retained to be charted.)

(d) "Panama bismuth" three-hourly for twenty days, and then three times daily.

2. "Chronic" or cyst-carrying cases are given:

(a) Auremetine, and (b) stovarsol, on alternate days as described above.

(c) "Panama bismuth," three times daily before food.

3. When hepatic involvement is present 1 grain of emetine hydrochloride by intramuscular injection, on alternate days for six days (that is, 6 grains in all), may supplement or replace the emetol.

The necessity of controlling all cases by routine sigmoidoscopy must again be emphasized, not only because carcinoma may not infrequently develop in the site of an amoebic ulcer (eight such cases have been seen during the past five years), but also because areas of submucous amoebic infiltration, from which teeming amoebae may be scraped out by a sharp spoon, may be found after repeated microscopic examination of the stools has been negative.

The accompanying table gives the results of this treatment, together with the total amounts in grains of drugs used. When larger figures are given the original course was repeated, and in this connexion it must be pointed out that certain individuals may show an idiosyncrasy towards stovarsol, especially after repeated courses. At least one death from this drug has been heard of, and one case under treatment developed intense dermatitis with purpuric spots after only 8 grains. The practice of giving one tablet every three hours until twelve have been taken—as advocated by some—is dangerous, and has not been found to give better results than any other method. As a minor measure of precaution patients are given glucose (1 lb. in 1 quart of orange and lemon water, to be taken in twenty-four hours) daily, during its administration.

In the results column the word "Responded" has been deliberately chosen as being less committal than any other. By its use it is meant to convey that the patient regained his health, lost all clinical signs and symptoms of his disease (including sigmoidoscopic findings), that his stools were negative on repeated examination, and that so far as can be ascertained he has remained well and free from any evidence of infection for a minimum period, unless otherwise stated, of six months after completion of treatment. Experience proves that it is impossible to give a definite guarantee of permanent cure in a case of chronic amoebic dysentery; a man, who months or even years before it had been hoped was cured, may be readmitted to hospital a wreck, at the point of death from intestinal or hepatic amoebiasis.

It is to be remembered that the cases dealt with were the residue of pensioners infected during, or before, the great war, many of whom had been through every dysentery centre in the country. All that is claimed is

No. of Case.	Auremetine (gr. by mouth).	Stovarsol (gr. by mouth).	Emetine HCl (gr. by po.).	Emetol (gr. of base by rectum).	Result.
1	40	80	—	—	Responded.
2	20	40	—	6	Responded.
3	40	81	—	—	Responded; recent case.
4	40	80	6	—	Responded.
5	60	120	—	—	Responded.
6	108	155	—	12	Responded; recent case.
7	48	96	—	6	Responded.
8	60	120	—	—	Responded.
9	48	96	—	12	Responded.
10	48	80	12	—	Responded.
11	40	80	6	6	Responded.
12	100	—	—	—	Responded.
13	60	120	—	—	Responded; recent case.
14	54	132	—	6	Responded.
15	30	80	6	6	Responded.
16	60	—	—	—	Responded.
17	130	170	—	—	Failure; clinically well but E.H.C. +
18	++	++	++	++	Total failure.
19	++	++	++	++	Total failure.
20	48	96	—	12	Responded.
21	40	80	—	10	Responded.
22	40	80	10	—	Responded.
23	40	80	6	6	Responded.
24	40	80	—	—	Responded.
25	40	80	12	—	Responded.
26	40	—	12	—	Responded.
27	40	80	10	—	Responded.
28	40	—	6	6	Responded.
29	40	80	—	—	Responded.
30	40	80	10	—	Responded.
31	40	80	10	—	Responded.
32	80	160	—	—	Responded.
33	100	—	—	—	In one course, responded.
34	48	96	—	—	Responded; diarrhoea +
35	40	80	—	6	Responded.
36	20	—	—	—	Responded; first case tried.
37	40	80	6	6	Responded.
38	100	—	—	—	Responded.
39	48	96	6	6	Responded.
40	100	248	5	15	Severe refractory case, responded eventually.

This gives a total of 37 responses out of 40, or 92.5 per cent., a figure which, we fear, later experience may show to be far too optimistic.

that the present method of treatment—especially the introduction of auremetine—has given some gratifying and more hopeful immediate results than any other essayed.

In conclusion, our sincerest thanks are due to Major Brown of the Wellcome Bureau for Scientific Research, for the generous help which he has given us in investigating the toxicity and protozoocidal powers of the numerous preparations we sent him. Also, we wish to express our grateful appreciation of the sympathy and encouragement shown to us in the prosecution of our studies by Sir Lisle Webb, Director-General of Medical Services, Ministry of Pensions, by whose permission this report is published.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TWO CASES OF PERFORATED JEJUNAL ULCER.

THE following cases are of interest in that they emphasize the fact that gastro-enterostomy is not unattended by its dangers despite its present-day popularity. If there exists an "ulcer diathesis," it seems that this operation merely transfers the site of ulceration from one part of the alimentary tract to another.

CASE I.

A man, aged 38, was admitted to the Royal Infirmary, Liverpool, in March, 1924. The diagnosis of perforated duodenal ulcer was confirmed by operation; a posterior gastro-enterostomy was performed, and the man made an uninterrupted recovery.

In July, 1925, the patient was readmitted. He stated that there had been total absence of pain in the abdomen for seven months after the operation. At the end of this period he began to experience periodic attacks of generalized abdominal pain, occurring every three days and lasting for ten to fifteen minutes; the pain had no relation to food. Gradually the characteristics of the pain altered; it became localized to a point one inch below the umbilicus and began to show a definite relationship to food, coming on about four hours after a meal and lasting until another meal was taken. The pain was relieved by self-induced vomiting, and on several occasions it awakened him in the early hours of the morning. There was no history of melaena or spontaneous vomiting. A radiogram showed the gastro-enterostomy stoma to be acting normally, although a small residue was observed in the stomach six hours after the barium meal. The patient was discharged from hospital without operation.

On October 28th, 1925, the patient was again admitted with all the characteristic signs of an "acute abdomen." The only localizing signs were very marked superficial tenderness in the left hypochondrium and a dull ache between the shoulders. A provisional diagnosis of perforated duodenal ulcer was made.

At the operation a most interesting condition was revealed. A perforated jejunal ulcer, about the size of a sixpenny piece, was found on the posterior wall of the efferent loop of the gastro-enterostomy coil of jejunum about 1½ inches from the patent gastro-enterostomy stoma. The ulcer was enclosed by a purse-string suture. As the pylorus was found to be patent, admitting a thumb easily, an entero-enterostomy between the afferent and efferent loops of the gastro-enterostomy loop of jejunum was performed. The abdomen was closed with drainage, and the patient made an uninterrupted recovery.

In the latter half of January of this year he was again admitted with symptoms similar to those which succeeded his first operation. A laparotomy was performed and a second jejunal ulcer was discovered in close proximity to the gastro-enterostomy stoma. A partial gastrectomy, which involved three-quarters of the stomach and the whole of the loop of the jejunum taking part in the gastro-enterostomy, was performed; the man made an absolutely straightforward recovery.

CASE II.

A man, aged 37, was operated upon in the Royal Infirmary, Liverpool, for a juxtapyloric ulcer in March, 1925. A posterior gastro-enterostomy was performed, and the patient made an uneventful recovery.

In January, 1926, he was again admitted to the hospital with signs suggestive of a perforated duodenal ulcer. The abdomen was opened, and a perforated jejunal ulcer was found on the efferent loop of the gastro-enterostomy coil of jejunum. The perforation was the size of an orange-pip. The edges of the ulcer were excised and the gap was sewn up in the transverse axis of the bowel. The gastro-enterostomy stoma was found to be quite patent. The abdomen was closed with drainage, and the patient made an uninterrupted recovery.

I am indebted to Professor R. E. Kelly, senior honorary surgeon to the Royal Infirmary, Liverpool, and to Mr. R. Kennon, senior assistant surgeon to the same hospital, for permission to report these cases.

ALFRED T. ASHCROFT, M.B., Ch.B.,
House-Surgeon, Royal Infirmary, Liverpool.

ACUTE SUFFOCATIVE PULMONARY OEDEMA.

As I have observed a patient who typically illustrates this somewhat rare condition, I think it would be of interest to record his case.

The man is a printer and is 33 years of age. He has valvular disease of the heart, the aortic and mitral valves being incompetent. The heart is enlarged, and there is conspicuous pulsation of the carotid arteries. His countenance is strikingly pale, and the pulse is of the collapsing type. The lungs, however, are clear, and there is no oedema of the ankles; but the urine contains some albumin. The systolic blood pressure is 150, and the diastolic 80 mm. of mercury. The cardiac affection dates from an attack

of rheumatic fever at the age of 16, and does not interfere with his following his occupation, which does not involve much exertion.

During the past year and a half he has had four attacks of acute, or rather hyperacute, oedema of the lungs. They have all occurred in the middle of the night and presented the same features. On arrival I find him sitting propped up in bed, anxious-looking and cyanosed, and constantly expectorating a frothy serous fluid which comes up without any effort. Coarse moist râles are heard everywhere over the chest. The pulse is rapid and forcible. He is fully conscious and repeatedly asks for something to be done quickly to relieve him of his distress, which appears to be a feeling of impending suffocation, for he is literally drowning in his own secretion. His extremities are cold. The application of a hot-water bottle to his feet, a hypodermic injection of atropine gr. 1/50, followed later by morphine gr. 1/4, render him more comfortable. The following morning he feels quite well.

The attack comes on without any warning, waking him from his sleep, and usually lasts several hours, during which time he brings up a couple of pints of the watery, pinkish-tinged, frothy fluid, the coloration being most obvious in the froth. The condition is ascribed to a sudden transient relative failure on the part of the left ventricle.

London, E.

M. COHEN, M.B., Ch.B.Glas.

TREATMENT OF SEPTIC TUBERCULOUS ARTHRITIS.

I wish to invite attention to a method of treatment which I have found efficacious for some septic tuberculous joints which at first appeared beyond hope of salvation. It is based on the assumption that the patient's power of repair is not absolutely bankrupt; in such a case there is only one living chance—amputation.

The method is as follows: Administer ether by the open method. Apply a tourniquet well proximal to the lesion. Lay open by free incisions all sinuses, and fully expose the interior (and recesses) of the joint. With strong scoops and scissors remove every visible particle of diseased bone and tissue. Establish, whenever possible, large gravity drainage tunnels. Irrigate copiously with warm hydrogen peroxide (1 in 17) carbolic (1 in 70) lotions. Introduce large wisps of silkworm gut through tunnels, and pack meticulously the rest of the cavity with rolls of gauze wrung out of freshly prepared iodoform emulsion. Secure the limb in absolute rest on a suitable splint in the position which ultimately will be most useful. After forty-eight hours flush out twice daily with "peroxide carbolic" reinsert wisps, and repack with iodoform gauze; it may be necessary to remove the splint for each irrigation during the first weeks. Place the patient in an outdoor balcony, and give plenty of nutritious food plus some alcoholic beverage with meals. The part is maintained in absolute rest, and the patient is continuously out of doors until the wounds have soundly healed and x rays demonstrate healthy ankylosis.

In case of scepticism as to the power of chemical disinfectants in these desperate cases I beg for a fair trial of the above-mentioned combination, which, in conjunction with free gravity drainage, will within one month yield a display of bright vermilion granulations which will worthily uphold the teaching of Lister.

Buenos Aires.

JOHN O'CONNOR.

APPENDIX IN LEFT INGUINAL HERNIA.

THE following clinical details seem to be of sufficient interest to merit publication because the appearance of the appendix in a left inguinal hernia must be very rare.

A man, aged 24, was admitted to the Dewsbury and District General Infirmary on February 20th, 1926, with strangulated left inguinal hernia. The history was that during the previous five years a lump had often appeared, which he had always reduced himself. He had not worried about it, nor obtained medical advice. On the date mentioned, however, he was unable to reduce it, so came into hospital. The hernia was found to be of a fairly large size, extending well into the scrotum. Manipulation was tried, but it was found impossible to reduce it; an operation was therefore performed at once, and a large thin-walled sac was found to contain the terminal portion of the ileum, the whole of the caecum, with the appendix, and the first inch of the ascending colon. Although this was found on the left side there was no other evidence of any transposition of the viscera. No adhesions were present, and the appendix was easily removed, a radical cure being performed.

Dewsbury.

G. FOSTER SMITH, L.M.S.S.A.Lond.

Reports of Societies.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

At a meeting of the Nottingham Medico-Chirurgical Society held on February 25th, the President, Mr. H. BELL TAWSE, in the chair, an address was given by Sir GEORGE NEWMAN on the relation of the State to medicine.

The Relation of the State to Medicine.

Sir George Newman said that it was convenient to divide the long history of medicine into four principal divisions—the age of Hippocrates, which contained also the pre-Hippocratic period; the 500 years between Hippocrates and Galen; the 1,400 years from Galen to the Renaissance; and the modern period ushered in by the Renaissance. Each of these periods was full of interest, but it was significant that the science and art of medicine had only been organized in the public benefit during the last hundred years. Such organization was brought about partly by the need for the State to protect itself against the great pestilences of plague, leprosy, and cholera, partly by the growth of the Elizabethan Poor Law and regard for the condition of the people, partly by the extraordinary expansion of medical knowledge, and partly by the evolution of human society. The public medical services now instituted in Britain constituted the most complete and comprehensive effort on the part of the State in the whole range of history; moreover, the services in this country were more established than in any other country in the world. They consisted of six branches—namely, the Poor Law medical service, the public health service, the medical supervision of factories and workshops, the school medical service, the national health insurance system, and the maternity and child welfare service. Nor must it be forgotten that these services were in addition to medical services for the Army, Navy, and Air Force, and for the Colonies and India. They were also exclusive of the steadily growing imposition by Parliament of statutory duties upon the medical practitioner. These public medical services were not originated by the Government and laid upon the medical profession; they were originated by medical practitioners themselves in the eighteenth century. There was no more instructive chapter in English medicine than the persistent and, on the whole, triumphant, achievement of medical practitioners in this behalf. This organization of medicine had been contributory to a greatly reduced death rate, an amazing fall in the infant mortality rate, a steady decline in pulmonary tuberculosis, a disappearance of the great pestilences, and a rise in the expectation of life. Yet there was much left to be done; 40 per cent. of the people died under 50 years of age, many of them suffered continuously from invalidity, and the amount of time lost owing to preventable sickness was greater than the total time lost owing to all industrial strikes and lock-outs added together. A study of the health insurance records showed that 23½ million weeks of time were lost by the insured population in 1924, the great bulk of it being due to what might be thought of as relatively minor ailments. Something like 20 per cent. of the sickness which brought insured persons to their doctors in that year was attributed to bronchitis, nasal catarrh, and the common cold; 14 per cent. to lumbago, rheumatism, and neuralgia; 12 per cent. to indigestion; 10 per cent. to slight influenza; 10 per cent. to avoidable injuries; and 7 per cent. to local septic conditions. Thus 73 per cent. of the sickness returns was accounted for. There was another aspect of these medical returns which was full of interest; it raised the four great questions which every practitioner from immemorial times had been asked by his patient to answer. What is the matter with me? (diagnosis); Can you put me right? (treatment); When shall I get well? (prognosis); and, How can I avoid this illness in future? (prevention). It was to these four ancient conundrums that they must still address themselves in modern medicine. They were only the heirs of the work of their forebears in the eighteenth century, but because of that early work the modern medical practitioner had many advantages. The doctor now obtained his patient earlier; instruments of precision were provided; facilities of treatment were available; he had a

larger experience of prognosis; the causes of disease were now better known; and last, and most important, methods of prevention had been made possible.

Abdominal Disorders in Childhood.

At the next meeting, on March 4th, the PRESIDENT in the chair, Dr. F. J. POYNTON, physician to University College Hospital and the Hospital for Sick Children, Great Ormond Street, introduced a discussion upon some abdominal disorders in childhood.

Dr. Poynton commenced with the subject of infant feeding, and asked whether the longer intervals between feeds now in vogue did not tend to make feeble though otherwise sound infants overhungry, to gulp down their feeds, and so to favour spasm and flatulence. He did not think this happened with the strong infant, but it was his experience that it did with the delicate and ailing. He dwelt upon the use of protein milk and foods not containing milk, and upon their value in the difficult stage of acute gastro-enteritis, and in chronic diarrhoea when return to normal feeding had to be started. He gave his experience of hypertrophic stenosis of the pylorus, and from a series of 80 cases showed that, by the combination of prompt surgery with skilled nursing and dieting, his mortality rate had fallen from 70 to 6 per cent. He emphasized the importance of palpating the tumour. After touching upon pylorospasm, he passed to the dieting of coeliac disease, and expressed the opinion that in some cases, not only was fat not digested, but that all the food elements were badly assimilated, and, in addition, the amount of food had to be much restricted. Acetonaemia was then considered, and the two prominent features of such cases illustrated—the nervous feature by examples of tram and train sickness, night terrors, and other evidences of nervous instability, and the alimentary feature by the rare though clear-cut examples in which acetonaemia was diagnosed as the primary illness, but the actual cause was found to be volvulus of the small intestine. In classical cases of cyclic vomiting acetonaemia might precede the vomiting, though in his experience that was exceptional; he thought that the evidence pointed to some pre-acetone body as the essential poison. He concluded by showing drawings and radiograms of the condition of chronic intussusception and commenting upon the difficulties in the diagnosis.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of the Devon and Exeter Medico-Chirurgical Society was held on February 25th, the President, Mr. R. WORTHINGTON, being in the chair.

The PRESIDENT showed a girl, operated on a fortnight previously for acute mastoiditis. There was profuse purulent otorrhoea and a large red oedematous post-aural swelling. The tonsils were large and septic, and the otorrhoea of six weeks' duration. At operation the whole mastoid process was found to be a shell of pus. The wound was treated with bipp and completely closed; the tonsils and adenoids were removed at the same time. The stitches were removed on the seventh day, when there was no otorrhoea and the wound was perfectly healed. The case was shown to illustrate the greatly improved outlook afforded by bipp in the after-treatment of such cases. Mr. A. L. CANDLER sounded a word of warning as to the use of bipp in larger cavities where iodine poisoning was liable to arise. Here, however, the procedure had proved not only safe but most reassuring. Mr. WAYLAND SMITH referred to the researches of the late Professor A. R. CUSHNY, which went to prove that it was the paraffin, and the paraffin alone, that was the curative agent in the bipp combination. Mr. WORTHINGTON, in replying, added that it was most important for ensuring success that all vessels should be twisted off to avoid leaving ligatures in the cavity.

The PRESIDENT, in conjunction with Dr. F. A. ROSEN, showed a middle-aged woman with a very large parenchymatous goitre, partly cervical and partly intrathoracic; the intrathoracic portion was proved by x rays to be exceptionally large. Mr. N. LOCK referred to a paper

by Sir Charles Ballance where division of the clavicle was recommended in order to allow the tumour to be raised up from the thorax. Mr. CANDLER considered the symptoms were becoming urgent, and, failing x-ray treatment, operation appeared to offer the only chance. He raised the question of intubation as a preliminary to the operation. Mr. WORTHINGTON agreed that the dyspnoea and dysphagia present in the case justified the risks entailed by operation, and he should most certainly intubate in the first instance, probably making use of a large No. 12 White Porget's catheter.

The PRESIDENT also showed a woman with swelling over the frontal bone. In spite of the negative Wassermann reaction he proposed treatment with the iodides.

Dr. R. K. FOULKES showed a gardener, aged 46, who contracted encephalitis lethargica in May, 1924. The initial symptoms were headache, diplopia, insomnia, and nocturnal delirium; he was never very drowsy. The Parkinsonian syndrome had been established for the past twelve months, and included the immobile facies; rigidity of neck muscles and fixed forward position of the head; very slight rhythmic movement of the head; a pill-rolling attitude of the right hand; and a tremor of the right arm, less marked now than formerly. There were also present katatonia, excessive salivation, and unequal pupils, with sluggish reaction to light and loss of accommodation. Furthermore, puffiness of the face and neck and excessive sweating of the scalp were suggestive of hypopituitarism.

Mr. CANDLER showed a girl with Sprengel's affection of the shoulder. He discussed the pathology of the condition, mentioning the intrauterine pressure theory and the possibility of injury at birth. The resultant deformity was on a par with shortening of the trapezius. The accompanying deformity of the chest was demonstrated, and this might be remedied to some extent by exercise and massage, but in Mr. Candler's opinion operation was not advisable.

Dr. F. A. ROPER showed a girl, aged 18, with congenital haematoporphyria. In addition to the typical pigment in the urine, there was a bullous eruption on the hands, light sensitivity, scaling of teeth, and pigmentation of bones. Sir Archibald Garrod, who had taken an interest in the case, had supplied the technical outfit necessary for estimating fluorescence of the bones; this test had proved negative. The face was very hairy, and the hands those of an old woman. The blood examination showed 3,500,000 red blood cells, with an increase in megaloblasts; the leucocytes were normal and the haemoglobin 70 per cent. Dr. Roper, in outlining the disease, described it as an inborn error of metabolism; the prognosis was unfavourable. As regards the experimental side, guinea-pigs infected died if not protected against light. A foreign professor who infected himself developed severe symptoms typical in their association. Dr. R. EAGER mentioned a case of the acquired form of the disease caused by the abuse of sulphonal.

Mr. R. WAYLAND SMITH showed a youth, employed as a fireman at a gasworks, admitted to the Royal Devon and Exeter Hospital on January 1st, 1926, suffering from carbon monoxide poisoning and extensive burns of the gluteal region. The case was shown for the purpose of demonstrating the possibilities of covering large areas of granulating surface with Reverdin "islet" grafts. About a hundred grafts were taken, and all of them took root. The surface would have proved too extensive for an ordinary Thiersch graft. It was essential for success that the area to be grafted should be clean and flat. In this case the raw surface had been treated with flavine and eusol and then with normal saline solution; as a preliminary to grafting it had been washed with methylated ether and finally with normal saline.

Mr. Wayland Smith also showed a case of pancreatic cyst related to acute pancreatitis in a middle-aged woman who had been admitted on two occasions to the Royal Devon and Exeter Hospital.

On the first admission (July 2nd, 1925) there was a history of two days' severe abdominal pain at the level of the umbilicus, and of vomiting. Beyond enteric, fourteen to fifteen years ago, there was nothing of import in her previous history. On admission the temperature was 98°, the pulse rate 120, and respirations 30. It was noted that the abdomen was distended, moved poorly, and that there was a tender lump about the size of a fist in the

umbilical region. The operation disclosed fat necrosis of the omentum, a small amount of free fluid and blood, no pus, and a normal gall bladder. Cholecystostomy was performed, and the gall bladder drained; the bile proved to be normal. In August there appeared a tumour in the left upper half of the abdomen, causing compression of the base of the left lung. A diagnosis was hazarded of a cyst arising from the tail of the pancreas. About this time she was again given a general anaesthetic, and the sinus to the gall bladder enlarged. The urine, examined on August 25th, showed a diastatic index of 40, and the faeces gave the following analysis: Total fat 29.04 per cent., neutral fat 24.08 per cent., fatty acids 4.96 per cent.

She was discharged on September 17th, but readmitted on February 7th, 1926, with severe pain, respiratory embarrassment, and vomiting. The symptoms appeared to increase directly with closure of the sinus, and this had remained closed for two days prior to her readmission. Examination showed a very large cyst bulging in the left loin. Laparotomy was performed, and the cyst was located immediately behind the stomach. An opening was made through the gastro-colic omentum, and the lower border of the stomach was turned up, the abdomen being packed off. The cyst wall was densely adherent to the posterior wall of the stomach, and rupture occurred during dissection, with expulsion of cyst contents. A counter-opening was made into the left loin, and the edges of the cyst opening were sutured to the parietal peritonium. Large drains were placed in both openings. The cyst fluid was odourless, thin, brownish-green in colour, and slightly alkaline. Mucus was present in a considerable amount, and blood corpuscles were very numerous. Bile pigment was absent, proteins, diastase, and lipase were present, and there was a trace of trypsin. Fatty acids were numerous, but there was no cholesterol. The woman was still an in-patient with the sinus persisting, great care having to be taken as regards protection of the skin.

Mr. CANDLER discussed the case, the first admission having been under his care for acute pancreatitis. The closure of the gall-bladder sinus undoubtedly had an unfavourable effect by promoting back pressure on the pancreas.

THE BLOOD PLATELETS IN DISEASE.

At a pathological meeting of the Liverpool Medical Institution on February 25th, Dr. J. C. M. GIVEN, the President, in the chair, numerous specimens were exhibited, and Dr. W. HOWEL EVANS read a paper on recent advances in knowledge of the blood platelets, with special reference to haemorrhagic diseases and pathological thrombosis.

Dr. Evans discussed the evidence as to the origin and specificity of the platelets, mentioning especially the experimental work of Ledingham, Bedson, and Robertson, which afforded final proof that platelets were separate blood elements. Their morphology and a simple method for enumeration were described. Apart from their known function in connexion with blood coagulation, their importance in preserving capillary tone was emphasized; capillary leaking and increased bleeding time were associated with deficiency, while when the platelet count was very high the capillaries seemed to be tightened up, and the bleeding time was much diminished. The phenomena associated with thrombocytopenia or platelet deficiency were enumerated as slightly delayed coagulation time, prolonged bleeding time, failure of clot retraction, diminished capillary resistance, and spontaneous capillary haemorrhage. Dr. Evans showed that in a series of ten cases of primary and secondary purpura, with low platelet counts, the coagulation time, though usually stated to be normal, was in reality moderately delayed. The delay, however, did not approach that met with in haemophilia, where the platelets were normal in numbers, but qualitatively abnormal. The causes of thrombocytopenia were classified, and the primary disease, idiopathic purpura haemorrhagica, was discussed, with particular reference to splenectomy in this condition. The post-operative results of the reported cases were summarized, and two recent cases of splenectomy in Liverpool were described in detail. Dealing next with conditions associated with rise in the platelet count, Dr. Evans pointed out that clinically in certain of these conditions—namely, the convalescent period after infections such as typhoid and pneumonia, chlorosis, and certain forms of splenic anaemia—spontaneous thrombosis frequently occurred. Further, in a series of six cases after splenectomy he had observed a definite shortening of coagulation time associated with the high platelet counts. In one of these cases—splenic anaemia of the Banti type—the platelet count persisted after splenectomy at a level of about a million and a half until the thirtieth day, when the patient died from mesenteric thrombosis. Similar

fatalities after splenectomy in splenic anaemia associated with persistently high platelet counts had also been reported by Rosenthal. These facts showed a definite correlation between high platelet levels, shortened coagulation time, and clinical thrombosis, and emphasized the need for study of the platelet factor in relation to all cases of pathological thrombosis.

SARCOMA OF THE SPINAL CORD.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on February 26th, the President, Dr. F. C. PURSER, in the chair, Dr. V. M. SYNGE read a paper on a case of spinal tumour, the main points of interest in the case being the slight and transient pain, accurate localization by lipiodol, and the improvement after the surgical removal of the tumour. The details of the case were as follows.

A woman, aged 39, was admitted to hospital last August complaining of inability to walk. In the previous April she had had a pain in the right side which disappeared in a few weeks; in the beginning of July she noticed that her left leg felt tired and weak; the right leg became similarly affected a month later. On admission her legs were spastic, very weak, and not wasted. There was loss of sensation to pin-pricks, cotton-wool, and to heat and cold to slightly above the umbilicus, with the exception of areas on the front of the right leg and the outer aspect of the left leg, where sensation was normal. Abdominal reflexes were absent. Both legs showed exaggerated knee-jerks, ankle clonus, and extensor plantar reflex. The sphincters were normal. There was nystagmus, but the eyes were otherwise normal. The Wassermann reaction was negative, and a radiograph of the spinal column appeared normal. On September 8th incontinence of urine commenced, and on September 14th there was loss of sensation from just above the level of the nipples, there being no areas of normal sensation below this. On September 18th lumbar puncture was performed; the fluid was clear, pale yellow, and not under increased tension. It clotted on standing, the globulin was increased, but the cell count was normal. On September 25th 1 c.cm. lipiodol was injected into the cisterna magna, after removal of 3 c.cm. clear colourless fluid which did not clot; an x-ray photograph showed the lipiodol arrested at the level of the first thoracic vertebra. The patient had frontal headache with pyrexia for twenty-four hours after injection. On October 3rd a tumour 2½ in. long was removed. It extended from the level of the first thoracic vertebra downwards, posterior to the denticulate ligament; it was adherent to the arachnoid and dura in places. Microscopic examination proved the tumour to be a sarcoma. Four weeks after the operation the patient felt pain in the left leg with some return of sensation, and x-ray treatment was directed to the site of the tumour by Dr. Hardman. Four and a half months after the operation the sensation over the trunk had become normal; sensation was absent over the right leg except for a small area on the foot, and sensation in the left leg was present but impaired. There was no voluntary movement of legs, but involuntary automatic movements were present; the reflexes in the legs were absent, there was incontinence of faeces and urine, and a healing bed-sore in the sacral region. Nystagmus was still present; its cause was unexplained. The operation scar was satisfactorily healed.

The great improvement following operation in this case was noteworthy, and were it not for the malignant character of the tumour a good functional result might have been expected.

The PRESIDENT said that he had seen the patient while she was in hospital and had suggested the use of lipiodol as the diagnosis of spinal tumour was not absolutely certain; in most cases of spinal tumour the condition could be diagnosed accurately by the clinical signs. In the cases of spinal tumour that he had seen, although the patients lived for years and became no worse, still they did not improve; and he had never seen such an improvement in the symptoms after operation as in this case.

Dr. A. R. PARSONS referred to the rarity of cases of tumour of the spinal cord, and said that at the last meeting of the Association of Physicians Sir James Purves-Stewart had demonstrated a case in which very marked improvement had followed surgical treatment. Before the operation the patient had been paralysed, and subsequently he was able to walk. In this case also the disease had been localized by lipiodol. He asked if in Dr. Syngé's case the removal of the tumour had had any effect on the nystagmus, and also what had happened to the lipiodol.

Dr. L. ABRAHAMSON said that in one case of his in which lipiodol had been given the patient had been radiographed a month later, and the lipiodol was seen to be still at the bottom of the spinal canal. He thought that lipiodol was dangerous, and that it should be given only in cases in which a diagnosis could not be made otherwise.

Dr. SYNGE, in reply, said that at the operation the lipiodol had been found exactly where it had been shown to be present by x rays, and had escaped in oily drops, which had not caused any inconvenience during the operation. Sometimes lipiodol was given by lumbar puncture, and the patient was left with the head lying lower than the feet; in these cases it was dangerous, as the lipiodol sometimes entered the brain; otherwise he thought that the reaction after an injection was only temporary. The nystagmus was still present.

Lymphosarcoma of the Lung.

Dr. F. J. O'DONNELL read notes on two cases of lymphosarcoma of the lung.

Case 1.—A man, aged 64, who had been in good health up to three months before admission to hospital, complained of extreme breathlessness on slight exertion. Cyanosis, emaciation, and clubbing of the fingers were all well marked. The glands in the right axilla were obviously enlarged and hard, while in the abdomen, below and to the right of the umbilicus, was a bluish tumour as large as a turkey's egg. The right side of the chest was completely immobile and dull, with high-pitched tubular breathing audible throughout; it was reported by the radiologist to be filled by a dense immobile mass. The patient died a week after admission, and at the necropsy the right side of the thorax was found infiltrated with a hard greyish mass, the removal of which, as a whole, was found impossible. This tumour was reported to be microscopically a lymphosarcoma and the axillary and abdominal tumours were secondary growths.

Case 2.—A man, aged 34, had complained of "chest trouble" for some years, and became acutely ill a few days prior to admission to hospital. The temperature was 103°; there was deficient movement of the right side of the chest, with dullness and harsh tubular breathing throughout. Pneumonia was diagnosed and a crisis occurred, but it was rapidly followed by regular evening pyrexia. Exploration of the chest for pus was negative, but x-ray examination showed that the right lung was immobile. Despite the persistence of the signs in the chest, the patient steadily improved and was able to sit up for a few hours; he then died suddenly in the seventh week after admission. At the necropsy the right pleura was found as thick as good chamois leather, the right lung had the appearance of tuberculous bronchopneumonia, there was a small consolidated empyema at the right base, and the mediastinal glands were very hard. The pathologist reported that it appeared to be a case of lymphosarcoma. The lung showed a long-standing condition of fibroid phthisis and, on the pleural surface, was being secondarily infiltrated with sarcoma cells.

Dr. A. R. PARSONS said that primary sarcoma of the lung was a very rare condition. He thought that in cases of malignant disease of the lung nothing could be done to give the patient more relief than either radium or x-ray treatment. He mentioned two cases of his own, in which great temporary improvement had followed the application of radium, although both patients had ultimately died. In one case at the necropsy it was found that what had originally been diagnosed as lymphosarcoma was a mass of fibrous tissue, with a few cells embedded in the centre.

Dr. R. H. MICKS referred to the difficulty of diagnosing these cases, and the help that was obtained by x rays in diagnosis.

Dr. V. M. SYNGE thought inequality of the pupils was often a very valuable sign of an early intrathoracic growth. In Dr. O'Donnell's first case there had been clubbing of the fingers, and he asked if Dr. O'Donnell thought that this was due to the tumour. He had recently seen a patient with clubbing of the fingers, but no pulmonary disease whatever. Regarding the difficulty of diagnosis, he said that he thought the danger was that lymphosarcoma was too often diagnosed when it was not really present at all.

Dr. E. T. FREEMAN considered radium very useful in these cases, at any rate for temporary relief; he mentioned a case in which a year previously a tumour had been found in the upper portion of the left lung, with dilatation of the left pupil and swelling of the left side of the face. The patient had had three deep x-ray treatments, and the tumour had now disappeared. How long the improvement would last it was, of course, impossible to say.

Dr. O'DONNELL, in reply, said that mediastinal tumours were much more common than any other form of intrathoracic growth. Inequality of the pupils was, he thought, a sign of a primary mediastinal growth, but this was not present in either of his cases. In secondary cases he felt that x-ray treatment only resulted in the air space being decreased, and that this hastened the patient's death. In primary mediastinal growths x rays were, however, certainly efficacious.

Reviews.

MUSCULAR ACTIVITY.

PHYSIOLOGY has already conceded to biochemistry and to that younger Napoleon, biophysics, a permanent seat at her councils. From Professor A. V. HILL's *Muscular Activity*¹ a new voice is heard claiming a place at the round table. This new invader—let us rather call him ally—hails from the engineering shops and the drawing table, and speaks the language of mechanics and of thermodynamics.

The volume comprises the Herter Lectures delivered at Johns Hopkins University in 1925. To execute the obligations of this lectureship a distinguished succession of European experimenters in the medical sciences have crossed the Atlantic. The benefit of their journey we share with them and with their audiences, for we receive in the printed lectures a most valuable series of monographs. Professor Hill's four lectures bring together the earlier experimental work of the author and his colleagues and recent applications—particularly to muscular exercise in man—which he has inspired a large body of disciples to pursue.

Professor Hill is, indeed, a man of muscle. For more than a decade he has been engaged on a delicate analysis of the mechanical and thermal response of muscle in the laboratory. He tells us, however, that his first apprenticeship to the problem was still earlier and in other surroundings, for the chief satisfaction of his youth was in the arduous and endurance of the cinder track; and now, ever and again, he escapes from the laboratory to test his convictions on that man who is after his own heart—the athlete. The athlete condemns none of his conclusions.

The first lecture describes some recent work from the author's laboratory on the mechanics of muscle contraction. With the aid of a pretty ingenuity in the construction of apparatus, with stress-strain diagrams, and efficiency determinations, we are led to the conception of the muscle as a viscous elastic system wherein the mechanical response is a sudden reversible gelation of some constituent of the muscle fibres.

But the mechanical response is but the final expression of those immediate responses to stimulation which must find their explanation in chemical terms. For the chemical analysis of the muscle process at first hand thermal methods alone are of a delicacy appropriate to the changes which occur. Again we marvel at the beautiful technique evolved to suit the special problem. A muscle is stimulated, a galvanometer deflects, and a curve is recorded on a moving photographic paper. From these reluctant curves is drawn the story of the muscle process. There are to be distinguished two phases—an anaerobic production of lactic acid followed by an aerobic restorative process. Contraction accompanies the anaerobic process, whilst the complete cycle restores the muscle to its initial state. In the absence of oxygen the muscle is driven inevitably towards fatigue. In his emphasis on the fundamental character of the anaerobic function of muscle Professor Hill perhaps scarcely gives the early chemistry of fermentation its due. Did not Pasteur appreciate that in the anaerobic fermentation by yeast he was observing an almost perfect substitute for respiration?

The remarkable confirmation and elaboration of the story by the chemical researches of Meyerhof forms the material of the third lecture, whilst in the fourth we see the frog discarded and the athlete becomes the subject of study. We learn that the sprinter is essentially an anaerobic machine running into "oxygen debt" to the extent of many litres in a few seconds and accumulating lactic acid at a rate of 4 gm. a second. The long-distance runner, on the other hand, may not so rashly expend his capital, but must live within his oxygen income, so that his achievement is determined by the efficiency of his oxygen supply. How this may be controlled by the coronary circulation, what is the physiological limit of violent exercise, what is the immediate fuel of the muscle, wherein

resides muscular efficiency in man—these are topics of wide interest indeed.

These lectures describe a romance of the laboratory and of the field, and we suspect that Professor Hill is just as happy with a stop-watch by the cinder track as he undeniably is with a thermopile and the sartorius of a frog.

MIGRAINE.

DR. F. G. CROOKSHANK has written an attractive little book on *Migraine and Other Common Neuroses*.² Whatever the view that may be taken by the reader on the hypothesis that is put forward in this work, there can be no doubt that the reading of the book will stimulate thought. The author takes for his text a saying in Burton's *Anatomy of Melancholy*: "Socrates, in Plato, would prescribe no Physick for Charmides' headache till first he had eased his troublesome mind; body and soul must be cured together, as head and eyes," and then proceeds to show that there is a vast range of cases in which the psychical and physical disorders seem, as it were, nearly balanced. Such cases are apt to be dismissed as "functional"—a term that does not help the patient much.

Dr. Crookshank seeks to show the primary importance of the psychical aspect of the illness. The disturbances reveal either constitutional or local inferiority, to which may be transferred an emotional feeling that rightly pertains to something in the psychical life. The first part of the book is a metaphysical discussion of the general ground for this belief. The second part is the definite application of the theory to migraine and other similar disorders.

The author accepts the influence of local conditions upon the production of these attacks, such as errors of refraction or inequality of the eyes and muscular imbalance; he accepts also the influential facts of general metabolic disorders as a predisposing influence in the production of the attacks; he recognizes also the greater frequency of the attacks among the intellectual workers, and particularly the males; and often, very often, among those who make a distinct success of their lives. The acceptance of all these factors in the make-up of the liability to the attacks would seem to rule out some part of his thesis—at least if he means by it what is the general connotation of his terminology. He believes that the attacks reveal "either constitutional or local inferiority." The latter belief may be accepted without hesitation if it means the effect of an overstrained because weak organ, such as results from too close eye work with uncorrected errors of refraction. But he means much more than that. He suggests that there is what is commonly known as an "inferiority complex"—that the subject by some psychic process retreats to the shelter of a violent attack of migraine to escape the feeling of inferiority inherent in his mental make-up. This argument has to be placed alongside the fact that attacks are common in young and vigorous men, those who are making real strides to success in life, and who ultimately make their mark in their day and generation. They are not the social actresses of the novel writers who find a happy retreat from some disliked obligation in an attack of the megrims. They are far too honest with themselves for such disguises, neither is there any necessity for them. The fact that many sufferers from these attacks carry on during and despite these visitations negatives the idea.

But, as we have indicated, whatever view be taken of the thesis, the little book is worth reading. It is the first of a new series of "Psyche Miniatures," of which others are in preparation.

CLINICAL RESEARCHES IN ACUTE ABDOMINAL DISEASE.

MR. ZACHARY COPE's *Clinical Researches in Acute Abdominal Disease*³ is a collection of nine essays on different aspects of abdominal disease. Most of the chapters are an expansion of the Arris and Gale lecture delivered by the author

¹ *Migraine and Other Common Neuroses: A Psychological Study.* By F. G. Crookshank, M.D., F.R.C.P. Psyche Miniatures, Medical Series, No. 1. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1925. (Double post 16mo, pp. 101. 2s. 6d. net.)

² *Clinical Researches in Acute Abdominal Disease.* By Zachary Cope, B.A., M.D., M.S. Lond., F.R.C.S. Eng. Oxford Medical Publications. London: H. Milford, Oxford University Press. 1925. (Demy 8vo, pp. xiii + 148; 29 figures. 12s. 6d. net.)

³ *Muscular Activity.* By Archibald Vivian Hill, M.A., Sc.D., F.R.S. London: Baillière, Tindall and Cox; Baltimore: The Williams and Wilkins Company. 1925. (Demy 8vo, pp. viii + 115; 12 figures. 12s. 6d. net.)

in 1922. Two of the other chapters are reprints of contributions made to the *BRITISH MEDICAL JOURNAL*.

The first chapter contains a justification for the title of the book, and in it the author explains what, in his opinion, should be the scope of clinical research. There are, he says, three main purposes to which clinical research may reasonably and adequately be directed. The first of these is to test with thoroughness the results achieved by work in the laboratory; the second, to try various empirical methods and to furnish the results to the laboratory for explanation and elaboration; and the third is to record and compare clinical facts with the object of determining some questions which are inaccessible to laboratory methods of study.

The remainder of the book is concerned with more practical questions. The second chapter discusses the function of the parietal peritoneum in the localization of abdominal pain, the fourth cutaneous hyperaesthesia in acute abdominal disease, and the fifth is a clinical study of phrenic shoulder pain. The author's views on the difficult subject of subacute perinephric abscess occurring without disease of the kidney are well set out in the last chapter.

EXPERIENCES IN SURGERY.

THE two final volumes of *Practical Surgery Illustrated*,⁴ by M. V. PAUCHET, have now appeared. As in the case of the first four volumes, of which a review appeared on February 28th, 1925 (p. 413), the translation has been made by Dr. F. R. B. ATKINSON, and each has an introduction by Sir CHARLES GORDON-WATSON. They maintain the standard of their predecessors, and the illustrations of each step of the various operations described are so good that in many cases it is scarcely necessary to refer to the short and concise accounts which accompany them.

In Vol. V, dealing with the treatment of trigeminal neuralgia, Pauchet describes the division of the sensory root proximal to the ganglion. He uses local anaesthesia when opening the skull, and a general anaesthetic for the main part of the operation. He employs a special retractor, to which an electric light is attached. For tumours of the floor of the mouth Pauchet performs the radical operation from the neck, and does not hesitate to open the buccal cavity; he divides the external carotid artery during dissection of the neck. A diverticulum of the oesophagus in two stages he removes with a preliminary gastrectomy. In biliary surgery a plastic operation is described for reconstructing the common duct. A rubber tube is used to connect the stump of the common duct to the duodenum, omentum being grafted round it. Gastric and duodenal surgery has been discussed previously, but in the present volume the subject of suturing receives special consideration in association with the methods of anastomosis used in various types of gastric resections. Surgery of the colon, which was also previously dealt with, receives further attention. The author's method of reinforcing the parietes in the treatment of a large inguinal hernia by suturing a flap of the rectus sheath to Poupart's ligament is described. Abdominal hysterectomy is advised when there is suppuration of the uterine adnexa.

Vol. VI, which concludes the work, deals with a variety of subjects in a series of short articles. In discussing anal fistula and carcinoma of the distal colon, Pauchet acknowledges his indebtedness to a visit to St. Mark's Hospital, London. He advocates temporary caecostomy where any obstruction exists in the colon; this operation is followed at a later date by resection with an end-to-end anastomosis strengthened by an omental graft. For the operative treatment of gastropotosis Pauchet suggests a new procedure. He detaches the round ligament from the umbilicus, sutures it to the anterior wall of the stomach along the lesser curvature, and embeds it in the stomach wall; the free end of the ligament is then threaded through one of the left intercostal spaces and fixed there. In cases diagnosed as gastric or duodenal ulcer with marked pain, but where no organic lesion can be found, Pauchet

describes an operation practised by Latarjet, in which the vagal and sympathetic fibres to the stomach are divided, but thinks that more investigation is required before coming to a final conclusion about this operation.

These six volumes will form a useful addition to the library of an operating surgeon; the considerable amount of new work they contain provides food for reflection. There are many hints on technique, and the admirable series of illustrations makes it possible to visualize the details of each operation.

GUY'S HOSPITAL REPORTS.

THE nine articles in the first quarterly instalment of the seventy-sixth volume of the *Guy's Hospital Reports*⁵ provide a varied fare for the reader, for they include papers on medical biography, anaesthetics, physiology, morbid anatomy, radiology, dentistry, surgery, and three on medicine. Sir William Hale-White writes in his accustomed kindly and interesting style an account of Golding Bird (1814-54), who was assistant physician to Guy's Hospital (1843-54) and did so much in so short a life, both in medical literature and as a teacher at the hospital. Dr. J. A. Ryle describes five cases of erythraemia, in three of which there were symptoms suggesting a peptic ulcer—a rare occurrence in this disease. One of the patients benefited from the administration of phenylhydrazine hydrochloride, but in the article in this number on some cases from "Clinical" (series iii), by various writers, another case is recorded in which this treatment failed. The other ten cases in this interesting collection of cases from "Clinical" are mainly examples of grave anaemia with unusual features. Dr. A. J. Kohiyar brings Dr. J. R. Bell's summary of 425 consecutive cases in which fractional gastric analyses were done up to the imposing total of 1,080 by the addition of 655 analyses carried out at the New Lodge Clinic. Mr. P. J. Briggs, radiologist to the New Lodge Clinic, contributes a note on the radiological examination of the pelvic caecum and appendix, the pelvic caecum being present in 30 per cent. of normal adults. In a well illustrated contribution Major J. B. Hance records a case of myeloma of the lower third of the ulna treated by curettage and autogenous grafting from the patient's ilium, according to the method practised by Mr. A. H. Todd, who has supplied an account of two of his cases thus treated. In a clinico-pathological article Dr. W. Gordon Sear reviews congenital cystic disease of the kidneys and liver, and records such a case with, in addition, small cysts in the pancreas; the like of which he has not found in the literature. Apnoea, dyspnoea, and cyanosis in relation to anaesthesia form the subject of a paper in two parts—the physiology of the subject being set out by Professor M. S. Pembrey and the anaesthetist's point of view presented by Dr. F. E. Shipway. In an interesting account of dental education in the United States and Canada, Mr. J. Lewin Payne shows how much the position there differs from that in this country. There dentistry is regarded as a highly mechanical but not accredited part of medicine, and a medical man may not lawfully practise on the teeth, with the exception that in a few States he may do extractions. The Baltimore College of Dental Surgery, established in 1839 in the face of medical opposition, is said to be the senior dental school in the world. In conclusion, the editor, Dr. A. F. HURST, of whose activity there is as usual much internal evidence, must be congratulated on the continued success of these *Reports*.

THE TRAINING OF THE R.A.M.C.

THE immense importance of the creation of a unified Royal Army Medical Corps, and of a general staff with a graduated and systematic scheme of military training, was reflected in 1911 by the issue of an entirely new manual of training for the Royal Army Medical Corps, which embodied the principles that had previously been laid down in the Field Service Regulations, Training and Manuals,

⁵ *Guy's Hospital Reports*, Vol. 76 (Vol. 6, fourth series), No. 1, January, 1925. Edited by Arthur F. Hurst, M.D. London: Wakley and Son (1925), Ltd. (Sd. 6s. 6d., pp. 1-126; 1 full plate, 23 figures. Annual subscription, £2 2s. for volume of four parts; single numbers, 12s. 6d. each.)

⁴ *Practical Surgery Illustrated*. By Victor Pauchet. Translated by F. R. B. Atkinson. With an introduction by Sir Charles Gordon-Watson. R.C.S. Vols. V and VI. London: E. Benn, 1925. V, pp. ix + 256, 273 figures; Vol. VI, pp. ix + 240, 200 figures. 18s. 6d. net each volume.)

of a somewhat earlier date. The 1911 manual has remained unaltered until recently, although a provisional training manual for R.A.M.C. Territorial Force cadets was issued in 1920. A new manual⁶ issued with Army Orders of 1925 now takes its place, and is a document of much interest, as it embodies practically all the lessons of the great war so far as they affect the training of the R.A.M.C. The chapters have been rearranged and the matter in most of them is entirely new, while much of the diffuse writing of the 1911 edition has been reduced to clearer statements and more concise dimensions. Thus, while the 1911 edition contained fifty-six chapters in five different parts, the new edition has fifty-nine chapters in two parts, but 383 pages instead of 453. At the same time no essential section of the military and technical training has been omitted, and much important new matter has been introduced.

Military training, which forms Part A of the manual, contains six sections, dealing respectively with general training, drills and exercises, chemical warfare, medical services in the field, voluntary aid, and the Geneva Convention. The section on chemical warfare is entirely new, and provides a very full and interesting account of medical organization in chemical warfare, the defensive measures against chemical weapons, and the disposal of gas casualties, with plans of methods for protecting dug-outs and details of a gas casualty centre. The section on medical services in the field is equally interesting, for it contains all that was learnt during the war in connexion with administration, the handling and functions of the various medical units, and the evacuation and transport of wounded. These two sections are admirably compiled, and form a complete and valuable exposition of the principles which must be grasped by all ranks of the R.A.M.C., as well as by everyone who is desirous of assisting and taking part in the duties of the medical services in the field. We have nothing but praise for the manner in which the subject of military training has been dealt with in this new edition of *R.A.M.C. Training*. If there is any fault to be found it is in the diagrams, with conventional signs of the formations and movements of field ambulances, for the diagram of a field ambulance in line shows in its conventional signs four captains, one lieutenant, and one quartermaster as officer personnel of the headquarters section, whereas in column of route this section has only two captains, one lieutenant, and the quartermaster. The latter, of course, is the correct officer personnel.

Part B, dealing with the technical training of warrant officers, non-commissioned officers, and privates, contains three sections—one on anatomy, physiology, and first aid, and the other two on nursing and on food and cookery respectively. For instructional purposes all these sections are excellent and comprehensive, especially the section on food and cookery, which contains tables of dietaries for officers and other ranks and a table of foods in season with times required for cooking.

All concerned in the production of this manual must be congratulated on the result of their labours. It is difficult to imagine in what way it could be improved upon, and the R.A.M.C. is fortunate in possessing a volume of instruction of this character. It is well illustrated; some of the illustrations have been reproduced from the *Medical History of the War*, but a misprint has occurred on page 5. Illustrations 105 and 106, and not 101 and 103, have been taken from the surgical volumes of that history.

NOTES ON BOOKS.

MR. LANE CRAUFORD was, it appears, an invalid who suffered for many years from disease of the spine. He amused himself by jotting down his views on many things incidental to the life of an invalid, in a spirit of cheerful optimism which is frequent in the tuberculous; and these views he has now published under the title *The Idle Hours of a Victorious Invalid*.⁷ Mr. Crauford should know something of doctors: he passed through the hands of fifty-five of them! His medical heroes are Dr. Tom Robinson and Sir Victor Horsley. To the latter he has devoted a chapter of mild anecdote and grateful encomium. Appropriately enough in an author of such experience, the longest chapter in the

book is "About Doctors." Mr. Crauford appreciates the value of personality. He advises his readers not to choose their doctor from reports of his cleverness, but for his appealing personality. General practitioners will probably be inclined to disagree with his views on visits to specialists. Patients, he says, are liable to suffer from blind faith in their local doctor. It is "cheaper in the end to go first to a specialist, if you think you may have any organic trouble that might be serious." "The important point is to go to the right sort of specialist as far as you can judge." Unfortunately, Mr. Crauford neglects to give directions for fitting the suitable specialist to the major complaint. He merely says "Find out about him." Perhaps it was on a day when he was feeling less optimistic than usual that he penned the statement "it seems that a certain situation can arise in connexion with medical amenities when it is etiquette 'that the patient should die.'" We cannot help thinking that if Mr. Crauford reads this passage again he will come to the conclusion that it is almost as indecorous as his use of the vulgarity "gent." His chapter "Concerning Nerves" is of some interest in that it sets forth the views of a layman on various forms of treatment for the condition. If, as seems probable, Mr. Crauford has been through some of these forms of treatment, there are, no doubt, good grounds for some of his criticisms. The book meanders along a gentle, for the most part platitudinous, course, whereon other invalids may while away an idle hour.

The *Dentists Register*⁸ for 1926 contains 14,199 names, representing an increase of 381 over the figures for last year. During the year 435 dentists were registered with qualifications, and 89 under the provisions of the Dentists Act, 1921. Of the total names in the 1926 edition, 6,194 (43.62 per cent.) are registered with medical, surgical, or dental qualifications, and 8,005 (56.38 per cent.) are registered under the provisions of the Dentists Acts, 1878 and 1921. Removals from the *Register* during the year numbered 546, 115 of these on evidence of death; 400 names were restored. The General Medical Council has also issued a volume⁹ containing the lists of medical and dental students registered during 1925. The medical students registered were 1,070, as compared with 1,043 in the previous year; England heads the list with 496. Registration of dental students numbered 191, as compared with 200 in 1924.

We have received from the British Drug Houses a useful little book entitled *The B.D.H. Book of A.R. Standards*. Scientists in this country before the war were very largely dependent on Germany for their supply of analytical reagents. When the war stopped this supply the Institute of Chemistry and the Society of Public Analysts performed a useful public service by drawing up specifications for purity for 88 analytical reagents. These specifications were indicated by the letters "A.R." and British manufacturing chemists undertook their preparation. The book now issued by the British Drug Houses contains specifications of purity for 158 drugs, including the 88 original substances. It should be useful to all engaged in scientific work, for it defines clearly the standards of purity attainable commercially for the common chemicals used in research, and enables the laboratory worker to know exactly what he is buying.

⁶ *The Dentists Register, 1926*. London: Published for the Dental Board of the United Kingdom by Constable and Co., Ltd. 1926. 12s.

⁹ *Medical and Dental Students Register, 1925*. London: Published for the General Medical Council by Constable and Co., Ltd. 1926. 7s. 6d.

PREPARATIONS AND APPLIANCES.

Lacto-Dextrin.

LACTO-DEXTRIN is a white powder, with pleasant taste, consisting of 73 per cent. lactose, 25 per cent. dextrin, and 2 per cent. desiccated lemon juice. The purpose of the preparation is to encourage the growth of *Bacillus acidophilus*, which is normally present in the intestinal flora, to make it the predominant organism and thus to combat intestinal putrefactive processes. The preparation is recommended for a large variety of colonic diseases. Large doses of the preparation are essential to produce any effect. The dose presented is two to four heaped dessertspoonfuls three times a day. The makers state that their preparation is in extensive use in sanatoriums in the United States, and that its use will produce marked benefit in a few days in most cases of auto-intoxication, colitis, diarrhoea, etc. The agent for this country is Lionel Cooper, 41, Great Tower Street, E.C.3.

A Purified Aluminium Silicate.

The preparation "Sil-al" is a purified aluminium silicate prepared for medicinal use. Aluminium silicate is being used in increasing amounts as an intestinal sedative and as a detoxicating agent. The action of the drug depends on the insoluble mucosa-forming a protective layer over the gastro-intestinal mucosa. Furthermore, the powder adsorbs intestinal toxins, and thus relieves intoxication. Its advantage over kaolin lies in the fact that it is chemically pure insoluble substance, whereas kaolin may contain varying quantities of metallic or vegetable impurities. The agent for this country is Lionel Cooper, 41, Great Tower Street, E.C.3.

⁷ *Royal Army Medical Corps Training, 1925*. London: H.M. Stationery Office. 1925. (Cr. 8vo, pp. 383, 111 figures. 2s. net.)
⁸ *The Idle Hours of a Victorious Invalid*. By Lane Crauford. London: Chapman and Hall, Ltd. 1925. (Demy 8vo, pp. ix + 245. 10s. 6d. net.)

British Medical Journal.

SATURDAY, MARCH 20TH, 1926.

NATIONAL HEALTH INSURANCE CHANGES.

THE finance of national health insurance needs its research scholar. It is a field in which far-reaching discoveries might be made by any skilled observer who was allowed free experiment. He would certainly be intrigued by the mysterious figure of the Government actuary—now emerging to forbid the touching of a thousand pounds or two lest disaster should follow, now, with but a wave of his magic wand, calling millions from the vasty deep and placing them at the disposal of a grateful Chancellor of the Exchequer. Sir Alfred Watson must be the most adroit and most accommodating of actuaries. In a report on those clauses of the Economy (Miscellaneous Provisions) Bill which relate to health insurance he admits that the scheme is over-financed and that its actuarial basis should be revised; and he estimates that a relief to the Exchequer to the extent of well over eight million pounds may safely be obtained from this source during the next three years and a similar amount in subsequent years. Yet as a signatory to the Majority Report of the Royal Commission on National Health Insurance¹ he agrees that the payment by the Exchequer of its present proportionate share of the cost of benefits and their administration must continue, apparently to reconcile the "definite recommendation that only such extensions and modifications as involve no expenditure, or can be met within the present financial resources of the scheme, should be considered as immediately practicable," with acquiescence in the continuation, or even strengthening, of the stranglehold of Approved Societies' officials on the administration and finances of health insurance. It is quite possible that the intricacies of this actuarial display may be found to justify the reduction of future Exchequer contributions, and yet allow of that immediate augmentation of the medical benefit fund which is essential as from the end of this year; and of the modest extension of the scope of that benefit recommended for the early future. It would have been more convincing, however, to have shown a greater boldness in suggesting the release of some of those millions which have been accumulated on an actuarial basis now proved to be mistaken, and which are still to be withheld from general use in the establishment of health services for the whole body of insured persons, although the Royal Commission declares those services to be urgently needed. It is characteristic of the timidity of the report of the Commission that all the more fundamental matters are described as "problems which need not be solved now but may fitly be left over," and that admitted necessities are to be provided only at some indefinitely future period, apparently out of surpluses to be accumulated at a slower rate than in the past, while the immense present balances are to be left with all their undesirable restrictions tight around them. A memorandum showing the effects of the financial proposals of the Royal Commission so far as they affect medical

benefit has been prepared for the Insurance Acts Committee, and we hope to publish it in an early issue. It contains also a note as to the effect of the Economy Bill.

No doubt some additional economies would be brought about by adoption of the unanimous suggestion of the Commission that Insurance Committees should be abolished, and of the further suggestion of the Minority Report that Approved Societies should be abolished also. It may be desirable to make clear the present position of the British Medical Association with regard to these proposals. In the first place, it has never been disputed that, on the whole, Insurance Committees have done quite well such work as fell to their lot, and that during the earlier years of the scheme they were necessary, useful, and effective bodies. Nor is it doubted that the officers and staffs of these committees have throughout performed successfully functions which are essential to the conduct of the insurance service. It is changed circumstances and developments dictated by experience, rather than any inherent failure, which have led to the prevalent opinion that these committees have outlived their usefulness, and that their functions could be transferred with advantage. It is, however, of fundamental importance properly to constitute the bodies to which, and to determine the conditions in accordance with which, this transfer of functions should take place. If these are not satisfactorily arranged it might be preferable to let the present situation, unsatisfactory as it is, still continue.

The Report of the Royal Commission really gives no help in this matter. The proposals of the British Medical Association are contained in its Memorandum of Evidence for the Royal Commission on Local Government, and these are reproduced, with but slight modification from those published in the year 1918, in the Association's pamphlet *A Ministry of Health*. It is the effective unification of health administration—not its mere co-ordination—that is aimed at. The main administrative body would be a statutory Health Committee responsible for advising the elected council of a local government area of suitable size on all health matters, with such executive powers as the council might delegate to it. On every such Health Committee there would be suitable minority representation of the medical profession as well as of other persons or bodies experienced in health matters, the majority of the committee being members of the local authority. Alongside and in close relationship with this executive authority there would be a representative Local Medical Committee, whose functions, however, would be almost wholly consultative and advisory. If this machinery were set up and these conditions secured it would be folly to break the unity of health administration by leaving the insurance service divorced from the rest under a special independent committee. The Association is of opinion that in these circumstances the work of Insurance Committees should also be transferred, though doubtless then, as now, the general arrangements for the service of medical practitioners would remain a central matter, a local supervision merely being exercised by the health authority. It may be some time before this scheme in its entirety is accepted and established, but it is unlikely that the medical profession would tolerate any system which did not contain its essential features—the representation of the practitioners on the Health Committee and the presence of an advisory Local Medical Committee for each area. On the one hand, the oncoming of an autocratic municipal or county medical service is to be avoided, and, on the other, private practitioners of all

¹ The Report of the Royal Commission (Cmd. 2586) may be obtained from H.M. Stationery Office, or through any bookseller. Price 6s. 6d. net. Summaries of the conclusions and recommendations of the Majority and Minority Reports appeared in the Supplement to the British Medical Journal of March 6th, 1925.

kinds must be brought into responsible relationship with local health administration if their outlook is to be broadened so that they have a real interest in preventive treatment.

With regard to Approved Societies, the position is not the same. It may be that many of these societies present features which are very undesirable with regard to the number, variety, and scattered residence of their members, to their form of government, and to the effectiveness of their contact with their members. It cannot be doubted that some of these features make such societies an obstacle to the proper organization and progressive development of health services. But as long as Approved Societies are confined strictly to their proper function—the distribution of cash benefits—and to such general benevolence on behalf of their members as they are able to exercise, the propriety of their continued existence for these purposes is not a question with which the medical profession is specially concerned. Opinion in the profession is, however, strongly and totally opposed to any organization or administration of medical services by Approved Societies, either directly as individual societies, or collectively or indirectly, whether in the guise of a so-called charitable institution or otherwise. Insidious attempts, or even unconscious tendencies, to bring this about need the most careful watchfulness. Further, one other point at least in the work of societies is of first importance. It is lamentable that under the present system no statistics of local sickness incidence are obtainable, and that any statistics of occupational sickness incidence are obtainable with great difficulty, and then only very partially and unreliably. On both national and international grounds this state of affairs can scarcely be allowed to continue much longer. Whatever other registers they may keep for their own purposes, so long as Approved Societies continue they should be obliged to keep registers of their members classified as nearly as possible in accordance with their area of residence and in accordance with their last known occupation. These registers would, of course, never be perfectly accurate at any given moment, but they would be of great value. Without them, on the present system, essential information for national health purposes is going to waste, and the work entailed would be a small price to be paid by Approved Societies in return for their vested interest and privileged position.

FAT-SOLUBLE VITAMINS AND DISEASE.

REFERENCE was made a few weeks ago¹ to an important paper by Professor Plimmer on the action of the water-soluble vitamin B, and it was then pointed out that vitamin investigation had passed from the qualitative to the quantitative stage. A few years ago research on the effects of vitamin lack consisted in determining whether or no laboratory animals could survive for a few weeks on a given diet. To-day attention is centred on the problems of the quantity of vitamin needed to maintain an animal in perfect health and of the effects of a partial deficiency extending over a long period. Professor Plimmer's work on the partial deficiency of vitamin B gave results of great clinical interest, for he showed that the chief symptoms observed were loss of tone in the intestine with consequent constipation and auto-intoxication. These effects are, of course, some of the commonest ailments of civilized man.

In the British Medical Association Lecture with

which this issue opens Professor Mellanby has summarized present knowledge regarding the effects of partial lack of fat-soluble vitamins. This knowledge is very largely due to the work of Professor and Mrs. Mellanby. The chief conclusions are that partial deficiency in fat-soluble vitamins produces, in addition to rickets, deficient dentition and dental caries also, and a predisposition to infections, and in particular infections of the respiratory tract.

In the case of vitamin B Professor Plimmer showed that the quantity of vitamin needed to maintain health depended on the nature of the diet, and that a vitamin supply that was adequate for a spare diet became insufficient if the calorie value of the diet was raised by addition of a large amount of carbohydrates. The Mellanbys have found a similar effect in the case of the fat-soluble vitamins, for an excess of cereals in the diet intensifies the effects produced by partial deficiency in these vitamins. Mrs. Mellanby's observations on puppies, showing that deficient dentition and dental caries can be produced readily by deficiency in the antirachitic or calcifying vitamin, are well known, and so also is the evidence she has collected that a similar cause is an important factor in the production of carious teeth in children. Professor Mellanby has now brought forward evidence to show that lack of the antirachitic vitamin in the mother will produce a tendency in the offspring to develop rickets. This accords with other work previously done on vitamins, and it is certain that to prevent the disorders due to vitamin deficiency in children not only must infant dietary be considered, but also the diet of the mother during pregnancy and lactation.

Professor Mellanby has also brought forward new evidence that deficiency in the fat-soluble vitamins has an important effect in predisposing to infectious diseases of the respiratory tract. Investigations of vitamin deficiency have always been hampered by the readiness with which animals on a diet deficient in vitamin die from infections of various kinds, and the occurrence of severe ophthalmia was, indeed, one of the first symptoms to be recognized of deficiency of the fat-soluble growth-promoting factor. Professor Mellanby finds that puppies on diets deficient in this factor display an abnormal tendency to develop bronchopneumonia. He points out that it is generally agreed that chronic catarrh of the respiratory passages of children, tendency to bronchopneumonia, rickets, attacks of diarrhoea, and, later, enlarged tonsils, are intimately related. He suggests that a common predisposing cause for this series of disorders may be a partial deficiency of the fat-soluble vitamins either in the maternal or in the infant's own diet.

Professor Mellanby's work is obviously of great significance, since it suggests a cause for some of the commonest diseases of infancy. Like the work of Professor Plimmer, it emphasizes the enormous importance of a full vitamin supply for the maintenance of the general health of the community. It appears that infants in this country are particularly liable to suffer from a partial deficiency in the fat-soluble vitamins, whilst adults are most likely to suffer from a deficiency in vitamin B.

The new trend in vitamin research emphasizes the fact that we still are far from a complete knowledge of the real dietary needs of a community. Twenty years ago it was thought that the calculation of a human diet was almost as simple a matter as the calculation of the fuel requirements of an engine, but to-day it is clearly seen that a large number of essential needs must be considered. The first enlargement of our knowledge came from the discovery that there

¹ BRITISH MEDICAL JOURNAL, February 6th, 1926, p. 250.

were a certain number of factors the complete lack of which produced fulminating effects in a few days or weeks; starting from this, some of the effects of partial deficiency of these substances have been established. It is possible that there may be several other essential substances lack of which does not happen to produce such easily demonstrable effects. The problem of immediate importance, however, is to determine quantitatively the amounts of the known factors needed to maintain full health, particularly during such periods of stress as infancy, pregnancy, and lactation.

WASTE OF COAL AND LOSS OF HEALTH.

THE report of the Coal Commission points out that the three million tons of soot which it is estimated are discharged into the air annually are equal in weight to nearly three days' output of all the collieries of Great Britain. In effect, the work of over a million men for three days every year is devoted to providing the soot which pollutes our atmosphere. Liquid fuels can be obtained from coal—how many are now using a benzol mixture in cars—and if it were possible to subject to this process the bulk of the 147 million tons of coal now consumed in the raw state the greater part of our requirements for oil could be supplied from home sources. It is, then, of prime national importance that the methods of treatment of coal before burning, so as to render its combustion smokeless and to obviate the waste of valuable constituents, should be applied, not to one-fifth, as it is at present in the gas and coke oven industries, but to the whole coal supply.

By distillation of coal in gas ovens gas is obtained for lighting, heating, cooking, and power, coke for heating and power, tar and its derivatives, oil, T.N.T. explosive, dyes, and numerous valuable chemical products; and, in place of polluting the atmosphere with the acid sulphur products which come from the combustion of raw coal, ammonium sulphate is obtained—a most valuable fertilizer. In place of utilizing some 10 per cent. of the energy value of the raw coal, as is at present the case in raising steam power and producing electricity, and wasting 90 per cent., utilization of no less than 25 per cent. may be obtained through the methods of the gas industry. The present method of burning coal entails, then, the most wasteful and uneconomical use of the store of energy available to this country, on which the prosperity and sustenance of our present enormous population depends. We have no water power available for replacing coal, and the President of the Royal Society has warned us that the dream of those enormous stores of energy produced on disruption of atoms becoming available is not likely to come true. With the exhaustion of its coal supply goes, then, the power of Great Britain.

Side by side with the present waste of coal goes the enormous economic loss due to the smoke pollution of the atmosphere: a loss arising from corrosion of buildings and metals, soiling of clothes and decorations, obstruction of traffic and loss of time through fogs, loss of daylight and necessity of using artificial light, loss of health through cutting off of sunlight, loss of green food, and the dismal conditions of smoke-begrimed cities. It would not be an extravagant estimate to put the annual loss at £100,000,000. The records of ultra-violet radiation taken daily at the National Institute for Medical Research, Hampstead, at Kingsway in London, and at Peppard Common, Oxford, show that the loss of this radiation due to smoke pollution in London is from one-half to two-

thirds. The skin is cut off from the natural stimulus of ultra-violet rays by clothes, glass, and smoke, as well as by the mists and clouds of winter. Hence a loss of vigorous health and happiness which is intensified by impoverishment of milk and the already mentioned loss of green food—two great sources of vitamins—and the interference with other natural foods by the miller and the canner.

To balance these ill effects people are now being impelled to take arc-light baths, and thus try to make good the loss of sunshine. Abundant evidence has been obtained of the efficacy of light treatment. The antirachitic vitamin has been proved to be sterol activated by ultra-violet rays. The excellent effects of visible sources of radiant energy have been demonstrated this winter at the Zoological Gardens, where marmosets and iguanas have thrived under the close-up use of electric lamps in a way hitherto never observed with the use of dark heat. Man himself wants in this changeable damp climate such sources of warmth, but we should give up the use of raw coal and take to that of gas and coke, or any other smokeless fuel which may prove commercially successful. For the sake of preventive medicine and continuance of national prosperity the medical profession should strongly urge, on scientific grounds, the general adoption of smokeless fuel.

MEDICAL SOCIETY OF LONDON.

THE Medical Society of London held its 153rd anniversary dinner at the Grand Hotel on March 12th, with the President, Sir Holburt Waring, in the chair. The principal toast—that of "Prosperity to the Society"—was proposed by Sir Archibald Garrod, Regius Professor of Medicine at Oxford, who recalled that his father (Sir Alfred Garrod) had been one of its presidents and delivered the Lettsomian Lectures in the year in which he himself was born. Work was just as hard in those days, but it took longer to do. There were practically no specialists then, and the "post-graduate night school" for those who lived and worked in the Harley Street neighbourhood was the Medical Society of London. The medical life of that part of London had changed greatly, but the society, though it had moved with the times, maintained its independence and kept up its old traditions; all branches still met in common. The President, in his reply, agreed that the main reason for the existence to-day of such a society, at least in London, was the fact that it had not split up into sections. In recent years it had fostered general discussions in which all branches of the profession took part. He suggested that profitable future debates might be held on such subjects as the constitution of the General Medical Council, the relations between qualified and unqualified practice, and the revision of the *British Pharmacopoeia*. A matter that was looming up was the future home of the society, whose lease of 11, Chandos Street, had now sixteen years to run. The President mentioned also the appointment of a new secretary, Mr. Carter. Mr. V. Warren Low, in proposing the health of the visitors, said that hospitality had always been a feature of the society. The guests he named were Professor E. A. Gardner (Vice-Chancellor of the University of London), Sir StClair Thomson (President of the Royal Society of Medicine), Dr. F. G. Thomson (President of the British Medical Association), Sir David Prain, Sir D'Arcy Power, and Dr. Vincent Dickinson (Master of the Society of Apothecaries); he welcomed also the presidents of various kindred societies, and the editorial representatives of the *Lancet* and the *British Medical Journal*. The toast was responded to by Lieut.-General Sir William B. Leishman, Director-General A.M.S.; and Mr. S. R. M.

Townsend, Master of the Clothworkers' Company. Sir William Leishman spoke of the intense interest with which members of the medical branches of the services followed what was happening in the civil profession, for they realized how closely the one was bound up with the other, and the spread of specialism in general practice was a matter that concerned the services deeply. The Army Medical Service, he said, stood for the same thing as the Medical Society of London—the training of all-round men. It was difficult for a Director-General nowadays to translate into terms of practical administration the growing claims of specialism. An excellent short toast list ended with the health of the President, proposed by Dr. Eustace M. Callender (immediate Past President), who said that Sir Holburt Waring was the 103rd holder of that office. Until the middle of last century the president was elected for two years; Lettsom was thrice president for periods of two years and Clutterbuck twice, and Sims stuck to the presidency for twenty-two years. Dr. Callender referred to the appointments and offices occupied by Sir Holburt Waring, and said that notwithstanding all the claims upon his time he had done a great deal for the society.

THE ETIOLOGY OF CARDIAC DISEASE.

In his Long Fox Memorial Lecture¹ Dr. Carey F. Coombs summarizes much of the valuable work which he and his collaborators have for years carried out in Bristol on the etiology of cardiac disease. Thus he shows that disease of the heart arises, not from a single cause, but from a conspiracy of causes, and that it is not the seed alone, but the soil and the environmental conditions, such as stress and strain and exciting lesions, that matter. Rheumatic heart disease, like that due to syphilis, attacks all the tissues of the heart—in short, is a pancarditis. Histological examination has convinced him that the submiliary nodule or Aschoff's body, which he independently observed a few months after the Freiburg pathologist's discovery, is a constant feature of active cardiac rheumatism and is absent in other infections; for example, in subacute bacterial endocarditis or endocarditis lenta, usually due to the non-haemolytic *Streptococcus viridans*, the infection attacks the heart from its endocardial surface, and not, as in acute rheumatic cardiac disease, by the coronary arteries. The difference between the myocardial changes in the two diseases—multiple and widespread in the first, accidental and few in the other—is depicted in a diagram. The endocarditis of swine erysipelas, investigated with Dr. G. Hadfield, is a superficial mural infection of the endocardium with *Bacillus rhusiopathiae suis*, and in its superficial invasion resembles endocarditis lenta. The essential features of the submiliary nodules are found in all rheumatic lesions, such as the subcutaneous nodules, which are only the submiliary nodules on a large scale, and in the joints; they are correlated with infection by streptococci allied to the normal inhabitants of the alimentary tract, and it is suggested that the lymphoid tissue of the small intestine may, like the tonsil, serve as their focus. The bad effect of other bacterial toxins, such as that of pneumococcal infection, especially when long continued, is, of course, freely admitted, but the nature of the rheumatic submiliary nodule is different and quite characteristic. With regard to "the senile heart," which Dr. Carey Coombs observed in 40 per cent. of private patients as compared with 10 per cent. of hospital patients, the probability is that cardiac breakdown after 60 years of age is the fate of the sedentary worker rather than of the manual labourer. The new syndrome of thrombosis of the coronary arteries, described by American authors and by Drs. J. W.

McNee and Gibson in this country, is mentioned, and the suggestion of Professor F. R. Fraser that cardiac failure in elderly men is often the outcome of a series of coronary thromboses, only the largest of which are clinically appreciable, meets with support and approval. Dr. Carey Coombs pays a fine tribute to the memory of Dr. Long Fox, who displayed a noble humility and had the "student spirit" of ceaseless inquiry, in spite of the routine of a heavy practice.

THE LEAGUE OF NATIONS.

THE special Assembly of the League of Nations, which has been meeting to admit Germany to membership (writes our correspondent from Geneva), has done something else of which little note has been taken in the march of larger events. It has adopted a proposal to proceed with a scheme for establishing the headquarters in Geneva with an architectural style and spaciousness worthy of the position of the League. Hitherto the secretariat has been housed in what was formerly a hotel. Some of the most momentous decisions in the League's brief history have been arrived at in what was intended, not for a council chamber, but for a ballroom. The offices of the League are inadequate and unworthy. The Assembly—which is the public debating organ, and corresponds quite remarkably to the Representative Body of the British Medical Association in its constitution, functions, and relation to the Council—has met in a public hall in another part of the city, perhaps the shabbiest parliament house in the world. The Assembly decided last week to purchase a large area of ground, some 60,000 square metres in extent, bordering on the lake, and thereupon to erect an Assembly hall and secretarial buildings of a suitable character. The cost of this development, after allowing for the sum to be realized by the sale of the existing hotel, will be 13 million Swiss francs, or about £500,000 in English money. When completed it will be a very stately edifice on the outskirts of Geneva, in grounds that stretch to the new building of the International Labour Office, and it is hoped that each of its larger rooms may be furnished by one of the great nations in some distinctive way. The adhesion of Germany to the League entails a great enlargement of the League budget. The additional expenditure on the ordinary work of the secretariat consequent upon the admission of another great Power is estimated at £21,000 a year, and this does not include the necessary enlargement of the four special organizations of the League—those, namely, dealing with health, with social questions, with economics and finance, and with mandates. The enlargement of the section dealing with social questions will include machinery for supervising agreements with regard to the traffic in opium and other dangerous drugs—a task which it is considered will remain in the hands of the secretariat for many years to come. Then, again, there will have to be German representatives on the various advisory and technical committees, such as the International Health Organization, and the Board of Intellectual Co-operation, and as the travelling and maintenance expenses of such members are provided from League funds these funds will have to be increased on this account by £1,600 a year. There is also to be established in Berlin an office of the League, on the same lines as the offices already in existence in London, Paris, and Rome, whose function will be to reply to inquiries, to keep in touch with the German press, and to explain news coming from Geneva—a precaution the necessity of which has been illustrated by recent experience. At the moment of writing, however, Germany is still waiting. The present impasse may be explained—if one may revert to the parallel, a very close one, already suggested—by supposing that the Representative Body had been called into session and had then been held up while the Council tried to

¹ The Long Fox Memorial Lecture, delivered in the University of Bristol at the meeting of the Medico-Chirurgical Society on December 9th, 1925, by Carey F. Coombs, M.D., F.R.C.P.

adjust internal differences. In more than one respect professional organizations could teach political organizations, even the most powerful and comprehensive, how to conduct business with expedition and to bring matters to issue.

FAILURE OF SYMPATHECTOMY FOR ULCER.

WITH the intention of ascertaining how far the operation of sympathectomy is to be regarded as of value in the treatment of chronic ulcers of the leg, Garcia-Diaz has made an analytical study of 346 cases treated in this way by various operators, and on this basis has produced a report¹ which will be of great value to surgeons who are seeking to form an estimate of the practical value of the method. His verdict is unfavourable. The majority of the cases have already been recorded in the journals; but 32 have not hitherto been published. The former are classified into four groups: (1) chronic ulcers of the leg; (2) ulcers of the toes (trophic and circulatory); (3) ulcers of the ankle (varicose, syphilitic, perforating); and (4) ulcers not readily classified under the above headings. Of the 37 cases in the first group only 2 could be regarded as definitely cured; of the 21 cases in the second group a cure was obtained in none, and in one-fourth of them the disease was aggravated; of the 29 cases in group (3), 2 remained healed after seven months and 1 after three years. The fourth group includes 213 cases; of these the results are not recorded in 23; in 3 the disease was aggravated; in 118 the operation was a failure; in 10 the result was doubtful; in 40 cicatrization occurred but the cases were not followed up; in 18 healing was proved to have lasted for from one to twelve months, and in 1 case for two years. The results in the unpublished cases were even more unfavourable than those above mentioned; a durable result was not obtained in a single case. As deductions from his analysis the author considers that in the trophic lesions accompanying obliterative arteritis sympathectomy is either without effect or harmful, and is therefore contraindicated in these conditions; that in perforating ulcer consequent on wounds of nerves the value of the operation has been greatly exaggerated, and that the results have been very discouraging in the trophic ulcers of stumps. In chronic ulcer of the leg sympathectomy promotes cicatrization at first in about one-half of the cases; but it is doubtful whether the result is permanent. It is, however, among these cases that the most favourable effects are met with, although the operation cannot be regarded as curative. On the strength of experiments he describes he is led to believe that the effects of the operation depend on reflexes related to the sensory fibres, and not on any modification of sympathetic action; he would for this reason prefer the term "periarterial neurectomy" to the term "sympathectomy." Dr. Kobayashi, of the orthopaedic department of Kyoto University, Japan, has also published recently the results of a series of experiments in which the effects of periarterial sympathectomy are compared with those of section of the abdominal sympathetic trunk. He found that (in dogs) the increased blood flow on the operated side is much greater and persists much longer after abdominal than after periarterial sympathectomy. The effect of the latter is at its height up to four days after the operation, but on the eighth day a tendency to anaemia is already observable, and the hyperaemia thereafter steadily decreases. The duration of the hyperaemia can be somewhat prolonged by denuding greater lengths of the artery. After abdominal sympathectomy a very distinct hyperaemia is present on the operated side for 200 days or more. Three cases of ulcers of the foot are recorded—two of a neuro-pathic type and one resulting from chilblain; the former

derived no benefit from periarterial sympathectomy, the latter healed in about twenty weeks, but local antiseptic treatment was also employed. He concludes that the effect of this operation is seen in the course of one week, but that later the condition gradually becomes worse. He has had no opportunity of testing the value of the abdominal operation clinically.

EDUCATION REGARDING CANCER.

RECENT correspondence in the JOURNAL has directed attention once more to the very serious need for education of the public regarding cancer,¹ and the possibilities of a cure if treatment be undertaken in the early stages. Dr. Hall-Edwards has gone so far as to state that if the public were armed with the knowledge of the disease at present at the command of the medical profession, they could, by their own efforts, reduce the death rate from cancer by 25 per cent. within a couple of years. The principle underlying this statement is being taught by cancer specialists in other countries. In the February issue of *The World's Health* there are two articles on the subject by Continental workers. In the first, Professor Winter of Königsberg, to whose untiring efforts the late Mr. C. P. Childo referred in our columns, gives some startling figures with regard to his experience during twenty-five years' work. In 1903 he made the following observations on 242 patients suffering from cancer of the uterus: (1) that 15 per cent. of the doctors who had treated these patients were to blame for the spread of the disease, either because they had neglected to make a proper examination or had resorted to unsuitable remedies; (2) that 45 per cent. of the midwives, who in Germany are often consulted by women afraid to consult doctors, were responsible for the aggravation of the cancer because they had treated the patients themselves instead of sending them to a doctor; and (3) that only 32 per cent. of the women suffering from cancer consulted doctors within the three months following the first appearance of symptoms. Many allowed over a year to elapse before consulting a doctor. Basing his plan of campaign on these facts, Professor Winter set out to educate doctors, midwives, and the women of his country by every available method. He wrote special pamphlets for medical students, had leaflets distributed to midwives, and wrote articles in the daily press or gave lectures urging women to apply for medical advice and treatment. As a result the number of neglected cases rapidly decreased. Similar methods have been followed by the Franco-Anglo-American League against Cancer, which operates in France, and an account of which appears in the same number of *The World's Health*. Its secretary, M. Le Bret, urges periodical medical examinations, especially after middle age, as the only certain method for detecting early cases of cancer. This league publishes posters and leaflets, arranges lectures, and supplies articles to newspapers. It has also instituted a system of visits by social workers to cancer patients both in hospital and in their own homes. These workers use social investigation cards, on which the nature of the disease and treatment are fully noted, so that the cards furnish valuable data to cancer research workers.

ANTE-NATAL CLINIC AT EDINBURGH.

THE managers of the Royal Maternity and Simpson Memorial Hospital have taken an important step in relation to the maternity and child welfare scheme connected with the hospital. In a building in immediate proximity to and directly connected with the hospital space has been set apart for the ante-natal clinic which has been in operation for some time. The new quarters will include a waiting room, dressing room, and a large examination room,

¹ *Etude analytique et synthétique de la sympathectomie périoritélle appliquée au traitement des ulcères chroniques des membres inférieurs.* Par Dr. Guillermo Garcia-Diaz. Paris: E. Le François. 1925. (Roy. 8vo, pp. 261: 21 figures, 4 plates. 25 fr.)

² See the JOURNAL, December 12th, 1925, p. 1147, and December 19th, pp. 1197 and 1198.

and the laboratory facilities of the hospital will at all times be available in connexion with the clinic. The town council has given a grant of £1,000 towards the equipment of the clinic, which is expected to be ready for work early in April. It will be recollected by those who are interested in the matter that the late Dr. J. W. Ballantyne was one of the earliest members of the medical profession to make the problem of pre-maternity conditions his special study. It is fitting, therefore, that a memorial tablet to Dr. Ballantyne should be placed in this clinic, as the managers of the Maternity Hospital propose to do. Dr. Ballantyne first drew the attention of the profession through the pages of the *BRITISH MEDICAL JOURNAL* in 1901 to the desirability of setting aside beds in maternity hospitals for the residential treatment of expectant mothers suffering from one or other of the maladies of pregnancy, or in regard to whom there was grave fear that the infant would not be born alive. As an almost immediate result, a sum of money was given to the Edinburgh Royal Maternity Hospital to endow one pre-maternity bed, which was put in service in November, 1901. At the present time fifteen beds are always available in connexion with the ante-natal clinic for this purpose, while three or four more can be utilized if needed. From the time of Dr. Ballantyne's first proposal the supervision of expectant mothers has been regarded by the managers of the Royal Maternity Hospital as an important aspect of the hospital's work, and has gradually been adopted in other places, while the Scottish Board of Health, in its memorandum of June, 1924, dealing with schemes of maternity service and child welfare, laid special stress upon the provision of ante-natal centres. It was pointed out by Dr. T. G. Nasmyth, chairman of the board of managers of the Royal Maternity Hospital, in an address last year to the Royal Sanitary Institute, that ante-natal clinics afford to the medical man the opportunity of discovering initial symptoms and applying treatment in preventing some of the most terrible catastrophes that occur in obstetric practice. This hospital is at present making an appeal to the public for funds to erect a new and enlarged building, which is considered to be urgently necessary. The commemoration of the pioneer work done by Dr. Ballantyne, as well as the connexion of the hospital with the name of Sir J. Y. Simpson, and the introduction of chloroform into obstetric practice, should be a strong incentive to the public to support this great institution, where so much important work has been already done.

DR. HERBERT JONES.

It is proposed to present a testimonial to Dr. Herbert Jones, who has been compelled by ill health, largely due to his services in the great war, to resign the appointment of medical officer of health for the Herefordshire Combined District. The Herefordshire Medical Society, which Dr. Jones was largely instrumental in resuscitating, and of which he was honorary secretary for many years, has taken the initiative in inviting subscriptions, and the response from Herefordshire will, it is believed, be generous, for his relations with the practitioners in his district have always been happy, and he has been ever ready to assist in any case of anxiety or doubt. But Dr. Jones has done a great deal of work both for the British Medical Association and for the Society of Medical Officers of Health, and it is anticipated that many outside Herefordshire will wish to contribute. He was a member of the Central Council of the British Medical Association for two terms, and also of the Public Health Committee; he was honorary secretary of the Hereford Division on two occasions, and its chairman in 1913. He was honorary secretary of the Worcester and Hereford Branch in 1904-6, and its president in 1916, and

was vice-president of the Section of Public Medicine and Industrial Diseases when the Association held its Annual Meeting at Bradford in 1924, and vice-president of the Section of State Medicine at the Annual Meeting in London in 1910. He has long been an active member of the Society of Medical Officers of Health also; he has been a member of its council from 1900 to the present time, and was its president in 1914-15. He was also acting editor of *Public Health* in 1924-25. There are few men more intimately acquainted with the intricacies of public health law and administration, and his knowledge has always been at the disposal of inquirers. The Herefordshire Medical Society is, therefore, justified in appealing to all classes of medical men for support of this testimonial to a distinguished member of the profession, whose self-sacrificing work has been of the greatest help, not only to his own district, but to the profession throughout the country. Subscriptions may be sent to Dr. John Steed, Staunton-on-Wye, Hereford, on or before April 30th.

POST-GRADUATE COURSES ON TUBERCULOSIS.

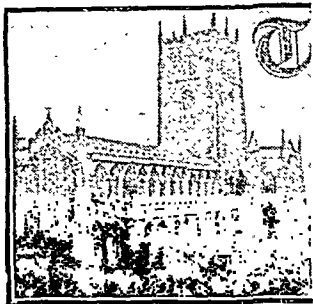
THE Joint Tuberculosis Council has organized a series of post-graduate courses on tuberculosis during 1926. It is stated that the British courses have received the approval of the Minister of Health, and will rank for grants; the question of foreign courses ranking for grants is at present under consideration by the Minister. From April 12th to 17th Professor S. Lyle Cummins will hold a course at Cardiff, and from April 19th to 24th there will be an intensive course in London at various hospitals. Sir Robert Philip will hold a course in Edinburgh from May 17th to 22nd, and Dr. S. Roodhouse Gloyne will deal with the bacteriology and pathology of tuberculosis at the City of London Hospital from May 31st to June 12th. From June 21st to 26th a course on non-pulmonary tuberculosis will be held by Sir Henry Gauvain at Alton and Hayling Island, and a study tour in Norway is being arranged for July. Mr. G. R. Girdlestone will hold a course on non-pulmonary tuberculosis at Oxford from September 23rd to 25th. Arrangements have also been made whereby individual study visits to certain tuberculosis institutions can be arranged for a week or longer. All applications and inquiries should be sent to the honorary secretary, Joint Tuberculosis Post-Graduate Courses, 19, Brunswick Square, Camberwell, S.E.5.

SIR ARTHUR KEITH, F.R.C.S., F.R.S., Conservator of the Museum of the Royal College of Surgeons of England, has been chosen by the Council of the British Association for election as president of the annual meeting of the association in Leeds next year.

THE Board of Trinity College, Dublin, has appointed Dr. T. Percy C. Kirkpatrick to be honorary lecturer in the history of medicine in the University of Dublin. Dr. Kirkpatrick holds the degrees of M.D. and Litt.D. of the university, is a Fellow and the Registrar of the Royal College of Physicians of Ireland, and a member of the Royal Irish Academy. He is the author of several well known books on the history of Irish medical institutions, including the School of Physic in Ireland, the Rotunda, and Dr. Stevens's Hospital.

THE twelfth International Congress of Physiology will be held at Stockholm from August 3rd to 6th next. Full information as to the British party which is being formed, of the routes, and of the cost, can be obtained from Dr. W. A. M. Smart, London Hospital Medical College, London, E.1.

NINETY-FOURTH ANNUAL MEETING of the British Medical Association, NOTTINGHAM, 1926.



ST. MARY'S CHURCH, NOTTINGHAM.

the neighbourhood. We publish below the third of a series of descriptive and historical notes on Nottingham and the neighbouring country; the first appeared in the JOURNAL of December 5th, 1925 (p. 1081), and the second on January 23rd, 1926 (p. 158).

THE COUNTRY ROUND NOTTINGHAM.

BY

E. L. GUILFORD, M.A.

I SHOULD not like to say how often I have heard people say that there is no scenery worth looking at in the Midlands, and then the speaker has generally gone on to refer to some beauty spot which has taken his fancy. This is a very unjust judgement, and ought most assuredly to be refuted. Taking Nottingham as a centre, a traveller can find almost every type of scenery within a radius of forty miles. I said "almost" because the lofty mountain and the wide-stretched lake are absent.

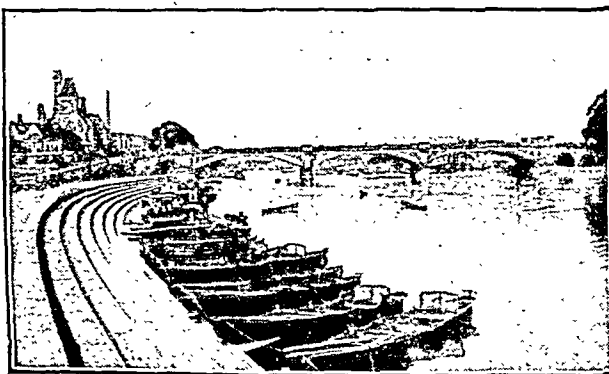
In the immediate neighbourhood of Nottingham the two types of scenery most in evidence are river and woodland.

The Trent is a majestic stream, flowing in a wide course from west to east until it reaches Newark, when it turns northwards to the Humber. The Trent has always been notoriously fickle, changing its course, flooding its banks, and subject to drought. Modern improvements have checked these vagaries somewhat, but they have left their mark on the lands on its banks. Here and there above Nottingham the Trent is difficult for small boats, because the stream flows rapidly through a narrow bed—as, for instance, between Wilford and the beautiful wooded slopes of Clifton Grove. From Beeston up to Trent Weir the river is excellent for boating, and is much frequented during the summer months by picnic parties.

Below Nottingham the Trent has been taken drastically in hand and made to behave itself so that it may be fitted to deal with the transport of merchandise. There are many very picturesque reaches of the river between Nottingham and Newark, and near these will be found inns which do a roaring trade during the summer months. Below Newark the river is less known, not so much because it is less beautiful, but rather because it is less accessible to the

general traveller. The villages by the side of these reaches of the Trent are very charming, and at Littleborough, where a Roman road used to cross the river on its way from Doncaster to Lincoln, may be seen the eagle, the tidal wave which sweeps up the river in a wall of water some five feet high. Its passage is so rapid that the unwary boatman is certain to be swamped.

Nottingham is singularly fortunate in having Sherwood Forest at its very doors. Years ago the Forest came right up to the walls of the town, but recent industrial developments have caused the woodland to retreat some miles.



Trent Bridge, Nottingham.

On the road from the county town to Mansfield or to Ollerton there is still ample evidence of this old forest. It must always be remembered that the mediaeval forest consisted primarily of open moorland covered with heather and gorse, and here and there a belt of woodland. It is between Ollerton, Mansfield, Worksop, and Retford that the real woods for which Sherwood Forest is so famous are to be found. In this area, too, are the great enclosures of Welbeck, Clumber, and Thoresby.

Here is park land at its best, and there are probably few districts in England where so many noblemen's houses are to be found within such a small area. But this is not the true Sherwood Forest. To find this it is necessary to get off the beaten track, away from the main roads, or even the side roads—for these are overrun by trippers nowadays—right into the silent forest, among the oak trees and the bracken. Then may be felt the spirit of the forest; and the imaginative may even see Robin Hood and his fellows, resting in some glade, while waiting for news of some rich quarry to reach them. Such spots are best in the late hours of a summer or autumn day, and those who are fortunate

enough to visit them then will surely agree that there are few, if any, more beautiful places than Sherwood Forest.

West of Nottinghamshire lies Derbyshire, a county of singular beauty. Again the coming of the modern tripper has done much to spoil the handiwork of Nature. Matlock would be beautiful if it were not for man and his works, which, in this case, have spoiled it in catering for the populace. The lover of beauty only uses Matlock and other well known resorts as a base of operations. He gets off the beaten track into the secluded valleys where he can still enjoy himself. Of late years the road between Rowsley and Bakewell has been made hideous by the horns of motor charabanes and the raucous voices of trippers bound for Haddon Hall. Luckily, such folk have no desire to visit the many beautiful spots lying just off the beaten track. The lover of Nature must turn off the main road to Youlgreave and explore some of the valleys near by, and he will be amply rewarded for his trouble. Dovedale at its southern end has been vulgarized, but nothing could really spoil its natural beauty, and if it can be visited when there are few people about it will be acknowledged, even by those accustomed to beautiful scenery, to be one of the most delightful valleys in these islands. It is usually approached by way of Ashbourne, a very charming old market town well worth a closer study than it usually gets. The road from Ashbourne to Buxton is much used by motorists, and advisedly, for it is better than, though not so picturesque as, the more easterly route by Bakewell. In fact, the Ashbourne route is exceptionally bleak, as anyone will agree who has had to travel on it in a snowstorm.

Derbyshire is an exceptionally beautiful county. Collieries have spoiled its eastern side, but except for this it is well worth exploring. The scenery in the south varies considerably from that in the north. Here the valleys of the Trent, the Soar, the Dove, and the Derwent meet, and help to form a country of pleasant meadowland and broad prospects.

Tastes in scenery differ, as in everything else, and Derbyshire provides something for everybody. Should the visitor desire moors, he must go north to Kinder Scout, Langsett Moors, Stanage Edge, and the Rivelin Moors, where he will find, perhaps, the bleakest region in all England. In autumn these moors are ablaze with purple heather and russet bracken, a sight worth travelling many miles to see.

Lincolnshire is quite another story. It is by no means the unbroken flat land that it is often supposed to be, for there are the wolds, stretching from north to south, which, though never very lofty, are sufficiently steep to break the landscape up very pleasantly. Lincoln itself stands on a hill. It is a charming town, the magnificent cathedral standing up as a landmark for miles around. The east coast of Lincolnshire is a favourite holiday resort for visitors from the industrial centres of the Midlands. The popular towns are few. In the north there is Cleethorpes adjoining Grimsby, and then follows a stretch of desolate coast until Mablethorpe is reached. A few miles further south comes Sutton-on-Sea—quite small, but provided with magnificent stretches of sands, an ideal playground for children. Were it not for the sands this coast would have little attraction, for the country just inland is singularly devoid of charm. It is pure marsh, intersected by a network of dykes. Twenty miles south of Sutton-on-Sea

comes Skegness, which has grown rapidly during the last few years, and shows signs of becoming the most progressive seaside resort on this part of the coast. South of Skegness there is no place of any size on the shores of the Wash. Here the traveller is approaching the Fen Country, the land of beautiful churches, vast potato fields, and far-stretching orchards. Here is some of the richest soil in England. The potato, bulb, and fruit industries have grown rapidly during recent years, and much capital is now invested in this part of the country. A visit to Spalding when the daffodils are in bloom is a thing never to be forgotten. Vast fields of yellow stretch apparently for miles in what would otherwise be dreary flatness. All these towns in South Lincolnshire are interesting. There is an air of extreme respectability about them, though not much sign of commercial energy.

Going westward towards Nottingham again two most interesting towns are passed. Ancaster, now a little dreamy place, is famous still for its quarries, whence came the stone from which so many of the Midland churches are built. Grantham is well known as a railway junction and an engineering centre. It has other claims to attention, for

the church possesses a spire which rivals in beauty that of its neighbour at Newark, and in the town is the Angel Hotel, one of the best survivals of a mediaeval hostelry in this country. Turning Londonwards, down the Great North Road, Stamford is soon reached; it is the most southerly town in Lincolnshire; in fact, part of it lies outside that county. It is a town of architectural interest, with its magnificent churches, its mediaeval hospital, and, on the outskirts, Burghley House. No one should miss Stamford if he can help it.

South of Nottinghamshire lies Leicestershire—the hunting county *par excellence*

—a county of sloping fields, pleasant woods, and jolly little rivers. Leicester itself is a very prosperous town. It was the site of the Roman station of Ratae situated on the Fosse Way. There are some traces of its Roman origin, but Leicester's appeal to the antiquary lies rather in its old churches, which are full of problems and puzzles, which delight the true archaeologist. Loughborough has little to attract the visitor, though it is a very prosperous little place. Lutterworth, to the south of Leicester, has its close association with Wycliffe, who spent the evening of his varied life in charge of the church here, and whose ashes were strewn in the river which flows sleepily through the town. Charnwood Forest is quite the beauty spot of the county, a vast moorland tract of hilly country, beautiful yet bleak, and bravely trying to beat back the encroaching hands of industrialism.

The chief impression a visitor to Leicestershire gets is that of a county of large country houses and parks, pleasing to the eye. Some of the old houses are charming, and a stroll through such a valley as that of the Wreke is restful and typical of agricultural England. On the Nottinghamshire borders is Belvoir Castle, the seat of the Duke of Rutland. This modern building on the site of a mediaeval priory stands on the top of a richly wooded hill, and is a landmark for miles around. It gives its name to the Vale which is famous for its barley and its hunting. It is full of beauty spots which delight the eye of the artist.

This completes the survey of the district round Nottingham. Whosoever does not find something in it to satisfy his



A view in Sherwood Forest.

most fastidious tastes must indeed be exacting. It does not compare with the Lake district; it has none of the beauties of the sea coast of Devon and Cornwall; but apart from this there are spots which can compare with any others which England can show. Lincoln and Southwell Minsters have architecture which will outrival any in this country—or in any other. Southwell is a little retired town well off the beaten track, but it is well worth the trouble of getting there to visit the magnificent Chapter House, which is decorated with sculpture such as no other

building in these islands can show. Southwell, too, has interesting associations with King Charles I, as was pointed out in the last article.

What, then, are the general impressions to be got from a visit to the Midlands? A country reminiscent of all parts of England; it borders the extreme types to be found in the north, south, east, and west, and it is no exaggeration to say, that within this area, of which Nottingham is the centre, a more varied selection of scenery can be found than anywhere else in these islands.

THE LISTER WARD AT GLASGOW.

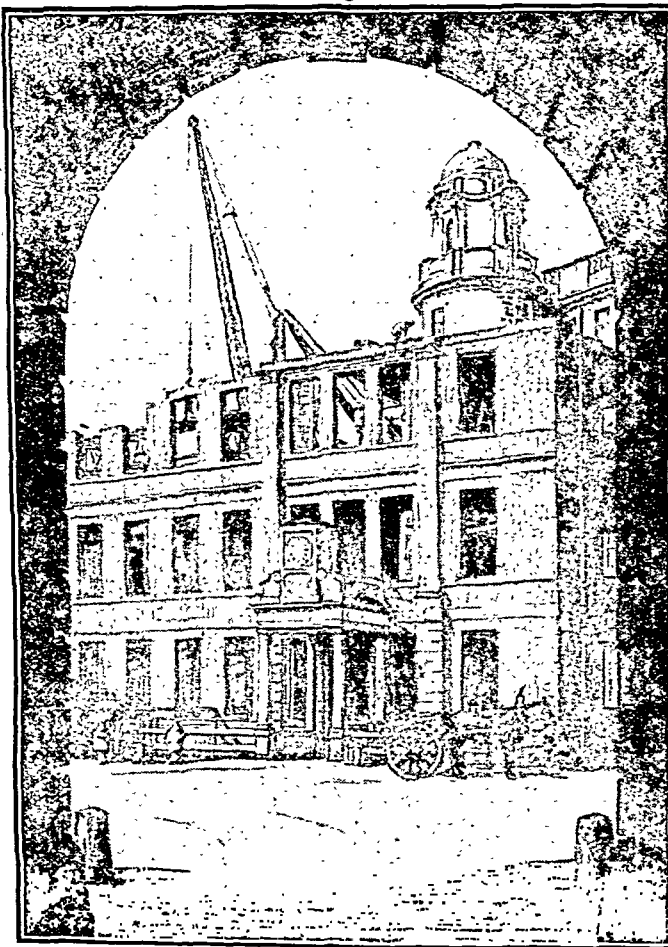
We publish a reproduction of a recent etching by Mr. Wilfred Applebey, showing the process of demolition of the Lister Ward in Glasgow Royal Infirmary. The etching has been purchased by the Glasgow Corporation for the Art Gallery collection; it shows the block of the Royal Infirmary

which used to stand on the left of the entrance gate. The ward on the lower story is that which is specially associated with the name of Lister, and of which he was in charge during his Glasgow period from 1862 to 1869. Behind the partially demolished building appears the cupola of one of the new blocks of the infirmary. The buildings have been in process of reconstruction since some years before the war, and it had been planned to utilize the place occupied by the Lister block for a new out-patient department. No great interest had for some years been taken in this block, which was one of the newer portions of the old infirmary, until the proposal for its demolition was made public some two years ago. In the half-century which had elapsed since Lister left it, many internal changes had naturally taken place and very few of the furnishings and fittings, indeed little but the walls, dated back to 1869. The managers of the Royal Infirmary were confronted by the problem that the block stood on the site which had been allotted for the new out-patient department, that it formed a considerable obstruction to the light and air in the quadrangle of the institution, and that it was difficult to plan a scheme by which the ground flat of the building could be preserved while the two upper stories were removed. On the other hand, a considerable section of the public, and of the medical profession of Glasgow, were very desirous of preserving the ward, if possible, in order to form a memento of what had been one of the principal surgical achievements of the city of Glasgow. It was in this ward that Lister originated the antiseptic treatment of compound fracture in March, 1865,

by the application of pure carbolic acid, a method he published in 1867. Here also he had tried various other substances such as zinc chloride and more dilute carbolic acid, as recorded in the *BRITISH MEDICAL JOURNAL* in 1868. The ward was justly, therefore, looked upon as the birth-

place of antiseptic surgery, although more important work in this line was done by Lister during his Edinburgh period (1869-77), when he was using more dilute applications of carbolic acid and perfecting his method. Still more important work belonged to his subsequent London period, when he saw the necessity for purifying the sponges, dirty instruments, and "unclean material upon our hands or on the skin of the patient," as we find recorded in the *BRITISH MEDICAL JOURNAL* of 1893.

The ward, therefore, although it saw the birth of antiseptic surgery, was not connected with the development of its more important phases. Those who attended the meeting of the British Medical Association in Glasgow during July, 1922, will remember that a reception was held in this ward, and that considerable disappointment was experienced because so little could be shown of the actual surroundings in which Lister had conducted his experiments and researches. When the proposal to demolish the ward was made public a considerable amount of controversy arose in the press as to whether the ward should be preserved or



DEMOLITION OF THE LISTER WARD.

(This illustration is reproduced by permission of the etcher, Mr. Wilfred C. Applebey, "Carlotia," Jordanhill, Glasgow.)

not. It was understood that the managers of the infirmary were willing that it should be allowed to stand if any person or body of persons would provide the funds necessary for the purchase of an equally suitable site for the out-patient department of the Royal Infirmary in the immediate neighbourhood. Pleas for the preservation of the ward came from the French Academy of Medicine and from various scientific and medical bodies throughout Europe and America. Sufficient success, however, did not attend the effort to raise the subscription necessary to provide an alternative site. When the demolition was in

progress, a certain number of the furnishings and fittings which had Listerian associations were secured by Mr. C. J. S. Thompson for the Wellcome Historical Medical Museum, where it is intended that they shall be exhibited when the rearrangement of this museum has been effected. The old building has now been completely removed and its place is at present vacant, but it is hoped that in the erection of the contemplated out-patient block the managers of the Royal Infirmary will include some worthy memorial of the former associations connected with the site.

Scotland.

TREATMENT OF DIABETES.

THE Scottish Board of Health has issued a circular (I.D. No. 1, 1926) to local authorities and medical officers of health reminding them that the treatment of patients suffering from diabetes may be provided by the local authorities under the Public Health (Scotland) Amendment Act, 1925, which was passed at the end of last session. Local authorities who are already supplying such treatment should inform the Board of the arrangements made in order that sanction may be obtained, and any local authority now proposing to exercise such powers should also submit its plans for approval. The Act gives covering authority for any action taken in this respect since March 1st, 1924, provided the arrangements receive sanction. Two or more local authorities may act together, if they think fit, for the purpose of the Act, but authorities wishing to combine should submit their proposals for the consideration of the Board. Arrangements have been made with the manufacturers of insulin whereby local authorities may obtain this preparation at the special rate of 2s. per 100 units, postage extra. Local authorities wishing to take advantage of this arrangement should send their orders to the Board stating the quantity and make of insulin required. The orders will be transmitted to the makers, who will supply the insulin direct to the local authority, and the Board will render accounts to these authorities in April and October.

EXTENSION OF EDINBURGH ROYAL INFIRMARY.

An agreement now seems probable between the Royal Infirmary of Edinburgh and the Edinburgh Merchant Company for the transfer to the Infirmary of the present site of George Watson's College for Boys, together with a large space of ground surrounding it, used as a playground. The education board of the Merchant Company has for some time contemplated the removal of the school to a more suitable locality. The board was prepared to accept the sum of £100,000 for the site from the Infirmary, whilst the sum offered by the Infirmary was £75,000, payable in instalments before possession; with interest this would represent somewhat over £80,000 by the time the Infirmary obtained entry. By the munificence of Sir John R. Findlay, Bt., who has offered a sum of £10,000 to the Infirmary managers for this purpose, the Infirmary has now been able to offer £90,000 for possession of the site not later than Whit-Sunday, 1931. It is believed that this will be accepted by the Merchant Company.

EDINBURGH UNIVERSITY SETTLEMENT.

The Edinburgh University Settlement, which was founded in 1905, is established in premises near the old college in a part of the city adjacent to the Flodden wall and above the Pleasance, one of the most congested districts. The Settlement is a centre of great activity, with various clubs for men and women, boys and girls, run on a self-governing basis by a committee, with the warden, Miss Grace Drysdale, as chairman. It has a membership of considerably over 500, for which the present buildings and equipment are quite inadequate. The cost of rebuilding the premises will, it is estimated, be £30,000, for which an appeal is now being made to the public. During the last week of February the students of Edinburgh University organized a carnival and other functions in an effort to raise a portion of the amount required. The interest of university students in the work of the Settlement has steadily grown, and a close co-operation exists between the

Settlement and branches of the public health authorities of the city. An occupation centre for mentally defective children, which meets daily in the Settlement, has done good work. A very useful department has been the Hospital Social Service which for some years has been carried out by ladies operating from the Settlement. Since October, 1924, this has become the Social Service Department of the Royal Infirmary.

EDINBURGH DENTAL STUDENTS' SOCIETY.

The thirty-eighth annual dinner of the Edinburgh Dental Students' Society was held on February 26th, with Mr. C. H. Kenball in the chair. Dr. John Orr, dean of the Edinburgh School of Medicine of the Royal Colleges, in proposing the toast of "The Society," said that its meetings had an effect in forming character and in teaching, which was of infinite value in professional life. Fruits of the society's influence could be seen in the type of men now being turned out. Mr. A. Scot Skirving, C.M.G., in proposing the toast of "The Dental Hospital and School," recalled the early days of the hospital as contrasted with the beginnings of the Royal College of Surgeons, which might be looked upon as parent of the Dental Hospital and School. He believed that the harder examinations were made the more candidates appeared. The higher dental diploma, which had been recently instituted, was only to be gained by persons of considerable ability, and he trusted that it would be safeguarded in every possible way, so that the holders might reasonably be proud of it. Splendid work was being done in the school, and this would be carried out under far better auspices in the new buildings which were at present under construction. Dr. William Guy, F.R.C.S., dean of the school, who replied, said that there had been a very continuous and marked advance in the status of the dental profession, with appreciation on the part of the public of the services it rendered to the community.

CHRISTIANITY AND HOSPITALS.

Professor W. Manson, D.D., preaching in Glasgow University Chapel on Hospital Sunday in aid of the Glasgow Royal Infirmary and the Western Infirmary, remarked that, although the Christian ideal seemed to have been shattered so often on the real, yet the hospitals stood out as exceptions in which there had been transformation of the ideal into actuality. Though the full social application of the spiritual ideal still remained to be achieved, yet in ministering to the physical ills of humanity the Christian experiment was almost complete. Christianity, lagging and impeded elsewhere, had in the healing of human sickness come into its own. It was possible that in the upward evolutionary process of human life the physical adjustment to the environment must precede the social and spiritual, and so man's physical sympathies had been the first to approach perfection. It might, therefore, be hoped that what Christianity had achieved in the physical sphere it would also succeed in doing in the social and spiritual spheres.

England and Wales.

THE WELSH NATIONAL MEDICAL SCHOOL.

THE conference between those in favour of the constitution of the Welsh National Medical School as an independent school of the university and those opposed to it, which, as already reported, was held in Cardiff on January 15th, appeared to come to an end without having achieved any agreement on several fundamental points. Negotiations have, however, been going on, and at a special meeting of the Court of Governors of the University College, held last week under the chairmanship of Sir David R. Llewellyn, a resolution was adopted which is considered to be a step on the road to agreement. The resolution, which was in the following terms, proposed to appoint a warden or provost to be the chief administrator and academic officer of the school:

That without prejudice to the ultimate organization of the Welsh National School of Medicine, and in particular to the future position of anatomy and physiology as departments of the College, it is advisable that immediate steps be taken to

create the office of provost or warden or master of the Welsh National School of Medicine, who shall, subject to other constitutional offices created by the charter, be the chief administrative and academic officer of the school, and who, by virtue of his office, shall act as chairman of the Faculty of Medicine and as an *ex officio* member of the Board of Medicine, and who, pending such constitutional development as may be made, shall be responsible for the performance of his duties to the College Council.

An amendment to postpone the consideration of the proposal was moved, but was opposed by Principal Trow, and was eventually defeated by 45 votes to 30. The resolution will accordingly be submitted for discussion to a conference of representatives of the College and of the University Council which is to be held next week.

MIDDLESEX HOSPITAL.

Prince and Princess Arthur of Connaught and other members of the Royal Family attended a "scientific evening" at the Middlesex Hospital on March 10th, at which about 2,000 guests were present. An extensive exhibition was arranged on the ground floor of the hospital and divided into six sections to illustrate the scientific side of the prevention and treatment of disease. One outstanding feature was a collection of different kinds of heliotherapeutic appliances in operation, showing the rapid advance of this form of treatment and its wide field of utility. Numerous firms collaborated in this section, which remained open until March 16th for inspection by medical officers of health and other medical practitioners interested. Other rooms were devoted to the curative and diagnostic procedures associated with diathermy, radium, and x rays, while a collection of pictures and various forms of surgical instruments and apparatus was lent by the Wellcome Historical Museum to illustrate phases in the history of medicine and surgery. A great variety of physiological, anatomical, and chemical demonstrations were provided in other sections, and several rooms were required for pathology, special attention being devoted to bacterial diagnosis, spectroscopy, insulin treatment, biochemistry, tissue growth, and ultramicroscopy. During the evening the new cinematograph propaganda film of the hospital was exhibited, and demonstrations were given to illustrate the properties of liquid air.

ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

The annual meeting of this institution took place in the Town Hall, Liverpool, on March 8th. The Lord Mayor was in the chair, and expressed the hope that during his tenure of office the scheme to alleviate the financial distress of the voluntary hospitals and to place them in a position of security would come to fruition. The financial statement shows that the hospital is in debt to the extent of £26,414. The work of the hospital is steadily increasing, and the expense of conducting the various departments now fully equipped does not diminish. The president of the hospital expressed his view that if the financial position did not materially improve curtailment of its beneficent work would have to be seriously considered. The honorary treasurer made a forcible appeal through the local press. He said it was deplorable in view of the large population of the city that the subscription list was such a paltry one.

ENCEPHALITIS LETHARGICA.

Arrangements are in force for the reception in one London county mental hospital—West Park Hospital, Epsom—of London patients certified under the Lunacy Acts for detention in a mental hospital who are suffering from the after-effects of encephalitis lethargica, or are known to have suffered from the disease, so that they may benefit from a scheme for co-ordinated treatment and research which has been instituted there and at the laboratory of Maudsley Hospital. It has also been agreed, at the instance of the Board of Control, to receive at the same hospital not more than thirty patients suffering from the after-effects of encephalitis lethargica who are chargeable to parishes and unions outside the county of London.

L.C.C. FEE FOR MEDICAL CERTIFICATES.

The London County Council is raising its fee paid to medical practitioners, whether its own district medical officers or not, in respect of medical certificates issued

to the operative staff employed at main drainage stations and on sludge vessels. The fee, when a visit to the home of the employee is involved, has hitherto been 3s. for a certificate; it is now to be increased temporarily to 3s. 6d., and later it will be on the permanent basis of 5s. for each certificate.

Correspondence.

DYSENTERY IN MESOPOTAMIA.

SIR,—Dr. Boney (February 13th, p. 303) and Dr. Mitchell (March 6th, p. 449) express great surprise at the recent report on the health of the army with reference to the prevalent types of dysentery in Mesopotamia. Personally I see no cause for such surprise.

From June, 1917, to January, 1920, I was in charge of the dysentery wards of 133 British General Hospital at Kut-el-Amara (under Lieut.-Colonel J. G. Foster, to whom I am indebted for permission to publish these figures). From March to December, 1918, a ward register was kept in which all direct admissions of cases of dysentery were entered. Amongst the cases transferred from other hospitals higher up the line bacillary dysentery was common enough, but the register was only meant to include cases of the disease contracted locally.

All cases presenting the clinical symptoms of blood and mucus in the motions were entered as "clinical dysentery." Stool examinations were then carried out with the following results:

March to December, 1918.			
All dysentery—"Clinical"	...	...	149
Bacteriological diagnosis:			
<i>E. histolytica</i> .....	...	...	141
Entamoeba-free .....	...	...	6
<i>B. dysenteriae</i> .....	...	...	Nil
No organism .....	...	...	2

Personally I did none of the bacteriological work, but I know that *E. histolytica* was only reported to be present when (1) either the amoeba was seen in an active condition, containing red blood corpuscles, or (2) the characteristic tetragenous cyst was present.

All the other hospitals in Mesopotamia, I am aware, obtained quite different results, but probably the conditions at Kut in 1918 most nearly resembled the conditions present in Mesopotamia now.

The explanation may be as follows. Defective sanitation generally, including water supply, is the chief etiological factor in bacillary dysentery, while the presence of house-flies is the chief factor in spreading amoebic dysentery. At Kut in 1918 the general conditions and water supply were very good, the mosquito almost absent, and even sandflies reduced in number. The house-fly, however, continued to flourish in spite of miles of wire gauze round, kitchens and mess-rooms.

Probably the army in Mesopotamia enjoys good general sanitation now, but has not yet defeated the house-fly, and consequently it is not "incredible," but as would be expected, that the prevalent type of dysentery is now amoebic and not bacillary.—I am, etc.,

Tadworth, March 9th.

B. E. JERWOOD, M.D.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

SIR,—I am interested in the letter of the Bishop of Singapore published in your issue of March 13th (p. 503) on mental irritability and breakdown in the tropics.

In the *Proceedings of the Royal Society of Medicine*, 1925, vol. xviii (Section of Tropical Diseases and Parasitology), I drew attention to the experience that fatigue, ill health, and worry bring out latent defects in the eye in any country. A hot climate causes greater fatigue than a temperate one, and this fatigue in many cases leads to fatigue indigestion, with resulting physical depression. Worry, whether of private or official origin, similarly causes ill health.

Under any of these conditions trifling errors of refraction or slight degrees of heterophoria (lack of normal muscular balance of the eyes) exert effects quite out of proportion to

their severity. It is therefore of the greatest importance that correction of these errors should be made as carefully as possible, and that the spectacles ordered should be adjusted correctly. In a highly sensitive person, whose nerves are constantly being jarred by physical or mental discomforts, the correction of a very small degree of astigmatism may make all the difference between happiness and misery.

The symptoms which patients with an uncorrected error of refraction complain of are familiar to all ophthalmic surgeons—headache, neuralgia, aching of the eyes, especially after a late night, frequent frowning, indigestion, inflammation of the eyelids, and so on. Inability to see as well as other people in the dusk is a not infrequent symptom, especially when the general health is impaired.—I am, etc.,

London, W.1, March 12th

A. F. MacCALLAN.

COMMON SENSE IN RELATION TO DOUBTFUL TUBERCULOSIS.

SIR,—In acknowledging Dr. Mackey's kind reply (March 6th, p. 449) to my criticism on the question of the best way of dealing with a case of doubtful tuberculosis, I admit that there may be two schools of thought. In the earlier days of public health (tuberculosis) organization the commoner view was that held by Dr. Mackey—namely, that the doubtful case should be treated on the assumption that tuberculosis was present. But the experience since gained has convinced many that the "benefit of the doubt" lies rather in leaning to the negative than to the positive side, until a definite decision can be arrived at. I cannot help thinking that Dr. Mackey somewhat exaggerates the danger from delaying sanatorium treatment in such cases for a week or two, or sometimes even a month or two. If the patient is kept under careful observation it is improbable that the disease, if present, will make such progress that by the time a definite diagnosis can be made his chances of benefiting from sanatorium treatment will be seriously jeopardized.

The whole idea of careful observation, including sputum examinations, temperature records, weight records, and in appropriate cases tuberculin tests (from which, however, cases of haemoptysis would be excluded), is that a definite diagnosis shall be arrived at before the disease could have made any serious progress. The longer the time required to arrive at a definite diagnosis, the less the likelihood that the patient has a very active and progressive type of infection.

Dr. Chandler, in a letter published in the same issue, says he fails to understand the point of my letter, because Dr. Mackey had advised only a "restful fresh-air holiday" and not sanatorium treatment. In my letter I argued that "the restful fresh-air holiday" under careful observation, prescribed for the patient, would generally connote a period of treatment at a sanatorium. That this is accepted by Dr. Mackey himself is apparent from the final paragraph of his letter.

Dr. Chandler is very properly indignant at finding "with what equanimity some doctors will regard haemoptysis." Every tuberculosis specialist will echo his sentiment. But I, in turn, fail to see what this has to do with the point at issue. I do not advocate that haemoptysis should be neglected. On the contrary, I advocate a period of intensive observation, embracing all the "important elements" of investigation of which Dr. Chandler speaks. At the same time, with regard to cases of haemoptysis occurring without other symptoms or physical signs, and in which no subsequent development of pulmonary disease occurs, I prefer to maintain the scientific attitude of mind rather than adopt the dogmatic attitude, and, while looking upon tubercle as the most probable cause in such cases, to regard it as "unproven."

As to the outstanding importance of early diagnosis, which means early treatment, all authorities on tuberculosis are agreed. Unfortunately there are many practitioners who are not so fully alive to this.—I am, etc.,

Alderley Edge, Cheshire, March 8th.

E. WEATHERHEAD.

P.S.—The Editor has kindly allowed me to add a few words with reference to the letter from Dr. Bushnell which

appeared in the last issue of the BRITISH MEDICAL JOURNAL. Dr. Bushnell has started a different hare. I cannot agree with him that there is any appreciable risk of infection of a possibly non-tuberculous person at a well ordered sanatorium. Indeed, I believe that a well ordered sanatorium is one of the last places at which one would be likely to get a massive dose of tubercle bacilli. I was concerned solely with the disastrous social consequences that may result from a mistaken diagnosis of tuberculosis. This does not mean that on general principles I am not in agreement with Dr. Bushnell that suspects under observation at a sanatorium should preferably be accommodated in separate "observation sections."—E. W.

March 13th.

THE THYROID AND MANGANESE TREATMENT.

A Warning.

SIR,—In an interim report on this treatment published in the JOURNAL of December 26th last (p. 1209) I described a cachet containing pure potassium permanganate gr. 1/8 in powdered form, combined with a powdered thyroid gland tablet of a grain or half-grain strength. And I stated that the tablet referred to was the "ordinary" 1-grain thyroid tablet which is prepared by the wholesale druggists, meaning a tablet which is standardized, and commonly believed to be equivalent to thyroid siccum gr. 1/5.

But apparently my meaning has not been understood, for chemists and wholesale druggists have been combining these drugs in very irregular proportions. I have two samples in front of me which come from well known houses. One is a combination of potassium permanganate gr. 1/8 with thyroid siccum gr. 1. This contains five times more thyroid substance than I suggested; yet it has been sent to me as representing such.

The other is a combination of potassium permanganate gr. 1 with thyroid siccum gr. 2. This contains eight times more permanganate and ten times more thyroid siccum than the cachet described as having properties of considerable promise. Doses such as these may be found useful on rare occasions, but from the experience gained by watching the effects of various strengths of the drugs I should regard them as likely to be harmful if frequently repeated. I have felt compelled to draw attention to this matter in case the mistake is made by other makers, for the more one uses this combination the more one realizes that the smaller dose of thyroid is the more generally useful.

This is not the time or place to enter into speculations as to the underlying reasons why interesting results are being seen by combining these two drugs in cachet form; but this at least can be said, that whether any new product is formed or not when these drugs are loosened simultaneously into water, much depends upon their being presented to the tissues in that fluid medium.

This being so, no soluble container should be used in making them which, when it is filled with the powder, sinks in water. The solution's power evidently depends upon it being freshly made in the empty stomach, and in that form passing quickly into the bowel; whereas if the container were to sink to the bottom of the half-pint of water with which it is swallowed it might easily pass through the pylorus unopened.

Another matter of practical importance must be touched upon—that is, the type of cachet holder that is used in making this cachet. The best one by far is the telescopic type, where the cover slips over the holder fitting so tightly that no moisture need be used to make the two parts adhere.—I am, etc.,

HERBERT W. NOTT.

Little Sutton, Feb. 27th.

DIET IN NURSING HOMES.

SIR,—In numerous English nursing homes the diet is excellent, but in others the reverse. I cannot state in what proportion of nursing homes the diet is unsatisfactory, since a reliable estimate could only be given as the result of prolonged investigations. But, from my own limited experience, I feel justified in concluding that the number of nursing homes in which the diet is unsatisfactory is so large as to make it desirable, in the interests of patients,

that the attention of medical men should be directed to the subject. Whilst I was a patient in an expensive London nursing home my diet was very often unsatisfactory. My wife was a patient in a well known and expensive London nursing home, and the end of her life was rendered miserable by the bad food. Many friends (chiefly relatives of medical men) who have been treated in expensive nursing homes have given me their opinions as to the diet in these homes; almost always it has been declared to have been unsatisfactory. During my practice as a consulting physician for thirty-six years in a large provincial town, I had many patients and friends who were treated in the nursing homes of that town; and when I had the opportunity of obtaining their opinions as to the diet, almost always it was declared to have been unsatisfactory. I know from my own experience that the dieting of patients in private nursing homes is frequently left by medical men entirely in the hands of the cook. Consequently unsuitable food is often supplied. Others may not have had such bad experience, but I cannot think my own is exceptional. Patients in many nursing homes have a right to expect more satisfactory food, both as regards quality and quantity. I would urge all medical men who are treating patients in nursing homes to see that their diet is always sufficient, and satisfactory as regards both quality and cooking.—I am, etc.,

March 8th.

PHYSICIAN.

FINAL NURSING EXAMINATION.

SIR,—Sister Tutor Billinghamurst, in her letter (JOURNAL, March 13th, p. 506), suggests that it is wise that nurses should be trained to recognize the early symptoms of disease, because when acting as private or district nurses they may be consulted as to the significance of these symptoms, or may call attention to their importance and the need for medical advice.

I readily admit that a nurse may have many opportunities for this, but I am not ready to admit that it is a necessary part of the work of a nurse, or that she need be trained for it. Whenever she is consulted on such a matter I submit that the advice she should invariably give is that a doctor should be consulted; and I think she should explain to those asking her advice that she has been trained to nurse the sick, and not to act as an unqualified medical adviser to the public. There is a very unfortunate tendency among the public to consult nurses as if they were doctors, and this should be most definitely discountenanced by all nurses. It is an attempt to get advice with little trouble, and no expense, in the same way that they apply to chemists for advice and treatment. The nurse, when consulted in this way, should invariably be the signpost directing to the doctor, and nothing more. If, with the smattering of medical knowledge which she may have acquired, she takes on herself the responsibility of saying, "Oh no; that is quite a trifling thing, and you need not trouble your doctor about it; make your mind quite easy," she may be right now and then, and quite wrong at other times. For instance, she may tell one woman who has slight haemorrhage after a well established menopause that it is of no consequence as long as it does not make her ill, or another woman that a lump in her breast need not be the cause of any anxiety because she knows of a case where an exactly similar lump disappeared. But, of course, even though she may have the most imperfect knowledge of medicine and surgery, she may know just enough to call attention to some symptom or sign of really serious disease, when her advice is not sought, and therefore it might be advisable to give to all nurses, instead of the useless courses in medicine and surgery they now attend, a course of lectures on the indications for calling in the doctor, which might be almost as useful to her as a course of first aid; but I think the better way would be to issue a guide direct to the public. A small book might with advantage be published, and sold at a very small price, on when to consult the doctor, or early signs of serious disease, written, not by a nurse, but by the collaboration of medical and surgical specialists. Such a book would emphasize the importance of recognizing such things as the danger of neglecting a lump

in the breast, an ulcer on the tongue, or the attack of severe abdominal pain and vomiting, which might be the early stage of acute appendicitis, or other abdominal emergency. The distribution of such a book free to the poor by the municipal health authority would be a very great advantage.

The other reason given by Sister Tutor Billinghamurst why nurses should be instructed in, and examined on, the surgical treatment of disease is that they may be able to make preparation for it—have everything ready for the surgeon to treat retroversion of the uterus, for instance. But surely the nurse need not know how to treat the case for this. All she need know (and be asked at the examination) is what she would have to prepare for the particular treatment which was going to be adopted. It would be ridiculous to ask a nurse, in an examination, how to remove the appendix, but it would be quite a proper question to ask her how she would prepare the patient and the operating theatre for an abdominal operation.

I am not a gynaecologist, but it seems to me that to "help a woman in the matter of attention to pessaries" does not require any knowledge of retroversion of the uterus, and that if it is a matter requiring more than a knowledge of simple gynaecological nursing it is one for the doctor, and not for the nurse.

Sister Tutor Billinghamurst points out that in the nursing examination alternative questions are given, "so that if a nurse finds one question which she cannot answer she can leave it for another." But what guarantee have we that both questions may not be as absurd, and unfair to the nurse, as those given in the examination paper which is the subject of this correspondence?—I am, etc.,

Bristol, March 14th.

CHARLES A. MORTON.

** Owing to the heavy claims upon our correspondence columns we are unable to find space for a number of other letters on this subject.

PHTHISIS A DISAPPEARING DISEASE?

SIR,—We are indebted to Dr. Baskett (March 6th, p. 449) for his insistence on the dependence of tuberculosis mortality on national poverty, but I should like to suggest a fallacy in his criticism of Dr. Flemming's reference to phthisis as one of the disappearing diseases. The fallacy consists in the appraising of rate of decline by actual decrement, instead of the ratio of this decrement to the diminishing death rate; an inch means much more to the Nelson Monument than to Mount Everest. This source of error has been fully described by Sir Arthur Newsholme in his book on vital statistics, with reference to this very subject of tuberculosis.

Dr. Baskett's statement is that the decline in phthisis mortality between 1896 and the present day is not nearly half so fast as before 1896. From the Registrar-General's review for 1924 (p. 35) it can be ascertained that the death rate per million from respiratory tuberculosis was, in the lustrum 1838-42, 3,782; in 1891-95, 1,461; and the mean rate over the five years 1920 to 1924, 865. It is a simple matter to find, by the aid of logarithms, that the rate of decline in the death rate was, in the fifty-three years between the first two lustra, 1.78 per cent. per annum, and, in the twenty-nine years between the last two lustra, 1.79 per cent. per annum. It would appear, therefore, that the decline has operated at a surprisingly constant rate, but fractionally faster after 1895 than before.—I am, etc.,

Guisborough, March 8th.

C. R. GINSON.

THE ACTION OF CERTAIN ALLEGED INTESTINAL ANTISEPTICS.

SIR,—In an article appearing in the JOURNAL of February 27th (p. 367), entitled "On the action of certain alleged intestinal antiseptics," Dr. Lawrence Garrod mentions one of our products, *izal* perles. We trust we may be permitted a few remarks on the deduction drawn.

Dr. Garrod rightly emphasized the difficulties of forming any accurate estimation of "the action of an alleged intestinal antiseptic . . . on the organisms in the upper part of the intestinal tract," and "to enumerate living

anaerobes [in the faeces] with accuracy is almost impossible." "Wide variations may occur from day to day in the total numbers of living organisms in the faeces."

It is of interest to note that Dr. Garrod's results with izal (1922) confirm the work of Gordon done twenty years ago, and that izal is the exception referred to. We are sorry Dr. Garrod did not feel disposed to invite our assistance in his investigation. Since we maintain a large permanent staff of qualified chemists, we could have confirmed that the composition of the oil in izal perles—a refined fraction of polymethyl phenols having the physical and chemical characteristics of isopropyl-meta cresol (thymol)—is guaranteed to be in every respect equal in germicidal value and quality to the oil always used for izal perles.

We do not admit any obligation "that specific and detailed evidence as to the alleged action of these drugs should be published," seeing that, apart from publishing Gordon's investigations years ago, we have never spent one penny in advertising izal perles.

The extensive use of this product by physicians and their constant recommendation of it is in these circumstances surely proof of value, especially when such use has continued to grow without the aid of advertising over a period of twenty-five years.

Dr. Garrod, unfortunately, does not indicate if keratin-coated perles were used for his experiment.—We are, etc.,
NEWTON, CHAMBERS AND CO., LTD.

Thorncliffe, near Sheffield, March 11th.

** With regard to the above reference to Dr. Mervyn Gordon, we are informed by Dr. Gordon that having found experimentally that izal oil, when taken by mouth, was capable of reducing very considerably the number of organisms in the faeces, he published a paper in the *Lancet* in 1902 giving details of the experiments and their results. We are further informed that, without consulting Dr. Gordon, Messrs. Newton, Chambers and Co. circulated a reprint of his paper. Dr. Gordon requested the firm to discontinue this, and understands that they ceased to do so.

** We have received the following correction from Dimol Laboratories of their letter published last week (p. 505):

"A slight confusion would appear to have been introduced by the use of the word 'solution' in regard to the behaviour of a dimol tablet (after removing the outer coating) in water. Whether it is 'dissolved' in 20 c.cm. of water or in 200 c.cm., the result is the same—not 'solution' in its strictest sense, but an extremely fine emulsion, which is conventionally termed 'solution,' even by bacteriologists. Dimol is made available in this form for the simple reason that, other things being equal, emulsions of bactericides have at least three times the efficiency of solutions."

ARTIFICIAL LIGHT CLINICS IN GLASGOW.

SIR,—In your notice of the Glasgow public health department's report on artificial light treatment, in the *JOURNAL* of March 13th (p. 494), you say that mercury vapour lamps of 20 to 75 amperes are being employed. This is of course an error. The 20 and 75 ampere lamps are open carbon arcs, after the style of those used by Reyn at the Finsen Institute. We also use a mercury vapour lamp, but it is of the ordinary K.B.B. type.

I shall be pleased if you will make the necessary correction.—I am, etc.,

Glasgow, March 15th.

ALEXANDER SMITH, M.B.

** We regret the error, which would give a wrong impression of the dosage with mercury vapour lamps. Such a dosage as was erroneously mentioned, with such a lamp, might cause serious trouble.

The Services.

INSPECTOR-GENERAL H. C. WOODS, C.B., C.V.O., M.D., R.N.(ret.), has been awarded the Greenwich Hospital pension of £100 a year, in the vacancy caused by the death of Inspector-General T. Browne, M.D., R.N.(ret.).

DEATHS IN THE SERVICES.

Surgeon Captain Alfred Ernest Weightman, O.B.E., R.N.(ret.), died in London on February 6th, aged 66. He was educated at Queen's College, Galway, and at Liverpool, and took the L.R.C.P. and S.D. in 1884. Entering the navy soon after, he reached an honorary step as surgeon captain, on November 11th, 1918. He received the O.B.E. on June 3rd, 1918.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has been concerned this week chiefly with the Economy Bill, which had a second reading debate on March 16th and 17th, and also with the Civil Service Vote on Account which accompanied this measure. The Army Estimates were introduced and sanctioned on March 15th. To aid discussion on the Economy Bill the Chancellor of the Exchequer issued a White Paper analysing national expenditure.

For consideration of the Births and Deaths Registration Bill and the Midwives and Maternity Homes Bill Dr. Fremantle, Sir Richard Luce, and Sir Kingsley Wood have been added to Standing Committee A. Dr. Drummond Shiels has been substituted for Dr. Salter in the committee on the registration of nursing homes.

The Economy Bill.

On March 16th the Economy (Miscellaneous Provisions) Bill came before the House for second reading. A preliminary memorandum was issued to explain its provisions.

The memorandum states that £8,310,000 to £10,160,000 is estimated to be saved by the bill in 1926-27, chiefly in National Health Insurance and in Unemployment Insurance. In view of the fact that the surpluses of approved societies were estimated to amount to £65,000,000 at the end of last year, the bill proposed to reduce the State contribution to health insurance from two-ninths to one-seventh in the case of men and one-fifth in the case of women as from January 1st, 1926. This reduction of grant would not diminish the accumulated surpluses, of which £30,000,000 had been, or will be, allotted to additional benefits payable in 1925-31, nor would it reduce the additional benefits at present provided. The memorandum pointed out that from 1928 additional sickness and disablement benefits would not have to be provided for persons from 65 to 70, who would be in receipt of old age pensions under the Act of 1925. This would practically counterbalance the change in the State grant, so far as additional benefits based on the first and second valuations were concerned. Provision was made for meeting from the Reserve Suspense Fund any deficits in the funds of individual societies and branches which might result from the reduced State contribution. A sum of £1,100,000 was to be transferred to the Exchequer from the surplus in the Navy, Army, and Air Force Insurance Fund.

Concerning the provision for medical benefit, the memorandum said that the authorized charge for medical benefit under the National Health Insurance Act was 9s. 6d. a year for each insured person, with a further 6d. for administration. The actual cost at present (including the 6d.) was about 12s. 6d., seven-ninths of the excess being temporarily met from unclaimed stamps of the excess and other sources. This provision came to an end on December 31st, 1926, and, as recommended by the Royal Commission, it was proposed to place the full charge, not exceeding 13s. per insured person (including 6d. for administration), upon the funds from which benefits were ordinarily paid. The maximum additional charge involved was about £2,300,000 a year, towards which the Exchequer would contribute one-seventh (men) and one-fifth (women)—approximately £400,000. The latter was not a new charge; the Exchequer was already paying the statutory proportion of the whole expenditure authorized. Special provision was made to meet Scottish conditions, without, however, altering the maximum amount to be devoted to the cost of medical benefit.

Government Actuary's Report.

The Government also circulated a report from the Government actuary, who, in recommending these changes in the finance of medical benefit, explained that the rates of sickness by which the liabilities in regard to sickness and disablement benefits were assessed would be taken, in the case of men, on the basis of the rates disclosed by the experience of the Manchester Unity of Oddfellows in the five years 1893-97, due allowances being made for the commencement of sickness benefit on the fourth day of incapacity. The change from the present basis in this respect consisted in the deduction of the margin of approximately 13 per cent. originally added to the Manchester Unity rates, and which, after evidence of experience in the years 1921-23, the Actuarial Committee considered to be unnecessary. The liability for sickness and disablement benefits in women would be estimated with reference to rates of sickness deduced from the experience of a representative body of insured women in 1923. This experience was obtained by the Ministry of Health from the records of approved societies chosen in such a way as to constitute as nearly as might be a microcosm of the whole population of insured women.

Second Reading Debate.

Mr. Churchill, in moving the second reading of the bill, said that the first proposal was to reduce the State contribution to health insurance from two-ninths to one-seventh for men and one-fifth for women. This would effect a saving of over £2,750,000. The con-

tribution of the State to the Widows and Old Age Pensions Bill was £5,750,000, and the old age pension was granted at 65. This substantially reduced the liabilities for which the health insurance fund was responsible, by taking off from the beginning of 1925 every contributor between 65 and 70—that was to say, at the period of life when sickness benefits were at a maximum, and would relieve the fund of a responsibility actuarially computed at upwards of £37,000,000. The surplus of the health insurance fund was to-day estimated at £65,000,000. Of this, £13,000,000 was due to be spent over the next five years in additional benefits. The Royal Commission had reported that after providing these large additional benefits there would be a surplus of over £2,000,000 per annum after meeting also the cost of medical benefit for which this bill also made provision. Of course, it would be very agreeable to apply this surplus on still further extending the benefits, and it would be easy to unfold many desirable plans for spending the money. Such plans would, however, automatically attract an additional State grant of £500,000, and would throw an increasing burden upon the overstrained Exchequer. The Government had therefore decided that the time had come when the State contribution to national health insurance could, both in justice and in prudence, be reduced as proposed in the bill.

Mr. Snowden moved the rejection of the bill, on behalf of the Labour party. He said there was no economy in the reductions in the bill, but the intention undoubtedly was to rob the sick, the disabled, the unemployed, and the children.

In the course of the debate, Dr. Drummond Shiels discussed the National Health Insurance aspect of the bill. As had been pointed out, the scope of the National Health Insurance Bill of 1911 was very much wider than the actual scheme in operation at present. The first essential in the social health insurance system was a complete medical scheme, not only a general practitioner service, but a scheme which would give all expert advice, both medical and surgical, and all remedial and curative agencies, such as dental and optical treatment, and all kinds of institutional treatment, with skilled nursing, with the help of such accessories as x rays, massage, light treatment, and so on, which could not be given in the miserable homes in which so many of the workers lived. The original Insurance Act of 1911 did not limit the kind of medical system which might be set up. The limitation was made by Regulations under the Act, and was doubtless a result of difficulties with the medical profession, and also financial and administrative difficulties. Just before the war proposals were brought forward by the Government of that day for an extended medical service, but these had to be dropped, like many other things, on account of the war. Since then they had been hoping for and expecting the new developments of the extended medical service. The Act had proved its soundness by being able to carry on during the war. It had gone through two actuarial examinations, and was now regarded as financially sound. The Royal Commission suggested that the various medical services organized by the State would continue to expand, both in their scope and in the range of the persons to whom they applied. They said, also, that medical benefit had been a valued and successful element in the scheme of National Health Insurance, and, further, that while it had been inevitable hitherto that medical benefit should be confined to a general practitioner service, this limitation had detracted from the value of the benefit, and its removal was urgently desirable. This extension of treatment, which the Commission considered urgent, should be made, they said, if and when funds were available, in the following order: Expert medical advice and treatment for persons who could travel to meet the specialist; expert advice and treatment for persons unable to travel; and laboratory services. These recommendations were arrived at after careful investigation of the finances of the scheme, based on the present arrangement and the present ratio of payments by workers, employers, and the State. The proposals of the Government in this bill were, therefore, made in face of the findings of an impartial Royal Commission, which recommended the continuance of the health insurance service on the present system of contribution partnership, and with its present amount of State grants. The man responsible for the Government White Paper explaining the provisions—the Government actuary—was actually a member of the Commission which made this recommendation. It was, therefore, given after a full consideration of the fact that a reduction of the State grants would prevent the extension of the medical benefits which, in the opinion of the Commission, was desirable, and which was part of the original bargain made with the insured.

Mr. Neville Chamberlain, interposing, said that he was sure Dr. Drummond Shiels did not want to mislead the House. He would recollect that the report of the Royal Commission, while recommending the extension of medical benefit, pointed out, and indeed recommended, that that extension should be financed out of the surpluses. It therefore did not depend upon the continuation of the present State grant.

Dr. Shiels, continuing, said that Mr. Chamberlain would admit that the Commission never contemplated, or at least it did not express the expectation of, any reduction of the present amount paid by the State. He submitted that this so-called economy by the Government was a declaration by it that it did not realize the importance of this great health service for the workers of the country.

Army Estimates.

Sir L. Worthington-Evans, Secretary for War, introduced the Army Estimates into the House of Commons on March 15th. He said the normal system of promotion in the army up to the rank of major would not be changed, but officers of conspicuous merit would be selected for and granted accelerated promotion. All pro-

motion above the rank of major would be by selection. Recruiting had been good throughout the recruiting year ending September 26th last. The number of candidates for enlistment rejected as unsuitable on physical and medical grounds was still very high. The only real shortage of officers was in the Royal Corps of Signals and in the Royal Army Medical Corps. This shortage had nothing to do with the recent reduction in the pay of officers now entering the army.

On the question that the establishment of the army in 1926-27 be 159,400, all ranks, Sir Richard Luce said it was time the House of Commons should realize the deplorable condition to which the Royal Army Medical Corps had been driven because it was unable to obtain the necessary recruits. The establishment of officers of the R.A.M.C., which had been about 1,000 before the war, was now fixed at 900, but the strength was only 794. Between the end of the South African war and the outbreak of the great war the R.A.M.C. had developed into a really splendid body, after a long struggle against official prejudice and inertia, coupled with economy. In the great war the R.A.M.C. did what was expected of it, and its very success was its undoing. The public had forgotten it, and the "axe" had been applied until the whole tree was in danger. The present unpopularity of the corps was partly due to the fact that the increase of pay in the R.A.M.C. was less in proportion than that of any other branch of the service. A captain's pay in the R.A.M.C. had been increased by only 74 per cent., but that of a captain in a line regiment by 88 per cent.; a major's pay had been increased by 49 per cent., compared with 97 per cent. for a major in a line regiment. The increases granted in retired pay had been grossly inadequate. An officer who left the service as a major got less than he would have got before the war. Last year, owing to the report of the Lee Commission, it became necessary to increase the pay of all officers of the Indian Civil Services, especially the pay of married officers, and to give married officers of the army serving in India extra allowances. But the R.A.M.C. was specially exempted from this extra allowance, although serving in exactly the same conditions as other branches of the army in India. The result had been that, whereas 45 new recruits were required yearly to make up the wastage of the corps, it had only been able, during the past three years, to get an average of 10, and there was a yearly loss of about 35 officers. The officers of the corps were hardly able to perform the duties expected of them, much less the duties which would be expected in time of war. They could only carry on at all by employing civil practitioners (who could not be sent abroad) where R.A.M.C. officers should be employed. The shortage made the corps more unpopular, for the work was harder on those who were left. There were practically no juniors, and senior officers had to do the work of juniors. As the officers of the corps became more and more discontented, that discontent prevented fresh officers joining. Last October a committee was appointed by the Cabinet to inquire, not only into the R.A.M.C., but into the medical services of the Navy and the Air Force. That committee was still sitting. Various recommendations had been made to it for the improvement of the corps generally; first, in the matter of pay, especially those in the middle ranks, majors and lieutenant-colonels, who suffered most because their expenses were heavier; secondly, for the removal of the grievances to which he had referred; and, thirdly—this point had been pressed over and over again but had always been turned down—for the granting of a position on the Army Council to the Director-General of the Medical Service. This was one of the most important considerations. If the service was to be maintained it should have a separate voice in the control of army matters. There would be a heavy responsibility on the Government if it failed to appreciate the need for restoring this service to popularity and well-being. He knew the Secretary for War appreciated what was happening to the corps, but he appealed to the whole Government and to public opinion.

The House agreed to the vote, as also to the votes for pay, pensions, and other army services.

Coroners Bill.

In moving the second reading of the Coroners (Amendment) Bill in the House of Lords, the Lord Chancellor said the first clause required that coroners should have a professional qualification, either medical or legal, saving for persons who had served as coroners for not less than five years prior to the commencement of this Act. There was a provision abolishing the requirement that a county coroner must possess land in fee. A coroner was to be appointed for the Isle of Wight on the same footing as in the rest of the United Kingdom, and franchise coroners were to be abolished. Borough coroners, like county coroners, were to be paid by salary. A council might call on a coroner to retire upon pension. There was also a provision to enable the coroner to retire voluntarily or on medical grounds. A clause made permanent the section of the Juries Act of 1915 which enabled a coroner to dispense with a jury in certain cases, but the bill provided that a jury must be summoned if it appeared to the coroner: (a) that the deceased came to his death by murder, manslaughter, or infanticide; or (b) that the death occurred in prison or in such place or in such circumstances as to require an inquest under any Act other than the Coroners Act, 1887; or (c) that the death was caused by an accident, poisoning, or disease, notice of which is required to be given to a Government department, or to any inspector or other officer of a Government department, under or in pursuance of any Act; or (d) that the death was caused by an accident arising out of the use of a vehicle in a street or public highway; or (e) that the death occurred in circumstances the continuance or possible recurrence of which is prejudicial to the health or safety of the public or any section of the public. These, said Lord Cave, were useful

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safeguards, and would secure, in those cases in which a public inquest by a jury was especially desirable, that a jury should be called.

The bill further proposed that the viewing of the body should be obligatory only on the coroner himself. It extended the power of the coroner to accept the verdict of a majority of the jury, and also, in other cases of disagreement, to discharge the jury and begin the inquest afresh, instead of adjourning it to the assizes. Where two deaths arising from the same cause had occurred in different jurisdictions the bill would enable a body to be taken, by order, into another jurisdiction, so that only one inquest might be necessary. An inquest could be held, by direction of the Secretary of State, even when the body was destroyed or otherwise not available. A second inquest could be held where the High Court was satisfied that, by reason of the discovery of new facts or evidence, this was necessary or desirable. To avoid clashing of a coroner's inquest and an inquiry before the magistrates in cases of suspected murder, manslaughter, or infanticide the bill provided that, in the absence of reason to the contrary, the coroner should adjourn the inquest until after the criminal proceedings. Where the inquest was resumed the coroner must furnish the particulars needed for registration of the death. If it was resumed the issues decided in the criminal proceedings must not be canvassed. The bill also provided for certain *post-mortem* examinations or analyses being made without holding an inquest.

Lord Strachie said the County Councils Association welcomed the bill and approved its provisions. He thought, however, that in counties the appointment of deputy coroners and of assistant deputy coroners should rest with the county council. Deputies to medical officers of health were always appointed by the council. Lord Haldane remarked that if the bill passed a consolidation bill would thereafter be urgently required. The Lord Chancellor agreed. He did not know whether it would be possible to consolidate the Coroners Acts this year, but the suggestion would be considered.

The bill was read a second time, and the Committee stage was set down for March 18th.

Deaths in England and Wales.—In reply to Mr. Rhys Davies, Mr. Neville Chamberlain furnished the following analysis of deaths registered in England and Wales:

Year.	Total.	On Medical Certificate.	On Coroner's Certificate (Inquest Cases).	Uncertified.	
				Reported to Coroner.	Not Reported to Coroner.
1896	526,727	482,109	32,990	11,628	2,034
1900	587,330	539,712	36,861	9,223	617
1910	483,247	441,480	35,109	6,041	—
1920	466,130	423,456	31,011	5,563	—
1921	458,710*	424,166	29,304	5,240	—
1922	485,829*	409,994	30,346	5,487	—
1923	444,869*	437,112	30,776	4,999	—
1924	473,270*	435,494	31,103	5,050	—
1925	473,006*		32,701	4,811	—

* Figures marked with an asterisk are provisional.

Small-pox.

Answering Mr. Groves, Mr. Chamberlain said he was reluctant to impose on the Ministry of Health the expense and research involved in stating how many cases of small-pox were notified to the Ministry of Health in 1924 and in 1925; how many proved fatal; the districts from which they came; the vaccinal condition and results of the cases in each district; and the vaccinal condition of each fatal case, including any vaccinations that may have been performed during the incubation period of small-pox. The Annual Report of the Chief Medical Officer for 1924 (pp. 33 and 37) gave for the country as a whole the number of cases of small-pox, with statistics of vaccinal condition. Complete figures for 1925 were not yet available. Mr. Groves further asked Mr. Chamberlain what methods were adopted by the medical officers of his department to decide definitely whether cases or illness examined by them were small-pox or not; and whether the vaccinal condition of the patients was taken into account as one of the factors to decide the diagnosis. Mr. Chamberlain said the medical officers of the Ministry who advised in regard to the diagnosis of suspected cases of small-pox were those who had had considerable experience of that disease, and in forming an opinion as to the nature of the illness they took into account all known factors, including the vaccinal condition of the patients. Mr. Groves: Just so! Mr. Groves further asked Mr. Chamberlain whether his attention had been drawn to the fact that during the years 1922, 1923, and 1924 the percentage of fatal cases of small-pox occurring among the unvaccinated patients was less than that of the vaccinated cases; and whether he would make a statement as to the attitude of his department in view of the bearing of this circumstance on the claims made on behalf of vaccination as a mitigant of small-pox. Mr. Chamberlain said the facts were as stated, but reference to the reports of the chief medical officer of the department for the years in question would show that, of the 16 fatal cases among vaccinated persons, only one was under the age of 35, while of the 22 fatal cases among unvaccinated persons, 7 occurred in infants under 1 year of age

and 6 in children between the ages of 1 and 9. Of the fatal cases among vaccinated persons, only one had been revaccinated, and in this instance it was doubtful whether the case was one of small-pox. The remaining 15 cases had been vaccinated in infancy, but had not been revaccinated. In his opinion these figures indicated the importance both of infantile vaccination and of revaccination at appropriate ages.

In reply to Captain Fairfax, Mr. Chamberlain said there was no record in the Ministry of Health of any case where venereal disease was directly caused by vaccination since the Vaccination Act of 1898 came into operation, and he was advised that the use of calf lymph, which became general after the Act, made it impossible for venereal disease to be transmitted by vaccination.

National Insurance.—Mr. Chamberlain, in answer to Mr. H. Williams, said the number of persons insured in Great Britain under the National Health Insurance Act during 1925 was not yet available. In 1924 they were 15,220,300. In answer to Captain Garro-Jones, Mr. Chamberlain said that, apart from reserve value, the funds held by approved societies in England and Wales on December 31st, 1924, were: (1) Sums standing to the credit of approved societies in the National Health Insurance Funds, including amounts in the Investment Health Insurance (2) sums invested by or on behalf of approved societies, £50,000,000; (3) cash in hands of societies, £1,000,000; making a total of £91,000,000.

A Unified Medical Service.—During the debate on the Navy Estimates Commander Bellairs asked the Financial Secretary to the Treasury whether the committee of investigation into the rates of pay of the medical services of the Navy and the Army and of the new medical service of the Air Force would be allowed to investigate the proposal for a unified medical service for all the fighting forces. In a written answer Mr. R. McNeill replied that the report of the Weir Committee of 1923 on the amalgamation of services common to the Navy, Army, and Air Force, and the consequential conclusions of the Government as explained to the House on May 30th, 1923, had been made available to the Committee. Mr. McNeill added that he could not anticipate the nature of the Committee's report.

Deaths from Alcohol.—The Home Secretary told Mr. Scurr that in London during 1925 inquests were held on 17 persons in which the verdicts attributed death to excessive drinking. This compared favourably with 31 such verdicts in 1923 and 35 in 1921. He could not confirm the assertion that the beverage in most of these 17 cases was methylated spirit, but on that assumption the figures gave some reason to hope that the introduction of pyridine as an ingredient, which began in May, 1924, had beneficial results. This assumption was supported by a substantial decrease in 1925 of the number of persons convicted of drunkenness whose condition was due to methylated spirit. The preventive measures already adopted appeared to deserve a more extended trial before further measures were considered.

Lead Poisoning.—On March 15th Sir William Joynson-Hicks, the Home Secretary, presented the Lead Paint (Protection against Poisoning) Bill, the object of which is to make better provision for the protection against lead poisoning of persons employed in painting buildings. The bill was read a first time.

Factories Bill.—In an answer to Major Glyn, the Home Secretary said he proposed to introduce the Factories Bill for consultation and discussion later in the session. The bill could not be passed into law this session.

Indian Subordinate Medical Staff.—On March 15th Colonel Applin asked the Under Secretary of State for India whether he was aware that no promotions to commissioned rank had been made in the Indian subordinate medical service since 1923; and, in view of the number of qualified men eligible for and awaiting promotion, he would take steps to ensure that their claims were dealt with at once. Earl Winterton replied that the circumstances were brought to the notice of the Secretary for India by the Anglo-Indian deputation which waited on him last summer. The Government of India was being asked for an early report on the subject.

Notes in Brief.

The model by-law enforcing the use of a mechanical stunning instrument before the slaughter of animals for food has been adopted by 190 local authorities, of whom 57 adopted it in the last twelve months.

Of 274 persons comprising the indoor staff of the Welsh Board of Health, 52 are fully conversant with the Welsh language. Recent appointments of higher executive officers to the Board were approved by Mr. Chamberlain in the ordinary course.

Deaths from influenza, tuberculosis, and cancer are not recorded separately in the Indian mortality statistics.

The gross revenue of the Central and Provincial Governments of India from opium in 1923-24 was £5,331,000. Figures for 1924-25 are not yet available.

Obituary.

W. PERMEWAN, M.D.LOND., F.R.C.S.ENG.,
Consulting Laryngologist to the Liverpool Royal Southern
Hospital; Late Lecturer in Laryngology, University of
Liverpool.

THE death of Dr. Permewan on March 9th came as a shock to many of his professional colleagues, and Liverpool has lost one of its foremost public men. He had been in precarious health for the past six months.

William Permewan was born at Redruth in Cornwall in 1865. After a sound general education he became a student of University College, London, took his M.B. degree with honours in materia medica in 1886, became M.D. in 1888, and F.R.C.S. in 1889. After qualification he held the post of resident at the Miners' Hospital in his native town. In 1887 Dr. Permewan went to Liverpool to fill the post of house-surgeon to the Northern Hospital, and later on he became head surgeon of the Northern Dispensary. It was during the tenure of this post, in set discussions on various subjects, that he developed and cultivated his ability to express himself cogently and forcibly, an ability which later on enabled him to enter into public affairs and win the esteem of his fellow citizens. Attracted early to specialism, he devoted himself to diseases of the throat and ear, and published several articles in the *Liverpool Medico-Chirurgical Journal* (The relation of the nose to chronic respiratory disease, Submucons resection of the nasal septum) and in the *Journal of Laryngology* (Laryngeal paralysis in chronic nervous disease). As a member of the Liverpool Medical Institution his communications were much appreciated for their lucidity, gracefulness of expression, and charm of voice. A good debater, he never lost the thread of his argument, and was quick to seize the weaknesses of his opponent. He was a vice-president of the Institution in 1902.

Dr. Permewan took a keen interest in municipal politics and was a member of the city council for six years. There he proved himself to be a valuable colleague, and his judgement, based on sound knowledge, coupled with his remarkable ability to seize essentials, paved the way to his being made a justice of the peace in 1906. Referring to the loss that the city had sustained in the death of Dr. Permewan, the stipendiary magistrate, Mr. Stuart Deacon, stated that Dr. Permewan was one of the most brilliant men on the bench of magistrates. In 1910 he contested in the Liberal interest Bootle, having as his successful opponent Mr. F. E. Smith, now Lord Birkenhead. It was on this occasion that Dr. Permewan revealed himself to be a politician of the first rank and a master in confronting successfully political audiences with his ready repartee. He made another attempt to enter Parliament later on in the same year, but in spite of his indomitable energy failed. Although greatly interested in public affairs, his reputation in his specialty increased so that in 1914 he was appointed lecturer in laryngology in the university, and he expounded with his native grace and literary gifts his subject to the delight of the students. He was president of the Philomathic Society and an active member in its debates. Dr. Permewan contributed thoughtful articles to the monthly reviews, in which he dealt with the prospects of the Liberal party, of which he was until within the last year a prominent stalwart. His speeches were always vigorous, convincing, and carefully delivered.

In private life Dr. Permewan was a genial man, and quite alive to the foibles of his many friends, at whom he would occasionally poke fun in his humorous way. He will be missed medically as well as politically, and at the funeral service held on March 13th a large number of his friends, professional and political, were present to show their respect for one held in high esteem by all classes. Dr. Permewan married a daughter of the late Dr. E. K. Muspratt. He had two children—a daughter who predeceased her father some six weeks before, and a son. Deep sympathy is felt with Mrs. Permewan and her son in this second bereavement that has befallen them.

Dr. G. E. GABITES of Timaru, New Zealand, who died on January 15th, was born at Christchurch in 1867. He was educated at Edinburgh University, where he graduated B.Sc. in 1891, and M.B., C.M. in 1894, and in 1898 he became F.R.C.S. Ed. He was resident physician at the Royal Infirmary, Edinburgh, in 1894, and a year later was appointed resident surgeon at the Royal Maternity and Simpson Memorial Hospital, Edinburgh. In 1899 he became surgeon superintendent of the Timaru Hospital. A matter in which he took particular interest was ambulance work, and when South Canterbury had progressed sufficiently to claim a corps he was appointed the first corps superintendent surgeon, and continued to hold that office up to the time of his death. He was an honorary Associate of the Order of St. John of Jerusalem. During the South African war he served with the New Zealand contingent, and was awarded the Queen's medal with four clasps. During 1917-19 he was camp commandant of the New Zealand training camp at Arapuni, and served as A.D.M.S. of the Otago military district from 1919 to 1920. For his services he was awarded the O.B.E. Dr. Gabites, who was lieutenant-colonel of the New Zealand Medical Corps Reserve of Officers, was a member of the South Canterbury Division of the British Medical Association. He is survived by his widow, two sons, and two daughters.

Dr. LOUIS BRIGHTWELL HAYNE of Harrogate died on February 14th, at the age of 56. He was the second son of Mr. Henry Hayne of Tunbridge Wells, and received his medical education at the University of Cambridge and St. George's Hospital. He graduated M.B., B.Ch. Cantab. in 1894, and M.A. and M.D. in 1897. After serving as house-physician and house-surgeon at St. George's Hospital, and house-physician to the Victoria Hospital for Children, Chelsea, he joined the late Dr. Ozanne of Harrogate in 1901, and continued to practise there up till his death. He was honorary physician to the Harrogate Infirmary, and during the war served as medical officer at Grove House Hospital, for which he was awarded the M.B.E. Dr. Hayne, who was a member of the Harrogate Division of the British Medical Association, is survived by his widow.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Radcliffe Prize, 1927.

THE next award for the Radcliffe Prize will be in the year 1927. The prize, which is of the value of £50, is awarded by the Master and Fellows of University College every second year for research in any branch of medical science, comprised under the following heads: human anatomy, pathology, medicine, surgery, obstetrics, medicine, hygiene. The prize is open to any University who have proceeded, or are proceeding, to a medical degree in the University. Candidates must not have exceeded twelve years from the date of passing the last examination for the Bachelors of Arts, and must not, at the date of the award, be Fellows on the Foundation of Dr. John Radcliffe. Candidates must send in their memoirs to the Secretary of Faculties at the University Registry on or before December 1st, 1926. The award will be made in March, 1927. No memoir for which any University prize has already been awarded is admitted to competition for the Radcliffe Prize, and the prize will not be awarded more than once to the same candidate.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on March 12th the following medical degrees were conferred:

M.B., B.CHIR.—W. A. Barnes, G. A. Metcalfe.
M.B.—A. W. Ewins.
B.CHIR.—I. C. P. Beauchamp, F. R. Sandford, J. W. W. Jepps.
* Admitted by proxy.

UNIVERSITY OF LONDON.

Mr. R. C. ELSLEY has been recognized as a teacher of orthopaedic surgery at St. Bartholomew's Hospital.

Dr. G. V. Aurep has been admitted to the Faculty of Medicine as from March 1st.

The Vice-Chancellor, the Chairman of Convocation, the Chairman of the Academic Council, and the Chairman of the Council for External Students have been appointed delegates of the University to attend the third Congress of Universities of the Empire in July next.

Professor E. C. Dodds (Middlesex Hospital Medical School) and Professor J. C. Drummond and Mr. D. T. Harris (University

clinical lecture demonstrations by the clinical staff, lantern lectures by the honorary director, anatomical lectures and demonstrations by Professor Waterston, physiological lectures and demonstrations by Professor Herring, clinical pathology by Dr. Matthew Fyfe, chemistry by Dr. Hynd, radiology, and clinical lectures at the Royal Infirmary, Dundee, by Professors Price and Patrick. The fee for the course is £5 5s., payable in advance. Members of the class who wish to carry out practical work may do so in the laboratories under supervision at hours to be arranged.

THE Fellowship of Medicine announces that Mr. A. Tudor Edwards will give a clinical surgery demonstration at the Westminster Hospital on March 31st at 2 p.m., free to members and ticket holders of the Fellowship general course. Beginning on April 12th, St. Peter's Hospital will hold a two weeks' course in genito-urinary diseases, including daily clinical sessions and a lecture each afternoon. The National Orthopaedic Hospital has also arranged a special comprehensive course from April 12th to 24th. From April 14th to May 5th there will be lecture demonstrations in electrotherapy at the Royal Free Hospital at 5.15 p.m., and an intensive course in proctology is to be held at St. Mark's Hospital from April 19th to 24th, with daily sessions, including lectures, demonstrations, and operations. This course will only be held if ten entries are received by April 12th. Copies of all syllabuses and of the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

A JOINT meeting of the Tuberculosis Society and the Society of Superintendents of Tuberculosis Institutions will be held in the Pathological Lecture Theatre, Cambridge, on March 25th, 26th, and 27th. Communications will be made by Sir Humphry Rolleston, Bt. (Regius Professor of Physic in the University), Sir St. Clair Thomson, Professors Collis and Lyle Cummins, and Drs. J. Crockett and G. Marshall. Dr. H. de C. Woodcock will demonstrate apparatus for artificial pneumothorax, and this subject will be discussed by Drs. Clive Riviere, Vere Pearson, and Parry Morgan, and Mr. Morrison Davies. Particulars may be obtained from Dr. F. J. C. Blackmore, Tuberculosis Dispensary, Maxey Road, Plumstead, S.E.18.

THE British Council of the International Congress for Life Saving and First Aid to the Injured, which held a meeting on March 17th, co-operates with similar societies in other countries in furthering interest in life saving and first aid. The third International Congress is being arranged in Holland in September of this year, and the fourth International Congress will be held in London in 1928. The British Council includes Sir William Collins, Sir Thomas Oliver, Professor E. L. Collis, Dr. Theodore Thompson, and Dr. D. A. Coles, who is chairman. Dr. H. N. S. Menko, 2, Grosvenor Gardens, Cricklewood, N.W.2, is the honorary secretary.

THE Section of Laryngology is arranging a complimentary dinner to Sir St. Clair Thomson, President of the Royal Society of Medicine, on the evening of Friday, June 4th. The dinner will be followed by a dance, and Fellows and Members may obtain tickets for themselves and their guests from Mr. Norman Patterson, 82, Portland Place, W.1.

A DRAWING-ROOM meeting was held at Grosvenor House on March 18th, when Viscountess Astor, the Bishop of London, and others spoke in support of the scheme of the Save the Children Fund to establish an open-air residential school for delicate London children.

A PARTY of two hundred and fifty American and Canadian members of the Inter-State Post-Graduate Medical Association of North America will this spring make a post-graduate tour to Italy, Switzerland, Czecho-Slovakia, Austria, Germany, Holland, and Belgium. The party will arrive in Paris on May 7th and the tour will terminate at Brussels on June 26th. The Foreign Relations Committee, of which Lord Dawson of Penn is chairman, and Mr. Philip Franklin, F.R.C.S., honorary secretary, asks us to state that twenty-five British medical men are invited to join the party in Paris and accompany it on the entire tour or any part of it. Further particulars can be obtained on application to Mr. Franklin, 27, Wimpole Street, London, W.1.

THE first Dutch Pedagogic Congress, which will be held at Amsterdam from April 8th to 10th, will consist of the following sections among others: Social pedagogy, psychology of the child, principles of pedagogy, abnormal children, delinquent and irresponsible children, school and home, and the history of education. Further information can be obtained from the secretary, O. van Veen, 1st Helmerstraat 36, Amsterdam. The thirty-first Dutch Congress of Public Health will be held on June 25th and 26th at Utrecht.

THE annual meeting of the International Society of Medical Hydrology is being held this year in Czecho-Slovakia from April 16th to 21st. The places to be visited include Karlsbad, Marienbad, Franzensbad, Prague, Pistany, and Tatras. A limited number of medical practitioners who are

not members of the society may join the party, but early application is essential. It is estimated that the railway fares to the frontier will cost about £11, and the cost of the seven days spent in Czecho-Slovakia, including subsistence and local travelling, is not expected to exceed £6. The honorary secretary is Dr. E. P. Ponton, 36, Devonshire Place, W.1.

MESSRS. CONSTABLE AND CO. (10, Orange Street, London, W.C.2), the English publishing agents of the League of Nations, have issued a list for the Information Section of pamphlets on various aspects of the League's work. The prices are 3d. for single copies of a pamphlet or £1 for one hundred copies.

THE Home Secretary gives notice that it is proposed to apply for an Order in Council, in pursuance of Section 8 (2) of the Dangerous Drugs Act, 1920, declaring that Part III of that Act shall apply to veronal and the other drugs of the barbitone group in the same manner as it applies to the drugs mentioned in Subsection (1) of Section 8 (morphine, cocaine, etc.), and to make regulations limiting the supply of the drugs to authorized persons or institutions or to persons for whom the drugs have been prescribed by a medical practitioner.

THE house and library of the Royal Society of Medicine will be closed from Thursday, April 1st, to Tuesday, April 6th, both days inclusive.

ADMINISTRATION of vaccines by mouth in the prophylaxis of dysentery, cholera, and typhoid fever has recently been organized on a large scale in the Union of Soviet Republics with encouraging results.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9361, 9362, 9363, and 9364** (internal exchange, four lines).

THE TELEGRAPHIC ADDRESSES are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Assortate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

THE ADMINISTRATION OF OXYGEN.

"OXYGEN" asks for advice as to the best way of administering oxygen in lung affections, and, in particular, for practical clinical experience of Professor Haldane's apparatus described and illustrated by him in the **BRITISH MEDICAL JOURNAL** in 1917 (vol. i, p. 181).

PAIN IN PARALYSIS AGITANS.

"BIDDULPH" asks for suggestions towards the relief of pain in a case of paralysis agitans. The patient is a retired schoolmaster, 66 years of age, a bachelor, a lifelong abstainer; during middle life a heavy smoker, but not so now; always subject to insomnia. The trouble is of three years' duration. Parathyroid had no effect, but massage has greatly diminished the muscular rigidity, so that he can rise from a chair and walk with comparative freedom. The pain is chiefly in the upper arms and shoulders, and makes sleep almost impossible. After reading in this column about the successful use of hyoscine, this was tried. Beginning with 1/200 grain hyoscine hydrobromide by the mouth every fourth night, the dose was increased up to 1/75 grain, and even to 1/50 grain. These latter quantities upset him, so for some time he had 1/100 grain every fourth evening, and lately every third evening. The result is that he gets no sleep at all the first night; then follows a good day and a good night, followed by a fair day and a fair night; the third day he is as before.

HYPERPYREXIA.

DR. H. L. McCORMICK (Glasgow) writes: I examined a child to-day, aged 6 months, suffering from acute gastro-enteritis with convulsions. The axillary temperature, taken twice, was 109° F. and the rectal temperature 109.4° F. The child died half an hour later. Has any higher temperature been recorded in medical literature?

ALPINE "SUN BURNS."

"A. R." writes: I should be glad to know of the best remedy for the prevention of "sun" burns and the eczematous condition which follows while climbing in the higher Alps. They occur, as every climber knows, after traversing over snowfields, even without the sun shining.

TREATMENT OF LIPOMATA.

DR. A. Y. MASSOUDA (Cairo) asks for advice as to the treatment of a man, aged 31, who in 1920 developed a lipoma in the arm, and since then several others in the extremities. At the present time he has about twenty. The biggest is as large as a walnut. Our correspondent asks whether any medical treatment would cause the lipomata to disappear or at least prevent the appearance of new ones.

INCOME TAX.

Replacement of Car.

"J. V. C." bought a car in 1920 and sold it in 1925, buying another in replacement. What allowance is due?

"* * Treating the matter as one to be allowed for as a professional expense, it should be deducted, in the same way as other professional expenses, from the earnings of the year in which it was incurred—that is, of the year 1925—and will reduce the net profits of that year accordingly. It will therefore first affect the average assessable for the year 1926-27, and "J. V. C." will receive the full benefit of the allowance spread over that and the two following years.

LETTERS, NOTES, ETC.

ANOTHER DISEASE DUE TO FASHION.

"C. K." writes: During the last fortnight I have seen three cases of erythema intertrigo behind the ears in young women, due, in each case, to the covering of the ears with a wad of hair pressed down by a closely fitting hat worn nearly all day. When the ear was raised there was revealed what may best be described in the words of Mr. Mantalini as "a demn'd moist unpleasant"—and I may add steamy and smelly—surface, which reminded me forcibly of the condition sometimes found between the fingers when a hand has been bandaged up for days without due precaution. This word of warning as to the necessity for keeping the space behind the ears ventilated may save other devotees of fashion from a very unnecessary complaint.

UNIVERSITY REFORM IN LONDON.

DR. RICHARD GILLBARD (Wilkesden Green, N.W.), in the course of a letter on this subject, writes: "Bloomsbury site are prodigious in their facilities, as Mr. Fisher has said, would res were good-will. The London University we cherish is for all—it concerns others besides senates, councils, and graduates: every man and woman with vision. Dr. Graham Little says the renewed discussion of the Bloomsbury site is fatuous because of the option ceasing on the first of next month. Let our reply be Mr. Fisher's: an appeal to the public to build a home in the heart of our city, to which students and pilgrims shall come from all parts of the Empire and rear aloft the greatness of London. Then those who oppose will, as Burke said, seem to oppose the decrees of Providence."

RECTAL INJECTION OF TARTAR EMETIC FOR BILHARZIASIS.

WE have received the two following communications from Tanganyika Territory, East Africa, on the treatment of bilharziasis by rectal injections of tartar emetic.

DR. WILLIAM H. DYE, Sanitation Officer, Tanganyika, writes: When in Nyasaland, Dr. H. F. Wilson kindly brought his method to my notice, and as I was at that time stationed in a place where infection with both *S. haematobium* and *S. mansoni* was extremely common and usually heavy I gave the method a thorough trial. I found, as Dr. Barcroft Anderson (see BRITISH MEDICAL JOURNAL, October 17th, 1925, p. 700) did, that large amounts (up to 16 grains) could be injected per rectum, even in small children, without any toxic effects. It is obvious that only a fractional part of these heroic doses can be absorbed, as no untoward symptoms were ever noticed. In the vesical form it frequently cleared the ova from the urine, only to relapse at short and variable intervals. I think that the explanation of its action is that, when given intrarectally, it is absorbed in very small amounts, but sufficient to kill the adult and mature flukes that are at the time in the rectal or bladder walls, but has little or no action on those situated at a distance when the drug has become less concentrated. Good results might therefore be expected in very lightly infected cases—an uncommon event in natives. I cannot agree that the ova of bilharzia are killed by tartar emetic. If ova are put in a saturated solution of tartar emetic and left for two hours no hatching takes place, but on removal of the drug by repeated centrifugalization and the

addition of water they will hatch out as readily as in the control tube, the long contact with a very high concentration of the drug making no difference. It can also be proved experimentally that while the ova are quite unaffected by this drug, the miracidia, while standing a fairly high concentration, are more quickly affected, and the cercaria even more so. Clinically we know that the adults are killed by relatively very small doses. This is what might be expected, as the adult flukes live normally a very protected existence, while the ova have to be prepared to stand varying degrees of acidity, alkalinity, and salt concentration in the urine, and may be exposed to many conditions after they leave the body. Much stress has been laid on the appearance of dead or so-called "black eggs" in the urine, as evidence of the lethal action of the drug on the ova. If a heavily infected urine is examined a certain number of these ova will always be seen. They may become more evident after treatment, when they remain the only ones to be discarded, being merely foreign bodies to be cast off; the healthy egg having the power of dissolving the tissues ahead, and therefore accelerating its progress. In conclusion, I would agree with Dr. Christopherson (BRITISH MEDICAL JOURNAL, November 7th, 1925, p. 866) that few medical men practising in the tropics will admit that an enema is simpler or quicker than an intravenous injection. The finding of the smallest vein with a sharp needle only requires a modicum of practice. In addition, it is surely safer to give a known dosage of a drug than to rely on an unknown quantity absorbed, which must be an extremely variable factor. I have found in some hundreds of cases that intravenous tartar emetic in sufficient dosage is safe, simple, and absolutely efficient.

DR. D. V. LATHAM writes: In the BRITISH MEDICAL JOURNAL of October 17th, 1925 (p. 700), Dr. J. Barcroft Anderson wrote that, following the lead of Dr. H. F. Wilson, he used the rectal method exclusively of administering tartar emetic for the treatment of bilharziasis. The simplicity of the method and the fact that the patients need not be detained for a long period appealed to me, and I experimented with a typical case. The results of the treatment were entirely unsatisfactory. The patient was a native boy, aged 11 years. He was given four rectal injections, at weekly intervals, of 4, 6, 8, and 11 grains respectively. The urine was examined every four days from the commencement of the treatment, until twelve days after the last injection, and on every occasion ova were found. On the last two occasions the urine was allowed to stand and live free embryos were seen. I followed Dr. Anderson's technique and kept the patient recumbent with the hips raised for half an hour after each injection, and in no case did the patient go to stool sooner than six hours after the injection. The injections had no more effect on the patient than if they had been normal saline. Check cases treated with the same batch of tartar emetic by the intravenous method responded in the usual way. I am forced to the conclusion that antimonium tartrate is not absorbed from the rectum.

SALICIN IN PSORIASIS.

DR. D. ROBERTS (Holyhead) writes with reference to the paragraph on this subject published in the *Epitome* of March 6th, 1925 (para. 258), that mention should have been made of the late Dr. Radcliffe Crocker, who prescribed salicin for psoriasis many years ago. Dr. George Pernet, the author of the article in the *Archives of Dermatology and Syphilology*, refers to the work of Dr. Radcliffe Crocker, with whom he was associated for about seventeen years.

COVERED MOTOR BUSES AND FRESH AIR.

DR. JOHN N. BEADLES (Streatham) writes: The love of fresh air is considered a British characteristic, and writers like Jerome K. Jerome poke fun at the awful atmosphere of a Continental railway carriage, a condition which it takes the audacity of an American tourist to alter. But in large cities like London it is not so easy to get this fresh air, and a large proportion of its citizens never enjoy robust health from sheer want of it; however, a splendid opportunity is given to many of getting one hour's fresh air every day by travelling to and from work on the top of a motor bus. In the book on *Home Nursing* issued by the St. John Ambulance Association it is stated that fresh air is so vital to a nurse that an hour's ride on a motor bus will often do her more good than lying down for two hours; a remark which I should certainly endorse. I hope this opportunity is not going to be taken away from the public by the suggested alteration in the motor bus.

* * We entirely agree with Dr. Beadles.

SUNSHINE RECORDS.

DR. H. D. BISHOP (M.O.H. States of Guernsey) asks us to state that he gave Plymouth for Portsmouth in the table published last week (p. 514). The entry should have been Portsmouth 1,923 hours.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 46 and 47. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 99.

THE TREATMENT OF EXOPHTHALMIC GOITRE.

I.—GENERAL MANAGEMENT OF CASES.

BY

FRANCIS R. FRASER, B.A., M.D.,
F.R.C.P. Ed.,

DIRECTOR OF THE MEDICAL UNIT, ST. BARTHOLOMEW'S HOSPITAL;
PROFESSOR OF MEDICINE, UNIVERSITY OF LONDON.

THE general management of cases of exophthalmic goitre is so wide a subject that it is not possible, in the time allowed, to refer to many important methods of treatment. The cause of the disease is unknown, so no treatment directed at the cause is possible. Recent developments, however, have made it advisable to review the situation in order to improve the general management in the light of these developments. They are:

- (a) The reintroduction of treatment by iodine;
- (b) The recognition of thyroid disease as a cause of auricular fibrillation and heart failure; and
- (c) Improved skill in the surgery of the thyroid gland and in the selection and preparation of patients for operation.

CLASSIFICATION.

It is unfortunately necessary to discuss briefly what is meant by the term "exophthalmic goitre." If we exclude cases of cretinism and myxoedema, and cases of simple goitre in which there are no symptoms other than those of an enlarged thyroid gland or such as are the mechanical results of the enlarged gland, and omit cases of thyroiditis and of malignant disease, there remains a large group of cases of goitre with symptoms of thyroid intoxication. The term "hyperthyroidism" is frequently used in the same sense as "thyroid intoxication" is used here, but, for various reasons which cannot be discussed now, the term "hyperthyroidism" is unsatisfactory and is being gradually replaced. Among the cases with symptoms of intoxication there are those with diffusely enlarged, very vascular goitres, and the classical picture of Graves's disease with its eye signs, tremor, tachycardia, and peculiar excitable nervous and mental state. There are others in whom the symptoms of intoxication appear after perhaps years during which a simple goitre has been present. In these cases the general intoxication is usually less, the eye signs may be slight or absent, but the cardiac disturbance is relatively more prominent. This same clinical picture is seen also in a larger group of cases that have no previous history of simple goitre, but in whom the enlargement of the gland is irregular, or the gland is less vascular and harder than in the typical form, or scarcely enlarged at all.

In the first group histological examination usually shows a change involving the whole gland which suggests great activity of the secreting cells and an absence of colloid storage. In the other groups areas of similar activity are seen, but they are localized, colloid storage is present, and in addition a fine or a coarse fibrosis. The fibrosis may be so coarse as to give the appearance of multiple adenomata, and various forms of degeneration may be present in localized areas. In the present state of our knowledge I propose to use the terms suggested by Williamson and Pearce,¹ and call the first group of cases "Primary Graves's disease," and the others "Secondary Graves's disease." This is practically the classification of Möbius.² The terms of Williamson and Pearce are based on histological examination, and although it is clinically possible to recognize many cases as belonging to the primary group and many as belonging to the secondary group, there are many that are difficult to place on clinical evidence alone.

¹ An opening paper read at the joint meeting of the Sections of Medicine, Surgery, Therapeutics and Pharmacology, and Electro-Therapeutics of the Royal Society of Medicine on March 9th, 1926.

I find it difficult to recognize a clear distinction between those with eye signs and those without, and therefore at present include the cases described by Plummer³ as "toxic adenoma" in the secondary group, which includes also "toxic adenomatosis," "toxic goitre," "incomplete" forms, "formes frustes," "thyro-toxicosis," etc. Without doubt further work and experience will allow of more exact differentiation, but this distinction between the primary and the secondary groups has some importance in treatment and prognosis.

ETIOLOGY.

We are quite ignorant of the cause of primary Graves's disease, and quite ignorant of the cause of the onset of symptoms of intoxication in secondary Graves's disease; but in both forms of the disease exacerbations and relapses are common features, and there are certain factors associated with these. Adolescence, pregnancy, the puerperium, and the menopause appear to be dangerous events, and may be associated with increased intoxication. Infections and, above all, septic tonsils, nasal sinuses, and teeth sockets, are particularly important because so often overlooked, and are frequently responsible, not only for exacerbations and relapses, but also for maintaining a high level of thyroid intoxication. Worries, mental stresses, and shocks are also important, and are often acknowledged by the patients, but are sometimes not disclosed until skilfully inquired for.

COURSE OF THE DISEASE.

Before the measures to be employed in management can be considered it is necessary to have as clear a knowledge as possible of the natural course of the disease. This knowledge is difficult to obtain, since hospital records deal with the more severe cases only, and social position enters greatly into the possibilities of adequate management. Barker⁴ has stated that the course of the disease associated with diffuse hyperplasia of the whole gland—that is, primary Graves's disease—"is probably two or three years, no matter how you treat it (medically, surgically, or radiologically)." He mentions, however, that relapses occur. Kessel, Lieb, and Hyman⁵ studied 50 cases, and maintained that sufficient recovery to enable a resumption of work resulted from rest and symptomatic treatment only, without surgical or x-ray treatment. Read⁶ published composite curves to show that the progress, as measured by the basal metabolic rate, is much the same, whether general medical measures, x rays, or surgery are employed. Holmes, Means, Porter, Richardson, and Starr⁷ confirm this in general, but show that treatment by subtotal thyroidectomy has a definite effect on the course. My experience is, in general, in agreement with these views, but the frequency of relapses robs the main contention of much of its significance.

In secondary Graves's disease, although the general level of intoxication is not so high, the tendency to recovery is not so great. The condition is much more chronic, and after years of exacerbations and remissions, cardiac disturbances, auricular fibrillation, heart failure, mental disorders, and increasing emaciation not infrequently develop, and may so dominate the picture that the causal condition is not always recognized. The basal metabolic rates seldom rise to the heights seen in the primary form. I suspect that a case showing the features of primary Graves's disease in early life may later present the clinical and pathological features of the secondary form, but there is at present a lack of dependable records of the life-histories of these cases, and the ultimate results are still quite unknown.

MANAGEMENT OF PRIMARY GRAVES'S DISEASE.

Even if there is a tendency towards spontaneous recovery in primary Graves's disease, cases may flare up and die with severe intoxication. What is perhaps of greater importance is that during the period of months or years in which the disease is running its course the patients are often quite unable to carry on their work. It is necessary that they should be managed so that the level of intoxication at which the disease runs its course should be as low as possible.

Rest.

Of all the methods of treatment rest is the most important. The patient should be put to bed and observed for a week or more without any other form of treatment, so that the severity of the condition may be estimated. Physical rest is not more important than mental rest. Whether the rest should be given in hospital, at home, or in a nursing home, must be a matter for careful consideration in each case. Temperaments, not only of the patient but also of the relatives, must be considered. The financial status is important. The usual daily duties must be known. After the first few weeks the rest need not be absolute, for if too strict it leads to restlessness, and some employment for body and mind has a beneficial effect on both. If the heart is grossly dilated or if the general intoxication is increasing, strict rest is essential. I do not think that tachycardia or a moderately increased basal metabolic rate is an indication for the strict enforcement of rest in bed. The influence of the mind in patients suffering from this disease is great, and detailed attention to the surroundings and to the cheerfulness of the attendants is always necessary.

Elimination of Sepsis.

During the preliminary period of rest a thorough search for infections is made. Even if no evidence is found of tonsillar infection, a history of sore throats during the onset justifies an examination by a throat specialist. Sinuses and teeth must be examined, and any suspicion cleared up. In several cases that were not improving as quickly as was hoped for an onset of acute tonsillitis has unmasked buried sepsis, and such an occurrence, though it causes a distressing exacerbation, should be viewed with satisfaction, as a cause for the unsatisfactory condition has been found and can be dealt with. In 60 cases of all forms of Graves's disease that have been under the care of the Medical Unit at St. Bartholomew's Hospital in the last five years tonsillectomy was performed in 14, and in each case for gross sepsis. In such cases the disease runs its course at a lower level after the operation, and the danger of a serious exacerbation is greatly diminished.

Iodine.

The reintroduction of the use of iodine has been of considerable value in enabling the disease to run its course at a lower level and in checking the severity of the exacerbations, but it need not be considered in detail now, as this subject has been discussed at a recent meeting of the society. The place of iodine in the general management must, however, be briefly summarized. After allowing one to two weeks' complete rest without other treatment, so that an estimate can be made of the degree of intoxication and of the various factors present, iodine may be commenced in daily doses of 15 minims of a 10 per cent. solution of iodine in 95 per cent. alcohol ($1\frac{1}{2}$ grains of iodine). The alcoholic solution is best given in a wineglass of milk. In the course of a few days the pulse rate and the basal metabolic rate commence to fall, and the body weight to rise. When the maximum effect is obtained, the daily dose can be dropped to 10 minims, and later to 5 minims, and many patients continue to take this small dose for months or years. It is difficult to demonstrate the effect in these long-continued administrations, but the patients in nearly every instance say that they feel better when taking it. In the event of a relapse, usually due to infections, the dose is again increased. Much larger doses are used during the so-called "crises" by American workers, but our own experience of these dangerous relapses is too limited to allow of conclusions. In the secondary type of the disease harm may result from even moderate doses, so that the patient should be under careful supervision while taking iodine, as the distinction between the two types is not always possible. My own impression is that in any case of thyroid intoxication a dose can be found that will cause improvement. After surgical treatment convalescence is greatly aided by the administration of iodine for several months at least.

Diet.

Diet must be mentioned, if only to say that at present there is no clear indication of the value of any special diet. The diet must be liberal, as the patients are often hungry, and since their general metabolism is raised it may be presumed that they require a higher calorie intake than is normal for their size and their external activities. At present an ordinary diet arranged to suit the habits and status of the patient is all that is indicated, but it must be liberal.

Many other methods of treatment—by drugs, by hydrotherapy, by physiotherapy, etc.—have been used, but I believe that they are all either symptomatic or exploded, and it would but cloud the main issue to discuss them, however important as symptomatic treatment they may be. Of treatment by x rays and by insulin I have practically no experience and will not discuss them, but doubtless others will consider them fully to-night.

Results and Indications for Surgical Treatment.

If treatment is carried out on the lines I have mentioned, most of the cases of primary Graves's disease make a satisfactory recovery and return to nearly normal conditions of life and efficiency. Many, perhaps, do not require even as much treatment as I have suggested, but these we are not in a position to study in hospital practice. Of the cases that attend hospital, many are quite unable to carry out such treatment. The absence from heavy household duties or from business worries, that is so essential, results in other worries or in financial straits that rob the rest of all value. Such patients must be returned to their ordinary duties within a relatively short period of time. By surgery this can be effected.

If under good conditions a satisfactory improvement has not been effected in six months so that a return to work can be at least attempted, operation should be considered. If at the end of six months the pulse rate at rest remains constantly above 100, or if serious cardiac disorders such as auricular fibrillation develop, operation should be considered.

TABLE I.—*Exophthalmic Goitre, 1921-25.*

Type and Treatment.	No. of Cases.	Results.				
		Good.	Poor.	Bad.	Not Traced.	Died.
PRIMARY (32 cases):						
Non-surgical	18	8	3	2	2	3
Surgical	14	13	—	—	—	1
SECONDARY (23 cases):						
Non-surgical	10	5	—	1	1	3
Surgical	13	12	—	—	—	1
DOUBTFUL (5 cases):						
Non-surgical	5	2	—	—	3	—
Surgical	—	—	—	—	—	—
ALL TYPES (60 cases):						
Non-surgical	33	15	3	3	6	6
Surgical	27	25	—	—	—	2
Total	60	40	3	3	6	8

Of the 32 cases of primary Graves's disease that have been in the wards under my direction during the last five years 14 have required operation—one only for persisting general intoxication, 3 because of auricular fibrillation and heart failure, and 10 on economic grounds (see Table II). Of the 18 that did not have operations, 8 are doing well, 3 improving very slowly, 2 are doing badly and are practically confined to bed, 3 are dead, and 2 lost sight of (see Table I). Of the 14 that have had operations, one died immediately after, and I feel sure that with our greater experience now in the preparation of the patient and the selection of the optimum time this death could have been avoided. The other 13 are all doing their work successfully, but still show signs of the disease, and at times of stress recognize that they have a limited capacity.

MANAGEMENT OF SECONDARY GRAVES'S DISEASE.

The general management of cases of secondary Graves's disease is on similar lines. The degree of general intoxication is usually less, and many cases can be guided through life with little interference with their activities. The effect of iodine is generally less marked, and great care must be taken not to do harm rather than good by its use. The more chronic course and the absence of the tendency to spontaneous recovery render these cases more serious in their prognosis—the more so since it is in them that cardiac disturbances and congestive heart failure form a prominent feature. In them, therefore, surgical treatment is more clearly indicated once a serious degree of crippling is reached. A few years ago the cases of auricular fibrillation and oedema would have been considered impossible cases for successful operation, but by the improvement in surgical skill, and the more efficient selection and preparation for operation, these are the cases in which the indication for surgical treatment is most clear (Dunhill, Fraser, and Stott¹) and in which the results are most striking. Of 23 cases of secondary Graves's disease 10 were treated on general lines, and of these 5 are continuing satisfactorily, one is doing badly and has now developed auricular fibrillation, one has been lost sight of, and 3 died before they could be brought to a satisfactory state for operation. Of the 23, 13 have had thyroidectomy operations. One of them has recently died in hospital when readmitted for further thyroidectomy two years after a lobectomy; the other 12 are doing well—7 of them had auricular fibrillation and heart failure, and are all now free of cardiac irregularity. In preparing these cases for successful operation careful treatment with digitalis and iodine and much patience are necessary. In some the auricular fibrillation disappeared spontaneously after operation, in others quinidine was necessary to effect a return to normal rhythm.

TABLE II.—Indications for Surgical Treatment.

Type.	No.	Indications.			
		Toxic.	Cardiac.	Eyes.	Economic.
Primary	14	1	3	—	10
Secondary	13	2	8	2	1

In considering the high proportion of cases operated on in our series it must be remembered that we only see in hospital the cases that are doing badly, or that are not improving satisfactorily relative to their financial position or the necessity for an early return to work. That these cases can be restored to economic efficiency, or saved from invalidism or from death, is dependent on the co-operation of a skilled and experienced surgeon; but both the physician and the surgeon must guide continually for long periods, both before and after surgical treatment, to obtain the maximum beneficial results.

CONCLUSIONS.

The differentiation of types of exophthalmic goitre is important in treatment and prognosis. In the present state of knowledge the separation into primary Graves's disease and secondary Graves's disease is of value. By means of rest, the administration of iodine, and the elimination of sepsis, the level of intoxication at which the disease runs its course can be lowered, and most cases require no other treatment. By improvement in the preparation and selection of cases for operation, and by increased surgical experience and skill, cases when necessary can be restored to economic efficiency at an early date, and others can be saved from invalidism and death.

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II.—SURGICAL TREATMENT OF EXOPHTHALMIC GOITRE.*

BY

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I SHALL speak almost entirely about the operative treatment of exophthalmic goitre because I have been requested to do so; but I wish to make it clear in the beginning that I do not regard operation as the one and only treatment for every stage of this disease. For some stages, however, I do regard it as the main treatment.

It is impossible to compress into a twenty minutes' address all the material which is of interest, therefore I propose to leave out much, to skim rapidly through other aspects of the subject, and to concentrate on such as appear to be most profitable for discussion. I have thought that it would best serve this purpose to speak under the following headings: (1) How cases are selected for operation; (2) how operation can be made safe and effective; (3) death rate; and (4) end-results.

Every case of toxic goitre must be treated on its own merits, but if we are to discuss principles of treatment we must have a working classification of cases. It can be simple, and must perforce be arbitrary. For other purposes we have the masterly classification of Scott Williamson and Miss Pearce,¹ but the one I speak of is a simple sorting out of cases. I divide patients into five classes as follows:

Simple Classification.

- I. Patients in the first six months of Graves's disease.
- II. After the first six months and before the stage of heart failure.
- III. Cardiac failure or/and severe oedema.
- IV. *Formes frustes*.
- V. Toxic adenoma.

I. Those patients in the first six months of Graves's disease. They differ in degree. In some the commencement is insidious with so little obvious disturbance that the diagnosis is at first unsuspected. In some it starts much more abruptly, all the signs developing early, sometimes accompanied by severe gastro-intestinal disturbance.

II. Those who, at the end of six months, have not regained normal health but who have not yet reached the stage of heart failure. Those in whom the symptoms were slight have settled into a state of chronic ill health. Those with a severe onset have also settled into a more chronic condition. The disability of patients in this class may vary within wide limits; they may carry on their work, better at times, worse at times; generally speaking they are too ill to work. The majority of the patients who wander from hospital to hospital are in this class.

III. Those from the previous classes who now have visceral degeneration, chiefly failing hearts, as shown by permanent auricular fibrillation, or marked oedema or anasarca. I do not mean simply swelling of feet or ankles. These patients are completely invalided. In this class we must also place those in whom the restlessness of the disease has caused such mental disorder that it has become practically impossible to nurse them in their own homes, and also those in whom glycosuria has developed.

IV. *Formes frustes*. We each have our own idea as to what these are. I take the term to mean cases that are not typical: where, with some symptom of Graves's disease, such as exophthalmos, there is excessive obesity, or where, with the other symptoms characteristic, there appears to be no goitre present. I do not take it to include toxic adenoma.

V. Cases which have been described and published by all of us, called by Plummer "toxic adenoma," by others "secondary Graves's disease"—not really Graves's disease at all. There is a unilateral or a nodular goitre which has existed for years without giving trouble. Then cardiac signs, often of a serious grade, have developed, but the nervous phenomena are absent or only slightly developed.

* A paper read to the Royal Society of Medicine on March 9th, 1925.

Patients in this class scarcely come into our discussion to-night, and they are not included in my statistics, but they must be mentioned so that our minds may be clear as to what we are talking about.

That is an arbitrary division, but it gives a working plan on which we can begin to discuss the question of operation.

How do we view the patients in each of these classes as regards the advisability or the necessity for operation?

Class I.—It may be stated as a general rule that exophthalmic goitre patients in the first six months of the disease do not require operation. Cases that are mild should be piloted in ways that have been sufficiently indicated to you. There must be many people who nearly fall victims to the disease, but just do not. There must be many who fall victims who could be cured if, at that early stage, the causes that induced it could be removed. The very grave cases commencing with vomiting and diarrhoea require careful management in ways that have also been indicated to you, and it must rarely happen that, in either the mild or the grave case, the best interest of the patient would be served by operation. During this six months most patients who have not been cured by medical means reach a point of maximum severity and then subside into a chronic stage. These constitute the second class.

Class II.—It is in this stage that there will be most dispute regarding the advisability of operation. It has been stated by Barker² that all patients get well equally quickly, whether they are treated medically, by x rays, or by operation, and that the average time taken is two or three years. Those practitioners whose experience has made them feel that this is true, and whose patients can afford the time and obtain the necessary nursing, will naturally and rightly treat their patients along medical lines. But first we want to know if that statement is true. It is not my experience. Of the 831 patients I have operated upon for exophthalmic goitre I have made a careful analysis of the histories of 170 consecutive cases, and have been able to determine fairly accurately the length of time these patients have been ill before operation was performed. The accompanying table shows these periods.

Number of Years during which 170 Consecutive Exophthalmic Goitre Patients have Suffered from the Disease before Operation.

Under 4 years.	Over 4 years.	Over 6 years.	Over 8 years.	Over 10 years.
102	63	48	37	32

Another fact to be borne in mind is that all the patients in Class III, the class with visceral degeneration, which we come to next, are examples of patients in whom the course of the disease has not been arrested, so that in considering the welfare of those who constitute Class II we must take into account the morbidity and the economic factor. This class is largely made up of women in the early middle period of life—young women who have to earn their living, and mothers of families. Therefore, in this class the social position of the patient counts for much. If the individual can afford to live a sheltered life with efficient nursing, possibly for years, well and good. The practitioner will watch the heart and mentality of the patient, and if either shows signs of being affected it will indicate that something more radical should be advised. With the poorer patient it is altogether otherwise. I find numbers of these patients coming to the out-patient department, ill, unable to work, with no place where they can be nursed; and with all this having in some way others dependent on them. It seems to me essential to cut short the disease and restore the patient to an industrial plane as soon, after the first six months, as it is realized that the patient is not improving.

Class III.—Patients who have drifted on through the first and second stages until the heart has given way under the continued intoxication. There is auricular fibrillation or permanent oedema or both. In the first class operation is rarely indicated; in the second class opinions may differ, but in this class I believe medical treatment can rarely restore the heart to permanent normal rhythm and functional efficiency. This result is now being achieved by operation in a sufficient number of cases to make us know that very striking benefit can be depended on.

Class IV.—Formes frustes. Different practitioners have different ideas as to what is meant by this. I do not take it to mean the toxic adenomatous condition accurately described by Plummer and more generally noted by many observers, but a condition in which the aspect of the patient appears to be that of Graves's disease, and in which there is some sign which appears unusual or wanting. For example, the patient, instead of being thinner than normal, is grossly fat, or exophthalmos is present and rapid heart, but there is no detectable enlargement of the thyroid gland. A clearer appreciation of the pathology of these conditions will be obtained from the work of Scott Williamson and Pearce referred to above.¹ I think we should not let these cases, which really form a very small proportion of the total number, blur the discussion, for I take it that we are making an attempt to get a clear view of the chief problem—namely, the position that operation should take in the different stages of typical exophthalmic goitre, beginning at its inception and going on to the late stages of cardiac failure; but because operation is of great value in some stages, it should not be pushed as the treatment in every kind of thyroid dystrophy.

Class V.—These patients can be gravely disabled by thyroid toxæmia, with oedema and irregular heart action. I believe they cannot be cured by medical means. At any rate, patients are not infrequently seen who have been completely invalidated for eight or ten years under good medical guidance, and during all this time the disease has steadily progressed. The danger of operation is not so great as in true Graves's disease, and the response to operation is prompt. These are not classed among my cases of exophthalmic goitre.

I have stated when I regard operation to be advisable. If it is helpful to some patients, it will be necessary to be satisfied on two points: (1) How can it be made safe? (2) How can it be made effective?

(1) How can Operation be made Safe?

By ensuring that the patient has no other load to carry besides the disease itself. It is surprising to what extent patients are still sent for operation with foci of gross sepsis present. This is very reprehensible. The majority of patients improve obviously when septic foci are cleaned up, and in an operation where the margin of safety is narrow enough every factor which reduces this margin should be eliminated. It should not be necessary to have to insist on this at this late period.

By rest in bed. It takes several days for the pulse rate to come down to its resting level when a patient is put to bed.

By iodine medication. This should be commenced as soon as it is seen to what extent the pulse rate has dropped as the result of rest and freedom from worries, usually about the third day. Not only will iodine further reduce the pulse rate, with the associated improvement in the patient's condition, but it will induce a definite change in the pathological state of the gland which makes the operation safer.

By confidence between patient and surgeon. It is not enough that confidence has been established between patient and physician. On the operation morning the surgeon must come as a friend, not as a person to be feared. This is not an emergency operation.

By adjusting the amount done at one operation to the patient's strength. This is most important, and the surgeon must be able to gauge it. It is always tempting to continue and get the complete job done in one operation. The patient who has been ill for a long time will often plead for it to be finished at once; and for the surgeon it is vastly easier to deal with the second lobe in a field unhampered by scar tissue. This is sometimes possible, and, if so, it is the right thing to do; but until the surgeon can judge this he will tell the patient in the beginning that two operations are necessary, and then, without disappointing her, do at one stage only what is within her strength.

In dealing with the third class—patients with dilated hearts beating irregularly, and with oedema—safety is only attained by the closest co-operation between surgeon and physician. In this class the results obtained are sometimes so good as to be hardly credible, but the margin of safety

is very narrow. A surgeon may be able, but can scarcely be expected, to sort out flutter from fibrillation, and know from an electro-cardiogram when heart-block is present. Nor does the surgeon know just the amount of improvement in the pulse deficit that can be expected; the amount of digitalis that will achieve this, and how the dosage of this is to be planned; nor, when a patient is waterlogged, can a surgeon be expected to know how best to employ the diuretics or measure fluid intake against urine output. Therefore in his hospital he will associate himself with a physician who is interested in these matters, and day by day the two will work in their wards together. Without this close co-operation patients in this class cannot be operated upon safely or the desired result attained.

Anaesthesia must be considered. I regard chloroform as unsafe. Gas and oxygen with a little ether, given by the endotracheal method, is safe and interferes less with the surgeon than any other method. If a surgeon will take the trouble and give the necessary time before the operation, local anaesthesia gives a comfort in working and a freedom from bleeding which is attained in no other way. Freedom from bleeding saves much time at the operation, and this saving of time, as well as the diminished loss of blood, is of importance to the patient. In cases of auricular fibrillation I believe that local anaesthesia is essential.

If these precautions are taken—and always excluding the moribund—there are few patients who cannot be carried through operation with a reasonable degree of safety; but no consideration of urgency on the part of the patient, or convenience on the part of the surgeon, should ever tempt him to operate at a time other than that which is the optimum, taking all the factors into account.

(2) How can Operation be made Effective?

There are many patients who have been operated upon for exophthalmic goitre who are not cured. Dr. McNee stressed this point on March 3rd (BRITISH MEDICAL JOURNAL, March 13th, p. 478). The earlier publications on operative results were misleading. Kocher⁴ stated that removal of one lobe with the isthmus, and ligature of an artery of the other side, cured 83 per cent. of cases. Similar statements were published by American surgeons. Eighteen years ago I had insisted that this was not so, and I have insisted continuously since.⁵ The remaining lobe is bigger than the whole normal gland, and very toxic. It is not reasonable to suppose that the patient could be cured while all this remained. This must be realized in the beginning. The removal of the first lobe is comparatively easy. Removal of the appropriate amount of the second lobe is more difficult. The approach is through scar tissue; the anatomical planes may have been destroyed by adhesions; and an extremely vascular gland is to be cut through; but unless the surgeon is prepared to undertake the second he must not do the first. Removal of one lobe improves a patient so much at first that patient and surgeon are pleased; but this result is so far short of a cure that, if left at that, it can only bring the operation into disrepute. The pulse rate will not remain down; the eyes will not recede, and in patients with auricular fibrillation there will not be restoration to normal rhythm. To make the operation effective sufficient gland

substance must be removed to reduce the secretion to the minimum compatible with the physiological needs of the body.

Death Rate.

The death rate for this operation will vary within wide limits. It will vary according to the type of patients operated upon, and greatly according to the time selected for the operation in each individual, and the care with which the preliminary treatment has been carried out. Some surgeons will be careful for their statistics; others will undertake operation at some risk on patients who, without operation, are, so far as can be judged, doomed to complete invalidism; and it will naturally vary according to the experience of the operator. My own death rate in 831 operations for Graves's disease—excluding toxic adenoma—is 2.9 per cent. It became rather higher three years ago when we were feeling our way with some very severe cases, but owing to better preliminary treatment, selection of time, and, at hospital with severe cases, the co-operation of my medical colleague Professor Fraser,

85 patients were operated upon between the last two deaths.

The Advisability of Operation.

It may be asked if the risks of operation are only to be successfully negotiated by extreme care; if a certain degree of skill and judgement is necessary, and if there are other satisfactory methods of treatment available; if Dr. Barker is right when he states that patients recover in two or three years whatever the course pursued, then why operate? Well, is that statement true? I have had my last 170 consecutive cases analysed very carefully. Of these, I find

that 68 have been ill over four years, 48 over six years, 37 over eight years, and 32 over ten years. Therefore, in time alone, wastage is very high.

The Condition of these Patients.

I find that of these 170 patients 30 have had a heart beating with permanently irregular rhythm. Of most of these I have electro-cardiographic records. Some were far too ill to be sent for it to be carried out. I do not include in this number those with temporary fibrillation. Glycosuria, corneal ulcer, or a severe grade of oedema had occurred in many cases. In others the restlessness had progressed to severe mental disorder. Because I have seen auricular fibrillation commence intermittently and become permanent, corneal ulceration occur, and mental derangement become more pronounced while patients are under treatment, I am compelled to believe that Dr. Barker's statement is not a true statement of the case.

I am not dealing now with the patients who are cured. I know as well as my medical colleagues how many are, and I know that if we were living in a modern Utopia instead of a rather hard modern world patients would not come to the condition I have described; but while we are all trying to eliminate the causes of the disease, we have to deal from time to time with a situation which is present.

End-results.

What evidence can we produce that surgical treatment will shorten the duration of the disease or restore to normal function organs which have shown evidence of failure?

I am not sure how much you will care to hear on this

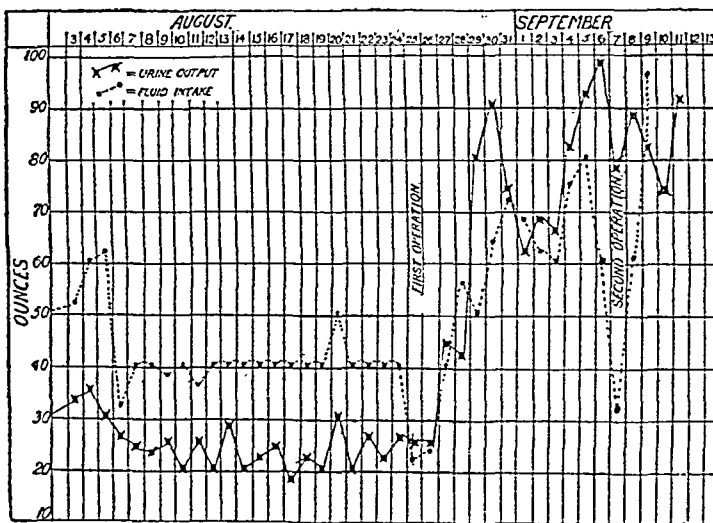


Chart showing the urine output for three weeks in a patient with oedema and anasarca while under treatment with digitalis and diuretin, and the increase immediately following removal of part of the thyroid gland.

Showing Disappearance of Established Auricular Fibrillation
after Operation.

No.	Age.	Type.	Length of History of Disease.	Electro-cardiographic records.	Basal Metabolic Rate.		Amount Removed.	Auricular Fibrillation Disappeared.
					Before	After		
1	—	Graves's disease	Years. 2	—	—	—	1½ lobes	Sp.
2	—	Intrathoracic adenoma	Some	—	—	—	Adenoma	Sp.
3	45	Graves's disease	1	Yes	—	—	1½ lobes	Sp.
4	40	" "	5	Yes	+9%	+4%	"	Qu.*
5	29	" "	3	—	—	—	"	Sp.
6	48	" "	8	—	—	—	"	Sp.
7	57	Toxic adenomatous, multiple (intrathoracic)	Many	Yes	—	—	"	Qu.
8	49	Graves's disease	15	Yes	—	—	"	Qu.*
9	39	" "	Many	—	—	—	"	Sp.
10	40	" "	1½	Yes	+28%	+2%	"	Sp.
11	37	" "	7	—	—	—	1 lobe only	No.†
12	46	" "	7	Yes	+44%	+25%	1 lobe only	—
13	60	" "	3	Yes	+53%	+47%	1½ lobes	No.
14	21	" "	7	—	+64%	+10%	"	Sp.
15	45	" "	2	Yes	+49%	+15%	"	Sp.
16	49	" "	1½	Yes	—	—	"	Qu.
17	38	" "	Many	Yes	—	—	"	Sp.
18	—	This patient died.						
1925								
19	46	Graves's disease	1½	Yes	+36%	+18%	"	Qu.
20	45	" "	10	Yes	+59%	—	"	Sp.
21	55	" "	5	Yes	+36%	—	"	Qu.
22	43	Toxic adenoma	13	Yes	+23%	—	"	Qu.
23	58	" "	38	—	—	—	Adenoma	Qu.
24	54	Graves's disease	25	Yes	—	—	1 lobe	Sp.
25	43	" "	6	Yes	+26%	—	"	No.
26	41	" "	20	Too ill	—	—	1½ lobes	Sp.
27	50	" "	4	Too ill	—	—	"	Qu.
28	24	" "	1	Yes	+24%	—	"	Qu.
1926								
29	49	" "	1	Yes	—	—	1 lobe	Sp.†
30	30	" "	4	Yes	—	—	1½ lobes	Sp.
31	55	" "	10	Yes	+23%	—	"	Qu.
32	52	" "	5	Yes	—	—	"	Qu.

* Premature contraction in the last coil spontaneously; Q it disappears but recurs.

point; whether you would like a good deal of detailed evidence, or whether you would regard that as rather boring repetition. I have selected some photographs to illustrate different grades of the disease and the response to operative treatment in each.

First, two young women whom I place in the second class—that is, they had been ill more than six months, but had no heart failure—one of them earning her living by working in the General Post Office, the other with rather difficult home duties. The first went back to her work immediately on her return from convalescent home and has worked continuously for four years since. She feels quite well. The second, whose exophthalmos was such that she suffered from corneal ulcers both times she was in hospital, went home to nurse an invalid father who, apart from her day work, calls her out of bed several times every night. She states that she has not felt so well for many years. A fireman on the northern express service went back to his duties after his return from a convalescent home and has carried on continuously since. Two photographs were then shown to illustrate the disappearance of exophthalmos after operation.

Next we pass to patients in the third class—namely, with cardiac failure. These slides show electro-cardiograms of patients with permanent auricular fibrillation before operation and showing normal rhythm after operation. One of these, we believe, had had fibrillation for eight years, another for five years, so that it is difficult to believe that the fibrillation would have disappeared by means other than surgical. Leaving out those with temporary fibrillation, I operated upon eighteen with permanent fibrillation between 1921 and 1924, ten more during 1925, and four more this year, and of these almost all have regained normal rhythm. This is interesting in another respect. We do not yet know the origin of this disease, but the disappearance of fibrillation after operation shows that the origin of the toxins which cause some of the most distressing symptoms is in the diseased thyroid gland.

The accompanying chart (p. 559) illustrates the increase in the amount of urine immediately following operation in a waterlogged patient in whom diuretics had been ineffective. This patient arrived from South Africa as ill as a patient could be. Legs, thighs, and trunk were enormously distended; the abdomen and pleurae contained fluid; she was dyspnoeic, and the daily amount of urine passed was little over one pint; the heart had been irregular for five years. She was kept for a month while every effort was made to increase the urine, decrease the dropsy, and lessen her breathlessness. She was worse rather than better at the end of the month, and then one lobe was removed. You will see that in three days the urine output increased to 60 oz. and then to 90 oz. The oedema disappeared synchronously with this. Part of the second lobe was removed later. She went back to South Africa by herself. She now camps out, rides on horseback, and manages her household affairs.

One further aspect remains to be spoken of—namely, mental disorder. This complication is not common, but, taking a large number of cases, it is not infrequent. I could give instances of patients who suddenly became worse and died. I have had to decide what course to follow in eleven patients who were gradually getting worse and who were approaching, or had reached, a stage when they could not be managed in their own homes. I have never operated upon these patients without the fullest consultation, and without the relatives appreciating all that there was at stake. It is wise to have the help of a specialist in mental disorders before a decision is arrived at. Only one of these patients has not improved; the others have, after operation, returned to their ordinary way of living. One of them has married since, and one of the worst was driving her own car around London within eight weeks of her second operation.

The degree of recovery in these cases—and in the majority of cases—appears to be very high, and yet I think this is the appropriate place to say that I believe that in Graves's disease the secretion is not normal secretion, and that by reducing its amount by four-fifths we are not leaving a patient with an output of secretion normal in amount and quality, and therefore the end-results are not comparable with those obtained after removal of a diseased appendix. Patients who have suffered severely from exophthalmic goitre never become as normal as before the disease occurred, but they are a great deal nearer normal than if they had not been operated upon.

I would ask you to bear in mind two points. We must visualize a heart and nervous system flooded with toxic secretion, sometimes continued for years; if that toxic secretion is suddenly reduced by four-fifths the organs quickly show relief—often, indeed, dramatically—but it is unreasonable to expect that their complete recovery (their capacity to stand up to strain) should be other than gradual and may never be quite complete. My second point is, that from the time that a sufficient operation is performed the downward progress of the disease is arrested, the patient feels a different woman, and is on an upgrade all the time. She is conscious of this herself, and it is obvious to her friends.

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THE TREATMENT OF GRAVES'S DISEASE BY LIGATION.

BY

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EARLY in the course of acute Graves's disease efforts should be made to abolish, or at least reduce, the thyrotoxicosis, prolonged exposure to which has been shown to result in definite myocardial degeneration. If after fair trial medical measures prove ineffective, more radical means should be adopted.

In my opinion both x-ray and radium therapy are undesirable, and the method of choice is partial extirpation of the overactive gland. The Mayos have emphasized the importance of performing this operation during one of the periods of remission, to which these patients are subject, but even then, in very severe cases, primary resection may prove a formidable and dangerous operation involving an unjustifiable risk, because the reaction may be great. However, by gradually cutting off the blood supply to the gland by ligation of its vessels, the degree of intoxication may be gradually reduced with but little reaction. It may then be advisable to perform partial thyroidectomy.

When the goitre is small, diffuse, very vascular, and exceedingly toxic, primary extirpation may be very dangerous, particularly in the presence of marked cardio-vascular disturbances. In such cases especially ligation appears to be the procedure of choice, and may be performed under local analgesia, which should be by novocain only, adrenaline being contraindicated.

Professor John Rogers of New York has recently advocated quadruple ligation in these cases, and in many has found it unnecessary to perform resection of gland substance later. Kocher pointed out the necessity of absolute hæmostasis in operations on exophthalmic goitre. Strict asepsis and rapidity of operating also largely contribute to success. With Crile of Cleveland, Ohio, the ligation of the superior thyroid artery is a most remarkable surgical feat, being at times accomplished in forty seconds, through an incision about one inch in length.

While some authorities maintain that the superior thyroid arteries are the more important, and from the point of view of comparative anatomy this may appear to be so, yet, as de Quervain points out, in goitre the changes in the thyroid occur principally in the middle and lower parts of the lateral lobes and are associated with increase in calibre of the inferior thyroid arteries, which form the principal blood supply to these areas. For this reason, and because the inferior vessels can be tied very easily in the way subsequently described, without handling or in any way disturbing the gland itself, which the surgeon should strive to avoid in highly toxic cases, it is often advisable in these bad cases to begin with ligation of one of the inferior thyroid arteries. However, it is undesirable to be dogmatic on this point; in one of my cases the largest vessel was the left superior thyroid, which was almost as large as the internal carotid. Moreover, it is only fair to point out that some authorities maintain that more good is done by ligation of the superior vessels because of the interference with the secretory nerve fibres which are said to enter the gland with these vessels.

Whichever vessel is first tied it is probably advisable next to ligate the other artery of the same side, because the anastomosis across the middle line has been shown to be less free than that between the upper and lower arteries of each lobe.

Most of the textbooks advocate tying the inferior thyroid artery through an incision which exposes the anterior border of the sterno-mastoid, but from first experimenting on the cadaver and subsequently from experience gained in practice I have found that a slight modification of the posterior route, popular with some Continental surgeons and recently advocated by Professor John Rogers, greatly facilitates the procedure. An incision about $1\frac{1}{2}$ inches long is made along the posterior border of the sterno-mastoid just above the clavicle. The muscle is retracted forwards, and on dissecting through the fasciæ the tendon of the

omo-hyoid is defined and pulled down downwards and forwards. In the angle between its upper margin and the inner border of the anterior scalene muscle, and behind and slightly external to the carotid sheath, the thyroid axis will be found, and from its direction upwards, inwards, and forwards towards the lower pole of the gland, the inferior thyroid artery is easily identified. The vessel is divided between ligatures. At this point it is the main trunk which is divided, and the division is well outside the recurrent nerve. There may appear to be a slight danger of wounding the cervical sympathetic, but this has not been found to occur in practice. No harm results from any damage, and, in fact, some authorities deliberately sever any fibres that appear in the wound.

The advantages of ligation of the inferior thyroid near its origin are that here one is well away from the recurrent nerve, and that there is little danger of either wounding the thyroid veins or of producing tetany by damaging branches to the parathyroids and so interfering with the collateral circulation to these bodies. The phrenic nerve lying on the scalenus anticus is not injured, as it is displaced laterally with the muscle.

Dietrich and Langenbeck, who, according to Crotti, were the first to advocate tying the vessel on the inner border of the scalene muscle, approached the artery between the two heads of the sterno-mastoid, while Drobnik, Rudiger, and Wölfler made their incision entirely behind the muscle. Alamartine says that ligation of the trunk of the inferior thyroid artery by the retro-sterno-mastoid route at the internal border of the scalenus anticus is the method of choice. Most of the ligations described, however, have been carried out below the tendon of the omo-hyoid; my slight modification is in approaching the vessel above the tendon.

The superior thyroid artery is exposed through the usual transverse incision at the level of the middle of the thyroid cartilage, and may be identified by tracing the vessel from one of its branches at the upper pole of the gland. The large veins leaving the upper pole may obscure the field and render ligation difficult. The loop of the artery should be looked for, as it lies on the inferior constrictor below the superior laryngeal nerve, but, as Kocher pointed out, it is sometimes necessary to free the external carotid and identify the artery by its origin.

Care should be taken to include in the ligature the posterior branch of the vessel, which sometimes arises high up and courses down the back of the gland. Severing what appears to be the main vessel between ligatures will enable the surgeon to see whether the posterior branch has been included or not.

The following is a brief history of a case of quadruple ligation.

The patient, a man aged 52, suffered from acute Graves's disease. Stellwag's and von Graefe's signs were positive. The pulse was 140 to 180, with occasional attacks of auricular fibrillation. Tremors were marked. The goitre was small, diffuse, and highly vascular. The patient was very emaciated and short of breath, and had been an invalid for many weeks. Three months before he had had to give up his work as a railway signalman.

Quadruple ligation was performed, one vessel at a time being tied under novocain analgesia; an interval of from ten to thirty days elapsed between each operation.

Subsequently there was great improvement. Ten weeks after the last ligation he had gained 29 lb. in weight, the pulse rate had fallen to 80, and there were no longer any tremors, but slight exophthalmos remained. He has since gained still more weight and returned to work, pulling heavy levers all day without discomfort. It is now nearly a year since his discharge from treatment; he has reported from time to time, and there have been no signs of tetany or cachexia strumipriva.

From such simple operative procedures involving little risk to the patient results of this type are very gratifying.

Quadruple ligation has now been performed very many times, and, contrary to what might be expected, deficiency symptoms following it are almost unknown. It is apparently very rare to meet with either tetany or myxoedema, and the explanation no doubt is that it is the trunks of the main thyroid arteries which are ligated, and that Neubauer's artery (the thyroidea ima) is a fairly constant vessel.

It is true that Kocher did not consider it permissible to tie all four arteries, because on one occasion on which this operation was performed by him his patient subsequently suffered from tetany; but this is probably accounted for

by the fact that his procedure was to tie the inferior thyroids close to or within the capsule of the gland. In 22 cases in which de Quervain tied the trunks of all four arteries no sign of tetany occurred subsequently.

At a later date it is hoped to supplement this paper with a detailed record of cases, but the object here has been to draw attention to the benefit of quadruple ligation in certain bad cases of exophthalmic goitre, and to put forward one or two points in technique with the hope that they may prove useful.

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DENTAL SEPSIS AND SEPTICAEMIA.*

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ILLNESSES secondary to foci of infection situated about the roots of the teeth are known to be very common, but are apt to be overlooked. The infection may arise from: (1) An abscess at the roots of crowned or filled teeth which apparently are perfectly sound and causing no trouble whatever. (2) Nodular collections of organisms on the roots of the teeth. (3) Absorption of the alveolar process of the jaws, generally associated with more or less visible pyorrhoea, which leads to retraction of the gums and greater or less exposure of the roots of the teeth. (4) Tartar on the teeth.

Whenever a person is suffering from some illness of painful, debilitating, or infective nature for which no other cause can be found the teeth should be carefully examined. Visible pyorrhoea in small or profuse amount may be present, and swelling and inflammation of the gums and interdental papillae; or retraction of the gums may be very obvious. On the other hand, the teeth may be a picture of excellent crowning, bridging, or conservative filling work with healthy gums and yet harbour septic organisms.

It is therefore advisable to have all filled and crowned teeth or protruding teeth examined by x rays, because frequently it is by this means alone that serious septic lesions can be found. The films must be taken by an expert dentist or x-ray specialist used to dental film work; otherwise it is difficult to interpret the results accurately and unnecessary extraction may be done. Ill informed and inexperienced interpretation of x-ray films is responsible for much unnecessary extraction of teeth and disappointing after-results on the one hand, and for the overlooking of septic foci on the other.

The results of absorption of poison from infective teeth vary in an extraordinary way, and are in no way related to the extent of the dental sepsis. Some of the worst cases arise from small foci revealed only by x-ray examination; on the other hand, a marked degree of chronic purulent inflammation of the alveolar process of the jaws may be present, with visible pyorrhoea, teeth covered with tartar, and with foul breath, and yet the subjects enjoy rude health. Either these people's powers of resistance are perfect or the absorption of toxins is not so great where there is free escape of pus.

When septic absorption takes place the metastatic infection, whatever its nature, may run a definite course for a week or a few weeks and then clear up, Nature having produced efficient antibodies to neutralize the invading

toxins. There may be no return of bodily trouble for months or years. Then another outbreak of similar or different nature may occur. For instance, in one patient there was a violent painful inflammation of the tonsil like diphtheria which lasted ten days. Recovery took place, but in a year or so a severe acute painful neuritis and cramp affecting the nerves and muscles of the legs, especially of the feet, developed and lasted three weeks. X-ray examination showed extensive infection of the roots of the teeth, and wholesale removal has resulted in good health.

It is because of the use of x rays in investigating the condition of the teeth that more attention is being paid to general illnesses which can arise from dental sepsis than was paid ten years ago. I remember patients in private practice in my past experience, who had acute illnesses or who died, and in whom no satisfactory explanation of the toxic process was ever given. I often think of one man especially who had a virulent infection with a rash, which I took a fever specialist to see, and which was not scarlet fever. He died. I do remember that he had very bad teeth, but it was many years before the days of dental x-ray work. I do not refer to hospital cases in this paper.

There are two broad types of affections caused by sepsis of the teeth: one unaccompanied, and one accompanied by a rise of temperature.

1. *Apyrexic Affections.*—The common illnesses arising in this way are generally painful, such as myositis, fibrositis, neuritis, arthritis, or phlebitis. Affections of the stomach simulating ulceration and malignancy may, in my opinion, be caused by dental sepsis, and probably biliary infections as well. I always have the teeth of cases of indefinite gastric nature examined, and in many instances removal of septic teeth has relieved the complaint of the patient. A common type of apyrexic complication is an adult of 40 or more who has attacks of rheumatism or neuritis which affect any part of the body, come on at any time without exposure to wet or cold, but especially if the person is run down or overworked. The pain and stiffness may be very great, allowing lying down in only one stiff position to avoid pressure on the affected muscle or nerve, and causing a very crippled gait. Sleep without anodynes is impossible. If such a person has any septic teeth they are almost certain to be the cause of the trouble, and their removal will result in cessation of the pains, though, it may be, only after some months in long-standing cases. One interesting case I am watching now is a young gentleman farmer, aged 25, who has had three attacks of painful myositis, etc., affecting the neck and back, for which there was no cause like exposure to weather. He had an excellent set of his own teeth with only one filled molar. This we had x-rayed. The roots were not clear like those of the other teeth, and as it was a dead tooth it was removed, and definite evidence of sepsis about the roots was found. It is at present too early to say whether we have removed the cause of the "rheumatism."

2. *Pyrexial Affections.*—Among affections accompanied by a rise of temperature are inflammation of the throat, acute tonsillitis, arthritis, phlebitis, bronchopneumonia, and septicæmic conditions generally, including septic endocarditis. The temperature varies from a simple septic evening rise and morning fall lasting weeks or months to daily rigors of severe type lasting days or weeks or longer. In one case I will refer to it was more like rat-bite fever than any other condition I know of. In some cases it simulates that of irregular typhoid or paratyphoid infection, and Widal tests should be done to check diagnosis. Death has occurred in two cases in private practice under my observation.

PHYSICAL SIGNS AND SYMPTOMS.

Myasthenia Cordis.—One of the most important and commonest symptoms of dental toxæmia even in apyrexic cases is shortness of breath on slight effort—what I may call myasthenia cordis. This was the only complaint of one patient, and it had troubled him for many months. It may persist for several months after the offending teeth have been removed and the acute symptoms have passed off. There may be no evidence of dilated heart in these cases unless there is some associated anaemia; merely some inability on the part of the heart muscle to carry on the

* A paper read in opening a discussion on focal sepsis at the Manchester Pathological Society, December 9th, 1925.

circulation, and possibly the right side of the heart is more affected than the left because there is no oedema of the legs.

Lungs.—When the lungs are involved the condition is apparently a more or less extensive moistness or oedema not restricted to one part, with general crepitations varying in character and amount, and worse at the base. There is not much sputum. If the septic poisoning is extensive a widespread septic bronchopneumonia develops in one or both lungs, and death will probably result unless the teeth be removed.

Oral sepsis is one cause of delayed resolution in lobar pneumonia, and it may affect the course of the disease.

Nephritis in two of my cases began as albuminuria, followed by haematuria.

Phlebitis was a prominent complication in two of my cases, and directed my attention to the mouth. In one instance the man died of septic pneumonia; in the other the woman had a bronchopneumonia, which was a long time in clearing up.

An erythematous rash was a persistent complication in Miss Q.'s case; and it was present in the case I have already referred to which simulated scarlet fever. I have seen extensive erythema nodosum on legs and arms when the teeth were very septic.

Throat Affections.—Dental sepsis is a very common starting point for acute throat infections. Whenever there is a septic inflammation of the tonsils or pharynx which is not true diphtheria the condition of the teeth must be looked to. This is especially important in people who are subject to recurring throat trouble. Not only may there be a tonsillitis, but a profuse pharyngitis is common in dental sepsis.

Anaemia is sometimes a marked consequence of dental sepsis. The patient may look as if he were suffering from pernicious anaemia, but the anaemia is of the secondary type, with low colour index. I have never found extraction of teeth relieve true pernicious anaemia. Not uncommonly the teeth and gums are in a bad state in this disease, and removal is necessary as part treatment, but cure does not follow. I have not been able to get proper blood or bacteriological examination done in my cases. Many of them were seen in their own homes, and remote from such facilities. When I have had blood smears to examine there has been no definite departure from the normal in the number or characters of the leucocytes.

TREATMENT.

When obvious dental sepsis with inflamed and even bleeding gums is present in a case of septicaemia, and for which no other cause can be proved, the teeth should be extracted. Generally there is only a reduced number of teeth present, and they can all be extracted with safety. Bleeding is not likely to be as troublesome when many teeth are removed as it is for a single tooth or two teeth, the shock to the peripheral vasomotor system being so great that the arteries contract. The shock of extraction in all my cases has been very little; what bleeding has taken place has done good, and the temperature has soon come down to normal. I have had several infected teeth removed when there has been bronchopneumonia present. A skilled dentist will take only a few minutes to remove many teeth, and the anaesthetic for this time has so far done no harm in my cases with pulmonary complications. If most of the teeth are still in the mouth the worst half could be removed at one time and the rest cleaned with

carbolized dental pumice-stone powder and the gums painted with half-strength tincture of iodine daily. This cleans up a mouth very much, but will not remove the deep-seated sepsis.

Cases with No Visible Sepsis.

CASE I.

Mr. X., aged 50, in September, 1923, had a rigor followed by acute pneumonia of septic bronchopneumonia type. Empyema developed from a virulent streptococcal infection. One week after the empyema operation he had nausea, his feet swelled, and the urine contained albumin and blood with streptococci and *Bacillus coli*. The nephritis lasted until Christmas, 1923, when he got up for the first time. Before getting up the temperature was normal; but his pulse rate kept at 120, rarely below 100. In May, 1924,

his pulse was still fast and he was easily short of breath, but he felt better and resumed work in June. For seven weeks he felt comparatively well, then he began to suffer from appalling headaches and had to go to bed. The temperature was only 99°. Then intense soreness and swelling at the head of the radius bone came on rapidly like an acute inflammation of a joint. His temperature was then rising to 102° at night; he also had pains in his back and right shoulder, which lasted three days and kept him on his back. The elbow-joint pain passed off without any pus forming.

In October, 1924, x-ray examinations showed that there was no collection of pus in the chest. I found, however, that he had two old filled left molar teeth which had never given him any trouble. X-ray examinations showed abscesses at three of the four roots. The teeth were extracted and there was a reaction of temperature in twenty-four hours to 102°, and other slight reactions until a spicule of necrosed bone came away from the seat of extraction. The temperature then settled down and he gradually got back to his former health, but only after a period of eight months.

CASE II.

Miss Q., aged 28, was seen in March, 1925. For weeks before she had had severe pains all over, and in most of the joints, especially in the knees and ankles. There were daily rigors with temperature of 105°. She had an erythematous rash over the body as well. There was no obvious cause of the rigors, but the mouth was full of crowned teeth. These teeth were removed and the subsequent history is very striking. Her doctor writes:

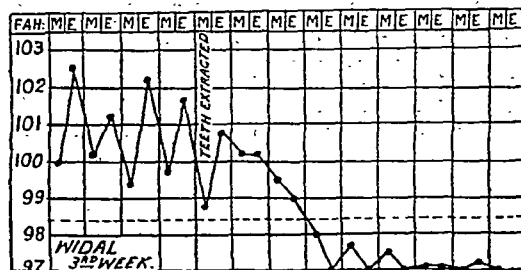
"Miss Q. made a good recovery, though only after seven months' illness. For a month after the teeth were extracted she continued to have a daily rigor and high temperature, usually 105° or thereabout. On one occasion it reached 107° (taken by her mother).

"After a more severe attack of headache and sickness than usual the attacks came every second day, the temperature reaching between 103° and 104°, with very little headache and great improvement in the general state. This periodicity lasted about eight weeks. Then the attacks came every day (temperature about 102°) for six weeks up to the end of August. During September the attacks came mostly every second day (occasionally on the third). In the early part of October they came every third day. In the second week of October she had a very severe attack with violent headache, sickness, and prostration, the temperature reaching 104°; the next day she was fairly well, and on the day following that a slight attack—temperature 101°. Since then (the middle of October) there has been no fever and she has felt quite well. With every febrile attack she had a renewal of erythema, chiefly blotches; sometimes nodes on the arms, and pains in the joints, chiefly the ankles. Her mother and herself are quite certain that she had attacks of the same kind as in this illness, though much slighter, at intervals during the last two years. During this time they recollect her having red blotches on the lower part of the neck."

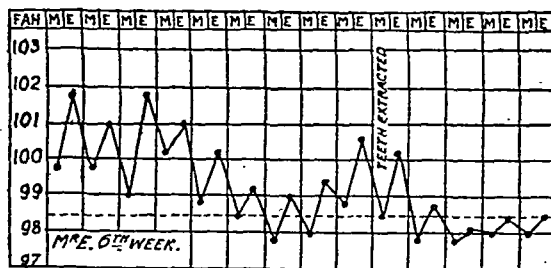
The dentist reported that there was some pus in the pulp cavity of one or two of the teeth; only in one tooth was there any trouble at the apex, and that only beginning.

CASE III.

Mr. E., aged 26, was well until three years ago. He had diphtheria in 1924. In June, 1925, he had swelling and pain in the glands in the neck below and behind the right ear. Temperature 102°. As the pain and swelling persisted the glands were opened; no pus came away, but only a brown thin discharge. Two days afterwards marked albuminuria developed, and in another day haematuria. Temperature of septic type with evening



Type of temperature. Widal test negative.



Type of temperature for weeks.

rise to 101.5° or 102° continued. I saw him six weeks after the onset of the adenitis. On examination it was found that he had five or six molar and bicuspid teeth which had been filled for five years, and when asked if they had caused trouble, said "No, except that two of them became tender on the day of the operation." The teeth were examined by x rays and absorption of the roots of those which had caused pain at the time of the operation was found. The other teeth were indistinct and suggested absorption. All doubtful ones were extracted and the patient has improved steadily since. The diphtheria may have been a septic condition secondary to focal sepsis.

Cases with Visible Sepsis.

CASE IV.

Mr. F., aged 45, for three weeks in 1923 had felt very ill and unable to carry out his work as a baker, although he did not go to bed. His temperature was rising to 101° and 103° at night; he had incontinence twice, and on one occasion had a kind of fit. The mouth was very foul, the gums being inflamed and bleeding easily. Although seriously ill (it was felt that he was dying) all the teeth were extracted. He recovered after this and has been quite well since. He was said to have had a similar illness sixteen or seventeen years ago, from which he recovered. This I believe to have been a slighter attack arising from similar though less virulent dental sepsis.

CASE V.

Mrs. C., aged 67, had pneumonia in March, 1924; it was apparently lobar pneumonia of the left base. This cleared up very slowly and three months later she developed oedema of the left leg. The temperature had been normal for a few weeks, but began to rise again three weeks before I saw her the second time. The mouth was very foul with septic incisors and canines. She had not visited a dentist for twenty years. The teeth were dealt with as soon as possible and she gradually got back her usual health.

CASE VI.

Mr. J., aged 49, was seen in November, 1925. In July he had an attack of "influenza" with high temperature but with no physical signs. Since then he was constantly short of breath, which varied in degree, and he found all stairs trying. A few days before I saw him he had a similar attack of feverishness. His temperature rose to 102° in the evening; the spleen was palpable, the W.B.C. test negative. A few moist sounds were heard over the bases of the lungs, especially the left lung. He had had a cough in recent winters. There were no teeth in the upper jaw, but eight or ten in the lower jaw were in a very septic state and he had pharyngitis. He was too ill to do anything, and he died in a few days of septic intoxication and bronchopneumonia.

CASE VII.

Mr. E., aged 47. This man's illness began with phlebitis and oedema in the left leg, which lasted ten days and was clearing up when the right leg became involved. I saw him at this time, and, looking for a cause, found a very offensive condition of the mouth, pus exuding from round all the teeth and stumps and spongy inflamed gums. The man was so ill that immediate treatment was thought necessary, and he was removed to hospital for it. He died, however, of septic pneumonia in thirty-six hours, and before the teeth could be dealt with.

CASE VIII.

Mr. K., aged 34, felt so debilitated that it was feared that he might have pulmonary tuberculosis, which was in the family. I could find no sign of organic disease anywhere. In the mouth he had five very fine specimens of crowned teeth which had been there for five years and had caused no trouble. X-ray examination showed seven teeth to be diseased at the roots. They were removed, and progress to usual health followed—slowly, as it does in most cases of dental sepsis.

CASE IX.

Mr. A., aged 54, complained of palpitation and shortness of breath on very slight effort and of easily getting tired. He was definitely anaemic and a blood count showed red blood cells nearly normal (4,700,000), colour index 0.8 only; no special changes in the white cells. He had some slight dilatation of the heart. His teeth looked very suspicious; there was a protrusion from the gums, but there was no marked pyorrhoea. X-ray examinations showed that there was a great deal of deep-seated sepsis. After necessary extractions by his dentist he began to feel better and soon got perfectly well.

CASE X.

Mr. M., aged 40, underwent operation for gall stones in November, 1925. Three weeks later double quinsy developed, with thirst, polyuria, and glycosuria; insulin was given. On December 7th bronchopneumonia affecting the bases of both lungs supervened, with pink sputum, a temperature rising to 103.5°, and an occasional rigor; he was very delirious at night. The teeth and gums were very septic; removal of the teeth was advised, and done the next day (December 12th), though he was extremely ill. Improvement followed almost at once, and recovery in a few weeks with no glycosuria.

I could give notes of other similar cases in private work and many from hospital practice.

DENTAL CONDITIONS LIKELY TO FORM SOURCES OF INFECTION.*

BY

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WHEN discussing dental disease as a factor in the causation of general disease, it is difficult for a dentist to be definite in his statements. He frequently sees a patient who has been under medical treatment for an ailment for some time without sufficiently good results following, and he finds a condition of oral sepsis present. He treats this, the patient begins to improve, and he rather naturally is inclined to conclude that the removal of the oral sepsis has been the dominating factor in the successful treatment of the case. He also wonders if the oral condition was not also the dominating factor in the causation of the disease. As the patient in all these cases has been receiving medical treatment at the same time, he can only wonder—he cannot definitely claim that the treatment of the oral condition cured the general condition. But when he sees this happen time after time he necessarily concludes that there must be a probability that oral sepsis is a common predisposing cause of many ailments.

As I am therefore not able to make any definite statements as to the relationship between oral sepsis and the many diseases which may be influenced by it, I will confine myself to a description of the dental conditions which are most likely to influence the general health, and will indicate how x-ray examination of the teeth helps in the estimation of the likelihood of the teeth, in individual cases, forming foci of infection.

It appears to me that there are three broad classes of oral conditions which may result in general septic infection. In the recent discussion at Bath there seemed to be a disposition to regard only two classes—an open and a closed form; the open form being harmful from the effect of the swallowing of the organisms and their toxins, and the closed form from the absorption of the toxins through the blood stream via the bone. To me this seems a little misleading, as the condition of pyorrhoea is almost surely a combination of the two forms; hence my description of three types.

The first type is that in which sepsis is solely the result of neglect and lack of use of the teeth, where the teeth, at their gingival margins, are covered with deposits of salivary tartar and debris. There is generally a gingivitis present resulting entirely from the presence of these deposits, but the gums do not present, except just at the gingival margins, the congested appearance which is characteristic of pyorrhoea. This condition can generally be rapidly cleared up by careful attention to scaling and cleaning of the teeth. In this class of case, although there may be a certain amount of infection through the capillaries from the gingivitis, the chief ill effect is caused by the constant swallowing, both in the saliva and in the contaminated food, of the organisms and their products. The appearance of the mouth (in this type of unhealthy mouth) is often more striking than that of either of the other two types, but the condition is not nearly so harmful as regards infection.

The second type is that in which there are non-vital teeth present—that is, teeth whose pulps have been destroyed either in the process of preservation of the teeth, or through the progress of caries. Although very many teeth are successfully treated by devitalization of the pulp, with its subsequent removal and replacement by filling material, there are unfortunately many teeth whose pulp canals are beyond the skill of the average dentist to fill completely. In these latter cases, and in cases where the pulp has become necrotic as the result of caries extending to the pulp chamber, there is a possibility of the sepsis present extending through the foramen in the apex of the root, and causing an area of necrosis to develop in the vicinity. These areas are shown in x-ray films of the teeth as dark shadows round the apices of the roots of the

* A contribution to a discussion on focal sepsis at the Manchester Pathological Society, December 9th, 1925.

teeth, due to the presence of the resulting cavity in the bone of the jaw. The character of the walls of the cavity as shown in the film quite frequently gives an indication of the rate of progress of the bone destruction. Any toxins which may be formed in these areas are necessarily conveyed directly into the lymphatic system, as the region is completely shut off from the mouth.

The third type is that in which the condition commonly known as pyorrhoea is present. The subject of pyorrhoea, or chronic general periodontitis, is so large a one that I am not now in any way attempting to deal with it. Its symptoms are well known. After a preliminary gingivitis the gums become puffy and congested in appearance. The periodontal membrane begins to ulcerate and to break down, and then the edges of the bone become necrotic. The gum margins readily bleed and pus can generally be expressed from the edges.

There is a condition of acute gingivitis, very similar to the trench mouth condition seen so much during the war, which one sees frequently nowadays, and which is commonly incorrectly diagnosed as pyorrhoea; it is a condition which is amenable to treatment, but the slowly progressive general periodontitis, the true pyorrhoea, is generally so firmly established when it is first seen that the bone is already well infected, and nothing short of the loss of the teeth and the resulting absorption of the alveolus will cure the disease. I am pretty firmly convinced that only in its earliest stages is real chronic general periodontitis curable without loss of the teeth.

Having thus briefly described the three types of dental conditions which are likely to form sources of infection, I would like to emphasize the reason why such a source may be so injurious as it probably is. To do this I would point out that the most serious infection from the mouth takes place through the periodontal membrane and its surrounding tissues. It has been demonstrated, quite conclusively I think, that there is a very complete network of lymph capillaries extending through the slender papillae at the margins of the gums which accompany the blood vessels and nerves through the connective tissues into the spaces in the bone. This being so, it is easy to see how toxic substances are conveyed from the infected gums to the lymph glands and thence to the blood stream.

The extent of the periodontal membrane is not always appreciated. If the membrane is stripped off, say, the central incisor tooth and is flattened out, it will form a triangle whose sides will measure roughly three-quarters of an inch. If this triangle is multiplied even twenty times, allowing for the previous loss of a dozen teeth, a surface as large as the palm of the hand will be covered. An ulcerating surface of this size is quite a serious matter, especially when it is remembered that the ulceration is taking place in an area from which there is little external drainage.

By means of x-ray films it is possible to form a good idea of the probability of the existence of infection from the teeth and the alveolar margins. In the normal mouth the gingival trough, which is the small depression which surrounds each tooth at the margin of the gum, is covered completely with a layer of epithelium which shuts off entirely the periodontal membrane from any contamination from the fluids of the mouth. If, from any cause, this epithelial covering is destroyed, there is no longer any protection for the periodontal membrane from the action of the organisms present in the mouth. The membrane has very little power of resistance, and the organisms soon spread deeply into the tissues, including the bone, which gradually break down. Any cause of chronic irritation may account for the destruction of the epithelium of the gingival trough, especially any cause which results in a food stagnation area being formed. Such an area may result from irregularities of the teeth, the edges of overlapping fillings or crowns, improper diet, insufficient cleaning, etc.

Dental x-ray films show quite clearly when the cortical layer of the bone of the tooth socket is beginning to break down, and the extent of the bone destruction in any individual case can be readily seen. The films also show quite clearly when there are areas of necrosis around the apices of the roots of the teeth.

In cases of general illness, where a physician or surgeon has decided that the disease is probably one of infective origin, or is one which is being maintained on account of the presence of some septic focus, if dental x-ray examination shows a probability of the presence of bone destruction, either from infection of the periodontal membrane or from the presence of non-vital teeth causing necrotic areas in the bone, then the question of the advisability of removing the teeth affected has to be considered, and the question which perplexes is, How big a sacrifice in the way of removal of the teeth is justifiable in the hope that a good general result will follow?

There is no doubt that frequently all the teeth are removed for a patient and he finds that little, if any, improvement in his general health follows; but my own experience leads me to think that very much more frequently a big improvement follows.

When discussing the subject with the patient my practice is to point out that while treatment of the dental condition might be too late to overcome the harmful effects which have been accruing for years, it might reduce them to some extent, and would almost surely check the progress of the general disease. In order to avoid subsequent disappointment the patient is at the same time made to understand that artificial dentures are at the best only poor substitutes for a natural dentition, but that they can in most instances be made sufficiently efficient to deal with a selected diet. The extent of the dental extraction operation is too big a subject to deal with in a few words, but one fact is certain—if dentures have to be worn, no teeth must be allowed to remain which are not soundly implanted in healthy bone and surrounded by firm and healthy soft tissues. The wearing of an artificial denture on gums which are at all likely to suffer from gingivitis will speedily set up the condition.

OBSTRUCTION OF SMALL INTESTINE BY GALL STONES.

A SERIES OF THREE CASES WITHOUT MORTALITY.

BY

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THE discussion on intestinal obstruction at the last Annual Meeting of the British Medical Association¹ brought out, among other interesting matters, some remarkable facts and statistics concerning obstruction due to gall-stone impaction.

The number of such cases tabulated compared with the total number of cases due to all causes is insignificant: 28 to 3,064, an astonishing proportion. These 28 cases, moreover, occurred over a period of years in the practice of seven large hospitals. The incidence works out at less than one per annum per hospital. The condition must, therefore, be regarded as extremely rare, especially in the experience of any single individual. Not less remarkable than the rarity is the high mortality: of the 28 cases no fewer than 14 died.

In connexion with the discussion the cases reported below have peculiar interest. All three passed through my hands within the space of eight years, and, contrary to probabilities from the statistics above, all recovered. I have endeavoured to bring out the main points of the cases in accordance with the analysis used in the discussion at the Annual Meeting.

CASE I.

A married woman, aged 68, on May 8th, 1925, was admitted to ward 31 (Mr. G. H. Edmondson's) Western Infirmary, Glasgow, suffering from acute intestinal obstruction, with vomiting of forty-eight hours' duration. There had been no movement of the bowel for three days. Signs of acute intestinal obstruction were unmistakable. For three years this patient had suffered periodically from pain after food, and flatulence, but there had never been jaundice.

I operated about two hours after her admission, and extracted a gall stone from the ileum twenty inches proximal to the ileo-caecal valve. The patient made a good recovery. The stone was roughly spherical, 1 inch in diameter, and the dry weight was 140 grains.

CASE II.

On June 9th, 1924, I was called in consultation by Dr. E. R. Weir of Dunoon to see an unmarried woman, aged 68, who had been suffering from abdominal pain and vomiting for forty-eight hours. The signs of acute intestinal obstruction were complete, but the vomit was not faecal.

Operation was immediately undertaken. On inserting a hand into the abdomen I came at once upon a mass in the ileum four or five inches proximal to the ileo-caecal valve. Through a small incision in the bowel I removed a gall stone. Recovery was uneventful.

This calculus was roughly a truncated cone. The greatest length equalled the greatest breadth—namely, one and one-fifth inches. The dry weight was 180 grains.

CASE III.

A detailed account of this case has already been published in another connexion.² The operation took place on January 10th, 1917. A married woman, aged 52, had had a long experience of so-called gastric disease before intestinal obstruction manifested itself. The stone which I removed from the ileum was ovoid in shape, the greatest circumference being $5\frac{1}{2}$ inches, and the weight was 636 grains. Recovery was uninterrupted.

I saw this patient recently, more than eight years after operation, when she reported well, and stated that she had had no recurrence of discomfort.

It is noteworthy how seldom these patients have earlier symptoms pointing directly to the gall bladder; that there should sometimes be complete absence of any morbid signs before the onset of obstruction is equally striking.

It is scarcely ever possible to diagnose the cause of the obstruction before operation, but during the operation the mass in the intestine is easily discovered by the exploring hand. The bowel, tightly gripping the impacted stone, shows signs of bruising by the irregular surface of the calculus, and the direction of the incision into the intestine must be determined by the injury already sustained by the intestinal coats.

On no occasion have I attempted, as advised by several authorities, to move the stone along the interior of the bowel before cutting down upon it, as I am of opinion that the less the damaged intestine is handled the better.

It is now generally believed that gall bladder and small intestine adhere together on account of an inflammatory process, and that the large calculi pass directly into the intestine through a stoma set up by a process of ulceration.

There can be little doubt that these patients, when they have recovered from the operation for intestinal obstruction, derive considerable benefit from the cholecyst-enterostomy established by this curious happening. By this means they become possessed of two outlets from the gall bladder, and a period is thereby put to this organ acting as a factory of gall stones.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, November 28th, 1925, p. 933. ² *Practitioner*, August, 1917.

TUBERCULOSIS IMMUNIZATION.

BY

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IN the BRITISH MEDICAL JOURNAL of July 19th, 1924 (p. 102), I described a series of animal experiments in which it was conclusively shown that it is possible to give active immunization to animals against a virulent dose of tubercle bacilli.

A further series of experiments has just been concluded at the Lister Institute with the same encouraging results, and I am hopeful that in the near future the work will be extended to young children, with a view to protecting those who are in daily contact with cases of open tuberculosis.

Animal Experiments.

A large series of rabbits and guinea-pigs were used. Half of the animals were given protective doses of vaccine prepared from attenuated killed human bacilli, which had been continuously subcultured by me for sixteen years, and were quite non-pathogenic and non-tuberculo-genic. Two protective doses were given—one on July 25th, 1925, and

the other on August 1st. The whole series of animals, including the controls, were then given 0.1 mg. of virulent bovine bacilli by Dr. Schutze.

One of the rabbits and two guinea-pigs died in three weeks from septicaemia, and the whole of the controls died within three months of acute and generalized tuberculosis. The protected animals gained weight and appeared quite healthy when they were killed on February 24th, 1926. A very careful post-mortem examination of the rabbits was made by Dr. Schutze and myself. The animals were fat and in excellent condition. At the site of inoculation (in each case in the thigh) was an enlarged gland or glands, but not extending into the inguinal glands. There was no trace of tubercle in any of the organs. Smears from the glands showed tubercle bacilli in large numbers, and these will be injected into guinea-pigs with a view to testing their virulence. It is evident that a local infection was produced at the site of inoculation, but the animals were protected against a progressive tuberculosis.

As my previous experiments have also shown, it is only possible to protect animals by using bacilli of human origin, against an infecting dose of bovine origin, and vice versa.

Conclusions.

The problem of tuberculosis resolves itself into the question of immunity. Contrary to what is observed in other infectious diseases, no immunity is conferred on the human by a previous attack of tuberculosis, caused by the same type of bacilli. Pulmonary tuberculosis, which is nearly always caused by bacilli of the human type, does not appear to give immunity in after-life, and patients whose disease has been arrested are liable after many years to another acute attack of active tuberculosis. Clinical experience, however, goes to show that children and young adults who have received a mild infection of bovine bacilli in milk, causing enlarged glands in the neck, bone and joint lesions, and other forms of localized tuberculosis, are practically immune to pulmonary tuberculosis, and it was this observation that led me to use bovine bacilli to immunize animals and man against the more serious disease of the lungs.

It seems to be probable that children may be protected against infection in the household, but some years must elapse before this can be finally established. All children over the age of 1 year who are living in the same house with a tuberculous member of the family ought to be protected if possible against infection, and it is in the early years of life that such infection usually occurs.

From a long observation of tuberculosis I am convinced that if some active immunity can with complete safety be given to those children who are directly exposed to infection at home, a long step will have been taken in the direction of prevention, which, after all, is the key to the problem.

The protection of the community by some safe scientific method of active immunization is the only effective way by which this preventable scourge can be eradicated.

FRACTURE OF THE SKULL AND EXTRADURAL HAEMORRHAGE WITH SYMPTOMS OF HYPOTENSION.

BY

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THE case recorded below is of much interest, since, although there was considerable extradural haemorrhage, there was a complete absence of pressure signs. The case suggests that a haemorrhage within the skull may act not only, by its own local pressure but also by its general effect on the pressure of the cerebro-spinal fluid of the brain.

A man, aged 26, was knocked down by a tram on November 27th and was taken to hospital in a comatose condition. On admission the pulse was 100 and irregular, the temperature 38°C ., and the respirations shallow. There was escape of blood from the nose and the right ear. The pupils were unequal and

fixed. The conjunctival reflexes were present, but all the deep reflexes were absent.

A lumbar puncture showed the cerebro-spinal fluid to be blood-stained and under tension. Subsequent lumbar punctures on November 28th, 29th, and 30th showed progressive diminution in pressure, and on the 30th the pressure was much below normal. The general condition of the patient did not materially alter for a few days, but on December 5th (nine days after the injury) he spoke, and was able to brush the flies away from his face. On December 6th and 7th he appeared to improve steadily as regards consciousness and muscular power, but the pulse continued rather feeble and rapid (110-112). On December 8th the pulse was 116 a minute and very feeble, and the respirations 40. At this time the blood pressure was 110 mm. and the pupils equal and reactive.

After recovery from the initial shock the patient showed general signs of cerebral irritation but none of pressure. From December 8th to 11th he remained in the same condition of partial consciousness; there was no sign of paralysis, but the pulse became progressively weaker and more rapid, and he died on December 11th—fourteen days after the injury.

At the post-mortem examination the following conditions were observed:

There was a lacerated injury about the size of a florin on the right parietal eminence of the skull which reached the bone and around which there was considerable infiltration of the tissues with blood. There was a fissured fracture of the skull under this injury which ran from the vault in two portions—one along the right petrous temporal through the sella turcica into the left middle fossa, the other forwards to the posterior wall of the right orbit. The fractures crossed both anterior and posterior branches of the right middle meningeal artery, and an extradural haemorrhage was caused by rupture of the posterior branch. This haemorrhage formed a clot, 7 cm. in diameter, beneath the above-mentioned injury, and the clotted blood, though not extensive, was sufficient to cause flattening of the convolutions of the brain beneath it.

On the base of the skull there was a quantity of clotted blood along the line of the fractures, and a certain amount of pressure must have been caused on the emerging nerves and on the pituitary body.

There was no injury to the brain substance of the right hemisphere except a small bruise over the right middle temporal gyrus.

On the left side of the brain the pia arachnoid showed a generalized diffuse blood staining, but no definite extravasated blood could be made out. There were, however, several lacerations of the left cerebral cortex—one over the inferior frontal gyrus near the frontal pole, a second on the middle frontal 5 cm. from the pole, and a third more extensive bruised area above and parallel with the posterior ramus of the Sylvian fissure affecting also the superior temporal gyrus in its anterior part and the orbital surface of the inferior frontal gyrus near the temporal pole. This bruise covered an area 4.5 by 3 cm., and passed through the grey matter into the white substance. There was also a bruise of the middle and inferior temporal gyri, extending from the temporal pole for a distance of 3.5 cm. On replacing the brain inside the skull cap the lacerations were observed to be roughly opposite the site of the injury if a line were drawn from this site through the central point of the skull. They were, however, dispersed over a considerable area, and in the writer's experience these contre-coup lesions are usually found over the poles of the brain whatever be the site of the violence.

The absence of any sign of pressure in this case is of considerable interest, for the extradural haemorrhage was sufficient to cause flattening of the brain convolutions, and, therefore, should have produced definite pressure effects. The diminished cerebro-spinal pressure is a feature which possibly explains the absence of pressure signs. Leriche has described a definite syndrome caused by diminished tension in the cerebro-spinal system with symptoms of torpor, mental stupor, or sometimes coma. There is no paralysis or contraction; the pupils are normal, and the reflexes positive. Stultz and Stricker¹ have caused an increase in the cerebro-spinal tension in these cases by the injection of 40 c.cm. of distilled water into a vein, which resulted in an almost immediate increase in tension and remission of symptoms.

In the case under review it is possible that the lesion of the pituitary may have caused hypotension of the cerebro-spinal fluid, which entirely obscured all focal symptoms of the extradural haemorrhage, and gave rise to the symptoms described by Leriche as those caused by diminution of the tension of the cerebro-spinal fluid.

In such cases—and they are probably not uncommon—it is possible that intravenous injection of 30 to 40 c.cm. of distilled water might not only cause a remission of the symptoms due to hypotension, but the increased cerebro-spinal tension would then allow the haematoma to produce symptoms which would lead to its localization and treatment.

REFERENCE.

¹ *Annals of Surgery*, November, 1925, p. 673.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INJECTIONS OF ACRIFLAVINE FOR TUBERCULOSIS.

SINCE its introduction I have used acriflavine in every kind of case in which an antiseptic is indicated, because of its bactericidal properties and its non-toxic effect on the tissues. For the latter reason I was tempted to try, somewhat empirically, the effect of hypodermic administration of the drug in cases of advanced pulmonary tuberculosis. The results obtained exceeded my expectations, and I feel that a trial by others is warranted. Three cases only have been treated in this way.

CASE I.

A young woman, aged 24, with advanced phthisis of three years' duration, had on two occasions received sanatorium treatment, and was discharged the second time with the report that further sanatorium treatment was useless. After two or three injections of acriflavine the patient felt much better. Within a month the physical signs markedly improved—the fever was reduced, night sweats ceased, sputum decreased and became less purulent, and the moist sounds in the lungs cleared up. For nine months before the first injection she was confined to bed, and now, after five months' treatment, she is able to walk two miles daily without fatigue. The report on the last examination of sputum states that "the tubercle bacilli are not very numerous, about one per two fields." The first dose given was 5 minims of 1 in 1,000 solution of acriflavine in normal saline, and three doses were given at intervals of forty-eight hours. There being no local or general reaction, the amount was doubled and given at the same intervals. As still no contraindications were observed, the dose was rapidly increased to 40 minims twice a week.

CASE II.

A youth, aged 21, with Pott's disease of long duration, was treated in exactly the same way. Here again the improvement is definite, though of not so dramatic a nature.

CASE III.

This is an instance of advanced tuberculosis of the pleurae and lungs in a man aged 32, who (except during two short periods of sanatorium treatment) has been under the constant observation of my partner for four years. For the last year he has been a complete invalid, and for several weeks immediately preceding the treatment he had been confined to his bed by pronounced hectic fever with a daily rise of temperature to 102° or 103°. An application for further sanatorium treatment had recently been refused (after examination of the patient) on the ground of the hopelessness of the case.

After initial smaller doses beginning on December 9th, 1925, this patient has, from December 22nd, been given 25 minims of the solution of acriflavine every fourth day. From the commencement of these injections, except during an attack of coryza lasting four days, the daily maximum temperature has been 99.2° or less; night sweats have ceased, coughing is much less, and the quantity of sputum has diminished to one-tenth of its former amount. Tubercle bacilli are still present, but the sputum is now mucoid rather than purulent in character. The patient has left his bed during the last six weeks and is now able to walk a mile or so daily.

My colleague, while reserving judgement as to the value of acriflavine treatment, states that in a long experience he has never seen so manifest an improvement in an advanced case of phthisis.

How the drug works can only be a matter of conjecture, and I would welcome the opportunity of trying it in a larger number of cases, but I have not felt it justifiable to retain patients in the early stages of tuberculosis when sanatorium treatment is available.

I hope these notes will arouse sufficient interest in others who have the opportunity of treating the disease in its early stages.

Romsey, Hants.

G. H. JOHNSON, M.R.C.S.

PARATYPHOID A FEVER IN SCOTLAND.

THE following two coincident cases of paratyphoid A fever are of interest owing to the infrequency of this type of the enteric group in Scotland.

According to Goodall, paratyphoid A fever was not found in Europe before the great war, but was known to occur in Asia, especially in India. Paratyphoid B, on the other hand, was occasionally found in Europe but not in Asia.

The patients were two brothers, one of whom, aged 9, became ill on January 20th, 1926, with general malaise. His temperature was 102°, rising to 104° in the evening. There followed an afternoon rise of temperature for some days, fluctuating between 100° and 102°, on one day 104°. Constipation was marked throughout, with abdominal uneasiness and slight epigastric tenderness.

The lungs were clear. On January 26th epistaxis occurred, and on the 27th Dr. Marion Watson of the Johnstone Combination Hospital did the agglutination test, which proved positive to *B. paratyphosus* A and negative to *B. typhosus* and to *B. paratyphosus* B. The temperature came down by lysis and has been normal since February 5th.

The patient's brother, aged 12, left for boarding-school on January 19th. The next day he had a headache. He was isolated as a measles suspect. He had a slight rise of temperature for ten days, which latterly rose in the evenings. He was motored home on January 30th. A blood test at the Royal Infirmary, Glasgow, proved positive to *B. paratyphosus* A. He has since been apparently well with normal temperature.

Both patients spent two days at Craik (January 1st and 2nd) and had a meal in Glasgow on January 11th and 14th.

Bridge of Weir.

ARCH. M. LAURIE, F.R.F.P.S.Glas.

CYSTIC DILATATION OF URETER: REMOVAL OF URETERIC CALCULUS PER VAGINAM.

NEPHRECTOMY alone will not cure the cause be also dealt with. The this.

A woman, aged 49, was admitted to the Royal Victoria and West Hants Hospital, Bournemouth, on January 26th, 1926, complaining of a painful swelling in the left abdomen. This had been noticed for a year, but beyond occasional frequency of micturition there were no other symptoms. Twenty-four years previously her left kidney had been removed for what appears to have been a hydronephrosis.

On abdominal examination a smooth oval swelling, moderately movable from side to side but not from above downwards, tense, and dull to percussion, was found in the left lumbar region. A stalk proceeded from its lower pole to the pelvic cavity. By the vagina considerable induration of the cellular tissues could be felt in the left half of the pelvis; the genital organs were normal. The urine was acid, sp. gr. 1018, no albumin, no renal casts or tubercle bacilli.

First Operation.—On January 27th Mr. Belben operated. A left paramedian incision was made. No kidney was present on the left side, but a retroperitoneal cystic sausage-shaped tumour (about 5 by 2 in.) with a dilated duct (about 1½ in. across) passing downwards to the pelvic cavity occupied the usual position of the kidney and ureter. The cyst and upper part of the duct were removed, but the lower part was so buried in adhesions involving the iliac vessels that it was thought best to drain it. On February 22nd the wound was dry and healed. X-ray examination revealed a large oval shadow in the left side of the pelvis (? calculus, or calcified gland).

Second Operation.—Mr. Belben operated again on February 24th. The left vault of the vagina was incised and an oval calculus (about 1½ by 1/2 in.) was removed from the lower end of the left ureter. Some pus escaped but no urine. The wound was loosely stitched. There was a mild discharge which necessitated daily douching; this is now diminishing, and there is complete urinary control.

Pathological Report on Cyst.—The walls are lined by columnar epithelium. The cavity is filled by a dark fluid containing albumin, pus cells, blood, and mucin, but no urea.

I wish to thank Mr. Belben for permission to publish this case.

I. ATKIN, M.B., B.S.Lond.,
House-Surgeon, Royal Victoria and West
Hants Hospital, Bournemouth.

SAC OF CERVIX WITH RETAINED MENSES.

A PERSIAN woman, aged 26, consulted me for abnormal menses with intense pain. She had never menstruated normally, but every month had very bad pelvic pain and slight oozing of brownish fluid from the vagina. There was an indefinite history of vaginal discharge in youth. On examination there was an apparently closed vagina and neither cervix nor uterus could be felt, but, per rectum, a tumour could be defined high up, which it was thought might be the uterus. The patient begged for operation as, unless she was proved to have normal organs, she would be divorced.

I operated, opening in the mid-line of the vagina. High up I could feel something like a loop of thickened bowel; I pulled this down and found it was a non-vascular thick-walled sac with a small hole at the side from which dark brown menses exuded. On cutting into this I found the cervix, which I was able to pull down. The sac was attached all around it about 1½ inches above the os; this I excised, leaving enough edge to sew it to the cut vagina. The tissues healed well and when the patient was discharged her vagina appeared normal. She menstruated a few weeks later without pain and has since become pregnant.

ALICIA P. LINTON, M.B., B.S.Lond.
Women's Hospital, Isfahan, Persia.

Reports of Societies.

LEAD IN THE TREATMENT OF MALIGNANT DISEASE.

DEBATE AT THE MEDICAL SOCIETY OF LONDON.

At the Medical Society of London on March 22nd, with Sir HOLBURN WARING in the chair, Dr. W. BLAIR BELL, professor of obstetrics and gynaecology in the University of Liverpool, delivered an address on the use of lead in the treatment of malignant disease. The society's room was crowded to the doors, and many members stood during the whole three hours of the proceedings. The address was followed by an animated discussion, in which criticisms were expressed in a way unusual in a medical assembly.

Professor Blair Bell's Address.

Professor BLAIR BELL, after appealing for well informed criticism, first described what he called his working hypothesis, which he had been endeavouring to convert into a scientific generalization beyond dispute. He believed that there were many predisposing causes of malignant disease. Clinical experience strongly suggested as much. Many factors were concerned in producing a common condition in the cell—some condition of metabolic starvation—which was going to develop possibly into cancer. Attacked in this way, the cell might recover, or might die, or, as a third alternative, might revert to an ancestral type—the trophoblast, the earliest functioning cell of the human ovum—in its efforts to live. A cell which reverted in this way underwent a process which should be described as dedifferentiation. It had often been stated by pathologists that the more malignant a cancer the more undifferentiated were the cells; the proper word was "dedifferentiated." Such was the hypothesis, but before it could be turned into a generalization an actual resemblance must be proved between the cancer cell and the core of the cell of a chorionic epithelium. This resemblance was made evident along various lines of investigation. By the exhibition of sections he showed that morphologically there were similar features in the early developing trophoblast to those found both in cancer and sarcoma. With regard to chemical evidence, he added the phosphatide-cholesterol ratio, which ascended markedly as one went from normal tissue to innocent and to malignant neoplasms, and was highest of all in chorionic villi, suggesting that the chorionic villi were a supermalignant type of cell. The high phosphatide-cholesterol ratio was associated with permeability of the cell membrane, such permeability, of course, favouring rapid growth, and of all tissues chorionic villi were the most permeable. With regard to physiological evidence, until two years ago none of value could be produced to show that there was any real metabolic difference between the cancer and any other cell; recently Warburg of Berlin took up the study of the glycolytic power of various tissues, and showed that, whereas the ordinary resting type of cell obtained its energy by an oxidation process, the cancer cell did so by a glycolytic process, and Murphy and Hawkins in 1925 showed that in the chorionic villi the type of metabolism was similar in this respect to that of frank malignant tissue, thus again suggesting that the chorion was a supermalignant type of cell. He next touched on the toxicological features which bore out the same conclusion. The toxicological attributes of a cell were entirely dependent on its chemical and physico-chemical constitution, and here he showed sections of growths from patients who had died, illustrating the effect after treatment with doses of lead. The changes were such as again to prove the close similarity between the cancer cells and the cells of the chorion. Some of those present would have seen the criticism of the Medical Research Council on his statement and that workers poisoned by lead did not develop cancer, and his own rejoinder (*British Medical Journal*, March 6th, p. 432), which had not elicited any further response. He had made the statement guardedly, because there must be a case or two of cancer among so large a number of subjects, but cancer was of such rarity among sufferers from lead poisoning that Hoffman, the American statis-

tician, who was conducting investigations both into cancer and into chronic lead poisoning, stated that he had never seen a case of chronic lead poisoning in which a tumour formation, whether malignant or benign, was mentioned as a collateral or contributory cause of death. One would have expected better things from the Medical Research Council, with its strong statistical committee, than that it should take a group like potters, 80 per cent. of whom never went near lead at all.

With regard to treatment, Professor Bell said that a large body of the medical profession, as well as of the lay public, were searching the heavens for a cure for cancer. Such a panacea would never be found. The medical profession should guide the public on this matter to a different outlook. Very much depended upon early recognition of the disease. Cases had come to him practically in a dying condition, in which any form of treatment must fail. He protested against the unfairness of setting the results from lead treatment alongside surgical procedures, when the lead treatment had been applied at an advanced stage, and in cases in which surgical procedure and perhaps x rays and radium had been used ineffectually for a long period previously. He quoted some statistics from the United States to show that operation cured less than 5 per cent. of cases of cancer. He regarded his own results, not as conclusive with regard to the claims of a particular form of treatment, but as confirmatory evidence of the scientific work following upon the original hypothesis. It was fortunate, of course, that at a first attempt there should be so many remarkable results. It had been said that he had exaggerated the risks of lead treatment. But lead was an extremely dangerous drug; the workers along this line of research had had their disasters, and still had much to learn in the way of safeguarding the patient. He desired that the method should be tried out by people who had proper laboratory facilities and were capable of making sound scientific judgements. He and his colleagues were anxious, however, not so much to put forward a new form of treatment as to establish a sound generalization from which research could proceed upon other drugs and substances in the treatment of cancer. They had been so fortunate with lead that it was difficult for him to suggest to his staff or to visitors that anything else need be tried; but it was, nevertheless, necessary to find something which would do the work without producing the disasters, few though they were, relatively speaking, which had occurred with lead. The many successes were apt to be forgotten by those engaged in the work, but the failures were a constant nightmare. He showed pictures of a couple of recovered cases. One was a cancer of the breast treated five and a half years ago; the woman had recovered and had had two children since. The other was a case of sarcoma of the scapula, in which treatment had ceased two years ago, and the man now had no sign of the former condition and was quite well. Professor Bell produced in tabular form on the screen the results of his cases during the last five years:

	Cases.
Admitted, but died before treatment could be commenced ...	20
Died before treatment could be completed ...	50
Died of intercurrent affections ...	3
Died after treatment (including two deaths from acute nephritis, the result of lead poisoning) ...	106
Died as a result of extensive destruction of growth by lead ...	4
Too recent for results to be estimated ...	14
Complete treatment refused, but patients living normal lives ...	9
Disease completely arrested ...	10
Believed cured; treatment stopped ...	31
	227

Evidence of Liverpool Fellow Workers.

Dr. LESLIE CUNNINGHAM (Liverpool), who during the last few years has been associated with Professor Blair Bell in his work, said that before treatment was started in these cases a blood analysis was made, the haemoglobin and the blood urea were estimated, and in some cases the blood sugar, an exhaustive analysis was made of the urine, and in cases in which renal inadequacy was suspected other

tests of renal efficiency were performed. The hepatic efficiency was also determined in cases in which there was reason to suspect liver involvement. In the course of treatment these estimations were repeated from time to time. The toxic effects had been noted, not only on the blood and blood-forming organs, but on the kidney, liver, alimentary canal, and in a less degree on the nervous system. Several factors contributed to these toxic effects of lead, among the most important being the susceptibility of the individual. Some people would tolerate a large amount of lead; others, after a moderate dose, would be violently ill, and might even die. Younger patients tolerated lead less well than older, and females less well than males. Provided there was no cachexia, a patient with a large growth usually tolerated lead quite well. The toxic effects on the blood included stippling of the red corpuscles, the appearance of abnormal cells, and polychromasia. The stippling of the red cells had been of great value in the estimation of toxic effects. Its appearance was an indication that treatment should be stopped, at any rate for the time being. The anaemia produced had been so great in some cases that it was necessary to resort to transfusion, and it was remarkable how rapidly after transfusion the patients recovered. The alimentary manifestations were nausea and vomiting. Until the middle of 1924 small doses of lead were given over a protracted period, and occasionally cumulative effects which were very serious were found. With the larger doses now used—0.15 gram—the symptoms were produced rapidly, but they tended to disappear rapidly also, and provided the interval was long enough there was no permanent damage. Since the larger doses were employed lead colic had been found to occur. True lead colic and lead sickness did not appear until perhaps ten days after injection. Constipation and diarrhoea had not given much trouble. Often the earliest and not the least important toxic effect of lead was on the kidney, and it was here that the worst disasters had occurred. He showed charts illustrating the progress of two fatal cases—one following a moderate and the other a massive dose. Some of the symptoms were probably due to the involvement of the liver, which in cases of generalized poisoning was the first line of defence.

Dr. J. G. ADAMI (Liverpool) said that he had heard it stated, almost as a criticism of Professor Blair Bell, that the central problem of cancer was the discovery and establishment of its cause or causes, from which discovery one could proceed in a scientific manner towards prevention and cure. He believed that was a wrong point of view. As medical men their central problem was not cause, but arrest and cure. He was a greater benefactor to humanity and a greater man of science who kept before him always the higher goal, not obscuring it by any mere pursuit of science for science' sake. All great men of science had made their most fruitful discoveries, not for the purpose of adding to knowledge as such, but for the service of mankind. When Pasteur took up the study of rabies he could not find the cause, but he did not therefore withdraw from the subject or spend long years upon that particular quest; instead, he proceeded to establish immunity. To-day, nearly fifty years later, the cause of rabies was still in doubt, but the arrest or prevention of rabies had been placed on a sure basis. The various forms of new growth and of malignant disease had to be regarded as following a great number of predisposing or proximate causes, and there was a good deal of reason for supposing that this matter would not be determined by the discovery of, say, a specific organism. The duty of investigators was therefore rather to look to the arrest of the disease, and to study the cancer cell and the means of destroying it when once it appeared. It was most politic and wise to do as Professor Bell had done and to study the characteristics of the cells. He (Dr. Adami) had been following this work with the keenest interest, he had seen a great number of cases, and he could give the assurance that this work had been performed on the most scientific basis. Professor Bell, following upon his first fifty cases, had placed himself in the hands of an expert committee, and it might now be said that the work was not entirely Professor Bell's own, but was the co-ordinated work of a number of scientific men. A complicated subject like this, with so many

different sides to the problem it presented, was beyond the range of any single man; only by group working could advances be made.

General Discussion.

Sir LENTHAL CHEATLE said that he had known Professor Blair Bell throughout his career, and he had always found him a man of the highest integrity. He was sure that his actions were guided by the very purest motives. He agreed also that he was performing a useful pioneer work in trying to discover the effects of poisons upon tissue cells. But when Professor Bell likened the epithelium of the chorionic villi to malignant growth and based a great theory upon it, it seemed to the speaker that he was making an absolutely fundamental mistake. The chorionic villi were not malignant growths, and did not behave as such; so that any theory based upon such supposed resemblance struck him as profoundly misconceived. He could agree that when a little more was known about that which induced carcinoma, then the chemical and morphological similarities which Professor Bell had pointed out would be of some interest; but he believed, nevertheless, that such interest would be subsidiary. He thought also that Professor Bell was unduly pessimistic with regard to the supposed impossibility of a cure for cancer, and that the statistics he gave from America, showing that surgical operations yielded no more than 5 per cent. of cures, required very careful analysis. There were different types of carcinoma, and while, in respect to certain types, especially what the Americans called "outspoken carcinoma," operation was practically hopeless, in others, like carcinoma of the breast without enlargement of the glands, quite a large proportion of cures might be expected. There was a great deal in Professor Bell's work which he did not understand in the least, but he congratulated him upon a pioneer effort.

Mr. C. J. BOND (Leicester) said that he had had the pleasure of seeing some of the cases which Professor Blair Bell had described, and of examining them alongside the microscopical sections. The results were such as to produce a great effect on the mind of an unprejudiced surgeon. They were all familiar with certain cases of retrogression clinically in this dreadful disease; and it might be said that that was the explanation in these instances; but he did not think so—he believed there was something more. The cases described, particularly that of the woman who had a cancerous breast five years ago, and after treatment had not only lived but had suckled two children, could not be lightly dismissed. With regard to the physiological aspect of the problem, what Professor Bell had to show was the way in which the lead got to these cells—both cancer cells and normal cells—and what happened to the cell when the lead, either in colloidal or other form, was taken out. He (the speaker) had been studying the effect of feeding living leucocytes with lead in different forms. About half a dozen different forms of lead had been employed, including latterly the colloidal form, and he had satisfied himself as well as the colleagues to whom he had shown the specimens that the leucocytes did take up lead, especially, for instance, lead chlorido crystallized under special conditions and with special care, previously mixed with a little blood serum. The leucocytes, after the ingestion of these lead particles, went through a sharp metabolic downfall, and the question was whether the lead attached itself to the lecithin element in the cell. There was increasing evidence that it was to the lipid content of the normal cell that the lead attached itself, and thereby produced its result. What he looked to Professor Bell to show was the nature of the happening in the cancer cells in regard to lead content and the respect in which it was different from the happening in the normal cell. If the cancer cell had a higher lecithin content, then some sort of working hypothesis seemed likely to emerge.

Dr. ARCHIBALD LEITCH said that if Professor Blair Bell's work had met with hostile criticism, if his cures had been received with incredulity, and even his methods called into question, he had only himself to blame. The cardinal mistake was made when, in 1922, there was allowed to be published in the *Lancet* an article setting forth cures, and yet withholding from the medical profession all details as to what it was that was done. It was said then, and it

had been said since, that this work was on an experimental basis, and from that day to this the method had never been disclosed. There was an apologia published in the *British Medical Journal* recently (March 6th, p. 431) in reply to accusations made in various quarters that the method of preparation of the material had not been disclosed, and there it was stated that "So long ago as February, 1924, Professor Blair Bell described and discussed the method of preparation of colloidal lead." This could only refer to an article published in the *Lancet* in 1924, in which, however, the speaker was unable to find what it was now suggested had been given. He was very much surprised that Dr. Adami had allowed his name to be used in the "manifesto" published in the *British Medical Journal* of March 6th, for, the speaker asserted, the details of the method of preparation had never been given as they were stated in that manifesto to have been given. He challenged Professor Bell to read to the meeting the part of the article referred to which purported to give the secret away, and to let those present judge how far in fact the secret was given. He went on to give a summary of what had been set forth in the *Lancet* article, and claimed that it furnished no real information. In his latest paper, in the *Lancet* of March 13th, 1926, it was true that Professor Bell disclosed a little more information, but the speaker was still of opinion that even with these further details it was impossible for any physical chemist to state exactly what was being done. The apologia referred to also said: "The very fact that the general body of practitioners appears to be ready to use the material if it be distributed without control, to the possible disparagement of the method and serious risk to the public, has impelled the committee recently to protect the method of manufacture, as was done in the case of insulin." This meant that it had been patented. The patenting of insulin was certainly a mistake, but two blacks did not make a white. A search over the patent list would not disclose what this remedy was. If the applications for provisional patents were scanned it would be found that when temporary protection was given no specification was available for the public. A search through that list revealed that on October 26th, 1925, Messrs. Blair Bell, R. D. Cohen, J. A. Smith, and W. C. Lewis applied for a provisional patent for improvements in the manufacture of certain products (No. 26726). It was very certain that no patent would have been applied for, still less granted, for any well known method. The speaker then went on to criticize the accounts given of the cases. In the *Lancet* of March 13th Dr. Adami vouched for the fact that he had seen thirty previously incurable cases of cancer cured; he had also had letters from another ten cases. (At this point Dr. Adami protested that he had not described them as "cures," and Dr. Leitch amended his remark by saying, "Well, they had no recurrences.") But Professor Bell himself up to that time claimed only thirty-one. Looking over the cases that Professor Bell had recorded he (Dr. Leitch) could identify only three as having been reported more than once, and he proceeded to read the reports on these three cases, and to point out that in certain details the reports of the same case varied. In one of the patients who died, for instance, a case of carcinoma of the breast, one report stated that the growth had shrunk by one-half, and another report that it had shrunk by one-third. One case was described by Professor Bell in his address at Toronto. This case—a cure—was painted in rather high colours, and the account ended with the words, "She was married to-day." But the same case was reported a month later in the more sombre atmosphere of Glasgow, and the tones then were very much lower. There was even a difference in the lady's age. Not a word was said about the intestines being involved, or the whole abdomen, of which much was made in the first instance at Toronto. In a third case—again a patient who had recovered—there were different accounts as to the particular time at which the surgeons had declared the growth inoperable, and the time it took for the condition to heal varied also in each case. This was just sloppy reporting, but taking all these things into consideration he was rendered particularly sceptical of the whole matter.

Mr. C. A. JOLL thought that Professor Blair Bell had been far too apprehensive about the risks involved in giving the details of his methods to the medical profession. No doubt he was right in assuming that if this preparation were generally used by unskilled practitioners many disasters might follow. But the speaker was sure, not only that he would be perfectly safe to-day, but that he would have been perfectly safe two years ago, in giving every detail to properly organized institutions such as existed in London and in the large cities. The result of such a course would have been that judgement could be based, not on something over 200 cases as at present, but on 2,000 cases or perhaps 20,000. It should be borne in mind that over 100,000 people died from cancer in England and Wales in 1925. If Professor Bell had any doubt whether clinical material was available, it might be mentioned that at the Cancer Hospital alone over 2,000 new cases of cancer were treated last year. He would pass over all the questions on which Dr. Leitch had touched as to the preparation of the material, but he would urge Professor Bell for the sake of humanity, if this lead preparation was a legitimate and scientific cure for cancer, to give every possible facility to properly organized institutions to test its value and to present their reports.

Sir WILLIAM WILCOX said that the toxicological aspect of the question appealed most to him. He wished to join with Dr. Adami and Mr. Bond in expressing admiration for the very great care with which this work had been done, for the combination of experts who had taken part in it, and for their careful and critical analysis—a method of procedure which might well be copied in other researches. A remedy had been chosen by Professor Blair Bell which was one of the most powerful toxicological agents in existence. Lead was one of the most dangerous of poisons. It was a heavy metal, it fixed itself in combination with the tissues, and it was excreted extremely slowly. A little time ago he saw a case of high blood pressure and arteriosclerosis as to which there was some question whether the condition was caused by lead. The man had not been in contact with lead for a year, but it was found, nevertheless, that lead was being excreted in quite appreciable amounts. The speaker had had no experience of the toxic effects of lead when given intravenously, and he was unaware that it had been so given until within the last four or five years, but he did know that lead which was absorbed into the system was combined with the tissues of the body, with the kidney cells, the liver cells, the nervous tissues, that it was excreted very slowly—much more slowly than arsenic—and that it produced, certainly when absorbed by the mouth, irreparable damage. He thought, therefore, that this method of treatment from the toxicological side demanded the most critical examination, and he had certainly gained the impression from Professor Bell's address that he was quite familiar with the danger. Professor Bell realized that he was dealing with a very powerful toxicological remedy. It was interesting to hear that the method of giving repeated small doses had been withdrawn in favour of the massive dose. He took it that the reason for this was that when lead was given intravenously a certain amount (x) was fixed in the body, and a certain amount (y) excreted, and that the ratio x/y was greater with the small dose than with the large. In other words, the massive dose might put the patient in danger of his life, but a larger proportion of the lead was got rid of, and there was less permanent damage. He wished to ask Professor Bell whether he had observed, in any cases treated some years ago, a change in the blood pressure, in the blood vessels, or in the renal or hepatic function. The liver, as he had observed on a former occasion, was the first line of defence in the case of all poisons, especially those given intravenously. The acute symptoms, such as vomiting, which had been observed in these cases, were, he thought, not due to the action of the lead on the gastro-intestinal tract, but were probably due to auto-intoxication from temporary paralysis of the function of the liver cells. Professor Bell had said that in two cases there were symptoms of acute nephritis. Probably what happened was just the same as happened with mercury—not an acute nephritis proper, but a degeneration of the cells of the kidney, with

loss of function and paralysis of excretion. If there were acute nephritis there would be blood and casts in the urine, marked oedema, and so on. Lead was a powerful, double-edged weapon, potent for good or harm, and from the toxicological aspect it required the greatest care and prolonged investigation in order that doses might be given which, while acting on the cancer cells, would not produce harmful effects on the healthy tissues.

Mr. D. C. L. FITZWILLIAMS said that he did not think that anybody could have listened to Professor Blair Bell without being struck with his sincerity and his high ideals in scientific work. ("Hear, hear.") At the same time the speaker had to offer some criticisms which he hoped would be taken in the right spirit. There were certain things disquieting in this matter. He had heard some very cruel accusations made, and had passed them by. But he believed, with Mr. Joll, that Professor Bell had overrated the danger of making his method available to the profession. He (the speaker) had himself been treating cases with lead for some time, and had had no trouble whatsoever. By "back-door methods" he discovered a little while ago what was the method and the material which Professor Bell used, and with which, he believed, he produced his first cures—namely, the iodide A1 and A2—and this was a perfectly stable preparation. So little trouble had he found with it that during the last week he had given it to four practitioners to administer to people under his care. At the hospital, of course, one was able to have the blood tested and all the excretions looked into, and so forth, but if this method was to be of any value it must pass from the specialist to the general practitioner. Cancer was so common among the whole population that the specialists alone could not deal with it. He would have been much more reassured if Professor Bell had brought down a chorus of enthusiastic young surgeons who had been able to back up his results in the way they would all like them to be confirmed. Another disquieting factor was with regard to blood changes and so on; none of these things were published, and it was a great pity they were not published. Lister could never have established his antiseptic theory if he had kept it to himself. He established it by the energy and enthusiasm which he inspired in every worker, and every worker was welcome to his laboratory. That spirit had been singularly absent from the work of Professor Bell, and Mr. Fitzwilliams was of opinion that neither on the ground of the instability of the drug he had used, nor on the ground of its toxicity, was the secrecy justified. He (the speaker) wrote and asked Professor Bell if he could visit his laboratory, and the answer he received was that he could only come as the representative of some society. If the president of that meeting could extract from Professor Bell an invitation to those interested in the subject to see the cases and the methods, he would have presided over not only a most interesting but a most useful occasion.

Mr. F. A. G. JEANS (Liverpool) said that he was able to offer clinical confirmation of certain of Professor Blair Bell's results. Though not associated with the team in Liverpool, he had been interested in the work. As a Liverpool surgeon also he wanted to pay a tribute to the sincerity of Professor Bell, and he thought that Dr. Leitch should not have been allowed to deliver in that society the speech to which he gave utterance, at all events without the disarming preamble which other speakers who wanted to say something disagreeable had been careful to employ.

Mr. FRANK COKE, who thought that Professor Blair Bell must be congratulated upon the hypothesis from which his work originated, said that with a colleague (Dr. J. B. Cook) at the West Middlesex Hospital he had been using lead for the past two years, and the results were published not long ago in the *British Medical Journal* (March 6th, 1926, p. 415). Two years was a short time for any work of this character. It occupied many months to provide a colloidal suspension of lead which could be given intravenously, and which could stand by for a considerable time without having to be freshly made on each occasion. Many more months were occupied in raising the dose to the proper level. They had now got a colloid which appeared to be very stable

indeed, and which they were accustomed to use in doses of 20 c.cm. two or three times a week without the slightest sign of protein shock or other disturbance. Favourable results had appeared in some cases. Doses were now being tried in larger amounts. On the question at such sharp issue in that discussion, he was inclined to agree that Professor Bell was in the right at first in following the course he did in maintaining secrecy; but a long time had now elapsed, and if it was true that "what Lancashire thinks to-day, the rest of England will be thinking to-morrow," the moment had arrived when England should be given the material for thinking, and when many should take a part in this work, preferably on some team basis.

Mr. L. E. C. NORBURY confirmed what Mr. Coke had said with regard to the work at the West Middlesex Hospital, as did another colleague engaged with Mr. Coke in the work.

Professor Blair Bell's Reply.

Professor BLAIR BELL was received with acclamation on rising at 11.15 p.m. to reply. He took up the last remark of Dr. Adami, and said that he had endeavoured to use the word "we" as much as possible in all this work, because much of it was due to the physiologist, the pathologist, the biochemist, and others. He thought that Sir Lenthal Cheatele was not justified in his remarks about the chorion, and he repeated the argument which he had developed at length in his address. He then turned to Dr. Leitch, with whom he found it extremely difficult to deal satisfactorily in view of what he described as the deplorable ignorance under which some of Dr. Leitch's statements had been made. He would not have thought that a scientific man holding an important post could have been found with so little knowledge of chemistry or ordinary physical facts. To say that in February, 1924, no fair description of this method was published was absolutely untrue. He agreed that in the paper in question he did not bother to explain certain details, but these related to kindergarten science, and he assumed that the facts would be common knowledge to anyone interested; if not, there were plenty of textbooks in physical chemistry available. Anyone who could not have repeated his work from that paper ought to go out of science and hide his head. Dr. Leitch's speech was unpardonable. He (Professor Bell) had been engaged on this work at his own personal cost for all these years. When the Association of Surgeons visited Liverpool every laboratory was open and he gave a demonstration. Nobody was prevented from coming. Many of his British and American colleagues had seen the material prepared. Mr. Fitzwilliams had complained that his own request had been refused. The truth was that those engaged on this work found it impossible, owing to pressure on their time, to take individual men round. What he thought he suggested to Mr. Fitzwilliams was that he should come with some of his colleagues from a society, when arrangements would be made to receive them as a party. (Mr. FITZWILLIAMS dissented from this interpretation of the letter.) That, at all events, was the sort of reply he had sent to individual inquirers. He repudiated the charge of secrecy. He had never been guilty of secrecy in his professional life, and he had published a great deal of work. The things in question were open to anyone who came with proper credentials to Liverpool. It had been the anxiety of all concerned that the method should be known, but they were aware that they were dealing with a dangerous drug, and if it had been allowed to go out while they were still unsure of its effects much harm might have been done and the whole of the work discredited. As for any errors in the accounts of cases, these were possibly attributable to the fact that the cases came under different observers at different times, and certainly in one instance that two sections of the growth were taken at different times. Slips in details and dates might creep in when descriptions were furnished at different periods, by different workers, of cases the treatment and observation of which were spread over a series of years. He took full responsibility for any slight disharmony in the different accounts, but he did not think that the truth of the whole narrative was seriously qualified.

TREATMENT OF EXOPHTHALMIC GOITRE.

THIS discussion (of which the first part was reported in our issue of March 13th, p. 478) was resumed at the Royal Society of Medicine on March 9th, when the chair was occupied by Sir LENTHAL CHEATELE, President of the Section of Surgery.

General Management and Indications for Operation.

The opening papers on general treatment by Professor F. R. FRASER and Mr. T. P. DUNHILL are printed in full at pages 555 and 557.

Dr. R. W. A. SALMOND dealt with the treatment of these cases by x rays, admitting that it was subsidiary to medical and surgical treatment. The cases in which he got the best results from x rays were those of a moderate degree of severity. He did not think it possible to ascertain beforehand how a given case would respond. The most obvious effect of the rays was an improvement in the general condition, disappearance of the palpation and tremors, and slowing of the pulse rate. As a preliminary, local foci of infection should be searched for and treated. No routine dosage could be laid down for all cases; each case must be a law unto itself. There must be adequate filtration of the rays—not less than 3 mm. of aluminium. Too prolonged treatment would be likely to lead to atrophy of the gland. Radiation treatment could be combined with the medical.

The CHAIRMAN said he disliked operating on a case of exophthalmic goitre which had been subjected to x rays, as he thought that such applications rendered the operation more difficult, because of the adhesions to surrounding structures, and he was not a believer in the value of x rays as a treatment of exophthalmic goitre. In the eastern and central parts of America, which he visited last year, the function of the physician in these cases seemed to be mainly the preparation of the patient for the surgeon. Some people in this country spoke as if operation for exophthalmic goitre was completely unnecessary. Barker, a writer and worker in America, considered that by careful dieting and attention to focal sepsis cases proceeded to a cure, but that was not the speaker's own view.

Professor G. R. MURRAY said he was particularly glad to learn the results of the intensive study and careful treatment of cases of the disease in the medical unit of which Professor Fraser had charge. Further investigations of this nature were practically only possible in similar circumstances, though Dr. Maude had made a most valuable study of cases of the condition a few years ago in his practice at Westerham, publishing a series of most instructive papers. Professor Murray's experience of the disease had been gathered in hospital and in his own practice. He differed from Barker as to the duration of the disease; he did not find that cases recovered without treatment in two or three years. There was a great variation in the duration in cases which ultimately made a good recovery. He favoured the use of the term "thyroid intoxication," though there was still no proof that in these cases there was any abnormal toxin, or any abnormal ingredient in the thyroid secretion in the disease. His experience had been that the secondary form was much less common than the primary: in his own 300 cases, 288 were primary and only 12 of the secondary type. Sometimes a case of simple thyroid intoxication became, later, a well marked and fully developed case of Graves's disease. It was true that the cause was not known, but he was inclined to lay special stress on the emotional factor in considering possible causes; in his 300 cases shock and emotional anxiety figured in 18 per cent. He also agreed as to the importance of infections. Early diagnosis was very important, so that the patient might come under treatment as soon as possible. He asked that general practitioners should make a careful examination of patients presenting the symptoms associated with goitre, and that they should be less ready to label them neurasthenia. He did not doubt the value of x rays in treatment of the disease. It was necessary to lay down very exact rules as to the amount of rest these patients should take, and

not be satisfied with a general direction about resting as much as possible. It must never be forgotten that this was a disease of long duration, and much patience was needed in its treatment; many patients, for economic reasons, were unable to rest as required. He agreed that the diet must be liberal; there was a tendency to lose a great deal of weight. One patient put on 4 st. in weight on x-ray treatment. His own practice was to warn patients against taking much red meat, since Chalmers Watson had found that feeding experimental animals on a generous meat diet resulted in an enlargement of the thyroid gland. A good deal of milk should be taken. In his own experience the effects of iodine on the disease were only transitory, though admittedly it had special uses in preparing patients for operation; he was not much impressed with the routine use of iodine. A fall in the pulse rate he regarded as a valuable indication that treatment was doing good. X-ray treatment, valuable though it was, was apt to fail in certain cases, particularly when the goitre was larger than the average. Radium was dangerous in acute cases—it seemed to cause a crisis.

Dr. DOUGLAS WEBSTER said that usually the radiologist saw a more severe type of case than the ordinary practitioner. Of a series of 107 cases, 88 showed marked improvement after being subjected to x-ray treatment; four were acute, and all did well.

The concluding sitting in the discussion on the treatment of exophthalmic goitre was held on March 10th, the chair being taken by Dr. HUGH THURSFIELD, President of the Section of Medicine.

Dr. JENNER HOSKIN analysed 130 cases of the disease from the standpoint of the indications of disease revealed in electro-cardiograms. The ages of the patients ranged from 13 to 60, and only ten were males. Nine had a serious myocardial condition; 56 per cent. of patients who had a healthy myocardium were under 30 years of age. Study of the cases showed that it was unwise to wait long before operating in the cases which did not show an early response to medical treatment. It was in cases of secondary Graves's disease that the heart was found to be most damaged, especially when the disease had been active a long time. He agreed with Dr. McNee that the pulse rate was a very fair indication of the amount of thyroid activity. A systolic blood pressure of over 160 mm. showed that either rest in bed, primary ligation, or a modified enucleation was required.

Mr. LIONEL NORMERY spoke highly of primary ligation in some severe cases of goitre; he reported very good results in some cases.

Dr. W. LANGDON BROWN emphasized the emotional or psychic factor in the disease, believing this to be an important factor in determining exacerbations, if not actually playing a large part in causation. He was also much impressed with the importance of tonsillar sepsis in the disease. Insulin would often stabilize the patient's weight in exophthalmic goitre.

Dr. J. W. MCNEE called attention to a specimen of a foetus in University College museum. The mother had advanced Graves's disease, and the foetus had very prominent eyes, a very large thyroid gland, and other physical characters found in exophthalmic goitre. It suggested that the condition could be transferred from mother to offspring.

Dr. H. E. B. CALVERT said he used insulin in this disease as it seemed to take the strain off the thyroid gland and transfer it to the pancreas. Most cases of exophthalmic goitre had defective stomach secretion, and the administration of insulin seemed to remedy this defect; certainly after insulin the appetite was improved.

Professor F. R. FRASER, replying on the whole discussion, pleaded for a differentiation of the disease into types, for until that was agreed upon there could be no comparison of notes of different workers. He agreed that sex elements seemed to have a definite influence in determining the exacerbations in the disease. He hoped Dr. Hoskin and others would supplement the electro-cardiogram studies, and so be able to give definite indications of heart damage.

Mr. T. P. DUNNILL reiterated his chief guiding principles in dealing with cases of the disease, and expressed

his great satisfaction that physician and surgeon fully recognized the need for each other's help. He would never operate on a patient within three months of the onset of symptoms.

Dr. R. W. A. SALMOND also replied to the observations on x-ray treatment which Professor Murray made at the previous meeting. He agreed that patients with very large goitres did not do so well under x rays as those with smaller ones. Radium, however, could be applied to a very ill patient without removing her from bed.

ANTE-PARTUM HAEMORRHAGE.

At a meeting of the Section of Obstetrics and Gynaecology at the Royal Society of Medicine on March 4th, with Dr. EARDLEY HOLLAND, vice-president, in the chair, Dr. GIBBON FITZGIBBON read a paper entitled "A revised conception of ante-partum haemorrhage."

Dr. FitzGibbon reviewed the result of his observation of accidental haemorrhage during the last six years; he had been led to make this inquiry by noting that the accepted views of the pathology of the disease could not explain certain clinical facts. He found it impossible to accept the theory that the concealed type of haemorrhage was due to a disease of the muscle which rendered it paralytic. Toxaemia could not be held accountable for the majority of the cases. Absorption of the extravasated blood and its by-products could not explain the toxaemia. The supposed diseased condition of the uterine muscle was not consistent with the results of the various treatments. During the operation of Caesarean section the supposed paralytic uterus failed neither to contract nor to bleed. The mortality at the Rotunda Hospital from palliative treatment was 10.7 per cent. from plugging, 12.5 per cent. from Caesarean section, and from hysterectomy 66 per cent. From a study of cases Dr. FitzGibbon claimed that Caesarean section, hysterectomy, or other operative intervention was not good treatment for accidental haemorrhage, and, after consideration of the results of treatment, he had been led to abandon all operative treatment, including plugging. Under his medical treatment during the last six years the mortality had been 64 intern cases with 3 deaths, 34 extern cases with 4 deaths. While admitting that the disease was probably a result of toxaemia, he claimed that it was a different toxaemia from that of eclampsia. The two views of cases put forward were: (1) a simple and truly accidental ablation of part of the placenta, and (2) a toxaemic condition due to haematoma or apoplexy of the uterine wall involving the placental site in common with the rest of the uterine wall, but not originating in the placental site. The second group was very largely composed of multiparae, some 90 per cent., and all patients had albuminuria. Evidence seemed to point to the fact that repeated child-bearing and associated chronic nephritis were the causes. The symptoms of the second type were dependent upon the gradual accumulation of blood within the uterus and in the uterine wall. This haemorrhage was progressive over many days before any suggestion of the condition. After a certain amount of blood had been lost, the patient became collapsed. The essential fact to be observed was that the bleeding was never sudden or rapid—it had been going on slowly for many days. The collapse when present was not due to a sudden onset or increase of bleeding. The apparent increase in the size of the uterus was not due to the contained clot, but to its forward projection due to the increased tension of the muscle. The main lines of treatment were expectant. If the foetus was alive the patient was treated on purely palliative lines and watched. The occasional cases of persistent fresh bleeding might call for induction of labour after several days, but the others cleared up or ended in uneventful delivery. Patients showing toxaemic symptoms were treated by puncture of the membranes if the uterus was tense. The collapsed patient was disturbed as little as possible, and nothing more than puncture of the membranes was attempted, apart from very simple restorative measures. Plugging of the vagina was not advised, and Caesarean section was definitely condemned.

Dr. D. J. MALAN said he had looked up the records of thirty cases of accidental ante-partum haemorrhage, and the results of treatment in these made him unwilling to accept

the statement that the only treatment required was palliative and expectant; and that operative intervention was uncalled for and dangerous. How did Dr. FitzGibbon stop the bleeding when it continued in spite of palliative treatment? Dr. Malan had not found that in cases of concealed accidental haemorrhage the uterine muscle acted well. In three cases where Caesarean section was performed, two required subtotal hysterectomy, as the uterine muscle refused to contract properly. In the third case, the uterus was preserved only after prolonged efforts had been made to make it contract. Two of the three patients survived, and the last mentioned one gave birth six years later to a 9½-lb. baby after a normal pregnancy and labour. If chronic nephritis was the causal agent, then the haemorrhage should recur in subsequent pregnancies. This was not the speaker's experience, and he found it difficult to accept without further proof the explanation of Dr. FitzGibbon regarding the cause of accidental ante-partum haemorrhage.

Dr. R. H. PARAMORE referred to two cases of serious accidental haemorrhage under his care. In the one the membranes were ruptured, a great rush of blood occurred, and the patient immediately died. In the other, admitted as a case of placenta praevia with dead child, Caesarean section saved both mother and child. He was surprised that Dr. FitzGibbon denied that the uterine muscle was necrosed or degenerated in these cases in view of the work done by the late Gordon Ley. The speaker was under the impression that lesions of the uterine wall, and especially its haemorrhagic state, only occurred or were most marked in cases of concealed haemorrhage of magnitude. Absence of histological signs of cellular degeneration or necrosis was not evidence of functional activity. Dr. FitzGibbon had divided cases of accidental haemorrhage into two types: (1) simple, and (2) toxæmic. The toxæmia was due to chronic nephritis. But Dr. FitzGibbon apparently thought that the severe cases in which haemorrhagic extravasation into the uterine wall and broad ligaments occurred were always toxæmic and that the simple cases, such as those due to trauma, did not produce that state. The evidence was inconclusive. In the simple cases either there was no albuminuria or, if there was, Dr. FitzGibbon regarded it as a concomitant unassociated with the bleeding. The speaker believed the albuminuria in the traumatic cases was at times the result of the distension of the uterus by the bleeding. In order to understand how accidental haemorrhage occurred a study of the dynamics of the capillary circulation—and the placental sinuses were but modified capillaries—was necessary.

Mr. RIVETT agreed emphatically that there was more than one type of accidental haemorrhage, and that the so-called "toxæmic" type was a definite entity. He called attention to the fact that in many cases the amount of blood lost was not sufficient to account for the severity of the symptoms. He asked if the condition of the kidney in patients who died was in keeping with chronic nephritis, and also if those who had survived had subsequently showed clinical signs of this disease.

Dr. GIBSON FITZGIBBON, in reply, said that the kidneys in one of his fatal cases showed definite chronic nephritis; in his other fatal cases the kidneys were not examined. Of his patients who recovered several remained chronic invalids and were transferred to general hospitals, where one died nine months later. Subsequent pregnancies in the severe cases tended to terminate at earlier periods as abortions and miscarriages, and markedly resisted efforts to carry on the pregnancy. He had performed hysterectomy on two patients to stop this recurrent useless conception. In reply to Dr. Malan's question how the bleeding was to be stopped to allow recovery, the contention of Dr. FitzGibbon was that the bleeding was never rapid and did not require treatment.

Teaching and Practice of Midwifery.

Dr. G. W. THEOBALD, in a paper entitled "A plea for drastic reforms in the teaching and practice of midwifery," after drawing attention to the present mortality in childbirth, read a number of case-histories of obstetrical difficulties which had been mishandled before admission to hospital. He laid the blame for imperfect midwifery practice

in the country on the present system of teaching in the English maternity hospitals. After criticizing the general organization of the maternity hospitals, he suggested that obstetrical establishments should be staffed by senior resident officers. He also criticized the teaching of midwives and the conduct of normal labour.

Lady BAURET regarded the warnings against excessive intervention in the guarding of the perineum and the control of the uterus after birth as practically useful. Dr. Theobald had also indirectly suggested a way to avoid precipitate intervention in labour in private practice in consequence of the importunities of the patient and her friends; this was the more systematic use of suitable analgesics during the early stages of labour.

Dr. FAIRBANKS considered Dr. Theobald's paper timely and justified by the conditions now prevailing in the teaching and practice of midwifery. Reform was urgently required, and he would advocate a return to fundamental principles as the most essential need of the present day. Throughout medicine the ultimate objective was the maintenance of normal function, and in obstetrics efforts must be directed towards securing for patients a physiological pregnancy, parturition, and puerperium. Until this principle was recognized and acted upon whole-heartedly by all teaching and practising midwifery, the frequency of disasters would not be lessened. At the Portsmouth meeting of the British Medical Association he had urged a more extensive study of, and greater effort to attain, physiological parturition, but his views were regarded as visionary and impossible in practice. However well drilled students might be in the methods advocated by Dr. Theobald, few would be strong enough to overcome the pressure of patients and relatives to terminate labour early and artificially, and yet survive in the competition for practice. He knew striking instances of his own students and house-officers, strong both in faith and purpose, who had regretfully acknowledged defeat in the struggle. The public also required education, and without some change in the system and conditions of maternity practice reform, like the labours, would be difficult and delayed. A wider use of the services of the midwife must be part of the campaign on behalf of physiological parturition. If the true criterion of success was approximation to the physiological, the best results were to be found where the trained midwife conducted the labours and sent for medical aid only when there was need for it. This was shown not only by the better maternal mortality rates in those countries with a well organized service of midwives, but also by individual results in this country when this system was adopted. In working out the figures of the East End Mothers' Home for the past four years he had found over 95 per cent. of normal and unassisted deliveries, a forceps rate of about 1 per cent. in outdoor cases and under 4 per cent. in cases in the hospital, with only 6 maternal deaths in nearly 9,000 deliveries, or a rate of 0.65 per 1,000—about one-sixth of that of the country generally. The midwives of the Queen Victoria Jubilee Institute, who attended over 50,000 cases a year, had a rate of less than half the national rate, and in both these instances the medical assistance obtained by the midwife was that of a local practitioner. The Rotunda plan of having an experienced master resident for seven years in supreme charge in preference to visiting consultants had been advocated by the Committee on Teaching in a report to the council of the Section of Obstetrics and Gynaecology, and adopted by it in 1919—though there was a minority report against it.

Carcinoma Adenomatodes Cervicis Uteri.

Dr. HERBERT SPENCER described a case of carcinoma adenomatodes (adenoma malignum) cervicis uteri in a patient aged 49. Vaginal hysterectomy was performed with the Paquelin cautery, and the patient remained well after twenty-two years. Attention was drawn to the rarity of the disease, and the point was emphasized that in true cases of the disease the glandular epithelium was nowhere proliferated, and therefore that reliance on microscopic examination alone for the diagnosis might lead to serious error.

Dr. F. J. McCANN said that at the old Obstetrical Society in 1898 he had shown a specimen of what he termed malignant adenoma of the cervix uteri. The patient was aged 46, the mother of three children. Her uterus was enlarged to $1\frac{1}{2}$ inches above the symphysis pubis and distended with mucoid material, slightly blood-tinged. The cervix was nodular and excavated, forming a crateriform ulcer at the apex of the vagina, the cancerous growth spreading to the bladder anteriorly. Vaginal hysterectomy was performed in June, 1897, but the disease recurred locally, and secondary deposits invaded the liver, causing her death on December 9th, 1897. Sections made from the growth showed that it was composed of tubules lined by a single layer of columnar epithelium, the interstitial tissue being of a fibrocellular character and varying in amount. At the meeting at which the specimen was shown the opinion was expressed that this form of cancer was probably not very malignant, but in this instance at any rate recurrence was rapid.

Method of Endoscopic Examination of the Uterus, with its Indications.

Mr. H. F. SEXTON gave a description of the instrument he has devised for the examination of the interior of the uterine cavity; he claimed that by its use the whole of the endometrium could be carefully investigated by turning the instrument about. Important points in the technique were:

1. The cervix must be dilated up to the 9/12 dilator in order to take the full-sized tube of the instrument.
2. The examination must be made under general anaesthesia.
3. It was a direct focus observation; one could obtain a magnified image with the lens at the ocular end of the tube.
4. Suction was necessary at the beginning of the removal of blood, but this could be shut off towards the end; a little swabbing was necessary.
5. It was easy to remove a piece of the tissue by sight for the pathologist.

The indications for the use of the hysteroscope were:

1. Where diagnostic curettage was indicated, a hysteroscopic examination was likely to help.
2. Where there was uterine haemorrhage, either menorrhagia or metrorrhagia, and nothing abnormal could be felt on bimanual examination, the diagnosis could be cleared up by means of the hysteroscope.
3. Haemorrhage from the uterus after the menopause or a purulent discharge; here a carcinoma of the body could be seen, a snapping of the growth taken, and a diagnosis made between a degenerating fibroid and a carcinoma.
4. In certain cases some might be in doubt as to whether to treat a case of haemorrhage by hysterectomy, x rays, or radium. Here the scrutiny of the endometrium would help in coming to a decision.

Pregnancy complicated by Ureteric Calculus.

Mr. C. LANE ROBERTS described a case of pregnancy in which, after an attack of pyelitis, the urine became suppressed entirely at the eighth month.

An x-ray examination of the kidney and ureter showed nothing abnormal, and for four days not more than an ounce of urine was withdrawn from the bladder. Caesarean section was performed, when the right kidney was found to be enlarged to one and a half times its normal size, with much dilatation of pelvis and ureter; the left kidney was also enlarged. The right ureter palpated below the dilatation showed nothing abnormal; six hours after Caesarean section the right ureter was explored by ureteric catheter, when an obstruction was felt. Still, however, no urine was passed for ten days. A right pyelotomy was performed and much urine was drawn away from the hydronephrosis. On the second day after the operation the patient's general condition was fair, the blood urea having risen from 96 to 117 milligrams, but no urine was passed from the bladder, while the kidney wound was draining well. By the seventh day after the operation the patient passed urine normally. Three months after the Caesarean section the patient was operated on for perinephric abscess, and this was followed by removal of the ureteric calculus by the extraperitoneal route.

The interesting features of this case were: the length of time during which no urine was passed; the duration of the reflex anuria of the apparently healthy though hypertrophied left kidney, even after the removal of the obstruction; and the failure of x rays to help with the diagnosis of the obstruction; an almost complete absence of symptoms; and, finally, the mobility of the obstruction when it was discovered.

CLINICAL RELATIONS BETWEEN PSYCHOLOGICAL DISORDERS.

Dr. R. H. COLE presided at a meeting of the Psychiatric Section of the Royal Society of Medicine on March 8th, when Dr. THOMAS BEATON read a paper on the clinical relations between psychological disorders.

Dr. Beaton pointed out how patients suffering from the toxic or organic psychoses, such as general paralysis, tended to show the clinical syndromes of the biogenic type, and also the mixed schizophrenic and manic-depressive reactions which were often seen in the biogenic psychoses. In regard to the relation of the psychoneuroses and the psychoses, he doubted whether it was right to make a fundamental distinction between the two groups. For example, the different degrees of severity which could occur in anxiety symptoms varied from a mild anxiety neurosis up to a state of agitated melancholia in which control was lost and the patient might be in a state of hallucination and delusion. Again, the anxiety syndrome might complicate the clinical picture in psychoses such as paraphrenia. Dr. Beaton said that the obsessional state was commonly tinged with anxiety, and that a persistent psychasthenia might develop in two directions—either towards a resistive melancholia or a chronic hallucinatory psychosis. Reference was made to the way in which the hysterical reaction complicated many diseases.

In the discussion Dr. T. A. ROSS opposed the view that the clinical appearances of psychoneuroses and psychoses occurred at different times in the same illness, while other speakers cited examples in favour of Dr. Beaton's views. The PRESIDENT, in summing up, quoted a case of an obsessional neurosis which required certification owing to symptoms producing pronounced disorder of conduct.

PYELOGRAPHY IN DIAGNOSIS.

A MEETING of the Brighton and Sussex Medico-Chirurgical Society was held on March 4th, Mr. H. J. WALKER, the President, in the chair, when Mr. F. E. FEILDEN read a paper entitled "Some observations on pyelography and its value in diagnosis."

Mr. Feilden said that pyelography consisted of the introduction into the renal pelvis of a solution which was opaque to the x rays, and subsequently taking a radiogram. The interpretation of the picture required care and experience. It might not always be possible to diagnose the pathological condition, but with experience one could say with confidence that a given pyelogram represented a normal or a pathological condition. Frequently, pyelography was the only means of arriving at a correct diagnosis; especially was this so in some cases of painless haematuria. Pyelography suggested the probability that many cases of so-called essential haematuria were in reality cases of congenital hydronephrosis associated with haematuria. Pyelography was of value in obviating the necessity of waiting until the patient was bleeding in order to discover from which kidney the haemorrhage was coming. Pyelography was particularly useful in the diagnosis of hydronephrosis before there had been much destruction of renal tissue and before the onset of infection. In nephroptosis, pyelography demonstrated the presence or absence of associated kinking of the ureter. The absence of kinking of the ureter in these cases raised a doubt as to the advisability of operative intervention. Lateral x rays, pyelograms, and, in difficult cases, lateral pyelograms, were of assistance in distinguishing between a shadow in the kidney, in the region of the kidney, or in the gall bladder. Should a uric acid calculus be suspected in the kidney the patient should be examined radiologically after the solution had been removed from the renal pelvis; the staining of the stone would then accentuate the shadow. Normally, the right pelvis was slightly lower than the left; if the left pelvis was lower than the right there was some pathological reason for it. If either lay below the third lumbar vertebra it was abnormal. In cases where a pyelogram could not be taken owing to obstruction to the entrance of the solution, the resulting ureterogram might be of value; thus, a dilated ureter from ureteritis suggested an infection of the kidney, and a small ureter from disuse suggested a neoplasm.

In suspected renal tuberculosis, unassociated with gross changes in urine, pyelography, by revealing a pathological condition of the kidney, would indicate the appropriate line of treatment. In malignant disease of the kidney, pyelography showed a recognizable change in the renal pelvis in a large proportion of cases. An early tumour of the renal capsule would not be revealed by pyelography; in this case a radiogram, after perirenal infiltration with oxygen, would be of value as an aid to diagnosis. The importance of the symptoms "pain in the back" and "frequency" must not be underestimated, for either might be the patient's only complaint, yet his kidney might be the seat of gross pathological change. In cases of abdominal pain of obscure origin a pyelogram might be of the greatest assistance in obtaining a correct diagnosis. Pyelography was a safe and valuable procedure when performed with due regard to modern technique.

The PRESIDENT asked about the disastrous results recorded in the early days of pyelography, and Mr. FEILDEN said that the bad results were due to inexperience and the use of silver salts, which were very irritating in the pelvis, and calyces, resulting in focal necrosis.

Mr. J. R. H. TUNTON asked if a double pyelogram, without waiting for a period of three weeks, was a safe procedure. He also stressed the importance of not mistaking a calyx that had been cut across for a calculus. He considered pyelography should be used more frequently. Mr. FEILDEN said that to perform a bilateral pyelogram was a perfectly safe procedure; especially was it helpful in distinguishing between an early hydronephrosis and a normal but large renal pelvis. With experience one would not mistake a calyx (cut transversely) for a calculus.

Mr. J. GRIFFITH referred to a case of haematuria the diagnosis of which could not be established until Mr. Feilden prepared a pyelogram which definitely showed a stricture at the junction of the pelvis and ureter. This was treated by open operation, with satisfactory results. Dr. G. B. S. D. GRAY asked the cause of the pain that patients sometimes complained of after pyelography. Mr. FEILDEN said that it was very unusual for patients to complain of any pain or even discomfort after pyelography; usually it depended upon the operator's experience and technique. If the fluid was not removed from the pelvis spasm might be set up in the ureter. If there had been undue damage to the mucous membrane of the ureter the patient might have ureteric colic caused by blood clot.

Mr. M. FITZMAURICE-KELLY referred to the advantage of pyelography in cases of renal calculi so as to establish the exact position of the calculus. He also inquired what solution was used. Mr. FEILDEN said he always used 15 per cent. sodium iodide, as it gave an excellent shadow, and was not irritating to any part of the urinary tract. He drew attention to the danger of pyelography in a case where the calculus was lodged in the pelvis at the junction of the ureter. One should make sure that it was possible to remove the solution from the pelvis. Sometimes in these cases the calculus acted as a ball valve: the solution could be introduced but not removed.

CHRONIC INTUSSUSCEPTION.

At a joint meeting of the Manchester Medical Society and the Liverpool Medical Institution on March 3rd, Professor A. H. BURGESS, the President of the Manchester Medical Society, in the chair, Mr. R. C. DUN (Liverpool) read a paper on chronic intussusception, based on his experience of thirteen cases.

Mr. Dun drew comparisons between this variety of invagination of the bowel and the acute type. Chronic intussusception occurred much less frequently and in older children; the sexes were equally affected, and there was a larger proportion of the enteric and colic forms. The symptoms were slight, indefinite, intermittent, and prolonged; in the cases under review they had been present for four weeks up to two and a half years. The umbilical pain was usually slight and of a colicky nature, vomiting was occasional and concurrent with the attacks of pain, constipation was not marked, and there was always a deterioration in health. An abdominal tumour could be felt in nine out of the thirteen cases; it was intermittently

present, appearing and disappearing with the pain. In two cases only was it long enough to be called "sausage-shaped." Blood and mucus was present in only two of the cases, and in both appeared intermittently. Diagnosis was difficult owing to the evanescent nature of the abdominal tumour, and the importance of repeated examinations was stressed; examinations should be made during the attacks of pain. In no case had the intussusception progressed so far as to cause acute intestinal obstruction. The differential diagnosis between tuberculous peritonitis and chronic appendicitis was discussed. The treatment had been in all cases laparotomy and reduction; this had always been found easy, no adhesions had ever been found, and practically no oedema had been noted. In no case did the symptoms recur after operation. No obvious pathological condition had been met with in any of the cases which could account for the intussusception.

Cysts of the Semilunar Cartilage.

Mr. T. P. McMURRAY (Liverpool) made a report of eight cases of cysts of the semilunar cartilage, and said that, unlike the previously reported cases, three of the eight were in connexion with the internal semilunar cartilage, whereas the previously reported eighteen cases had all been associated with the external cartilage. The cysts were multilocular, containing clear fluid and requiring excision for the cure of the symptoms. Two of the eight cases had been already operated on by other surgeons, and the cysts alone were removed, with no relief of the symptoms. The eight cases were treated by complete removal of the cysts with the affected cartilage, and a complete cure resulted. Microscopical examination of the cyst wall showed that it was lined with compressed cartilage cells and intercellular strands with darkly staining nuclei, but no trace of endothelium or epithelium was found. Blood vessels occurred on the outside of the cysts, but not to the same extent as between the cysts. From the presence and from the position of the blood vessels connected with the cysts, it was concluded that the cysts were traumatic in origin, and entirely of the nature of degenerative change.

The Purgative Action of Magnesium Salts.

Dr. HENRY COHEN (Liverpool) read a paper on the purgative action of magnesium salts. In a brief historical sketch he pointed out that there were two main theories concerning the mode of action of the saline purgatives. The first was that their action was entirely local, being exerted solely from the lumen of the intestine; the second was that the saline purgatives acted, not from the lumen of the gut, but only after absorption of the cathartic ion. The evidence adduced in favour of both theories had been too conflicting so far to justify definite conclusions. Using a special micromethod for the estimation of magnesium in small quantities of serum, Dr. Cohen found that the oral administration of purgative doses of magnesium sulphate (20 to 30 grams) was unaccompanied by any definite alteration in the magnesium content of the serum. On the other hand, the intramuscular injection of magnesium sulphate in solution (18 to 20 c.cm. of a 10 per cent. aqueous solution) was followed by a considerable increase (50 to 100 per cent.) in the magnesium content of the serum, but in no case was this rise accompanied by the characteristic purgative effect of the salt when given by the mouth. Following a purgative dose of magnesium chloride a rise in the magnesium content of the serum did occur. This rise was, however, no higher and no less rapid than that following the intramuscular injection of magnesium sulphate. Since the latter did not cause purgation, it followed that the purgative action of magnesium salts was exerted independently of the absorption of magnesium into the blood. Dr. Cohen showed radiographs illustrating that, in the same individual, a purgative dose of magnesium sulphate increased the rate of passage of the opaque meal along the intestine, and also the bulk of the intestinal contents. Moreover, if the lower bowel was empty before the experiment, the first stool passed after administration of the purgative salt contained bismuth. Dr. Cohen concluded from the two sets of data he had presented that the purgative action of magnesium salts was entirely local, and independent of the absorption of magnesium into the blood stream.

PATENT INTERVENTRICULAR SEPTUM.

A CLINICAL meeting of the Aberdeen Medico-Chirurgical Society was held on February 4th, the President, Dr. J. CHROMBIE, in the chair. In the absence of Professor T. SHENNAN, Dr. W. BROWN read his description of a case of congenital heart disease, and illustrated the points by lantern slides from *post-mortem* photographs of the heart.

The patient was a male child, aged 12 weeks, who was never cyanosed but usually very dusky. There was great bulging of the precordia. On percussion and screening by *x* rays the heart was enlarged, especially towards the right. A slight thrill with systolic and diastolic murmurs was noted. A patent interventricular septum was suggested as a diagnosis. The patient died suddenly from respiratory catarrh. On examination of the heart *post mortem*, the interventricular septum was found to be patent in its lower muscular part only. In addition, there were several polypoid excrescences of a myxomatous nature on the mitral valve.

Dr. W. Brown also described four cases which had come under his care at the Royal Hospital for Sick Children; the chief points were illustrated by lantern slides. The first two cases were of hypertrophic pyloric stenosis, and Dr. Brown described two reliable tests for the dehydration of the tissues in this condition. The first was the loss of tension of the eyeball, and the second was that, on pinching up the skin of the abdomen, the elasticity of the skin having been lost, the pinched area took a long time to flatten out. It was necessary to remedy this dehydration before operative treatment, and this was accomplished by rectal feeding. Visible peristalsis of the stomach became more noticeable as the dehydration diminished. On observing the peristalsis it was noted that as a preliminary to the appearance of a wave the child cried, and there was a transverse wrinkling of the skin of the abdomen. The direction of the wave was from the left costal margin towards the umbilicus, and when the first wave had almost reached this point a second began and followed the first. A deep hollow was noted in front of the wave as it approached the umbilicus. Pain was not a usual feature of these cases. In both cases the usual symptom of constipation was absent. Radiography with a barium meal was not found to be of much assistance in diagnosis. The next case was one of pyloric spasm in a female child aged 2 months. Numerous contrasting points were demonstrated between this condition and that of hypertrophic pyloric stenosis. This child was usually sucking a finger—a point of some importance, as some authorities ascribed the cause of pyloric spasm to aerophagy. The Wassermann reaction was strongly positive. Some sixty hours after admission the first definite peristalsis was seen as a lump rising high up in the epigastrium, much higher than in pyloric stenosis. The tone of the stomach was good, and there was no dilatation compared with the atonic dilated stomach of stenosis. This case at first suggested one of pyloric stenosis owing to the extreme constipation, projectile vomiting, visible peristalsis, and rapid wasting. Several important points about pyloric spasm were illustrated by this patient—namely, the later age of onset, the prevalence in females, the peristalsis occurring high in the epigastrium, the absence of gastric dilatation, and the association with syphilis. The fourth patient was a boy, aged 2 years 8 months, with vomiting and pain in the abdomen. These vomiting attacks had no relation to the taking of food, and occurred on the eighth, eleventh, twelfth, fifteenth, sixteenth, twentieth, twenty-seventh, and thirty-seventh days after admission. Preceding and sometimes accompanying the vomiting were pain in the abdomen, visible peristalsis, and audible rumbling and gurgling. The Wassermann reaction was negative, but there was an intense reaction to human tuberculin. The peristaltic waves were very long from end to end, and the crest not very high. They were always constant in direction—namely, from the left costal margin downwards, diving under the umbilicus and reappearing below and to the right. After one or two sets of waves of this nature a formation of ball-like knobs appeared round the umbilicus, and their disappearance coincided with the rumbling noise and the passage of flatus. Six hours after a barium meal the report stated that a large and distended loop of small bowel was seen round the umbilicus. At an operation a loop of small bowel was found to be bound down by dense tuberculous adhesions.

An anastomosis was performed, and the child made an excellent recovery.

Dr. JOHN CRAIG described two cases, the first being one of amyotonia congenita in a male child aged 4 weeks. It was sent to hospital with a diagnosis of Erb's palsy of the left arm. When first seen in hospital both arms were held in the typical position of Erb's paralysis, but every now and then the child moved its arms in most directions. All the muscles of the trunk, arms, and legs were soft, small, and toneless, so that the child could be made to assume various fantastic attitudes. On testing the electrical reactions of the muscles, the faradic response was greatly diminished, but not lost; this feature was mentioned as being diagnostic. There was absence of the deep reflexes. The second case was one of pseudo-hypertrophic paralysis, exhibiting all the typical features. Both cases were illustrated by lantern slides.

At a recent meeting of the Royal Medico-Chirurgical Society of Glasgow, the President, Professor ARCHIBALD YOUNG, in the chair, a debate was held on exophthalmic goitre. Professor F. R. FRASER and Mr. T. P. DUNHILL opened the discussion on the same lines as those of their papers at the joint meeting of the Royal Society of Medicine on March 9th, which are printed in full at pages 555 and 557. Charts were shown to indicate the striking drop in the basal metabolic rate and pulse rate, and the rise in body weight following iodine treatment, and lantern slides illustrated the improvement in the eyes of patients treated surgically. In the discussion which followed Professor W. K. HUNTER, Dr. G. HERBERT CLARK, Dr. MARION GILCHRIST, Dr. J. MCKENZIE ANDERSON, Mr. J. SCOUER BUCHANAN, and the PRESIDENT took part.

At a meeting of the Nottingham Medico-Chirurgical Society on March 11th, Mr. H. BELL TAWSE, President, in the chair, Mr. W. E. HEMPSON, solicitor to the British Medical Association, delivered an address on the subject of "Medical men and the law." In the course of this address he pointed out that the laws governing different sections of the public and various classes of the community were as essential for the purpose of self-government on lines of orthodox propriety as statute law was for the regulation of the affairs of State. He then proceeded to deal with the subject of his address from the two aspects of ethical procedure and conduct, and the legal responsibilities associated with the practice of medicine and surgery, thereby covering a wide field in point of illustration and useful advice, based upon his large and varied experience. An interesting discussion followed, in which a variety of conundrums were propounded for Mr. Hempson's solution, and an evening of "free law" was much enjoyed and appreciated. The address was discussed by the PRESIDENT and Drs. THOMPSON, ISARD, HUNTER, ROWE, WEBBER, and HAMILTON.

A MEETING of the Chelsea Clinical Society was held at St. George's Hospital on February 16th, when a discussion on the endocrines was opened by Professor SWALE VINCENT. He said that the only instances of true substitution therapy at present available were those of the thyroid, the pancreas, and perhaps the ovary. Of these extracts only one, the thyroid, was known certainly to produce any effects when given by the mouth. Adrenin and the extract of the posterior lobe of the pituitary body were valuable as drugs apart altogether from any question of substitution therapy, and neither of these drugs had any effect when given orally. Dr. ERIC BELLINGHAM SMITH gave an account of the clinical manifestations of the diseases produced when the ductless glands were at fault. Dr. F. J. MCCANN laid stress on the value of thyroid extract and calcium lactate in disorders of menstruation in the young. These drugs were especially valuable in obese and anaemic subjects. Dr. H. A. ELLIS reported good results with small doses of adrenin in the type of fatigue occurring about middle age, but was certain that only quite small doses of the drug should be administered. A meeting was also held at the Florence Restaurant after dinner on March 16th, when a discussion was held on spa treatment. Drs. VIOLE, DEBIDOUR, and FERREYROLLE came from France to speak, and Drs. EDGECOMBE, CAMPBELL, RAY, and LIEVEN also took part in the discussion.

Reviews.

BIOCHEMISTRY.

Hexosamines and Mucoproteins,¹ by Dr. P. A. LEVENE, is the latest addition to the Monographs on Biochemistry so judiciously edited by Professor R. H. A. PLIMMER and Professor Sir F. G. HOPKINS. These "little grey books" occupy a distinguished and accessible place on any book-shelf consecrated to things biochemical. The series is of almost unbroken excellence, and this new recruit has every right to feel at home in its ranks. The discussion deals in succession with the structure of the hexosamines in relation to recent knowledge of the structure of the sugars, with the prosthetic group—chondroitin sulphuric acid—and with the structure of the whole mucoprotein molecule. Each section carries an appendix, invaluable in the laboratory, wherein are detailed the analytical and synthetic methods which have contributed data to the various arguments in the text.

Should this monograph fail to find so large a body of readers amongst students of biology as have many of its grey brethren, the reason must be sought in the nature and in the history of the author's subject. The hexosamines and mucoproteins appear to play largely an architectonic and protective function in the animal. The biologist is always ready—nay, impatient—to hear all that the organic chemist may have to tell him of the structure and behaviour of all substances whose significance to physiology, and in particular to metabolism, is apparent. He will submit to a heavy discipline in the conventions of organic structure in an attempt to comprehend more fully the biochemistry of these substances. When, however, he is presented with a chemistry, equally difficult, of materials which appear to have small relation to the dominant processes of vitality, who shall blame him if he be less diligent in their study? Of the 160 pages of the monograph under review, three suffice to tell all that we know, and much that we may surmise, of the why and wherefore of the presence of these substances in the skeleton, connective tissue, and mucus.

The author (and who else could approach the subject with the authority of Dr. Levene?) moves easily in a bewilderment of structural relationships, unfolding an ordered argument such as organic chemistry has learnt to develop with such facility. There is much in the story to intrigue the chemist, and when the full significance is established of the relations of the hexosamines to the simple sugars and of the mucoproteins to the simple proteins there will be much to attract the attention of the biologist.

Dr. OTTO FÜRTH's book on problems of physiological and pathological chemistry was first published in 1911. It immediately became one of the most popular books in its field and a considerable part of it appeared in the English language under the title of *Problems of Metabolism*. Many who made close friends with this translation may have been unaware that it represented only the second half of the whole work. The first half dealt with the chemistry of the constituents of living material. The book has become—or we should say that, after the fashion of Continental publishers, it is in process of becoming—a textbook. Professor Fürth is undertaking an extensive revision and elaboration of the whole. As before, the chemistry of the tissues and the chemistry of metabolism will form the main divisions of the subject, and the former will be published in three separate sections, of which the first is before us.² If the first section may be taken as a measure of the comprehensive character of the whole work, we hold the promise of an unusually valuable addition to the library of medical science. This part deals with the proteins, carbohydrates, fats, and the chemistry of blood. Its interests

are frankly in the classical vein, a legacy from the synthetic triumphs of organic chemistry. The student may occasionally be disappointed when he seeks in its pages a nice balance of the organic and the physical aspects of biochemistry, but within the limitations of its traditional view the work is excellent. Professor Fürth not only knows the literature, but, a more precious attribute, he understands the uses of the literature. Indeed, he enjoys leaving us with more problems than he sets out to solve. A second part is promised which will deal with the chemistry of muscle, nerve, and body fluids other than blood, and a third is to be devoted to the endocrine organs. A book so comprehensive will have few competitors. It may be too much to hope, but it is certainly desirable that this book should soon be made available in our own tongue to a larger body of readers than will, at present, be tempted to make frequent use of it. It well merits translation.

THORACIC SURGERY.

THE reader of Mr. HOWARD LILIENTHAL's *Thoracic Surgery* will not fail to be struck with the rapid advances that have been made of recent years in operative technique. It is probably fair to say that these would not have been possible except for the help that has been forthcoming from the physiologist and the radiologist. The latter especially has rendered assistance, not only in the diagnosis, but in the clinical progress of the patient. By his aid it is now possible to follow the gradual collapse of a lung, the obliteration of a cavity, alterations in the mediastinum, and numerous other changes that are difficult to recognize by clinical methods alone.

The two volumes presented to us survey the whole field of thoracic surgery. Primarily compiled from the personal experiences of the author, they are supplemented by articles on special subjects, such as physiology and the intravascular treatment of aneurysm, by others whose knowledge on these topics is more extensive than his own. The book, however, remains a record of personal work, more in the nature of a monograph than of a textbook. It is strange for a surgeon to learn the details of his handiwork from a physician, and still stranger for him to admit it; yet the author has not hesitated to include a long section on the artificial pneumothorax treatment of tuberculosis by two of the assistants at the Loomis Sanatorium. In this his wisdom is commendable; for though the surgeon will probably never be responsible for this method of treatment, it is as well that he should know it. In another matter too he may be congratulated. Though military surgery is of great importance during war, it plays but a small part in time of peace. He has therefore restricted the portion of the book dealing with this subject to a single chapter at the end.

As we have come to expect of the American publishers, the book is well and profusely illustrated. Some of the figures are perhaps unnecessary, but it is better to err on the side of clarity. It will be found of value chiefly to the specialist in thoracic surgery, but the chapters dealing with the surgical treatment of tuberculosis, of the pleura, and of the heart, will doubtless be welcomed by the physician too.

STATISTICAL METHODS FOR RESEARCH WORKERS.

MR. R. A. FISHER, the author of *Statistical Methods for Research Workers*,⁴ is known to the learned world as an able and original mathematical statistician, while, as chief statistician to the Rothamsted Experimental Station, he has had considerable experience of the application of quantitative methods to a particular class of biological problems. The aim of his present volume is to supply a manual for biological research workers desiring to evaluate statistically their experiments. Since, in the kind of biological research with which Mr. Fisher has had to deal

¹ *Hexosamines and Mucoproteins*. By P. A. Levene. Monographs on Biochemistry. Edited by R. H. A. Plimmer and Sir F. G. Hopkins. London and New York: Longmans, Green and Co. 1925. (Roy. 8vo, pp. x + 163, 10s. 6d. net.)

² *Lehrbuch der Physiologie*. Zugleich II. Teil der *Probleme der Physiologie*. Von O. Fürth. Organchemie; I. Lekt. Leipzig: F. O. W. Vogel. 1925. (Sup. roy. 8vo, pp. xiii + 208. M.15.)

³ *Thoracic Surgery*. In two volumes. By Howard Lilienthal, M.D., F.A.C.S. Philadelphia and London: W. B. Saunders Company. 1925. (Roy. 8vo: Vol. I, pp. viii + 694, 497 figures; Vol. II, pp. iv + 693, 406 figures. 80s. a set of two volumes.)

⁴ *Statistical Methods for Research Workers*. By R. A. Fisher, M.A. Biological Monographs and Manuals. Edinburgh and London: Oliver and Boyd. 1925. (Demy 8vo, pp. ix + 239; 10 figures. 15s. net.)

practically, small samples only are usually available, he has given considerably more attention to the particular methods applicable to small samples than authors of most textbooks have deemed necessary; he is well qualified to do so because of his previous mathematical investigations in that difficult branch of statistical theory. The chief merit, indeed, of his volume is that it provides numerous worked examples and tabular aids to calculation, which should be of service to those having to rely on small samples.

Mr. Fisher has designed his book for readers without special mathematical training, and is conscious that the inclusion of a good deal of matter which is "advanced," and has, indeed, not been published before, needs some explanation. If he feared that he was likely to fall between two stools—to produce a book neither full enough to satisfy those interested in statistics, nor sufficiently simple to please those who think that Mr. Fisher's fears are justified by the result. The laboratory worker will, as we have said, find the book useful when dealing statistically with small samples, but will not find in it a sufficiently simple and comprehensive account of the general principles of statistical methodology. The illustrations are sometimes—for example, that dealt with on pages 94 et seq.—only illuminating to students with special knowledge of modern genetics. The trained statistician interested in Mr. Fisher's researches will miss a detailed justification of his conclusions, and may resent the somewhat arrogant way in which the law is laid down upon points respecting which there is difference of opinion among persons possibly as well informed as Mr. Fisher. A conspicuous example of this latter failing is the reference to Professor Karl Pearson on page 17. Even if the statement that Professor Pearson's treatment of a fundamental problem contained a "serious error" had not been disputable, and therefore improper in a work addressed to elementary students, it would have reminded anyone of Macaulay's remark on a similar occasion—"just so we have heard a baby, mounted on the shoulders of its father, cry out, 'how much taller I am than Papa!'"

CLINICAL ANATOMY OF THE NERVOUS SYSTEM.

THE volume, *Les Nerfs en Schémas*,⁵ by Professor PITRES of Bordeaux and Professor TESTUT of Lyon, was, as its authors describe in the preface, born of the war. Charged in the early days of war with the duty of instructing students and young graduates in the principles of neurology as applied to war injuries and diseases, they devised a course of instruction intended to be both succinct and practical. The principle of their method was to consider in succession each part of the nervous system, first demonstrating the main anatomical features by means of semi-diagrammatic drawings, and then reviewing the physiology. Following these demonstrations, patients were shown suffering from injuries and diseases of the parts, and especially examples of war wounds affecting the nervous system. Their lessons were therefore at once theoretical and practical, but theoretical considerations were only employed to afford direct explanations of the effects produced. After the war, at the request of many of their students, they decided to put their course of instruction into a permanent form, and the result is the present truly magnificent volume. The lessons must surely have been considerably expanded for purposes of publication, for the great mass of information in the book fills over 706 pages. There are 51 beautiful coloured plates, and 164 drawings in the text, some of which will be familiar to readers of English anatomical textbooks, in which Professor Testut's admirable diagrams have for long figured. These diagrams alone would make the book a valuable possession.

The idea underlying the text is excellent. Early chapters deal with the general principles of nervous anatomy and physiology, the constitution of the neurone, the structure of peripheral nerves, ganglia, etc., and the physiology-pathology of neurone degeneration and regeneration. Then the cranial and spinal nerves, the sympathetic system,

and central nervous system are considered successively, a sufficiently detailed account being first given of the anatomy of each part. Following this the function of each nerve, tract, or centre is described, and then are detailed the main clinical syndromes associated with injury or disease of each. Accounts are given of all important tests of function and methods of examination, such as cerebellar and vestibular tests, and the clinical tests for slight degrees of peripheral nerve palsies. Due attention is paid to the results of recent studies of the anatomy, functions, and clinical syndromes of the basal ganglia. Later chapters deal with the principles of reflex action, including the regulation of muscle tone and the defence reflexes, and the clinical application of this knowledge. For the clinician the arrangement of the book is ideal, and the information is as complete and trustworthy as would be expected from writers of such authority and distinction. It is a volume of permanent value, but it will have to be bound by its owner before he puts it on his library shelf.

BIRTH CONTROL AND MORALS.

To judge by the many books that appear on the subject of birth control it would appear that its advocates are in the ascendant; so that it is well to take notice of what is to be said on the part of those who condemn this propaganda. There has recently appeared such a work by a French author, M. PAUL BUREAU, entitled *Towards Moral Bankruptcy*.⁶ It is a vehement denunciation of neo-Malthusianism. The book has been translated into good English, but even so it is not an example of a restrained and impressive style. For the author indulges in such uncontrolled flights of rhetoric that it is by no means easy to discover what some of his incidental arguments entail. There is, however, no doubt of the main trend of his thesis. The translator must have had an uncommonly difficult task, as is suggested by Dr. MARY SCHARLIEB, who writes an introductory commendation of the work.

M. Bureau proclaims himself a scientist, and no obscurantist. He accepts the doctrines of Malthus, and points out that what is known as neo-Malthusianism was detestable to Malthus. He begins by painting a picture of modern life, which in the luridness of its colours and the horrors of its outlines makes a parallel to the pictures by Hogarth. We must leave citizens of France to tell us if the picture be true or false; it evidently made Mrs. Scharlieb feel ill when she read it in the original, and she confesses so much in her introduction. The picture is worked up with dramatic skill. The results of moral bankruptcy are traced in every failure of trade, discovery, science, art, and citizenship; every default arises from this one cause. M. Bureau's remedy for this danger of bankruptcy is the duty of marriage, and the lasting benefits it confers upon both parties. He believes in the advantages to parents and children of large families; and he also sees that the doctrine of Malthus was true—that population can increase out of all proportion to the food supply. He accepts the preventive check of lack of food, and the positive check of vice, misery, and moral control. If we desire to avoid vice and misery, he urges, there is but one way: "Obviously the continence of the married people is the sole means of correcting excessive fecundity, and outside this means every precaution and every anticonceptionist practice must be condemned." Just as facilities for divorce promote divorce, so, he says, the knowledge of unnatural devices for birth control lead to the possibility of deliberate sterility, for "the child is rarely desired." Again, he writes:

"When in any society several millions of couples have fraudulently ensured sterility in the conjugal relations, how is it possible to speak to young people of both sexes about the strict duty of chastity and purity? how can they be exhorted to marry and found a family? how can the principle of conjugal fidelity and indissoluble marriage be maintained? how can abortion and even infanticide be forbidden? In fact, will these words themselves retain any meaning?"

It would almost seem that such a statement as this were but the climax of a piece of Gallic rhetoric, but it is not; this is what the author really believes, and what he sees

⁵ *Les Nerfs en Schémas*. Par Professeurs A. Pitres et L. Testut. Paris: Gaston Doin. 1925. (Demy 4to, pp. vi + 706; 164 figures, 51 plates. 150 fr.)

⁶ *Towards Moral Bankruptcy*. By Paul Bureau. With an Introduction by Mary Scharlieb, C.B.E., M.D., M.S. Lond. London: Constable and Co., Ltd. 1925. (Demy 8vo, pp. xvi + 555. 16s. net.)

advancing upon civilization, and what will, in his opinion, destroy it. To attempt to refute such an opinion is not possible. There are no sufficient evidences for or against. But when we come to his remedies it is possible to see that he errs. He says:

"We ought to condemn resolutely every plan of sex education in the schools, and far from desiring that this subject of the functions of the organs of generation should become as familiar a branch of instruction as that of the digestion or respiration, we ought on the contrary to leave it alone, since the instinct of generation differs entirely from those of the other physiological necessities."

This conclusion is based upon an assertion that can only be called amazing:

"Sexual instruction would have the great drawback of attracting children's attention to a subject which should on the contrary remain in the background of their general consciousness, and this attention would unquestionably rather suggest possible enjoyments than do any real good. The same thing would happen, as has been proved, in the case of medical students, pupils in midwifery, and hospital nurses. In these professions express teaching is given on the functions of the generative organs and the diseases which affect them; yet these initiated ones furnish a large contingent to the crowd of victims to venereal diseases, and they are too often skilled experts in the art of systematic restriction of natality, and even of abortion."

He states that this "has been proved," but he gives no reference to the evidence upon which this alleged proof is based. It would be interesting to know what it is; without conclusive evidence the statement cannot be admitted. We do not accept his belief that ignorance is the foundation of chastity. But we do endorse his approval of "the fine saying of Tom Mann's: 'The future is for the nations who are chaste.'"

NOTES ON BOOKS.

THE eighth edition of *Public Health Laboratory Work*,⁷ by Professor KENWOOD, deals only with the chemical branch of the subject. It is now no longer possible to include in this handy volume public health bacteriological work owing to the growth of the importance and the range of this subject. The chemistry of public health is dealt with in five parts under the headings of water, sewage, air, food, and disinfectants. All are treated in a comprehensive yet concise manner, and provide the student with the information he requires. Part IV, dealing with food, is probably the most important from the point of view of the future, and its study is to be recommended not only to the student but also to the medical officer of health in practice. The importance of purity in the food supply is now recognized, and local authorities are giving increasing attention to this aspect of public health. The whole book is admirably produced, and the illustrations, including the six plates, with which the book is furnished, materially help in the study of the various processes described.

In a philosophic work, *La Science médicale et sa valeur*,⁸ which by its title recalls M. J. H. Poincaré's *La Valeur de la science* (1908), Dr. L. PRON of Algiers reviews the ever-changing sands of medical opinion in an impartial spirit, and gives many examples of our limitations; for example, in the chapter on non-specific treatment by protein shock he quotes Koteschewer's pyretotherapy, based on the dictum that the essential curative factor is that the remedy should cause fever. Changes of the type of disease—for example, of enteric fever, and of pneumonia and empyema since the recrudescence of influenza—are given. He insists that diseases confined to one organ are exceptional, and that in the case of chronic affections it is almost always impossible to define by one phrase the patient's state. The conclusion, true as it may be, that all human science is ephemeral and that absolute truth as to the origin of life continually eludes our grasp, recalls the lament of Koheleth, the supposed author of Ecclesiastes, that "all is vanity." There is much of interest in this essay, which points out that medicine, being composed of various sciences, is itself a science, but that its practice is an art.

Dr. SNOWMAN'S *Manual of Emergencies* has in its second edition⁹ been reduced in size and printed on thin paper so

that it may be carried in the pocket and be available for all emergencies. The book is based on Lenzmann's work on the subject, and from it are excluded injuries and morbid conditions which are not in themselves dangerous to life. Notwithstanding these exclusions, the ground covered is very extensive; the book begins with epistaxis and ends with asphyxia neonatorum. The emergencies are classed according to the tract in which they occur—the respiratory and the gastro-intestinal, the nervous system, the heart, the urinary organs. Emergencies due to acute poisoning are dealt with, and also those which occur in midwifery. A vast amount of labour must have gone to the compilation of this summary of the diagnosis, pathology, and treatment of dangerous emergencies; and there can be no doubt of the usefulness of the book for refreshing the memory in time of stress. The methods of treatment recommended seem up to date and reasonable; but the pathological description is occasionally cryptic and incomplete. Thus, under the heading of poisoning by alcohol it is said that "alcoholic coma is very apt to be complicated by fracture of the skull or by apoplectic lesions." Insufficient stress would seem to be laid on coma from head injuries, in which the smell of alcohol in the breath is purely incidental—a snare into which many a house-surgeon has fallen.

With the appearance of volume iv of *Collected Papers*¹⁰ the task is concluded of presenting in English form practically all of Professor SIGMUND FREUD's papers up to the time that the translation was completed, including even some which are not contained in the *Sammlungen kleiner Schriften zur Neurosenlehre*. The first eight papers treat of mental processes from the point of view which Freud has described as metapsychological. By this, it is explained in the editorial preface, he means the consideration of a given mental process in what he regards as the most complete manner possible—that is, when treated topographically, dynamically, and economically. The papers in the second part of the volume deal with non-medical aspects or applications of psychoanalysis. At the end of this volume will be found a list of books and papers referred to in the text; a chronological list of papers contained in the four volumes of this series, including also books published by the author; and an index of the contents of volumes i to iv.

The second series of Professor C. ACHARD's clinical lectures at the Hôpital Beaujon¹¹ forms a worthy successor to the previous volume which appeared rather over two years ago (*JOURNAL*, February 23rd, 1924, p. 328). The volume consists of twenty-one lectures dealing with the clinical and pathological aspects of syringomyelia, including Morvan's disease, gout, diabetes, alcoholism, cirrhosis of the liver, sublimite poisoning, nephritis due to lead, and uræmia. The lectures in this, as in the previous volume, are not only richly documented but eminently readable, and should be in the hands of every physician interested in contemporary French medicine.

In September, 1924, Dr. J. J. SIMPSON, Keeper of Zoology, National Museum of Wales, Cardiff, published a little book called *Chats on British Mammals*, which were broadcast from the Cardiff Studio of the British Broadcasting Company, and subsequently appeared in the *South Wales News*. *More Chats on British Mammals*¹² has been introduced to the public by the same novel channels. In book form, with a few necessary illustrations, these ten-minute talks about the habits of British mammals make pleasant reading.

Animals in the Making,¹³ by J. A. DELL, M.Sc., is an introduction to the study of development suitable for elementary classes in biology. It is arranged as a series of practical exercises which do not follow the definite logical sequence, but are arranged in such a fashion as to build upon the elementary facts with which the beginner is likely to be familiar. It appears that the author's method has been practised in schools for eight years, and we are not surprised to hear that this set of well chosen exercises has proved useful.

¹⁰ *Collected Papers*. Vol. IV. By Sigm. Freud, M.D., LL.D. Authorized translation under the supervision of Joan Riviere. International Psycho-Analytical Library, No. 10. London: Leonard and Virginia Woolf at Hogarth Press; and the Institute of Psycho-Analysis. 1925. (Roof 8vo, pp. 508. 2ls. net.)

¹¹ *Clinique Médicale de l'Hôpital Beaujon*. Par Ch. Achard. Deuxième série. Paris: Masson et Cie. 1925. (Med. 8vo, pp. 337; 65 figures. 24 fr.)

¹² *More Chats on British Mammals: Rodents and Bats*. By J. J. Simpson, M.A., D.Sc. London: The Sheldon Press. 1925. (Crown 8vo, pp. xiv + 125; 15 figures, 4 plates.)

¹³ *Animals in the Making: An Introduction to the Study of Development*. By J. A. Dell, M.Sc. (Victoria). London: G. Bell and Sons, Ltd. 1925. (Cr. 8vo, pp. xii + 115; 31 figures, 8 plates. 2s. 6d. net.)

⁷ *Public Health Laboratory Work (Chemistry)*. By Henry R. Kenwood, C.M.G., M.B., F.R.S.E.din., D.P.H., F.C.S. Eighth edition. London: H. K. Lewis and Co., Ltd. 1925. (Demy 8vo, pp. xii + 369; 72 figures, 4 plates. 12s. 6d. net.)

⁸ *La Science médicale et sa valeur*. Par le Docteur L. Pron. Paris: A. Maloine. 1925. (Roy. 8vo, pp. 248. 15 fr.)

⁹ *Manual of Emergencies*. By J. Snowman, M.D., M.R.C.P.Lond. Second edition. London: J. Bale, Sons and Danielsson, Ltd. 1926. (4 x 7 1/2, pp. viii + 361. 10s. net.)

British Medical Journal.

SATURDAY, MARCH 27TH, 1926.

PROPHYLACTIC VACCINATION OF THE NEWLY BORN AGAINST TUBERCULOSIS.

For the last quarter of a century the prevention of tuberculosis has been a subject of persistent study by clinicians, health authorities, and laboratory workers, and the prospect of success appears to be brighter now than ever before. For some years before the war Professors Calmette and Guérin, in France, had been publishing studies on the attenuation of tubercle bacilli, and in 1913 had established the principle that the bacilli, by a suitable method of cultivation, could be caused to lose their virulence without being deprived of their immunizing power when injected as vaccine. Calmette continued his work at Lille until the German occupation of that city brought it to a close in 1915. His first comprehensive paper on the subject was published towards the end of 1920 in conjunction with Professor Guérin.¹ It dealt with the vaccination of cattle against tuberculosis. By cultivating the bovine tubercle bacillus in a long series of successive passages on a potato medium treated with glycerin and ox bile they obtained an attenuated strain of bacilli not virulent for the ox and monkey, and well tolerated even when injected intravenously in considerable doses. Such an injection of the seventieth subculture into a calf produced a general reaction from which the animal recovered spontaneously after fifteen to twenty days. This result they interpreted to mean that the tubercle bacillus was so modified that it became non-tuberculo-genic, though it remained capable of provoking abundant antibodies and agglutinins. Animals so treated were unaffected by intravenous injections of 3 mg. of virulent bacilli. The conditions under which dairy cattle live, however, and the way in which they naturally contract tuberculosis, prevented any confident conclusions with regard to the efficacy of the protective inoculation against naturally acquired tuberculosis. They therefore made further experiments with calves. The results were decidedly encouraging, and led them to draw the conclusion that the cultivation of bovine tubercle bacilli in series according to the manner mentioned yielded a strain of non-tuberculo-genic bacilli perfectly tolerated by cattle and other animals sensitive to the tubercle virus. These results were published in the paper referred to, and a full account was given in our issue of January 22nd, 1921 (p. 130). Since then the investigation has been continued, and progress reports have been published from time to time. Another full paper, describing the extension of the method to infants, has now been published.² It begins by reporting further results with calves and other animals, including monkeys.

After 230 successive subcultures during thirteen years of a growth on a glycerinated bile potato medium, the organism became so attenuated that it could be injected in the living state in large doses into mammals without giving rise to disease. Experiments showed that such injections rendered animals

resistant to the subsequent inoculation of virulent bacilli. This B.C.G. strain (Bacille Calmette-Guérin), when injected into calves in a dose of 50 to 100 mg., was found to confer upon them the power of resisting the intravenous injection of 5 mg. of living virulent bovine bacilli, which proved fatal to non-vaccinated animals in two months. The vaccine, moreover, was effective not only against experimental but against natural tuberculosis. Experiments on monkeys were equally successful; the vaccinated animals remained well even after living for long periods side by side with non-vaccinated and infected monkeys. In view of the great susceptibility of the monkey to infection these results were clearly very important.

Having got so far as this, Professor Calmette consented to try the method on infants, selecting first those who were being brought up by tuberculous parents or other attendants. The vaccine was administered by the mouth during the first ten days of life, when the bacilli would be absorbed by the upper part of the small intestine. The first human being to whom the method was applied was an infant obliged to live with a tuberculous grandmother. The first dose was administered in July, 1921, and three doses altogether were given at intervals of a few days; no ill effects were noted, and the child remains in perfect health. Since this time numerous infants have been similarly vaccinated, chiefly those born of tuberculous parents, either in France or in the French colonies. The vaccine is given by the mouth in three doses of 10 mg. during the first ten days of life. It can be mixed in a spoon with a little milk and swallowed in the usual way; no discomfort has attended or followed its administration. In the twelve months following July 1st, 1924, 586 infants were vaccinated in France, all of whom were in contact with one or more persons—generally the mother or father—suffering from tuberculosis. By January 1st, 1926, ninety-six of these children had died from various non-tuberculosis causes, and eleven (1.8 per cent.) presumably of tuberculosis. This figure is in sharp contrast with that of non-vaccinated children brought up in similar contact with tuberculous persons, the returns of the French clinics showing that more than 25 per cent. of such children die within the first year of life. The evidence is that the immunity endures as long as the bacilli of the B.C.G. vaccine survive; this is probably about a year, after which it may be necessary to repeat the administration of the vaccine. In animals such repeated treatment has not been followed by any adverse effects, and the degree of immunization was increased thereby both in calves and in the anthropoid apes. It seems possible, therefore, that children would incur no risk, and might be benefited, by an annual repetition of the vaccination treatment.

Although it is too early yet to form more than a tentative opinion of the value of this measure, yet if the results of vaccination in the future are equally favourable 93 per cent. of children of tuberculous parents brought up in a tuberculous environment should be protected. While the results are admittedly incomplete and cannot yet be held to prove the contention of Professor Calmette, there is obviously some indication that prophylactic vaccination of the newly born children against tuberculosis is becoming practicable. The method is now being adopted in many European countries. It appears to be so simple and harmless that during the next few years there should be no difficulty in vaccinating sufficient infants for a positive opinion of the value of this procedure to be obtained. There are, however, limitations to the

¹ *Annales de l'Institut Pasteur*, vol. xxxiv, No. 9, 1920.

² Calmette, Guérin, Nègre, and Boquet: *Annales de l'Institut Pasteur*, February, 1926, p. 82.

method. The vaccine, as has been indicated, must not be given to persons already exposed to infection; hence the necessity, as a rule, of employing it within the first few days of life. Were it by any means found possible, however, to immunize each child systematically immediately after birth, it seems possible to hope that tuberculosis might be reduced to minimal proportions within two or three generations. If, moreover, prophylactic treatment on corresponding lines were applied to cattle the eradication of bovine tuberculosis should also be attainable, and with it the disappearance of a great source of human infection. It is, of course, too soon to build high hopes, but further developments along these lines will be awaited with much interest.

CORONERS' LAW AND THE REGISTRATION OF BIRTHS AND DEATHS.

AMONG the bills now before Parliament the Coroners (Amendment) Bill, introduced in the House of Lords on February 10th by the Lord Chancellor, and the Births and Deaths Registration Bill, presented in the Commons by Mr. Tinne, Dr. Fremantle, Sir Henry Cautley, and Sir Henry Slesser, are of special interest to the medical profession. The second reading debate on the former bill was reported in our Parliamentary Notes last week (p. 549), and the debate on the latter bill in our issue of March 6th (p. 452). Further notes appear in our present issue.

The efforts of the British Medical Association to secure reform in the field covered in part by these two measures were recalled in a leading article on December 12th, 1925 (p. 1134), when we welcomed, in the Coroners Bill as introduced by the Home Secretary at the end of last session, a generous and much-needed measure of reform. As regards the present Coroners Bill there is little to add now to our earlier comments, for it is substantially similar to its forerunner. The clause relating to medical witnesses in the coroner's court has, however, been completely recast, and the result is a great improvement upon the original provision. In particular a clear distinction is drawn between, on the one hand, the medical practitioner who has attended the deceased during his last illness or at the time of death, or, failing any such practitioner, one who is in practice in or near the place where the death occurred, and, on the other hand, the expert witness. The former, under the Act of 1887, is compelled under penalty to attend the inquest and give evidence, and to perform a *post-mortem* examination if directed by the coroner to do so. The latter may be requested to give evidence, and, in addition to an ordinary necropsy, to make a special examination, including an analysis of the contents of the body. It was presumably through an oversight that this distinction was omitted from the original bill. The new clause makes it impossible to compel any practitioner of either class to perform an analysis against his will—a safeguard which the Association has long wished to see established. The general effect of the clause, together with the modifications carried out in the relative section of the Act of 1887, is to allow the coroner to secure and pay for such medical assistance as he may desire in the course of any inquest, and to procure and pay for the performance of a *post-mortem* examination as a preliminary to deciding upon holding an inquest. Unfortunately the Home Office has stopped short of the logical completion of the procedure contemplated, for it has failed to provide for a detailed medical report as a necessary preliminary to deciding

upon an inquest in all cases where the cause of death is not patent. In general, any minor alterations in detail in the new bill are all to the good. This is particularly so in the provision by which the new superannuation rights are to attach to part-time as well as to whole-time coronerships. The one great defect of the bill remains, however. This is the almost inconceivable parsimony by which the remuneration for performing a *post-mortem* examination and attending to give evidence in court is left, for the practitioner under statutory obligation to render these services, at the sum fixed in 1887—namely, two guineas. The fee of the voluntary witness is a matter for individual agreement.

The Coroners Bill is due for report in the House of Lords, and its progress is being carefully watched by the British Medical Association with a view to securing, at a later stage, certain amendments—notably in the case of the fees mentioned above. The story will not, however, be complete until the rules to be made by the Lord Chancellor with the concurrence of the Home Secretary have been published. In them we may hope to find some regulation of the procedure of a court in which the arbitrary powers of the coroner have too often given rise to grave abuse.

Coroners' law is essentially one section of the general law covering all the machinery for ascertaining and recording the cause of every death, and it was hardly an unreasonable hope that the present Government would deal with the whole matter on a broad and statesmanlike basis. That hope has not been fulfilled. The Births and Deaths Registration Bill is a private member's bill, and as such necessarily excludes any proposal involving a call on the public purse. It follows that it must stop short of what has been generally recognized, since the report of the Select Committee on Death Registration as long ago as 1893, as the only adequate basis for a system of registration. That basis is the compulsory medical certification on a statutory form, and after personal inspection of the body by the certifying practitioner, of every death and every stillbirth as an essential preliminary to registration. In this respect the present law is in the first place unjust, in the second wholly inadequate. It is unjust because it imposes on any medical practitioner who has attended during the last illness an obligation to certify a death without remuneration. It is inadequate because it does not require inspection of the body—that is, verification of death—by the certifying practitioner; it makes no provision for the certification or registration of stillbirths; and it allows registration of a death without medical certification. The last-mentioned defect is partly balanced by the rule of the Registrar-General which ensures that all deaths not medically certified shall be reported to the coroner before registration. This arrangement clearly makes for safety, but can hardly be considered to meet the needs of the case. The present position as regards registration of uncertified deaths is indicated by the following figures recently quoted by the Minister of Health, Mr. Neville Chamberlain, in the House of Commons: Out of a total of 473,006 deaths registered in England and Wales last year, 435,494 were registered on medical certificate and 32,701 on coroner's certificate, and 4,811 after report to the coroner but without medical certification or inquest.

It is clear that the inadequacy of the law can only be corrected by the removal or the intensification of the injustice, for the requisite system of certification would increase the statutory burden upon the medical profession. Apart, therefore, from the second alternative, the only comprehensive remedy yet suggested

must entail expenditure. The promoters of the amending bill are thus much in the position of the lady who was permitted to bathe on condition that she did not go near the water. It must be added that within the limits indicated they have produced an ingenious and useful measure. Accepting at once the desirability and impossibility of provision for universal certification after inspection of the body, they have provided that the certificate shall be upon a statutory form, and that local authorities may provide for the inspection of the body by a registered medical practitioner, upon the request of the coroner, in any case where the body has not already been seen by the certifying practitioner. If local authorities take action under this clause it will be seen that a strong incentive to the relatives to secure medical inspection of the body prior to certification in every case will be supplied. Those who request the inspection will, of course, have to pay a fee for it, since the statutory obligation of the certifying practitioner is not extended to include this duty.

The medical profession, if not the general public, has long desired a system of confidential certification of the cause of death. While this object is not attained by the present bill, a step is taken in that direction; for it is provided that the certificate shall in future be delivered direct to the registrar by the certifying practitioner, a statement to the effect that the certificate has been signed being handed to the relative, who, in turn, must deliver it to the registrar. It will be seen that this proposal would slightly increase the obligation at present resting upon the certifying practitioner. Sir Richard Luce, at the suggestion of the British Medical Association, gave notice of an amendment by which it was proposed to secure that the delivery of the certificate should be by post and free of expense to the sender. As regards the question of stillbirths, no additional obligation is laid upon the medical profession, but it is provided that all stillbirths shall be registered on the information of the person who would, had the child been born alive, have been required to give information concerning the birth under the Births and Deaths Registration Acts. The information is to include either a written certificate from the practitioner or midwife who attended at the birth or has examined the body, or else a statutory declaration that no such person was present or that his certificate could not be obtained. The disposal of the stillborn child in any burial ground is made conditional upon the production of a certificate of registration from the registrar. Why a similar safeguard is not included against the private disposal of a stillbirth we fail to understand. For the rest, provision is made for increasing the efficiency of the burial regulations on the lines laid down in 1893, and to prohibit the removal of a body abroad without due notice. If the bill would not accomplish much, it would, if passed, at least pave the way for more.

There remains one point, covered by neither of the bills under debate, which might with equal propriety have been included in either. At present the duty of the certifying practitioner is clear so long as he is able to sign the prescribed certificate; beyond this it remains in doubt. While there is a fairly general practice of communicating with the coroner where a certificate is refused, the law is as yet silent upon the point, and this occasionally gives rise to unfortunate misunderstandings. Among the amendments which the British Medical Association is seeking to secure in the Births and Deaths Registration Bill is one which supplies this deficiency by the insertion of a clause

requiring medical practitioners unable to certify in certain specified cases to report the circumstances forthwith to the coroner for the district in which the death has occurred. It may be added, for the satisfaction of any reader who has procured a copy of the Births and Deaths Registration Bill, that an amendment has been tabled whereby the word "not" will be inserted in the definition of a stillbirth which, as at present drafted, makes the terms "stillborn" and "stillbirth" apply to any child born alive.

THE MEDICAL PUNDITS: A QUIET MONTH.

NOTWITHSTANDING many requests from our readers for more, we have so far been unable to give further samples of the kind of public enlightenment now known in London as "medical punditry." For one reason or another the torrent seemed to dry up immediately after the appearance of an article on this subject in the JOURNAL of February 27th. Some dreadfully sharp things about "old-fashioned views on health propaganda" have been said by favourite organs of popular instruction, but diligent search through the press cuttings has yielded no *obiter dictum medicum* worthy of quotation. A month has passed without a word in season on, for instance, the hidden peril of the sock suspender, or on lipsticks and the future of the race—nothing but humdrum advice on how to keep fit. There may be a revival on the first day of next month, but we are not too confident even of this. We note, however, that March is not a close season for medical portraits in the lay press, and that the difficult and painful duty of baiting the General Medical Council has not yet gone out of fashion. It is plainly better to help along the public confusion about the General Medical Council and the British Medical Association, and about the difference between legitimate and ridiculous health propaganda, than to spend a whole month out of the public eye.

THE UNIVERSITY OF LONDON.

THE Report of the Departmental Committee of the Board of Education on the University of London,¹ though it completely discharges its terms of reference, is really of the nature of an interim report. The Committee was instructed to indicate the "principal changes now most needed in the existing constitution of the University of London and on what basis a Statutory Commission should be set up to frame new statutes for the University." The Committee, therefore, has confined its recommendations to general principles, and has not attempted to indicate how they should be applied. It has, as a matter of fact, directed its attention in the main to financial matters. The third statute of the University provides that it shall "hold forth to all classes and denominations, both in the United Kingdom and elsewhere without any distinction whatsoever, an encouragement for pursuing a regular and liberal course of education; to promote research and the advance of science and learning; and to organize, improve, and extend higher education within the appointed radius." The anomaly in this relation is that the University itself has practically no financial resources which it can devote to the development of teaching or research, except the balance of examination fees. Yet the total income for the year 1923-24 of the twenty-two schools of the University in receipt of grants from the Treasury amounted to nearly £1,000,000, of which about £350,000 represented recurrent grants from the University Grants Committee, and about £70,000 aid from the London County Council. (In 1924-25 the amount allotted by the University Grants Committee

¹ Report of the Departmental Committee on the University of London. Cmd. 2512. London: H.M. Stationery Office, or through any bookseller. Price 1s. 3d. net.

was £377,695, and by the London County Council £78,366.) The University Grants Committee, in its last report, after expressing its desire not to impair the autonomy of the universities or to diminish in any way their sense of responsibility, states that with this aim in view it has sought that the money provided by the Treasury should be given as block grants in aid of a university's general income, and that it should remain with each university itself to decide in what precise way its income, including the Government grant, should be distributed, "for without the control of finance there can be no effective control of policy." This principle has not been applied to the University of London, but separate grants are paid for the central administration of the University and for each of its corporate colleges, and for its twenty schools, eleven of which are medical schools. Though the University Grants Committee recognized that there would be strong resistance to any proposal to devolve the allocation of the Government grant among the different colleges and schools upon the supreme governing body of the University of London, it nevertheless regarded it as clearly unsatisfactory that the University of London is in no real sense master in its own house or capable of enforcing a policy of its own. The Grants Committee stated that it seemed clear to it, "looking at the matter from the outside, that until the central authority of the University has become a reality it will be impossible for Parliament, the London County Council, and the general public, to feel certain that the fullest and most economical use is made of the vast aggregation of teaching power contained in its numerous constituent bodies." The Departmental Committee has been largely guided by this opinion, and in order to carry it out has recommended the establishment of a Council of the University to control finance, and in particular to have final authority in the allocation of university grants, subject to the right of the Senate to report. This is, in fact, the central recommendation of the Departmental Committee, and that about which there will probably be most difference of opinion. The nature of this difference is disclosed in a minority report by Mr. H. B. Lees-Smith, M.P., who considers that the Senate should be supreme in finance as in other matters. He approves the constitution of the University Council suggested by the Departmental Committee, but recommends that it should be a finance committee or council of the Senate. The Departmental Committee recommends that a large Senate should be retained, and that in addition to the standing committees already existing there should be a Collegiate Council consisting of the Vice-Chancellor, the Principal, members of the Senate appointed by the chief institutions in London, and the two members to be appointed by the medical schools, but with power to the Senate to add others. The Collegiate Council would advise the Senate on institutional and interinstitutional matters. What has been written here is intended only to afford a general idea of the report. The reasons it gives for the recommendations mentioned, and for certain others which we are obliged to omit, will call for very careful consideration.

CLEAN FOOD.

At the Liverpool Congress of the Royal Sanitary Institute in 1924 a committee was established to consider common methods of food handling in this country, and "to approach the Minister of Health with a view to urging upon him the amendment of the existing legislation and the provision of new laws governing the preparation and sale of food, and ensuring its proper cleanliness and freedom from contamination." This committee, having drawn up its report, attended at the Ministry of Health on November 15th, 1925, and were received by Sir George Newman and other

officers of the Ministry. Sir George Newman, in welcoming the deputation, expressed the regret of the Minister of Health that he was unable to receive the members personally, and stated that the Minister fully appreciated the points made by the committee. He assured the committee that its suggestions would be carefully considered, and expressed the view that one of the principal factors likely to lead to improvement was the education of the public in the need for greater care in the handling of food. Local authorities now had power to incur expenditure in publicity regarding health matters, and Sir George Newman thought that this was a subject which might well be considered suitable for such publicity. The institute, he added, could help to bring the question under the notice of local authorities by publishing a number of papers on a cleaner food supply. The council of the Royal Sanitary Institute adopted this suggestion, and has published a pamphlet entitled *Clean Food*,¹ embodying the information collected by a committee appointed jointly by the institute and the Society of Medical Officers of Health. The council hopes thus to stimulate the interest of local authorities and the general public in this important question of cleanliness in the handling and preparation of food, and to the necessity for compelling those concerned in any way in the distribution or sale of food to take precautions against its contamination. The pamphlet consists of an introduction by Dr. Charles Porter on "The public and food hygiene" and a number of monographs on particular aspects of the subject. Thus Dr. Orr writes on milk, Dr. Cates on bread and confectionery, Sir Wilfred Beveridge on groceries, Dr. Fenton on fruit and vegetables, Professor Kenwood on fish, Dr. Willoughby on imported foods, Dr. Naylor on premises where food is prepared, and Dr. Allan on restaurants and cafés, and on the food regulations, licensing, and registration of premises in other countries. These papers certainly contain abundant evidence that in connexion with the treatment of food and its transport and exposure for sale there are very many opportunities of contamination, and there is a strong argument for further powers enabling local authorities to exercise fuller control. It should prove a valuable document from the publicity point of view because of its authoritative exposure of existing unhealthy conditions and because it points the way to reform.

PUBLIC HEALTH LABORATORY WORK IN AUSTRALIA.

Public health laboratory work in Australia has recently been organized on a comprehensive scale, as is shown by the account given in Service Publication No. 27, entitled *The Commonwealth Health Laboratories*.² A special division of the Commonwealth Health Department was started four years ago to administer laboratory services, and a beginning has been made by the establishment of eight laboratories in different regions of Australia. The functions of these laboratories are the examination of clinical specimens from the district served by the laboratory; investigations to assist public health work, such as the bacteriological and chemical examination of food, milk, and water; the investigation of any epidemics of disease occurring within the district wherein the laboratory is situated; the installation and utilization of special apparatus for public health purposes, such as x-ray plants. These laboratories are provided with a thoroughly up-to-date equipment, sufficient to meet all expected requirements, and extra apparatus is promised for special work if required. A nucleus of a library has been provided and is supplemented periodically, and a good selection of journals is

¹ *Clean Food*. Published by the Royal Sanitary Institute. February, 1926. Price 2s. net.

² *The Commonwealth Health Laboratories*. By W. C. Sawers, D.S.O., M.B., D.T.M. (Minister for Health). Commonwealth of Australia: Service Publication No. 27.

also taken by each laboratory. The personnel usually consists of a medical officer in charge, a technical assistant, and a laboratory boy. All work for charitable institutions, for Government medical officers, Government health officers and medical officers of health, and for patients attending the Commonwealth tuberculosis and industrial clinics, is performed free. A fee is charged for work carried out for private practitioners, and the scale of fees appended to this report shows that these are roughly the same as those charged by the recognized laboratories established in this country. A description is given in the pamphlet of the buildings used for health laboratories. The photographs of the exteriors, interiors, and various outhouses, such as the animal house, give the impression of excellently designed institutions. Though they have only been established four years these laboratories have already proved indispensable units in public health work, and have become a great help to medical practitioners. Future developments in the health service of the Commonwealth will probably be accompanied by an expansion of the laboratory service.

COMBATING TUBERCULOSIS IN SWITZERLAND.

Two campaigns, one of them against alcoholism and the other against tuberculosis, are at present interesting Switzerland. The *Journal de Genève*, one of the leading Swiss newspapers, has been devoting columns almost daily to these two subjects; while it admits that the mortality statistics in respect both to alcoholism and tuberculosis have improved during recent years, it asserts that the improvement has not been so marked in Switzerland as in some other countries, such as France and Czechoslovakia, where conditions are fairly comparable. In the case of alcoholism the first line of action of the Swiss authorities has been directed to raising the price of spirituous liquors. A more thoroughgoing offensive is now being taken against tuberculosis. The Federal Council of Switzerland has framed proposals for dealing with it, and the proposals have already passed one of the houses of parliament, the Council of States, and will come before the other, the National Council, at the approaching session. The most important of these proposals, and that which has aroused the most discussion and in some quarters vehement objection, is the requirement of compulsory notification. It is urged by the Federal Council that compulsory notification is a necessary condition of effective action. The argument, with which we are very familiar in this country, is used that unless there is machinery for discovering the victims of tuberculosis the efficacy of any antituberculosis measures must be greatly impaired. It is held that though tuberculosis is not like an ordinary epidemic infectious disease, nevertheless every tuberculous person must be regarded as a potential focus of dissemination, and while he need not necessarily be segregated certain measures of precaution must be applied with regard to him. The Federal Council also points out that compulsory notification has been adopted by all States which have seriously set themselves to combat tuberculosis, and that this measure obtains even in France, in spite of popular misgiving or hostility. It is promised that elaborate precautions will be taken to ensure the secrecy of all such notifications by the authorities, and, indeed, only on the condition of such secrecy can the proposal be made with any hope of popular acceptance. The measure will be administered, not by the Federal Government, but by the cantonal and communal authorities, largely through the tuberculosis dispensaries which already exist. The Federal Council recommended the establishment of institutions in which cases of tuberculosis could be lodged and treated; that special arrangements should be made for medical inspection and for

prophylaxis in schools; that scientific research in tuberculosis should be encouraged; and that certain hospitals should be subsidized. The shape of the new measure has been altered and its provisions curtailed in some respects in passing through the Council of States; in particular the original proposals of the Federal Council have been reduced in respect to the establishment by the State or by local authorities of buildings for the reception and treatment of tuberculous persons, the Chamber having a jealous eye upon the public purse. It remains to be seen whether the measure is further whittled down in passing through what corresponds in Switzerland to the House of Commons.

THE PINEAL GLAND.

At a recent meeting of the James Mackenzie Institute for Clinical Research, St. Andrews, Professor Herring, after alluding to the numerous theories which had been put forward by anatomists and philosophers as to the function of the pineal body, gave a brief account of the comparative anatomy and histology of the organ in the various types of vertebrata from the elasmobranch fishes upwards. It is one of a series of structures associated with the roof of the third ventricle. Its construction and morphology suggest a secretory function; it has a distinct nerve supply. Originally its cavity communicated with the cerebro-spinal canal, but as development advanced it was shut off from this connexion and became apparently an organ of internal secretion. At one stage, in some of the lizards, it is associated with the appearance of a mesial eye, but the structure of this and its nerve supply are distinct from those of the pineal gland itself. In the higher mammals, in whom the gland is shut off from the cerebro-spinal canal, there is found immediately behind the pineal recess, and lining the ventricular surface of the posterior commissure, a mass of definite glandular epithelium, which is almost certainly secretory. The pineal body itself consists mainly of cells with characteristic club-shaped processes, and tumours of the gland are found to be either teratomata or pinealomata composed of these characteristic cells. Clinically tumours of the gland appear to be associated with precocious sexual development. Experimental physiology has yielded contradictory results, but certain experiments based on feeding with the gland substance have produced precocious sexual development in young males; in females the results were negative. Extirpation experiments are extremely difficult on account of the vascular relations, most animals dying of haemorrhage. Transplantation has never been successful. The posterior lobe of the pituitary body, the lecturer pointed out, resembles the pineal gland in its relation to the cerebro-spinal fluid system.

THE SCENT OF FLOWERS.

We had not imagined that there was to be found such a depth of philosophy in the relation of the olfactory nerves to odorous substances as has been found by Mr. F. A. Hampton and discussed in his book entitled *The Scent of Flowers and Leaves*.¹ The comparable qualities of odours and their connexion with memory have received so little general attention that astonishment may be caused by some of the author's assertions, but reflection or the test of experiment brings realization of their truth. Comparisons of the odours produced in nature with those of the single constituents which compose the natural scent lead to the recognition of effects which he has aptly named "over-tones." His treatment of the subject embraces chemical and physiological views, but his exposition is enriched by the fact that he writes as a botanist of wide knowledge. Many

¹ *The Scent of Flowers and Leaves*. By F. A. Hampton, M.A., B.M., B.Ch.Oxon. London: Dulau and Co., Ltd. 1925. (Cr. 8vo, pp. vii+133. 6s. net.)

scents exert an antiseptic action on behalf of the plant, and came to be employed by mankind at an early period on account of that property. Sprigs of rue and rosemary used to garnish the Old Bailey under the idea that they would act as a protection against gaol fever. Effective description must ultimately be founded on a scheme of characterization permitting of assortment by similarity into groups. Here has been the author's most difficult task. It presents the same kind of obstacles as confront the attempt to correlate physiological action with chemical constitution. Idiosyncrasies, multiplied until they are almost generalities, and habituation tending in some cases to acute perception, in others to oblivion of sense, work havoc among orders of arrangement of scents by their effects. We may instance the scent of the bloodhound for a footprint or the acute perception of human beings for an infinitesimal quantity of musk. Again, it is generally believed that the camel can smell water, and certainly many things possess the essential character necessary to the exhalation of an odour which are hardly perceptible or quite imperceptible to the human sense; we need only mention the instance of growing grass, in contrast with the change into the scent of new-mown hay. Notwithstanding these difficulties Mr. Hampton has produced for scents a system of grouping which appears valid, and if his arrangement is not final, yet his scheme has an engaging interest, and may prepare the way for a further development of the study. There is an interesting chapter on the relation between the scent of flowers and that of certain moths, showing the parts reciprocally played in fertilization. The author has something to say on the scent of flowers in the house, from which we extract the remark, "All scented flowers are out of place on the dinner table, and if the reader doubts it let him imagine the combination of lobster and hyacinth." Even those who lack a general interest in the subject might well read this book for the instruction it gives on the choice of scented flowers for the garden.

THE ARMY MEDICAL SERVICE IN FRANCE.

At a meeting of the Academy of Medicine on February 16th, the eminent French surgeon, M. Tuffier, submitted a communication containing suggestions for the reorganization of the army medical service, with a view to establishing closer co-operation between the military and civil medical profession. He pointed out that the absence of a suitable liaison at the commencement of the war led to many mistakes and was the cause of fatal results in a considerable number of wounded men. His suggestion is that the number of regular medical officers should be reduced from 1,710, the number previous to the war, to 1,011, and that the medical duties in the army in time of peace should be distributed amongst the regular medical service, the reserve medical officers (in other words, civil medical practitioners), and medical students in their final year. He would employ the junior ranks of the regular service in the garrisons of Morocco, Southern Algeria and Tunisia, and the Levant, where they would have experience of active military service, and employ local civil practitioners of the army medical reserve in the large centres of population where there are troops. The medical students would be similarly employed, and in all cases the civil reserve so employed would be granted rank and promotion up to that of surgeon-general in the same way as officers of the regular army medical service. In this way he considers that economy in the budget would result, that the regular medical officers would have practical experience of field service, and that the civil medical practitioners would obtain technical knowledge of military requirements which would enable them to adapt themselves rapidly to their

duties in the event of mobilization. M. Tuffier's proposal was referred to a committee of thirteen members of the Academy of Medicine, including amongst others the well known names of Vaillard, Sieur, Dopter, Delorme, Vincet, and Tuffier himself. The suggestions do not apply to the medical services with French colonial troops, but only to medical services of what is called the metropolitan army for service in France, North Africa, and Syria. It is interesting, however, to know that the leading authorities in the French medical profession are urging a closer liaison between the regular army medical officers and their brethren in civil practice, with a view to more effective amalgamation on mobilization than existed on the outbreak of war in 1914. In this respect the French Academy of Medicine is taking steps similar to those which have engaged the attention of the British Medical Association for some time past.

THE COMING OPTICAL CONVENTION.

THE third Optical Convention will be held under the presidency of the Astronomer Royal, Sir Frank Dyson, D.Sc., F.R.S., at the Imperial College of Science and Technology, South Kensington, during the week commencing April 12th. The first Optical Convention was held in 1905 under the presidency of Sir Richard Glazebrook, and the second, under that of the late Professor Silvanus Thompson, in 1912. Very notable advances have been made in Great Britain since the last convention, and these will afford ample materials for debate. Each day of the week will be occupied by the discussion of subjects of an optical character, including ophthalmology, astronomy, microscopy, photography, and cinematography. The president will deliver an address, and special lectures including some of a popular character, accompanied by demonstrations, will be given. An exhibition is being arranged in three sections—experiment and research, historical, and commercial. The scientific proceedings will be recorded in a volume which will be supplied to Class B members, who subscribe £1 11s. 6d. Class A members, who will be admitted to all the proceedings of the convention and will receive a copy of a catalogue of the instruments and apparatus shown, pay 15s. A special entertainment committee has been appointed; it is arranging for optical demonstrations, and also for dramatic performances, to be given by the students of the Royal Academy of Dramatic Art. The performances are being so arranged as to afford opportunities for optical illusions and special stage effects produced by optical devices. Full particulars of the convention can be obtained from Mr. Thomas Martin, 1, Lowther Gardens, Exhibition Road, S.W.7.

EDINBURGH is about to lose the services of Dr. B. P. Watson, professor of midwifery and diseases of women, who has accepted the corresponding chair in Columbia University, New York, and the directorship of the Sloane Hospital for Women.

THE Egyptian Council of Ministers has appointed Sir E. Cooper Perry Director of the Faculty of Medicine for three months from the beginning of October next, with the view of organizing that faculty in the newly established University of Cairo. The selection of Sir Cooper Perry and his acceptance of the invitation appear the more appropriate in that twenty-nine years ago he went out to Cairo to organize the medical school and hospital there at a time when it was difficult to induce Egyptians to study medicine in numbers adequate to the needs of the country.

THE OSLER MEDAL.

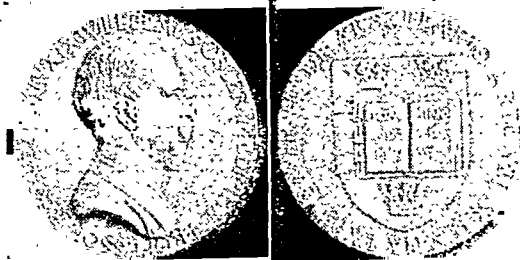
IN the BRITISH MEDICAL JOURNAL of June 20th, 1925 (p. 1133), we gave an account of the ceremony in connexion with the unveiling of a bronze plaque in memory of Sir William Osler, Bt., F.R.S., M.D., F.R.C.P., in the Court of the University Museum at Oxford. The plaque was presented to the University on behalf of the subscribers to the Sir William Osler Memorial Fund by the President of Magdalen, and was unveiled by the Vice-Chancellor.

By a decree enacted in Convocation on May 19th, 1925, the University of Oxford gratefully accepted the fund subscribed in memory of the late Regius Professor of Medicine, and made a number of regulations for its administration. One of these declared that a bronze medal should be awarded once in every five years "to the Oxford medical graduate who shall, in the opinion of the Board of Awarders hereinafter constituted, have made the most

valuable contribution to the science, art, or literature of medicine, and who has not previously received the medal." By another regulation the Board of Awarders was constituted as follows: The Vice-Chancellor; two professors of the Faculty of Medicine elected by the Board of the Faculty of Medicine; two persons not being members of the University, elected by the Hebdomadal Council on the recommendation of the Board of the Faculty.

The first quinquennial award of the Osler Medal was appropriately made last year to Sir Archibald E. Garrod, K.C.M.G., F.R.S., D.M., F.R.C.P., Regius Professor of Medicine in the University of Oxford, Student of Christ Church, and consulting physician to St. Bartholomew's

Hospital and the Hospital for Sick Children. The accompanying illustration shows the obverse and reverse. The medal has been executed by Mr. F. Bowcher, whose name appears thereon.

PRINCIPLES OF TREATMENT IN DISEASES
OF THE NERVOUS SYSTEM.

THIRD LETTSOMIAN LECTURE.*

IN his third and concluding Lettsomian Lecture, delivered at the Medical Society of London on March 15th, Dr. E. FARQUHAR BUZZARD considered principles of treatment in relation to conditions in which disorders of function, possibly accompanied by physical or chemical changes as yet unexposed, demanded attention. He contended that prevention and adaptation must again receive their due, and both must largely rely for their efficacy on anticipation, as well as early recognition, of morbid symptoms.

Head Injuries.

The particular type of head injury discussed by Dr. Buzzard was that in which a blow on the cranium resulted in a period of unconsciousness, short or long, unaccompanied by any serious defect in the bones of the skull. The period of unconsciousness was attributed to concussion, and its importance as evidence of injury to the brain was often too lightly assessed compared with the attention paid to a fracture of the skull. It had to be remembered that the brain was a very delicate and, sometimes, important organ, whereas the cranial bones only served a useful purpose in that they helped to protect the brain from direct injury. The difficulties experienced in carrying out preventive treatment were often provided by the patient, who either refused to regard his accident as in any way serious, or who, having been x-rayed and assured that there was no fracture of the skull, took no interest in what might have happened inside it. How long a period of complete rest should be insisted on was not easily decided. During the war, when many of these patients were under military discipline, he had saved himself much trouble, and the victims of head injuries such as he was describing much suffering, by ordering as a routine measure a month in bed. In civil practice that was not always possible, and the amount of rest might reasonably be regulated by taking into account the extent of amnesia, especially of the retrograde variety, disclosed by the patient, and also of the severity of the symptoms immediately following the accident, the period during which the patient was dazed, confused, or exhibited the symptoms placed under the category of cerebral irritation. In any case, resumption of activity should be gradual, and could usefully be employed as a test for the adequacy of the rest which had been enforced. There could be no alternative treatment, and its simplicity was its chief and only objection. As an adjunct a dose of

bromide, 10 or 15 grains, should be given twice daily, partly in order to allay restlessness and depression, partly as a prophylactic against possible epileptic tendencies. It was even desirable that that medicinal precaution should be persevered with for some months after active life had been resumed, and the success of the treatment outlined was much more likely to be achieved if the patient was frankly told that the measures were necessary not so much for symptoms which were present but in order to prevent months of suffering in the future. The patient who had neglected to seek advice for weeks or months after injury and who came for assistance in the condition of post-concussional headache complicated by anxiety neurosis would require more lengthy rest in bed, and perhaps more secluded, than that already referred to; the administration of suitable sedatives and analgesic drugs; and the application of psychotherapy appropriate to his individual anxiety or anxieties. In contrast to the concussion effects described a not uncommon sequel was the condition known as "contusion headache," which might occur as a separate entity, though not seldom it complicated the concussion picture, so that the patient suffered from both conditions at the same time. In an uncomplicated case the skull might or might not have been cracked by a blow, but there might be no evidence of a depressed fracture indicating the necessity for immediate operation. On resumption of his ordinary duties the patient found that he was subject to severe headaches, the bouts of pain being clearly excited by physical exertion. The pain was generally described as like toothache in character, and each bout was not often of more than a few hours' duration. Frequent recurrence and severity were, however, sufficient as time went on seriously to interfere with the patient's activities and pleasures; whilst not very infrequently they gave rise to mental disturbances amounting to maniacal outbursts or melancholic depression. Whilst in some cases a period of complete rest might suffice to give relief, in others rest failed, and an operation was the only measure calculated to cure the patient. The operation was a simple one, the object, according to Mr. Trotter, being to decompress at the site of injury and so to establish a more normal circulation in the bruised tissues exposed to view by the opening in the skull. Resolution, long delayed, took place, the headaches ceased, and, if thought desirable at a later stage, the gap in the bone might be closed by a bone graft or other mechanical means.

Traumatic Neurasthenia.

Under this heading Dr. Buzzard contended that experience indicated that the term was applied chiefly to two large groups of cases, both of which presented almost

* A report of Dr. Farquhar Buzzard's first lecture appeared in the JOURNAL of February 20th (p. 333), and the second is reported in the issue of March 6th (p. 435).

constant clinical characteristics. The first group comprised those who had sustained an injury to some part of the body—more frequently, though not necessarily, the head—of varying severity; the second group was of smaller dimensions, and its members walked into the consulting room leaning forward on a stick grasped in one hand, with the other placed over the lower part of the back. The practitioner knew at once that the site of the injury—a strain or blow—was the spine. There were two points in connexion with both groups which could not be overlooked. Neurasthenic symptoms were not the monopoly of patients who had sustained injuries to the head or even to the spine; on the other hand, it was not unreasonable to suppose that the awe with which an injury to the skull or spine was popularly regarded might suffice to account for the frequency with which such injuries were followed by the development of an anxiety neurosis. In the second place, there was no constant relationship between the severity of the trauma and the incidence of the neurotic sequelae, but it was not without significance that injuries resulting in total disablement were rarely complicated by the anxiety features of traumatic neurasthenia. Reviewing accidental injuries and their consequences generally, it was impossible, said Dr. Buzzard, to avoid the conclusion that the factor common to the great majority of cases of traumatic neurasthenia was the knowledge that the responsibility for the trauma could be placed on shoulders other than those of the victim—on the employer, or on a corporation, or the State. Traumatic neurasthenia was rarely met with among persons the responsibility for whose injuries could not be relegated elsewhere. Nevertheless, there were other factors contributing in many cases to the development of the anxiety neurosis. Dr. Buzzard contended that it was the business of the medical man to exercise an intelligent anticipation of the early signs of traumatic neurasthenia, with a view to checking further developments. When the condition was established there must not be underestimation of the difficulties in the way of successful treatment, least of all that which concerned responsibility. It had already been recognized to some extent in the admission often made that the first step towards a patient's recovery would be the settlement of his claim. That admission was generally interpreted as evidence of what might be expected from the satisfaction of a greedy desire, but Dr. Buzzard ventured to think that the shifting of responsibility for the patient's recovery on to his own shoulders played at least as important a part in the subsequent history of the case.

Modern Psychotherapy.

Although the whole subject was still in its scientific infancy and still unable to control its emotional tendencies, Dr. Buzzard thought the time had come when it might be profitable to consider, and perhaps to define tentatively, the scope of psychotherapy. In order to clear the deck, as it were, for psychotherapy, it might be well to agree, perhaps, that all patients whose symptoms were frankly hysterical were fit subjects for the art of psychotherapy in the form of suggestion, education, or investigation. It rarely occurred that a patient was sent to him with the diagnosis of "anxiety neurosis," and never did one come with the diagnosis of manic-depressive psychosis. Both groups arrived with the label of "neurasthenia" hung over their blushing necks. That sounded of professional knowledge, but it was a knowledge of contradiction. How many doctors realized that among their neurasthenic patients were a number of examples of the milder forms of the manic-depressive psychosis? How many realized that those were the "neurasthenics" who wore their patience to its last thread, and yet invariably recovered? How many doctors and how many of such patients realized that the treatment prescribed had nothing to do with their recovery? Diagnosis was a matter of great importance in regard to treatment. The manic depressive was made worse by any systematic form of psychotherapy involving mental probing and investigation. The anxiety neurotic could not be cured without the employment of some such method of treatment. The only psychotherapy permissible for the depressive patient was the sympathetic encouragement and the daily audience of his woes, together

with the provision of a sufficiency of rest, food, and sleep. Lest there should be any misunderstanding Dr. Buzzard emphasized the fact that his remarks referred only to the milder forms of the manic-depressive disorder.

Time did not permit of the discussion at length of the principles governing the use of psycho-analytical methods in relation to all functional disorders, and Dr. Buzzard confined himself to brief reference. Many cases of phobia certainly received benefit; some were permanently cured by such treatment; and rarely did harm result. On the other hand, patients suffering from compulsion neuroses were less certain quantities, and it was probable that faults in the technique of analytical methods might be responsible for some disastrous results. Experience would probably eventually teach how the technique could be improved in order to ensure more universal success. A question which had interested Dr. Buzzard for some time was whether spasmodic torticollis was a functional disorder in the sense that it could be cured by any psychotherapeutic measures, and he was bound to confess that had not yet been answered to his satisfaction. So obstinate was it to all other methods of treatment that further efforts on psycho-analytical lines should be encouraged so long as the evidence of harmful results was not forthcoming. Occupational neuroses might perhaps be placed in the same category, although the speaker entertained grave doubts whether in a severe case of writer's cramp, for instance, any cure was possible in the sense that the patient could return with impunity to his scriptorial excesses.

Summing up, Dr. Farquhar Buzzard said practitioners and students alike were appalled by the ever-growing mass of facts and theories in which the art of medicine was involved, and by the hopelessness of attempting to keep pace with advances in all branches. It was inevitable, therefore, that each must turn more and more for guidance to principles based on sound physiological, psychological, and anatomical foundations, and that students of to-day and the years to come should never fail to master them even at the expense of much detailed knowledge of disease, for on such foundations the knowledge of disease could easily be built up. Without them no wealth of experience could ever produce the type of medical man who would lift the profession to a position in which it might secure and hold the trust and confidence of the public.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee forty-eight cases were considered and £629 voted to forty-two applicants. The following is a summary of some of the cases relieved.

M.B., married, who graduated in 1882, has been an invalid for twenty-five years and has the constant attention of his wife. Their total income amounts to £156 per annum, and the house they live in is their own. Voted £30 in twelve monthly instalments.

Daughter, aged 58, of L.R.C.P. and S. who died in 1878. Applicant has been a nursery governess and mother's help, but is now only able to do very light work. She is at the end of her resources. Friends gave her some help. Voted £18 in twelve monthly instalments.

Widow, aged 69, of M.B. who died in 1884. Husband had been in receipt of a grant four months prior to his death. Applicant is at present living with her married daughter, who is unable to give any monetary help. Total income £20 from investments. Friends gave £25. Board residence amounts to 25s. a week. Voted £26 in twelve monthly instalments.

Daughter, aged 71, of M.D. who died in 1859. Applicant asks for assistance as her sister, who was a grantee of the Fund, died at Christmas. Applicant received from friends £52 and she made £14 by plain sewing. Voted £5.

Widow, aged 68, of L.R.C.P. and S.E. who died last month after some years of illness. Her late husband was in receipt of an annuity from the Fund of £40, and he also had the old age pension. An adopted daughter lives at home and contributes £1 a week out of her earnings of 30s. a week. Applicant has no income whatever apart from the daughter's money. Voted £26 in twelve monthly instalments.

Daughter, aged 65, of M.D. who died in 1882. During the war she lived on her capital; this has all been realized and a large amount was lost in Germany; she is now destitute, and she and her friend have been living on the sale of furniture belonging to the friend. Brought to the notice of the Fund by the local branch of the Charity Organization Society. Voted £50 in twelve monthly instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

Nova et Vetera.

THE LONDON COLLEGE OF MEDICINE.

THIS almost entirely forgotten venture of the proprietor and first Editor of the *Lancet* has been recalled to our memory by an interesting communication which we have lately received from Australia. Dr. Alfred Lendon of Adelaide has sent us a copy of a document which purports to confer upon Charles George Everard all the "privileges and immunities which may be conferred upon the Fellows of the London College of Medicine" in the future. This document bears the signatures of nine medical practitioners, including the secretary. All of them were in general practice except John Epps, M.D., and Thomas Wakley. Dr. Epps was a well known homoeopathic practitioner, phrenologist, and reformer, and although he was the friend of Mazzini, Kossuth, Miall, and Stansfeld, he had a much greater reputation among the masses than in the medical profession. Of the remaining signatories only one is known to fame. This was George Alfred Walker of Drury Lane and St. James's Place, whose public-spirited and successful efforts to reform the graveyards of London earned for him the sobriquet of "Graveyard Walker." He was also a pioneer in hydropathy, for he established steam baths at the back of his West End house.

The London College of Medicine was one of the results of Wakley's ill treatment by the authorities of the Royal College of Surgeons. Smarting under the moral and physical insults from which he had suffered when he was so forcibly ejected from the premises of the college in March, 1831, he determined to establish a rival institution, and a little more than a week after his expulsion a meeting of practitioners was held at the Crown and Anchor Tavern in the Strand, under the presidency of Joseph Hume, M.P., himself a medical man.

It was thereupon decided to form the London College of Medicine at once, in the hopes of obtaining an Act of Parliament or a Charter later. Only one discordant note was heard. Mr. Sleigh moved an amendment in favour of the revival of a scheme of his own. He claimed to have proposed the foundation of a British College of Surgeons and to have actually started it in 1829, but the meeting was against him, and to judge from a contemporary report in the *Lancet* (probably not, in this instance, an impartial witness), he was no match in dialectic for Wakley, who said that he had proposed the foundation of that college in 1824.

A committee was formed which speedily drew up rules and regulations and a constitution—as Sir Squire Sprigge says in his *Life and Times of Thomas Wakley*, "where the ruling body was to be elected by universal suffrage, where there were to be no grades of rank, or distinctions in title; where no monopoly in the teaching or the granting of certificates to the taught was to be countenanced, where the fees were to be low and only the standard of courtesy between examiners and examined high." It was to have a senate of thirty-six fellows, a chancellor, vice-chancellor, and scrutators. Seven members of the senate were to form a medical jury who were to examine candidates in public and award or withhold the diploma by a vote of the majority. Candidates for examination were not to be required to produce any certificates whatever. The fee for the examination was fixed at three guineas for practitioners and five for students.

An editorial article in the *Lancet* gave the scheme of government of the college in full, some of the sections of which betrayed the bitterness and exasperation with which Wakley regarded the authorities of the Royal College of Surgeons. Section 4 ran as follows:

"During the first year the Diploma from any University or College of Physicians or Surgeons shall be deemed a sufficient qualification, etc. . . . But the Diplomas of the London College of Surgeons, dated *subsequently* to Tuesday the 8th of March, the day on which the infamous assault was committed 'on the Members, will not be received.' (The italics are in the original.)

Section 10 shows that modesty did not characterize the aims and aspirations of the new college. It claimed the right of the president, council, and fellows to elect the

medical officers of the "great chartered hospitals." and to remove them for misconduct or incompetence. Naturally the new college was well advertised in the pages of the *Lancet*, and there are many glowing notices of its progress and many letters from sympathizers and would-be fellows in the volumes 1830-31 and 1831-32. In the contemporary volumes of the *London Medical Gazette* it is referred to in editorials and letters in a contemptuous tone, as "Collegium Wakleyanum." In the *Lancet* for June 13th, 1831, the following announcement appeared:

"The Committee of the London College of Medicine have engaged Offices at No. 9, Lancaster Place, Strand, that is, in that fine broad street which leads from the Strand to that magnificent structure Waterloo Bridge."

A month later it was announced that the offices were open and that the college was ready to examine candidates, etc., and it was confidently predicted that "the London College of Medicine will rise into a dignity and importance never before attained by any medical institution in the world." These are "prave 'ords," but alas for Wakley's high hopes! In the indexes of the volumes of the *Lancet* for 1832-33 not a single reference to the College of Medicine is to be found. It died of inanition, but not before it had granted some diplomas, as witness that of which Dr. Lendon has told us, and as this is dated in July, 1835, the college must have lingered on for some years. Wakley probably lost interest in it when he saw that it was not likely to supersede the old-established licensing bodies, and he transferred his energies to the more hopeful sphere of parliamentary action.

LIVERPOOL MEDICAL INSTITUTION.

TRIBUTE TO MR. F. T. PAUL.

At the conclusion of the clinical meeting of the Liverpool Medical Institution on March 11th the members assembled in the lecture theatre to witness a ceremony unique in the annals of this Liverpool medical society, and probably also in the annals of medical societies in general—namely, the presentation to the Institution of a bronze cast of the right hand of Mr. F. T. Paul, the distinguished surgeon. Mr. Paul was present, and received a generous welcome from many old friends. The President, Dr. J. C. M. GIVEN, was in the chair.

MR. FRANK JEANS, in the course of an eloquent speech, said that the name of Paul was known now to every surgeon in the civilized world, and would be mentioned in surgical history 200 years hence—not only because he invented Paul's tube, but also because he was responsible for much of the progress that surgery had made in the past. Liverpool should be pleased on reflecting that two epoch-making instruments—Paul's tube and Thomas's splint—emanated from that city; they would live because they were invented for a purpose, which purpose was founded on basic ideas of correct pathology. He thought that, as a remembrance of a past president of the Institution, and one of the most gifted operators who ever cast glory on a medical school, a cast of his hand would be acceptable, and the council at once agreed. Now, in surgery, hands were not everything, although they must, of course, be able to carry out the dictates of the surgeon's brain. When the Chirurgical Club visited Liverpool in 1911 Moynihan was never tired of praising Paul's dexterity and his light hand. Paul, further, had the ideal surgical temperament; no one ever saw him excited, least of all in an operating theatre. Mr. Jeans said he had an additional personal reason for wishing to pay a tribute to Paul, because it was to him that he owed the continued existence upon this earth of his wife. This hand had been



done in bronze from a plaster cast by H. Tyson Smith, the sculptor. It was a remarkable hand, the hand of a man who had worked. It was very like the hand of a 'cellist or a violinist because it was short and broad. 'Cellists and violinists had broad hands and not the long tapering fingers described in novels and the more expensive magazines. When Joshua Reynolds painted Mrs. Siddons he signed his name on the border of her gown and said, "I shall go down to posterity, Sarah, on the hem of your garment." He himself saw an easy way of going down to posterity by presenting this bronze hand, and he asked the President to accept it on behalf of the Medical Institution as a remembrance of a man whom all thinking surgeons regarded as one of the choice and master spirits of this age.

The President then called on Mr. PAUL, who welcomed the opportunity to acknowledge the courtesy of the Institution in accepting this gift, and the kindness of Mr. Jeans in thinking of it. He admitted that at first he had regarded this relic somewhat as a joke, as he had never taken his hands seriously. He recalled how on one occasion, when Professor T. R. Glynn asked him to see a case in consultation, he was obliged to apologize for the condition of his hands, stained as they were with microscopical and pathological reagents. Glynn had replied that he hated a man with clean hands, as they suggested he never did any work. Mr. Paul confessed that he had always been fond of using his hands from his earliest years; he regarded such use as the only way of training them in delicacy; at the same time, it must be remembered that a gentle touch came from the heart rather than from the hands—a touch inspired by a true sympathy with the patient's tissue; in this way only could a man attain the hand of a surgeon.

Dr. GIVEN then expressed his pleasure in accepting the bronze cast in the name of the Liverpool Medical Institution, and congratulated Mr. Jeans on having the fertile brain which could think of such a thing. Mr. Paul's hand had played an important part in the progress of pathology and surgery, and had also been used in the successful prosecution of many other arts. He was one of the founders of the Liverpool Medical School and a maker of its early reputation. He (the President) had known that hand for forty years. It had written his name in the medical school register when he first presented himself as a young medical student. It was a hand he had flown to in all surgical emergencies. Mr. Paul was a surgeon on whom the general practitioner had always relied; he had been depended upon always to say what was sound and best to the patient and his friends, and to operate in the best interests of the patient. He desired to thank Mr. Jeans most sincerely for his very acceptable gift.

Scotland.

TREATMENT OF SCOTTISH CRIPPLES.

A CONFERENCE was held in the City Chambers, Edinburgh, on March 16th, for the purpose of discussing a Scottish scheme with regard to the treatment of cripples. The conference was attended by delegates from various organizations interested in the movement, and the chair was occupied by Lord Provost Sir William Sleigh. The chairman said that while they might alleviate pain and help to brighten the lives of cripples by means of cripple aid societies, such measures were too late to effect cures, and it was necessary that something should be done in the early years of childhood. It was tragic to think, he said, that 75 per cent. of the cripples in this country might have grown up strong men and women, capable of earning their own living, if they had been treated at an earlier stage. In England there was a national scheme for the welfare of crippled children, and in Scotland there was need of a single scheme to link up clinics throughout the various districts. The present movement had the intention of taking up this matter. The Rev. Dr. T. Ratcliffe Barnett quoted an address by Sir Robert Jones, in which it had been stated that 80 or 90 per cent. of crippled children might have been turned into valuable industrial assets, instead of remaining the pathetic figures which many of them were, if only their cases had been taken in hand sufficiently early. The ideal means of effecting this was

to have a national scheme with central hospitals and outlying clinics, but this might take a long time to work out. Meantime, an essential beginning was to provide a central open-air hospital in the country, affiliated to a great teaching school like that of Edinburgh, which would become an orthopaedic centre for a group of several counties. Scotland must work out her own scheme under her own expert surgeons and doctors, with the help of her own business men. There were various reasons why this could not be accomplished with the premises and skill available at present. One was that no beds were available for such a purpose, for orthopaedic cripple cures could only be accomplished in special hospitals where patients could be kept and treated without any time limit, and where they could live continually in open air and sunlight, and be given regular education by approved teachers. Three great essentials of this work were preventive work, operative work, and after-care. The financial question must be solved by the general public on behalf of the hospitals, and the Edinburgh Rotary Club had been persuaded to take steps for raising funds and stimulating interest in the movement. An initial local scheme should not be impossible, and the further national scheme should never be lost sight of. Sir Harold Stiles, speaking of the scheme in detail, said its success would depend mainly upon the central hospital, which must be closely affiliated with the great teaching hospitals. The work must form part of the medical student's education so that they might get men educated to start the country hospitals in rural areas. Now that the Royal Infirmary of Edinburgh had acquired George Watson's College, he saw no reason why there should not be an orthopaedic department attached to that Infirmary. He hoped that the central hospital for cripples would be a new building situated in the Royal Infirmary, which would have at its disposal all the resources of the latter. On the motion of the Lord Provost, a committee representing various medical and philanthropic institutions was appointed to organize the scheme.

EDINBURGH WOMEN'S HOSPITAL.

The annual meeting of the Elsie Inglis Memorial Maternity Hospital, Edinburgh, was held on March 18th. Dr. Isabella Venters presided. The annual report showed that the ordinary expenditure for the past year had amounted to £9,316, and the income to £8,311, making a deficit of £1,005. A gift of £2,000 had been received towards the cost of building a garage and the purchase of motor ambulances, and as this fund now amounted to £2,560 the garage and ambulance would be furnished as soon as a suitable site could be found. With regard to Bruntsfield Hospital, it was stated that the number of patients treated had been 60 greater than in the previous year, and that the cost per occupied bed had been £150 3s. 5d. The committee appealed for funds, which it considered urgently necessary, to provide one or two extra wards in order to relieve the pressure on the gynaecological beds. Further gifts of £1,000 received from the Edinburgh Women's Emergency Corps on disbandment, and of £1,000 raised by lady golfers by means of competitions, were intimated, and it was decided that beds would be endowed and named after the bodies which presented them.

NEW GLASGOW LECTURESHIP IN GYNAECOLOGY.

The annual meeting of the Royal Samaritan Hospital for Women, Glasgow, was held on March 15th in the Merchants' House, Glasgow. Lord Provost Sir Matthew W. Montgomery presided, and commented upon the happy financial position of the hospital. Intimation was made that a donation of £6,000 from an anonymous friend had been received, of which the governors had utilized £5,000 to establish a university lectureship in gynaecology, to be known as the Royal Samaritan Lectureship. The balance was added to general capital. It was further stated that during 1925 the number of in-patients under treatment in the hospital had been 1,839, while 3,357 had consulted as out-patients. The ordinary income of the hospital during the year had been £14,215 and the expenditure £11,503, leaving a credit balance of £2,712. In moving the re-election of the officials, Sir Donald MacAlister, Bt., Principal of Glasgow University, thanked the donor of the Royal Samaritan Lectureship in the name of the University.

GLASGOW CHILDREN'S HOSPITAL.

At the forty-third annual meeting of the governors of the Royal Hospital for Sick Children at Yorkhill, Glasgow, on March 8th, Lord Provost Sir Matthew W. Montgomery congratulated the directors on the successful result of their appeal for funds to extend the hospital in order to meet the increasing demands on its resources. He said it was unique in the history of philanthropic institutions in Glasgow that an appeal for £75,000 should have been realized in less than six months by the simple process of collection. Through the generosity of the trustees of the late Mr. Peter Coats, accommodation at the country branch of the hospital at Drumchapel was to be doubled. This, together with the extension of the hospital at Yorkhill, would enable the institution to cope with a much larger number of cases than in the past.

MEASLES OUTBREAK IN GLASGOW.

During the month of February 5,986 cases of measles occurred in Glasgow, as against 60 in the corresponding month of 1925. The distribution of the outbreak has been fairly general over the city and the cases have been mild in type. Scarlet fever was also on a higher average than in the corresponding month of last year, 301 cases having been notified, as against 296 in February, 1925. There were also 218 cases of diphtheria, as against 151 in February, 1925.

DUNDEE ROYAL INFIRMARY.

A meeting of the governors of Dundee Royal Infirmary was held on March 8th, when Mr. D. A. Anderson, who presided, said that the expenditure for the past year had been £39,602, an increase of £3,335 on that for the previous year. The ordinary income, however, had reached a record figure, amounting to £36,051, which was an increase of £6,054, or 20 per cent. more than the income of the preceding year. The efforts of last year had shown that a considerable increase in income could be obtained. It was also intimated that accommodation was urgently required for the maternity department, and that a scheme to provide this was estimated to cost £30,000, which would have to be provided otherwise than by the reserve fund of the Infirmary.

MEMORIAL TO ABERDEEN PHYSICIAN.

The honorary staff of the Aberdeen Royal Infirmary has placed on the wall of the central hall of the institution an oak tablet in memory of Dr. Arthur Hugh Lister, and as a permanent record of the great services rendered by him to the city of Aberdeen and surrounding districts during his term of office as assistant physician and later as physician to the Infirmary. Dr. Lister died on active service in July, 1916; he held the rank of lieutenant-colonel and had received the C.M.G. in the previous June.

NEW FEEDING HABITS AND DISEASE.

An address was delivered by Dr. D. Chalmers Watson to the Edinburgh Women Citizens' Association on March 18th on present-day feeding habits. The lecturer referred to the remarkable change which had taken place in the diet of the country during the past fifty years. Two of the most outstanding changes were the enormous increase in the consumption of meat and the great increase in the consumption of sugar. Coincidentally with this there had been a great diminution in the use of oatmeal and an alteration in the quality of bread, of which the nutritive value had been greatly diminished by modern methods of milling. There had also been an enormous increase in the consumption of preserved food, which in most instances impaired its nutritive value. The lecturer believed that the prevalent conditions of adenoids, dental caries, pyorrhoæa, appendicitis and other acute abdominal conditions were in the main dependent upon the altered feeding conditions. He also attributed to a very large extent some chronic diseases, such as kidney disease, high blood pressure, and some diseases of the nervous system, to the same defects, and to deficient drinking of water. After the age of 40, the amount of meat foods should be materially restricted and a full supply of water should be drunk. In early years he thought that feeding should include hard foods and the avoidance of too much sloppy food, which

prevented the acquirement of the habit of mastication. The present-day system of relying mostly on preserved foods was a national danger, owing to the exclusion of vitamins. In this respect the influence of sunshine on food was revealed in the better quality of the wheat and barley associated with a season of sunshine which led to a greater supply of vitamins in the grain. There was also, he thought, need for much greater consumption of milk as a national food, and the amount of milk taken per head in this country was far short of what obtained in some other countries, especially America and Denmark. Only the higher grades of milk, which were now provided by recent legislation, should be used for drinking purposes.

DETERIORATION OF OPIUM.

At a meeting of the Pharmaceutical Society of Great Britain, held in Edinburgh on March 17th, Mr. D. P. Dott, Ph.C., F.R.S.E., contributed laboratory notes on the alleged deterioration of Indian opium on keeping. He referred to statements that Indian opium on keeping lost a considerable percentage of morphine. The result of periodic analyses which he had conducted of a sample of opium kept for two years was that the sample had shown no appreciable loss of morphine. With regard to the preservation of morphine hydrochloride in solution, for which the *Pharmacopœia* prescribes alcohol as a preservative, Mr. Dott stated that he had found acetic acid to give good results and to be much more economical.

Ireland.

MEDICAL REGISTRATION (IRISH FREE STATE).

In a recent issue the *Irish Times* published the following proposals, which it states were submitted on behalf of the Irish profession to the Free State executive as an acceptable settlement of medical registration in the Irish Free State.

In order to give effect to the wishes of the Saorstát Government to control the registration and the discipline of medical practitioners in the Saorstát, and at the same time to preserve the educational advantages and the world-wide status given by the partnership in the General Medical Council, the following procedure is suggested:

1.—Renew the partnership in the General Medical Council until such time as either the Government of the Saorstát or of England may apply for a termination of such partnership.

2.—(a) The Government of the Saorstát to set up a Medical Register for the Saorstát, and a Medical Council to supervise and control such Register.

(b) Direct the Saorstát Medical Council that any person of good repute who holds a medical degree or qualification from a university or college, etc., which is recognized by the Saorstát Medical Council, shall be eligible for entry upon the Saorstát Medical Register.

(c) Direct the Saorstát Medical Council that, in addition to the universities and colleges, etc., which may be recognized by the Saorstát Medical Council, any university or school, etc., which may be recognized from time to time by the General Medical Council, shall be recognized by the Saorstát Medical Council.

(d) Pass a law that any citizen of the Saorstát who may wish to practise in the Saorstát must have his name upon the Saorstát Medical Register.

(e) Pass a law that any person who is not a citizen of the Saorstát shall be debarred from practising in the Saorstát unless his name is upon the Saorstát Medical Register or upon some section of the General Medical Register.

The *Irish Times*, in its issue of March 17th, published a document purporting to give the text of proposals submitted to a subcommittee of medical men last December by Mr. R. C. B. Maunsell, President of the Royal College of Surgeons in Ireland, with a view to a settlement of the controversy. Mr. Maunsell has written a letter to the *Irish Times*, in the course of which he says of this document that, though it contains a lot of truth, whoever wrote it has been misinformed. The proposals as published are a verbatim copy of the original rough notes of proposals which were brought by him (Mr. Maunsell) before the subcommittee of medical men. "These proposals," Mr. Maunsell adds, "were considerably modified by us before they were laid before the Government, so that the document published is not the actual document which is under consideration."

SANITARY CONDITION OF MONAGHAN.

Dr. R. P. McDonnell, medical inspector under the Department of Local Government and Public Health, in the course of a report which was read at the last meeting of the Monaghan Urban Council on the state of the town, said that its sanitary condition was very unsatisfactory. Wretched hovels, inhabited by human beings, without light, without space, and without the ordinary conveniences of a dwelling-house, went to make up the lanes and side streets of the town. In the interests of public health and public decency these dens should be abolished and proper houses built. The byres where the milk consumed in the town was produced were on a par with the slum houses—dark, damp, and dirty. Healthy, clean milk could not be produced in some of the cowsheds visited by him. He called attention to the fact that houses condemned as unfit for human habitation were still occupied, and the sanitary authority was unable to provide suitable houses, as there was not a proper sewerage system. Dealing with the dairies in the town, Dr. McDonnell said that the condition of some of the byres was deplorable. He visited three dairy yards, in two of which the production of clean milk would be impossible. One was particularly bad, the byre being dark, unventilated, and filthy. "I cannot understand," he observed, "any sanitary authority allowing milk to be produced amid such surroundings. I have never seen milk produced under such filthy conditions as those I inspected in Monaghan." Proceeding, he said there was no inspection of the meat and milk supplies carried out in the district. The surroundings of the slaughterhouses in the town were decidedly insanitary. He recommended a municipal slaughterhouse, with a charge for its use, and arrangements for disposal of the blood and offal to some fertilizing manufacturing company, instead of allowing it to run into the sewers. The sewerage arrangements were very bad—only old stone drains; many streets had no sewers. The town might be said to be without any provision for the disposal of domestic sewage. The old sewers were worse than useless, and constituted a grave menace to the public health of the town by reason of their inadequacy to deal with the volume of sewage requiring removal, and the dangers and gross pollution caused by their discharge into an open river which ran close to the town. About a hundred yards of one of the main streets of the town was without any sewerage, several other streets being unprovided for in this respect. Some two hundred dwelling-houses were without sanitary conveniences of any kind. Dr. McDonnell described the lanes and alleys as in an appalling condition. He visited one of the common lodging-houses; it was without any sanitary convenience, the rooms were unclean and untidy, the beds unmade, the windows shut, and the ordinary sleeping room conveniences filthy in the extreme. This house should not be registered until proper sanitary accommodation was provided and until proper arrangements were made for the separation of the sexes.

England and Wales.

JOINT TUBERCULOSIS COUNCIL.

THE Joint Tuberculosis Council originated from the co-operation of the Tuberculosis Group of the Society of Medical Officers of Health, the Tuberculosis Society, and the Society of Medical Superintendents of Tuberculosis Institutions. Its first meeting was held in March, 1924, and a report of its activities until December 31st, 1925, has recently been received. Besides assisting the Ministry of Health in the preparation of its memorandum 37/T, dealing with statistical reports, to which we referred on September 26th, 1925 (p. 581), the council has instituted collective research into certain aspects of tuberculosis. The subjects selected were the incidence of non-pulmonary tuberculosis among the contacts of pulmonary cases, the frequency of marital infection, the obtaining of employment for male patients after sanatorium treatment, the influence of marriage, pregnancy, and parturition on tuberculosis, and the fate of young children in tuberculous households. A post-graduate course was organized in 1924, and two

courses in 1925; we referred on March 20th (p. 540) to the projected arrangements for 1926. The problem of the employment of tuberculous persons has been studied systematically and a formal report is in course of preparation. Evidence was given on behalf of the council by Sir Henry Gauvain and Dr. Lissant Cox before the Royal Commission on National Health Insurance, their chief recommendations being the following: The period of sickness benefit should be capable of extension in the case of tuberculous patients, and it should be possible to arrange for diminished sickness benefit during part-time employment; dentistry should be included, special consideration given to deposit contributors, and surpluses be available for financial aid, research work, and after-care. The council is now composed of representatives from various tuberculosis societies, representatives of Government departments interested in tuberculosis problems, and delegates from hospitals, medical schools, and universities. The British Medical Association is represented by Dr. G. B. Hillman and Dr. Arnold Lyndon.

KING EDWARD VII SANATORIUM, MIDHURST.

The annual report of the King Edward VII Sanatorium for the year ending June 30th, 1925, shows that the sanatorium received nearly half of its patients from London and the neighbouring counties. It is suggested that the sanatorium is not sufficiently utilized by members of the professional classes, for whom it was originally intended. The medical superintendent, Dr. R. R. Trail, states that during the year under review 266 patients were admitted and 213 were discharged. Of 203 cases in which the diagnosis of pulmonary tuberculosis was established, 139 were either "moderately advanced" or "advanced," and only 64 were considered to be "early." Of these 203 cases, however, 127 patients were subsequently found to have reached the stage of arrested disease, or to have shown considerable improvement as the result of treatment. It is pointed out that very few patients can afford to prolong their stay beyond four or five months. Artificial pneumothorax was performed in twelve cases. The x-ray department has been almost completely reorganized; protective measures have been adopted to bring all the apparatus up to the standard of the National Physical Laboratory, and the provision of two exhaust fans and the installation of coronaless leads and terminals have tended to lessen the fatigue of the operator. Each patient is examined radiologically within a week of admission to the sanatorium. Research has been carried on in the pathological laboratory to determine the value of the treatment of tuberculous laboratory animals by esters and salts of certain unsaturated fatty acids, including ethyl hydnocarpate.

CORONERS' INQUESTS IN LONDON.

From returns reported by the London coroners to the London County Council it appears that the number of deaths brought to the notice of the coroners in 1925 was 6,758, and an inquest was deemed necessary in 73 per cent. Of the inquests, 87 per cent. necessitated *post-mortem* examinations, and in 104 cases an independent necropsy by a special pathologist was required. A verdict of murder was returned in 29 cases, an increase of 9 over the previous year, 8 verdicts of manslaughter were recorded, and the total number of suicides was 515, an increase of 26. Thirteen deaths occurred from want and exposure; in 17 inquests the verdicts attributed the cause of death to excessive drinking, most of the cases being due to the increasing habit of drinking methylated spirit; deaths from want of attention at birth decreased to 36 from 48 in the previous year; 1,761 persons met their death by accident. A verdict of "death from natural causes" was returned in 2,438 cases, and "cause of death unknown" in 14. Inquests on newly born children numbered 113; there were 5 verdicts of murder of the newly born, and in 55 cases it was decided that the child was stillborn. The cost to the Council of the inquests held in 1925 was £25,335, a reduction in expenditure due chiefly to the abolition of the fees formerly paid to Poor Law medical officers, which accounted for an expenditure averaging about £1,500 a year. The fees paid to special pathologists amounted to £341, and to toxicologists £92.

ANTIVENEREAL MEASURES IN LONDON.

The London County Council is continuing for its next financial year the existing arrangements under the Public Health (Venereal Diseases) Regulations, 1916. The total expenditure for London and for certain adjoining county authorities which participate in the hospital and laboratory facilities available in London is estimated for the coming year at £123,785 (the share of London proper being about 82 per cent.), as compared with £123,205 for the current year. Besides this sum, which is for hospital and hostel facilities, £2,000 is voted for the supply of salvarsan or its substitutes, and £2,000 for publicity and propaganda work. The number of days of treatment of in-patients at the various hospitals in 1925 was 29,313 in the case of male patients, and 73,141 in the case of female, as compared with 31,620 and 70,836 respectively in the previous year. The total number of new cases coming to the clinics in 1925 was 26,182, a slight increase, but of these the unusually large number of 8,680 were found to be not infected, with the result that the number of new venereal cases (17,502) is the lowest figure for the last five years. Of this total number of new cases, those of syphilis accounted for 5,902, those of gonorrhoea for 11,321, and those of soft chancre for 279. It is pointed out by the London County Council that these figures are not the full extent to which venereal diseases come under treatment in London, as a not inconsiderable number of cases receive treatment by general practitioners. The number of attendances at the clinics (646,131) was the highest during the last five years, the figure for the previous year being 589,002, and the number of pathological examinations made for practitioners at hospitals (26,346) again showed an increase.

India.

MEDICAL TREATMENT AND EDUCATION IN THE PUNJAB.

It is satisfactory to be able to record that in the Punjab during 1924 the number of hospitals and dispensaries increased from 626 to 640. At the close of the year there were thirty-one mobile dispensaries, which are greatly appreciated in districts where facilities for medical relief are scanty; they have proved particularly valuable in epidemics. The Government is considering a scheme to provide one dispensary for every 100 square miles or 30,000 of population. At present the average area served by each hospital or dispensary is 147 square miles; in some districts, therefore, patients have to travel very long distances before they are able to reach any institution for treatment. The total number of patients of all classes treated during the year was 5,935,000, of which 109,506 were in-patients. Malaria and cholera considerably increased during the year. In the prefatory note to the *Annual Statements of the Dispensaries and Charitable Institutions of the Punjab* for the year 1924 special attention is paid to maternity welfare and the training of women. On October 25th, 1924 (p. 786), we mentioned the opening of the Lady Reading Hospital for Women and Children at Simla in the previous spring, and referred to the large number of patients who were already receiving treatment. Up to December 31st this number was 6,330, and the provision of this up-to-date hospital was undoubtedly the most notable feature of the year. The Lahore Maternity Hospital, which was opened in February, 1924, with a view to training in midwifery students of the King Edward Medical College, has dealt with 627 patients up to the end of the year, the students performing a considerable amount of the practical work. It is hoped that the proposed new maternity hospital will be completed by 1927. Good progress is reported from the Punjab Medical School for Women at Ludhiana. On February 21st, 1925 (p. 382), we mentioned the opening of the new maternity block; the number of new admissions of students has nearly doubled as compared with the previous year, indicating that the institution is gaining popularity and that the possibility of a medical career for women is being increasingly realized. Research in Indian drugs is proceeding at the King Edward Medical College, Lahore.

HOSPITALS IN BURMA.

During the year ending December, 1924, the number of hospitals and dispensaries in Burma increased from 284 to 289, and the total number of patients treated at institutions other than those belonging to the military police and the railway was 1,990,972, as compared with 1,942,775 in 1923. There was a slight decrease in the patients treated in military police hospitals owing to the closing of a number of outposts, but the work of the railway hospitals increased, and one new dispensary was opened. The most prevalent diseases were malaria, disorders of the digestive system, skin troubles, and diseases of the respiratory system. Malaria is prevalent in most parts of Burma, and reclamation works have been undertaken in various places. Under the supervision of the military police stagnant pools are being drained and filled up, rank vegetation cleared away, and kerosene oil applied to collections of water where removal is not possible. The number of cholera patients was more than double that in the previous year, but the death-rate fell from 51 per cent. in 1923 to 36 per cent. in 1924. A slight fall occurred in the number of plague cases, and the rate of mortality was also slightly less. Tuberculosis increased, and goitre remains prevalent in many parts of the country. It is proposed to start a venereal clinic at Rangoon as soon as the additions now being made to the General Hospital building are completed. It is expected that during 1926 a commission on venereal diseases will visit Burma, and also that a special inquiry into beri-beri will be held. The General Hospital at Rangoon accommodates at present 515 adults and 20 children. The number of in-patients in 1924 was 11,075, as compared with 10,363 in the previous year. During the next few months a home for incurables will be built to accommodate a hundred cases, and some of the congestion in the hospital will be relieved. It is hoped also to have a gynaecological department in connexion with the new Dufferin Hospital, with accommodation for nearly a hundred cases. Still more hospital accommodation is, however, urgently required in Rangoon. A diabetic clinic was started at the General Hospital in June, 1924. Post-graduate courses are held twice yearly.

KING EDWARD VII. MEMORIAL HOSPITAL, BOMBAY.

The King Edward VII Memorial Hospital, Bombay, was opened on January 22nd by the Governor, Sir Leslie Wilson, thus completing the scheme for the extension of medical relief which was undertaken by the municipality in 1907. Nearly six years has been required for its building, and adjoining it is the Medical College, equally well equipped. Both hospital and college have been designed by Mr. George Wittet, with the co-operation of Mr. Pite, designer of King's College, London. The new hospital is based upon the pavilion principle, and will accommodate 304 beds normally, with ample provision for expansion to 400 without overcrowding. Mr. Joseph Baptista, president of the Bombay Municipal Corporation, in his speech of welcome to the Governor, expressed the hope that a tropical school for medicine would now be created, either by the help of the Government or by private generosity, and that such a school might bear the name of Queen Alexandra. The Governor, in his reply, congratulated the municipality on the valuable teaching facilities provided by the Medical College. He was glad that a policy of an honorary staff for the hospital had been adopted. In the course of the proceedings it was announced that endowments for seven scholarships had been received, a sum of money given to supply annually warm clothing to the hospital patients, and also a set of sixty bound volumes of the *BRITISH MEDICAL JOURNAL* in a cabinet.

VACCINATION IN INDIA.

Annual reports for 1924-25 which have been recently received from various parts of India indicate a gratifying spread of knowledge among the people with regard to the prevention of small-pox. In Madras the number of vaccinations and revaccinations was 2,033,997, as compared with 1,912,565 in the previous year; while in the Central Provinces and Berar 521,116 were recorded—a corresponding increase of 19,718. This improvement is directly attributed to the activities of the district health staffs in supervising the work of vaccinators, the detection of unprotected

children, and to extensive and persistent propaganda. In areas where a local decrease occurred the absence of these factors was obvious. The reported decline in the number of vaccinations in the Punjab during the year under review is attributed in part to a fall in the birth rate and in part to the administrative disorganization due to the plague epidemic, but since further efforts have been made to increase the efficiency and thoroughness of the vaccination work a decided improvement is probable during the present year, especially as vaccination is nowhere unpopular, except perhaps in the Simla hill states, and as a rule apathy, rather than hostility, is the enemy. The small-pox death rate during the last three years was highest in the three Punjab districts of Montgomery, Jehlum, and Shahpur, which were least protected against small-pox as determined by the proportion of successful vaccinations per 10,000 of the population during the preceding six years. In Hyderabad town, where only 26 per cent. of the children under 1 year of age were successfully vaccinated, the epidemic during the year under review resulted in 190 cases, with 120 deaths. Of the patients who died—omitting twenty-one whose vaccinal condition was unknown—ninety-eight deaths occurred amongst the unvaccinated. In the Bombay Presidency as a whole there was an increase in the number of secondary vaccinations and a decrease in the primary, as compared with the previous year. From Bihar and Orissa it is reported that there is a diminution in the opposition to vaccination, but a large proportion of the population is still unprotected, vaccination not being compulsory throughout the province. It is feared that there is serious risk of a severe epidemic during the present year.

Correspondence.

LEAD IN THE TREATMENT OF MALIGNANT DISEASE.

SIR,—The animus—and the value—of Dr. Leitch's criticism at the recent discussion upon the lead treatment of cancer before the Medical Society of London will be obvious to all if I place before you what Dr. Leitch ascribes to me and what I actually wrote.

According to Dr. Leitch, "Dr. Adami vouched for the fact that he had seen thirty previously incurable cases cured; he had also letters from another ten cases." (At this point I demurred that I had carefully refrained from speaking of these cases as "cures.") Dr. Leitch amended his remark by saying, "Well, they had no recurrences," and added, "But Professor Bell himself at that time claimed only thirty-one."

If we turn to what I actually wrote,¹ it was: "On the mornings of July 15th, 16th, and 17th, 1925, as a medical member of that executive I attended with others a review or survey of a number of old patients who had from the beginning been subjected to Professor Blair Bell's treatment. Of these I saw and took notes of thirty. Letters were read from ten others, all declaring themselves in good health, who, from one cause or another, could not respond to the call." And later I point out "the absence of evidence of 'recurrences' " in the thirty cases seen by me.

This was in July. I knew nothing then of the method of record Mr. Blair Bell would employ for his Toronto address in November, but only that I was surveying a number of patients who had been subjected to the treatment; and I stated succinctly what I saw. Now, while probably the majority of the cases seen by me come under Blair Bell's category of "believed cured," some of the cases may well have come among those, fourteen in number, which Blair Bell, in his statistical table, puts down as too recent for exact decision; some among the ten which he describes as "having the disease completely arrested"; some quite possibly in the other category of nine cases of "complete treatment refused, but patients living normal lives." These last three categories Dr. Leitch overlooks in order to force the point that I had testified (dishonestly, as he seems to imply) to being acquainted with forty cures, whereas Blair Bell himself only admitted to thirty-one cases "believed cured."

¹ *Lancet*, March 13th, 1926, p. 543.

I leave it to your readers to appraise Dr. Leitch's mode of criticism. If the figures that I have given have any meaning, surely it is that Mr. Blair Bell has been eminently conservative in his estimate of what may be regarded as "believed cured."—I am, etc.,

Liverpool, March 23rd.

J. GEORGE ADAMI.

** A comprehensive report of the debate to which Dr. Adami refers will be found at page 568.

DYSENTERY IN MESOPOTAMIA.

SIR,—I am indebted to your correspondent Dr. Jerwood for his contribution to this discussion. Controversy is always made easier if you can get your opponent to prove your case. Dr. Jerwood does this very succinctly for me in his letter (March 20th, p. 545), in which he professes to find nothing remarkable in the fact that in the recently published Report on the Health of the Army for 1923 the prevailing type of dysentery in Iraq is shown to be amoebic.

In stating that this is in accordance with the bacteriological findings at No. 133 British General Hospital, Kut, in 1918, where over 94 per cent. of the cases were of this nature, he admits that he is aware that this was quite contrary to the experience of all the other hospitals in Mesopotamia. That is precisely my case and why I find it difficult to believe the army report. At that time and in the periods immediately preceding and following it there is no doubt that the work of competent observers shows that the prevailing type of dysentery in Iraq was bacillary, and any isolated opinion to the contrary must be received with the same incredulity that attaches to the report in question. Local conditions peculiar to Kut could in no way be held responsible for a result so completely at variance with the general experience, and one which to me is so suggestive of faulty observation. The mere fact that any observer was able to demonstrate the presence of *E. histolytica* in over 94 per cent. of a series of 149 cases, granted that they were all amoebic and subjected to repeated examination if necessary, would be no less remarkable than failure to demonstrate *B. dysenteriae* in a single one.

The explanation put forward by Dr. Jerwood would be fanciful, even were it based upon the known facts relating to the spread of dysentery. The facts are, however, otherwise. There is no evidence to my knowledge that amoebic dysentery is pre-eminently a fly-borne disease in contradistinction to bacillary dysentery, essentially water-borne. Both types alike are spread by infected water and by fly contamination. Indeed, the alliterative mnemonic, "the filthy feet of faecal feeding flies," was used with reference to the spread of bacillary dysentery and occurs in that context in the *Mediterranean Medical Diseases Handbook* (p. 64).

With regard to the water supply in Mesopotamia during the period in question, this was probably quite as good as it is at present. In the large administrative areas it was generally centrally chlorinated. My weekly examination almost invariably showed no lactose fermenters in 10 c.c.m.—a very fair standard of purity in a tropical, uncivilized country.

There would appear to be a slight seasonal variation in the prevalence of the two types of dysentery, the amoebic incidence being slightly higher in the hot weather. A slightly higher percentage of amoebic cases also occurred amongst Indian troops. Neither of these factors, of course, has any bearing on the point in question.—I am, etc.,

KNOWLES BONE, M.D., M.R.C.P.,

Llandudno, March 21st.

Major R.A.M.C., Reserve of Officers.

MIGRAINE AND OTHER NEUROSES.

SIR,—Your reviewer, in his kindly notice of my little book (March 20th, p. 532), has, perhaps, overlooked one point which seems important.

The struggles towards success made by so many young and vigorous migrainous people are conscious and voluntary struggles; the "repression" of the "rage and humiliation" felt in moments of failure—or, rather, the expression of this rage and humiliation in the form of a migrainous paroxysm—and the subsequent or contemporaneous

utilization of the attack as an excuse or compensation, are "unconscious" processes until, during treatment, they are brought into consciousness. This, briefly, is my thesis. But that young and vigorous and ultimately successful men should suffer from migraine, so far from, as was said, "negating the idea" or thesis, is indeed one of the observational foundations of the idea or thesis. Another foundation in experience for the idea or thesis is that the migrainous, and the neuralgic, almost without exception, accept it as adequately explaining their own state—that is, they do so unless they impatiently reject it without attempting to understand it. As soon as they accept it they cease to suffer; so that, even if the thesis be considered invalid by the critics, action based upon it nevertheless affords a speedy and often permanent "cure."—I am, etc.,

London, W.I, March 19th.

F. G. CROOKSHANK.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

SIR,—The Bishop of Singapore, in his letter published in the *JOURNAL* of March 13th (p. 503), raises a very important question, and one that can only be superficially touched on in a letter. The upset of mental balance he writes of, and the disastrous breakdown that may follow, are all too frequent in the experience of any medical man working in the tropics. He asks for some enlightenment as to the causation, and for some guidance in avoiding a condition that has wrecked many a useful and promising life.

In the course of a long practice among Europeans in the Far East I have had many cases of the milder loss of mental balance to deal with, while as one of the physicians to H.B.M. Consulate-General, and Supreme Court, in Shanghai, it fell to my lot to investigate most of the cases of mental breakdown occurring among British residents in that part of China, and I can fully endorse all the bishop says as to the frequency of suicide among valued members of the community during the hot season of the year. The essential mental changes that occur in the tropical weather are:

1. Partial loss of memory—a tropical amnesia—with mild confusion and interference in the sequence of thought.
2. Dullness.
3. Irritability, followed in severe cases by—
4. Marked depression, and even suicide.

The underlying cause is probably extraneous disturbance of the cortical circulation, associated with excessive irritability and rapid fatigue in the cortical cells.

The circulatory disturbance, seen in its most acute form in heat stroke, is dependent on five main factors:

1. The direct action of heat on the head and back.
2. The irritation of the visual cortex by exposure to the continuous glare of the sun. To this must be added the fatigue due to latent defects in the eyes, described by Mr. MacCallan.
3. The irritation and fatigue of the cortex generally, caused by the continual stream of afferent sensations of discomfort from all parts of the body.
4. The hyperaemia induced by alcohol, often taken to whip the brain to increased effort.
5. The failure to rest the brain sufficiently during the hot periods of the day.

An almost overpowering desire to sleep is experienced after the midday meal, and this desire should be satisfied. It is the cry of the fatigued and hyperaemic cortex for Nature's prime remedy. The sleep may not be a comfortable one, but it is usually heavy, and the harassed cortex is relieved. To hurry back after tiffin and finish the day's work in time for the afternoon game of tennis, golf, or cricket, without a rest, is to put a severe strain on the nervous system, and one that will soon make itself felt among the highly strung and congenitally nervous.

The native in Central China, with generations of experience behind him, affords an interesting example of how the heat should be borne. With the advent of summer the whole mode of life is changed. Clothing is reduced to a minimum, a fan is carried, diet cut down, work done in a leisurely manner, and a deep sleep indulged in at midday. In the late afternoon he brightens up again, and does not seek his bed until the cooler part of night is reached. He is largely protected by Nature against the direct effect of

heat upon the head and of glare upon the eyes, and he takes good care that his brain is not called to any undue effort.

As the bishop says, the degree of temperature is not the sole factor in determining the prevalence of nervous breakdown. A study of the medical reports of the missionary societies working in China shows a far higher percentage of disablement from this cause in North China, where the air is keen and dry, than in Central China, where humid, sultry conditions prevail. In the latter case there is no stinging in the air, the cutaneous and splanchnic vessels are not stimulated to contraction, and this may save the cerebral vessels from overcongestion.

The indications, then, are to guard carefully the cerebral circulation, and to save the cortex from overfatigue. The head must be protected with a good helmet and the eyes with good sun glasses. Alcohol must be avoided when the sun is up. The brain must be given a good rest in the middle day. Healthy circulation in muscles and limbs must be promoted by taking sharp and vigorous exercise for a short period in the late afternoon, but *not* on the top of a long and exhausting day spent without a rest. After exercise the warm bath, great care being taken to avoid any splanchnic chill. The healthy action of the skin and the splendid relaxation that follows the right form of exercise, and the bath, is the surest preventive of cerebral congestion and its evil effects.

I have only touched on the physical side of the question. Intellectual, aesthetic, and emotional influences also play a part, as the bishop will know from his long experience among all types of Europeans working under conditions so widely different from their natural environment.—I am, etc.,

W. B. BILLINGHURST.

London, W.I, March 20th.

SIR,—The Bishop of Singapore's letter is very interesting, and I shall be glad to make a few observations which may be of use.

The whole subject of living a healthy life in the tropics bristles with difficulties, of course. A man or woman exiled from home and relatives and friends, and planted among strange people whose way of living and mode of thinking are totally dissimilar to his own, must "worry" to some extent, even if this be more or less subconscious. When this place of exile happens to be the tropics the smallest exertion, to many people, becomes distasteful. These people, however, take food just as though they were using it up in physical exertion. They feel the need of its stimulating qualities, and in the circumstances get "tropical liver." To meet the bishop's letter we will leave alcohol out of the question. Just as we can regulate a stomach in great measure by what is put into it, so we ought also to send from this country to the tropics the type of individual who is likely to succeed there. These, I think, will be found to be the dark-haired, dark skin, brown eye type (roughly) in preference to the light-haired or blond type. In any case, all who contemplate a lengthy stay in the tropics should also be of the phlegmatic type, and be free from cardiac and digestive troubles. Any familial insanity strain should be a bar.

A good deal can be learnt from the natives of a particular locality, within limits, and duly interpreted and applied scientifically by the white man. The Chinese custom of wearing thin black clothing is very sound, as it assists the pigment in his skin to stop the ultra-violet rays of the sun penetrating his body and injuring his nervous system. His clothing absorbs heat rays, but these are counteracted to a great extent by the looseness and thinness of the clothes, and by the fact that he has to exert himself physically to earn a living, and so perspires, and in this way creates a draught of air round his body. This carries away the noxious vapours given off by the skin. The native is sparing in his diet, and has less bodily poisons to deal with. One of the fittest men I have ever known was a ship's captain who had sailed east for twenty-five years and whose dinner in the evening was more often than not an apple and a glass of water. He was also an abstainer from alcohol and a non-smoker.

There can be no doubt that the direct rays of the tropical sun are very enervating, as anyone knows who has experienced them. One has only to observe the Chinese as they step out from the shade of one shop verandah to another a few yards distant in, say, Hong-Kong. For that short distance in the sun up goes a wide arm sleeve over their heads. On a hot day one sees hundreds of them walking along thus protecting their craniums from the sun. It would be well for white people to imitate them in the use of loose-fitting black clothes, covering them with thin white material for official and social wear, and khaki when on shikar. This would keep the distinction of native and European, and would reflect heat rays and absorb ultra-violet rays. It is possible that a material could be made, white on the outside and black inside, to obviate outer and inner clothing. Next to the skin, of course, also I have found it advisable to wear a thin woollen vest.

The matters I have mentioned are all of great importance, but they do not go far enough. The bishop very rightly asks why these cases of nervous exhaustion, amounting in some cases to insanity, are found in some tropical places and not in others. I think the reason is to be found in the presence or absence of "winds." Winds playing on the surface of the body stimulate the cutaneous circulation, and so obviate any stagnation in the general circulation; they stimulate the cutaneous nerves, and so reflexly the central nervous system; they evaporate perspiration, and carry off body heat, so making existence less burdensome; and they carry off waste products given off by the skin in the form of gases; they also excite the lungs to deeper breathing, and these, therefore, give off more excrementitious matter than when sitting languidly in a close, still atmosphere. In Singapore, in a dead still atmosphere, one feels the need of a ricksha to go the shortest journey; whereas on a much hotter day, but with a gentle breeze blowing, I have walked from the river front at Nanking to the Gouleau Tower and back without discomfort.

If absence of "winds"—that is, comparative air stagnation—has a very great deal to do with these tropical nervous cases, as I firmly believe it has, what is the remedy? Obviously, the ideal method would be to have frequent trips to some place where one could enjoy a breeze; in the exigencies of the civil and military services, as also in commerce, this, of course, is rarely feasible. The only other way is by efficient forced ventilation indoors, the use of a fan wielded by oneself out of doors (again taking a cue from the natives), and a certain amount of physical exercise each day. I have been in many places where fans and punkhas were used, but rarely where the ventilation was scientifically correct. It is not sufficient to cause a "draught" by merely causing a movement of vitiated, heated air; the whole of the air requires to be moved from the room and continually replaced by fresh air from outside (cooled by passing through wet muslin frames). I have not tried coloured glasses in the tropics, but I know of people who have used them with great benefit.—I am, etc.,

ANDREW S. McNEIL, L.R.C.P.S. Ed.

Liverpool, March 20th.

SIR,—The Bishop of Singapore draws attention to a question of great importance to European residents in certain tropical countries. He is perfectly correct in stating that many Europeans tend to become "nervy" in time.

The condition frequently came under my notice during a service of twenty years in the Uganda Protectorate, and was responsible for many, if not most, of the cases of invaliding. I am aware that Dr. Forbes in Kenya considered that it was due to a hitherto undescribed malaria parasite, the accounting for certain regrettable incidents between natives and Europeans. I do not think, however, that anyone was able to confirm his observations. As regards Uganda at least, I found all my cases were associated with a greater or less degree of atonic dyspepsia and dilated stomach, which produced a neurasthenic condition. In fact, no one cause can be assigned: it is due to a series of factors all tending to impoverish the nervous system. There is the unavoidable monotony of life in

remote stations, often isolated and without any of the great amenities of life; this, aggravated by indifferent food, tough African chicken or goat, rendered almost unpalatable by the well meaning intentions of a native cook, unappetizingly served, and needing pungent sauces to give it a flavour, and eaten to the accompaniment of a book propped up at the side—is it any wonder that digestions are ruined and there is a lack of proper assimilation? Hence the nerves are starved. The circle is then a vicious one, as this lack of nerve tone impairs further the digestive powers, hypochlorhydria is often present, and thus the vicious circle is maintained. If, in addition, the patient suffers from malaria or other disease he rapidly presents a picture of a neurasthenic. The progress is insidious, and unless treated promptly the despondent mental condition induced makes him wish to throw up his job or even to commit suicide, while he lacks self-control, everything irritates, and the irascible temper induced easily accounts for such outbursts as one has seen. It was my practice to watch my patients carefully for early symptoms and to persuade them to take the proverbial stitch in time. Such cases are quite unsuitable for the lonely sanatorium, even if healthy. My own advice to such was to go to the capital, mix more with their fellow men, visit the theatres, etc. It is the mental change they need more than the physical. Of course, if home leave was due that was much the best. Wherever one has much dealing with irritating natives, whose mental outlook is really that of children, the risk of this condition occurring is much greater, and it is a wise Government that insists on frequent home leave for its officials, as they return with minds freshened and enthusiasm renewed. I have noticed that if a man takes up a hobby keenly, no matter what it is, he scarcely suffers from the monotonous isolation and conditions of his station. If he has a wife also he escapes, as his feeding is looked after better.

I am no doubt unorthodox in this respect, but I am convinced that the constant taking of quinine as a so-called prophylactic, especially taken, as it so often is, before food, under the conditions I have described, is responsible for part of the deterioration of digestive powers, and when the atonic neurasthenic state arrives quinine is not only scarcely absorbed, but acts as an irritant. Of course, excess of alcohol and irregular living are injurious, but they, in my experience, hold a very small position among causal factors, and I am at one with the bishop in this. The remedy, therefore, is to treat cases early, and not to keep unsuitable men long under isolated and trying conditions. Frequent home leave is a paying business proposition where the tropics are concerned.—I am, etc.,

Liberton, Edinburgh, March 17th. R. VAN SOMEREN,
Colonial Medical Service (ret.).

COMMON SENSE IN RELATION TO DOUBTFUL TUBERCULOSIS.

SIR,—The correspondence on this subject has brought out what is indeed well known to sanatorium superintendents and others—namely, that there are sometimes "social consequences" of sojourn in sanatoriums which may be "disastrous" to patients. An ex-sanatorium patient may be ostracized and even persecuted. This is nearly always unjustified. The knowledge that tuberculosis is partly due to an infective organism and the fact that it has become a notifiable "infectious" disease has done harm as well as good. Still too often is pulmonary tuberculosis classed in the public mind amongst such infectious diseases as small-pox, scarlet fever, etc.; and the profession does not always dispel the errors of the half-knowledge leading to this wrong grouping. When one finds that an ex-sanatorium patient who may have had but the slightest symptoms, and who for weeks or months before discharge has had no sputum, is treated as a leper by relatives and friends or by those from whom he seeks lodging, then it is high time that the half-knowledge should be turned into full acquaintance with the facts. Massive doses in unhygienic surroundings to susceptible individuals (who are generally either infants or adults from countries where the tubercle bacillus has not become implanted ubiquitously) are necessary conditions for the production of disease. It is the

ex-sanatorium patient who is generally the safe person to live with; for even if he is still an open case he knows the simple precautions which it is necessary to take in order to obviate entirely his being a danger to others. He is an apostle of hygienic living, too. He loves fresh air, due rest periods, and he eschews the catarrh-monger.

Surely if these things are realized the "benefit of the doubt" would be to do as Dr. Mackey originally suggested, and place the individual in a well conducted sanatorium, which, as Dr. Weatherhead has said, is one of the last places where one would be likely to pick up tubercle bacilli. If a full understanding of the elements in the causation of tuberculosis were realized, then, too, no doctor would suggest the necessity for specially isolated rooms for suspects in sanatoriums.—I am, etc.,

Mundesley, Norfolk, March 23rd.

S. VERE PEARSON.

TESTS FOR DRUNKENNESS.

SIR,—In the report of the discussion by the Marylebone Division of the British Medical Association, which appeared in the JOURNAL of March 6th (p. 434), medical practitioners will find much information which will be of service to them in examining men charged with alcoholic intoxication while driving motor vehicles, instances of which are now so frequent.

There is one point, however, with regard to this subject which deserves more attention than seems to have been given to it, and that is the striking effect which alcohol has in diminishing the sense of danger.

"Inspiring bold John Barleycorn,
What dangers thou canst make us scorn!
Wi' tippenny we fear nae evil;
Wi' usquabae we'll face the devil!"

So we read in the immortal *Tam*. This effect too, it must be borne in mind, is produced by a smaller amount than is required to bring about cerebral changes which can be recognized by any known tests.

What amount of alcohol is required to lessen caution in a dangerous degree it is impossible to say, but it may well be that a very small amount is sufficient at some critical juncture to turn the wavering balance of the judgement from the side of safety to that of danger—a danger which ends in disaster.

The only conclusion, therefore, which one can come to is that no one who has recently partaken of alcohol should be allowed to drive a motor vehicle.—I am, etc.,

Driffield, E. Yorks, March 8th.

JOHN R. KEITH.

A CLINIC OF MANIPULATIVE SURGERY AND ARTHRITIS.

SIR,—I wish to make a preliminary announcement concerning a London clinic of manipulative surgery instituted in response to many requests from medical men and others who feel that some such movement is urgently needed to endeavour to place the subject upon a scientific basis. The clinic is primarily for the benefit of poorer patients in need of manipulative treatment, and the headquarters are at present at 59, Montagu Square, W.1. Treatment in the case of the necessitous poor will be gratuitous. The clinic is held at present on Tuesdays between the hours of 2 and 6 o'clock, and it is hoped, when its activities are in full swing, to arrange classes and demonstrations for practitioners and senior students, who are at all times welcome at the clinic. A scheme is also under consideration for the foundation of an institute for the scientific investigation and modern treatment of injuries and non-tuberculous diseases of joints, particularly the so-called rheumatoid arthritis. Concerning this a further announcement will be made in due course.—I am, etc.,

London, W.1, March 22nd.

A. G. TIMBRELL FISHER.

INSURANCE AGAINST ERRORS OF LOCUMTENENTS.

SIR,—The council of the Medical Defence Union has given careful consideration to the question of affording members of the Union protection when actions are brought against them in consequence of the acts of a locumtenent who is not himself a member of the Union.

Recognizing that a very considerable number of members

are anxious to obtain protection in this respect, even, if necessary, at the cost of an additional premium, the council has decided that in future it may, in its discretion, assume responsibility for any claim made upon a member in respect of the act or omission of any registered medical practitioner whilst temporarily employed as locumtenent for such member. In conferring this additional benefit of membership, the council has decided to require no extra payment beyond the ordinary annual subscription.—We are, etc.,

HERBERT F. WATERHOUSE,
President.

JAMES NEAL,
General Secretary.

Medical Defence Union,
43, Bedford Square, London, W.C.1.
March 23rd.

Obituary.

THE London School of Hygiene and Tropical Medicine has received by cable the distressing news that Dr. W. E. HAWORTH has been killed in a motor accident in Southern Rhodesia. No details are yet to hand. It was only in August last that Dr. Haworth, who was then 60 years of age, entered with enthusiasm upon research work in medical entomology undertaken on behalf of the school, and interesting reports have been received from Dr. Haworth showing with what energy and zeal he was throwing himself into the work. Not long before his last appointment Dr. Haworth was giving proof of his activity, remarkable for a man of his years, by scaling coconut palms at Dar-es-Salaam in the search for mosquito larvae. The result of his researches at that time was embodied in a paper published in the *Transactions of the Royal Society of Tropical Medicine and Hygiene*, which was regarded as an interesting and important contribution to the literature on the subject. Wallace Ellwood Haworth was the son of Robert Edmond Haworth of Christchurch, New Zealand. He studied at Edinburgh University; took his M.B. and C.M. in 1892 and his B.Sc. in Public Health in 1893. From 1896 to 1917 he was in private practice in Southern Rhodesia, and was afterwards on active service with the Rhodesian native regiment in Nyasaland, German East Africa, and Portuguese East Africa. He held various Government appointments between 1920 and 1924, and devoted much time to observations on the breeding of mosquitos in coconut palms. By Dr. Haworth's untimely death the school has sustained a serious loss in the ranks of its research workers, and much sympathy will be felt for his widow in her sad bereavement.

In the death, at the age of 59, of Sir DAVID EVANS, director of the Welsh National Memorial Association, which occurred on March 17th, the tuberculosis service in Wales has lost one of its ablest officers. When in 1911 Mr. David Davies and his sisters, the Misses Davies of Llandinam, decided upon their generous endowment of a national tuberculosis scheme as the first step towards a Welsh memorial to King Edward VII, they found in Sir David (then Mr.) Evans an adviser richly equipped to help the enterprise. With an intimate knowledge of the Principality and its people, he combined a large experience gained in the legal profession and an energy and initiative second to none. He threw himself into the new movement with vigour, and it may truly be said that Wales owes to his administrative ability, combined with the technical knowledge of Dr. Marcus Paterson, then medical director of the association, one of the finest systems of sanatorium treatment, hospital isolation, and area work yet devised for dealing with tuberculosis. As a member of the Consultative Council of the Ministry of Health in Wales, he was in close touch with preventive medicine; while, as the representative of the Memorial Association on the Board of Medicine of the Welsh National School of Medicine, he rendered valuable services at a time when the new school was gathering momentum on the creation of the clinical units. His lifelong interest in the Cardiff Royal Infirmary, and his valuable help in connexion with the linking up of its clinical staff with the School of Medicine, constitute still another debt owed to him by the medical profession.

Dr. DANIEL DE VERE HUNT, who died in Cardiff Royal Infirmary on March 5th as the result of an accident, received his medical education at Queen's College, Cork, and the Royal College of Surgeons, Ireland. He obtained the diplomas L.R.C.S.I. in 1874 and the L.R.C.P.Ed. and L.M. in 1882. He commenced practice in Cardiff about thirty-five years ago, after a previous residence in Oldham, and took a very active interest also in ambulance work. Dr. Hunt was appointed divisional surgeon to the Great Western Railway in April, 1908, chief ambulance corps surgeon to the Cardiff district in 1912, and staff officer for the Priory for Wales in 1919. During the war he raised four voluntary aid detachments, and acted as staff surgeon to the Cardiff Centre Priory for Wales; he was appointed an honorary associate of the Order of St. John of Jerusalem in 1921. He was a member of the British Medical Association.

Universities and Colleges.

VICTORIA UNIVERSITY OF MANCHESTER.

The following candidate has been approved at the examination indicated:

DIPLOMA IN PSYCHOLOGICAL MEDICINE (*Part I*).—R. B. F. McKail.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have passed in the subjects indicated:

SURGERY.—C. B. Ball, W. O. R. Fischer, W. H. D. Priest, F. Widdlake.
MEDICINE.—W. O. R. Fischer, B. Horwitz, E. J. Jones.
FORENSIC MEDICINE.—A. C. Hill, H. H. Lakin, I. Rivlin, P. H. Row, G. H. Weeber.
MIDWIFERY.—G. H. Bickmore, W. O. H. Evans, C. F. L. Hazard, A. C. Hill, W. Johnson, R. D. Mason, H. Rundstrom.

The diploma of the Society has been granted to Messrs. B. Horwitz, R. D. Mason, and G. H. Weeber.

UNIVERSITY OF ABERDEEN.

The following candidates have been approved at the examination indicated:

FINAL M.B., Ch.B.—J. Adam, Victoria
C. Emslie, C. E. Forster, Howie,
R. A. B. Jaffray, G. C. Kel Mackay,
Gladys M. E. Martin, W. C. A. Nicol,
A. C. Nicol, *E. A. Paterson, A. M. Ramsay, W. L. Ramsay,
*G. A. Ross, H. Sandler, A. Skinner, Mabel Stephen.
* Passed with distinction.

ANDERSON COLLEGE OF MEDICINE, GLASGOW.

Dr. S. SPENCE MEIGHAN, assistant surgeon, Glasgow Eye Infirmary, has been appointed to the chair of ophthalmic medicine and surgery, and Mr. William Rankin, surgeon to the Glasgow Royal Hospital for Sick Children, has been appointed to the chair of surgery.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

At the spring commencements in Hilary term, held on March 19th, the following degrees were among those conferred:

M.Ch.—T. E. Gordon, W. Taylor (*Ordinis Imperii Britannici Eques Commandator*).
M.B., B.Ch., B.A.C.—Boland, Mabel E. Brittain,
A. B. Brooks, Featley, R. G. Keays, G. G.
M'Farland, J. W. G. Maule, G. A. Miller,
Mary S. Miller, P. F. Palmer, Lucy E. R. Pigott, Margaret W. Pike,
J. V. Pincus, W. C. G. Potts, G. A. A. Powell, D. N. Power, E. Rakoff,
H. J. Roche, D. J. Roux, W. Russell, J. M. Selkon, W. C. Sloan,
C. L. Taylor, G. W. H. Townsend, G. A. Walmsey.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At a special business meeting of the College held on March 19th Dr. Robert James Rowlette, F.R.C.P.I., was elected King's Professor of Materia Medica and Pharmacy in the School of Physic in Ireland, Trinity College, Dublin.

The Services.

ROYAL NAVY MEDICAL CLUB.

The annual dinner of the Royal Navy Medical Club will be held this year at the Trocadero Restaurant, Piccadilly Circus, on Thursday, April 22nd, at 7.30 for 8 p.m. Members who wish to be present are asked to inform the Honorary Secretary, Royal Navy Medical Club, 68, Victoria Street, London, S.W.1, not later than seven clear days before that date.

NAVAL MEDICAL COMPASSIONATE FUND.

A MEETING of the subscribers of the fund to elect six directors will be held at the Medical Department of the Navy, 68, Victoria Street, S.W.1, at 11.30 a.m. on April 23rd.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons will rise for the Easter Recess on April 1st, and will reassemble on April 13th. This week it has debated the recent crisis in the League of Nations, and has taken the report stage of the Army and Navy Estimates and has discussed general policy on the Consolidated Fund Bill. On this bill the Liberal party proposed to initiate a debate on the Report of the Royal Commission on National Health Insurance.

At the request of the Central Midwives Board Dr. Fremantle has put down amendments to the Midwives and Maternity Bill, which awaits examination by a Standing Committee. One amendment proposes to institute an authorized badge for midwives. Another proposes to alter the provisions of the Act of 1922 by enjoining that (except in emergency) an unqualified person shall only attend a woman in childbirth under the direction and in the presence of a medical practitioner; further negotiation is possible on this point.

The Parliamentary Medical Committee, during its meeting at the House of Commons on March 17th, received three deputations. The first was a deputation from the Joint Council of Qualified Opticians regarding the proposed Opticians Bill for registration, concerning which the Medical Committee had already heard opinions from members of the British Medical Association. The opticians' deputation explained the bill and the relationship proposed with medical practitioners. The Medical Committee took no decision on the matter; opinions appearing to be divided. A deputation was also received from the British Medical Association about the Births and Deaths Registration Bill, which was to come before a Standing Committee of the House on March 23rd. The deputation included Dr. Bone, chairman of the Medico-Political and Parliamentary Committee, Mr. E. B. Turner, and Dr. Courtenay Lord. They suggested amendments to the bill. One proposed that the bill should state definitely that when a medical man was called in to see a body and suspected death from violence or poisoning it should be his duty, not to give a death certificate, but to notify the coroner. A further amendment suggested that the retention of a body more than seven days should be prohibited. The Parliamentary Medical Committee announced that Sir Richard Luce would introduce these amendments. A third deputation attended from the Society of Members of the Royal College of Surgeons. They spoke in support of their petition to the Privy Council, which asks for consideration of their claims along with the request of the Council of the College for a supplementary charter.

The Parliamentary Medical Committee will next meet on April 21st.

Coroners Bill.

The report stage of the Coroners Bill (referred to in a leading article this week at page 582) was set down in the House of Lords for March 25th. In Committee on this bill the House excepted the coronership of the City of London from a clause abolishing franchise coronerships. Lord Strachie proposed that coroners should be made to contribute to a pensions fund. The Lord Chancellor said the difficulty was that coroners were appointed at an advanced age. They were usually either experienced lawyers or experienced doctors who had practised and made a name. The average age at appointment of coroners was something like 50. It was quite impossible to form any superannuation fund by any reasonable yearly contributions from men appointed at the age of 50, and county councils would be left to fix the pension in making the appointment. Lord Strachie withdrew his amendment. On the motion of the Lord Chancellor another clause was modified to enable the Lord Chancellor, with the concurrence of the Secretary of State, to make rules for regulating the practice and procedure at or in connexion with post-mortem examinations as well as inquests. He said this was to enable rules to be made as to post-mortem examinations and the forms of certificate to be sent to the coroners, and matters of that kind. The amendment was accepted and the bill passed through committee.

Births and Deaths Registration Bill.

A Standing Committee of the House of Commons considered the Births and Deaths Registration Bill on March 23rd. Sir Kingsley Wood, at the opening of the debate, said that as a Coroners Bill was before Parliament the Committee would agree that the amendment of the law relating to coroners should be completed in that bill. He would accordingly move amendments deleting all references to coroners from the Births and Deaths Registration Bill. He had the authority of the Home Office for saying that the necessary amendments would be made in the Coroners Bill. Dr. Fremantle concurred in this. Sir Kingsley Wood resisted an amendment proposed by Mr. Looker which sought to enact that no burial should be permitted unless a certificate of death had been issued. Sir Kingsley Wood suggested that the bill went far enough. They should see how it

worked before considering more drastic proposals. The amendment was negative. In resisting a further amendment from Mr. Looker, Sir Kingsley Wood said that cases were frequent when in the distress following a death a funeral party arrived at the grave without the necessary documents. The Government proposed to meet such cases by allowing a written declaration to be made. The Committee should not assume that the majority of the population of England would attempt to dispose of bodies improperly. Mr. Greenwood thought that the bill was too loosely drafted on this point. Other members thought that burial after declaration might become the normal procedure. Sir Kingsley Wood promised that before the report stage he would see whether the proviso could be strengthened. On the motion of Dr. Fremantle "redundant" was then deleted from Clause 1. Several drafting amendments were made in the following clauses on the motion of Dr. Fremantle. One dealt with the proposal of the bill that a registrar might issue a certificate that he had received notice of death. The bill provided that he might do this "upon receiving written notice of the occurrence of a death accompanied by a medical certificate." The amendment made upon Dr. Fremantle's motion provided that the certificate might be issued "upon receiving written notice of the occurrence of a death in respect of which he has received a medical certificate." Dr. Fremantle then proposed to leave out "or Wales", so that the safeguards in regard to the transfer of a body from one country to another should not apply to transfer between England and Wales. "Or Wales" was deleted by a majority. Dr. Fremantle moved that seventy-two hours be substituted for forty-eight hours as the period within which the person effecting the disposal of the body must deliver to the registrar a formal notification of the date, place, and means of disposal of the body. On Clause 4 "Great Britain" was altered to "England" on the motion of Sir Kingsley Wood, who gave assurance that a coroner's certificate would not be needed for removal of a body from England for burial in Scotland unless an inquest had been ordered; otherwise the ordinary procedure enjoined in the bill would be followed. Sir Kingsley Wood said the removal of bodies from England to Scotland were very few during a year. At present the easiest way of getting rid of a body was to ship it out of the country, and for that reason the bill provided for safeguards regulating the removal of bodies out of England. He would ask the Secretary for Scotland to consider whether the clause could not be further amended to prevent inconvenience in the removal of bodies to Scotland. Dr. Fremantle proposed that notice of removal of a body out of England should be given, not to the coroner in whose district the death occurred, but to the coroner in whose district the body was lying. The amendment was accepted. On Clause 7, dealing with stillbirths, Sir Richard Luce asked whether the person in charge of the cemetery was to decide whether a child was stillborn. Sir Kingsley Wood said he would not be able to do so. In the case of a child which had nearly approached the age of 26 weeks, the limit provided in the bill, the sexton would doubtless err on the side of caution and demand a certificate of stillbirth. Sir K. Wood added that in his opinion the registration of stillbirths was one of the most valuable provisions of the bill. On the clause enjoining the delivery of every certificate of cause of death by the medical practitioner to the registrar, Dr. Fremantle moved that the certificate should be delivered "forthwith." Mr. Groves suggested a limit of twenty-four hours, and said that in the opinion of undertakers there was too much delay under the present law. Sir K. Wood preferred the word "forthwith," which would cover the case of the doctor who desired to consider whether he should give a certificate at all. Mr. Groves suggested a limit of forty-eight hours, and said he was confident that doctors in the country would not usually avail themselves of that latitude. Dr. Fremantle's amendment was adopted. Sir R. Luce moved an amendment declaring that the duty of transmitting the certificate to the registrar, which the bill imposed on the medical practitioner, should be "by post, free of expense to himself." Sir K. Wood said the Treasury would have to be consulted on the point. The certificate might be printed with a postage prepaid imprint, or the registrar might repay the postage to the doctor. Sir R. Luce's amendment was then withdrawn after he had pointed out that as secrecy was the intention of the bill the certificate could not be sent by halfpenny post.

Sir Richard Luce moved to add an amendment declaring that—

If the cause of death is unknown to the medical practitioner called upon to certify, or if he is of opinion that death has arisen from or been accelerated by any violence, directly or indirectly, or through neglect, or poison, or other unnatural cause, or has followed as an immediate sequence to the administration of an anaesthetic, he shall not grant any certificate of death, but shall forthwith report the circumstances to the coroner for the district in which the death has occurred.

He said that under the Act of 1874 the duty of a medical practitioner was to give a certificate. Many coroners had objected to doctors doing this in cases of accident or of death under an anaesthetic. The amendment suggested a method, which he thought best, that the doctor should inform the coroner of his doubts before giving the certificate. A second method would be to refuse the certificate and inform the relatives that they must inform the coroner or the police. A third method would be for the medical man to give the certificate and leave the registrar to inform the coroner. He thought the two latter methods not so good as the first. Sir Kingsley Wood said that those who had asked Sir R. Luce to put forward this clause had acted under a misapprehension. At present a doctor was under a common law obligation to inform the coroner of sudden deaths or suspicious deaths. In addition, he had a statutory duty to certify

the cause of death as he knew it whatever the circumstances. If both these duties were carried out there would be no need for the new clause. But he agreed that there had been misapprehension, and he would consult the Home Secretary before the report stage to see whether that Minister could consult coroners, as remarks made by some of them were largely responsible for current misconceptions on the subject. Dr. Davies said that in the district which he represented the arrangement suggested by Sir R. Luce had been in force for thirty years and had worked well.

Sir Richard Luce withdrew his amendment. Clause 6 was added to the bill, and the Committee adjourned till March 25th.

Economy Bill.

The Economy (Miscellaneous Provisions) Bill was read a second time in the House of Commons by 322 to 142 and was sent to a Committee of the whole House. Mr. Lloyd George, in criticizing the proposal to reduce the State contributions to National Health Insurance, said that in 1911 Unionist critics of the insurance scheme had declared that it offered too low benefits for the charge. The reply had been: "We have no doubt at all that as a result of a great system of health insurance with improving medical benefits, with the removal of the anxieties that oppress a sick workman when ill, and not able to maintain his household, there will be such an improvement in the health of the people that the benefits will be increased." All that had turned out to be quite true, and the Royal Commission on National Health Insurance had recommended further benefits. The House was now going back on that bargain. It was a mean way of making money to pluck feathers out of the pillow of a sick man. There would be no saving, as the money to be saved by Mr. Churchill would have to be provided for the sick out of the rates. Mr. Neville Chamberlain said the bill did not touch the surpluses accumulated under the first valuation, amounting to over £17,000,000, nor the surpluses disclosed or to be disclosed under the second valuation, amounting, including the carry forward, to £45,000,000. It did not touch the surplus accumulated between the second valuation and December 31st, 1925. It only slowed down as from this year the accumulation of further surpluses in the funds of the approved societies. Mr. Chamberlain further pointed out that when the original Act began to work it was found that 6s. was not enough for the cost of the doctors, and that cost went up to 11s. in one year. By an amending Act a new arrangement was made under which the cost of the doctors on the fund was raised from 6s. to 7s. The approved societies came to the State and the State paid the difference, and from that time up to 1922 the State had paid for the extra cost of the doctors, which was not provided for under the bargain or contract said to have been made in 1911. In this way the State had paid an extra contribution of no less than £19,000,000. Mr. Chamberlain also noted that in 1920, when Mr. Lloyd George was Premier, an Act was passed reducing the State contribution for insured women from one-fourth to two-ninths.

Mr. Lloyd George subsequently published a letter protesting against Mr. Chamberlain's comparison between this action in 1920 and the proposals in the Economy Bill.

Answering Mr. Ramsden, Mr. Chamberlain said he was not in a position to make a statement on the introduction of legislation to give effect to all or any of the recommendations of the Royal Commission on National Health Insurance.

Sir Kingsley Wood informed Sir Frederick Hall, on March 22nd, that on the closest estimate of which the conditions permitted the aggregate amount of the surpluses of approved societies at December 31st, 1925, was about £65,000,000. A society was only allowed to apply to the provision of additional benefits such parts of its surplus as were certified by the valuer to be disposable.

Royal-Naval Medical Service.

On a vote for £14,718,000 for wages of officers and men in the navy, Mr. Ammon said that there had been a considerable amount of criticism of the cost of the medical service in the navy. The First Lord had promised to look into the matter and he would be glad to know the result of his investigation. The complaint made was that, compared with other services, the charge per head was excessive. Had inquiries been made during the past year into the possibility of bringing the cost of the medical service within more reasonable limits? The First Lord should also give consideration to the suggestion that some economy could be effected by the pooling of the medical systems of the three services.

Mr. Bridgeman said that he understood Mr. Ammon's remark about medical services was that there should be more co-operation than existed at present. A great deal was being done in that direction. So far as hospitals were concerned they were gradually trying to use the same hospitals for the other services as well as the navy, sometimes abolishing the navy one and using the other and vice versa. In that way improvement was undoubtedly possible. He thought that there were many difficulties in the way of a common medical service for the three branches. He doubted very much if they could recruit a doctor if he did not know to which of the three services he might be sent.

Sir Gerald Hohler said that there was an opportunity to try to effect economies by combining the medical services at Chatham. The navy and the army were living together in the same town, and they had there the finest hospital in the country. The House agreed to the vote.

Smoke Abatement.

The Public Health (Smoke Abatement) Bill was read a second time in the House of Lords on March 23rd. Viscount Gage, Lord-in-Waiting, who moved the second reading, said that it was intended to follow the precedent of previous bills on the subject, to extend the scope of certain Acts and to encourage a more rigid enforcement of existing laws. The first clause gave power to take proceedings irrespective of the colour of the smoke. It also defined the expression "smoke" as including soot, ash, grit, and gritty particles. The bill also gave power to the local authorities to prescribe standards for the emission of smoke and to require that certain new buildings should be provided with arrangements for smokeless heating. The Minister of Health, he said, was anxious to reduce the volume of domestic smoke, which was responsible for at least 50 per cent. of the pollution of the atmosphere. Dwelling-houses would be exempt, because the installation of smokeless heating in them would not be compatible with the rapid and inexpensive provision of working-class houses, which were urgently needed. People were exceedingly conservative in their domestic habits, and no cheap form of smokeless fuel was at present available for domestic consumption. Under Clause 3, the Minister of Health, after a public inquiry and in consultation with the local authorities or other interests concerned, could make orders extending the list of noxious or offensive gases mentioned in Section 27 of the Alkali, etc., Works Regulations Act, 1906. Another clause exempted ships from the operation of the bill. The measure would not bring the complete disappearance of fogs, or of smoke which had such unpleasant and harmful effects, but the Minister of Health had gone as far as he could without adding to the cost of living and of production and manufacture.

Lord Newton said that the bill, if amended in Committee, might do much good. The waste from burning raw coal at present was enormous, but a much greater question was that the measure affected the general amenities of life.

Earl De La Warr asked for an inquiry with a view to terminating the metallurgical exemptions contained in the bill, and to forcing model by-laws on local authorities.

Viscount Novar said he was disappointed that the bill did not apply to Scotland.

The Marquess of Salisbury (Lord Privy Seal) said he agreed that the need for the bill was at least as great in Scotland as in England, but the law was not the same in the two countries. The Government had not overlooked the matter and intended to introduce a separate bill for Scotland.

The bill was read a second time.

Colonial Medical Service.—Mr. Amery, answering Mr. Forrest, said he had received a deputation from the British Medical Association on March 5th with regard to the conditions of employment of medical officers in the Colonial Service, more especially in East Africa. Correspondence with the Association continued.

Pensions.—Major Tryon announced that at the end of February 12,420 officers, 185 nurses, and 265,900 other ranks were in receipt of life pensions from the Ministry of Pensions. Recipients of 100 per cent. pensions numbered 1,220 officers, 56 nurses, and 16,200 other ranks. Of the life pensions to officers 64 per cent. were due to wounds and injuries, of those to nurses 17 per cent., and of those in other ranks 70 per cent. At the same date 2,542 nurses had received pensions for war service. Approximately 1,830,000 persons were on the books of the Pensions Ministry for issue of pensions or allowances. The rate of diminution was slowing down, and it was estimated that in 1926-27 the decrease would be 7 per cent. Answering Mr. Pielou, Major Tryon said that seven out of the twenty most highly paid posts at the Ministry of Pensions were held by non-service men. Since March, 1923, forty-eight medical officers, all of whom had served with the forces during the war, had been appointed to the establishment.

Psycho-analysis.—Captain Fairfax asked the Home Secretary, on March 22nd, on what grounds, and to what extent, he had sanctioned the practice of subjecting juvenile offenders to experimenters in psycho-analysis; and what precautions he was taking against any possibly dangerous results. Sir William Joynson-Hicks said he had not sanctioned any such experiments, nor had he any intention of doing so. The question whether any further provision should be made for the medical examination of young offenders—a very different matter—was being considered by the Committee now inquiring into the treatment of young offenders.

Grade A Milk.—In reply to Mr. A. Williams, Mr. Chamberlain said that approximately 200 herds were producing certified or Grade A (tuberculin tested) milk. The cows in milk in these herds and all the animals in contact with them were required by the Milk (Special Designations) Order to be submitted to the tuberculin test. Calves were not usually kept in contact with these cows, and consequently there was no necessity for young stock to be tested until introduced for milking purposes. If calves were kept in contact with the cows they must be tested at the time of the general tests of the herd. Young heifers and bulls which were not associated with the milking cows had not to be tested for tuberculosis.

An Operation on a Schoolboy.—On March 22nd Mr. Hayes asked the President of the Board of Education whether he was aware that a school medical officer of the Liverpool education authority performed a surgical operation on a scholar, aged 13, in school, without

the parents' permission, using ordinary non-surgical scissors, iodine gauze, common soap, stitching the wound with ordinary needle and sewing cotton, and that the boy died three days later; whether there had been any breach of the regulations, and, if so, to what extent; and whether, in view of the distressed circumstances of the parents, consideration was being given to the question of a generous grant from public funds. Sir J. Pennefather also asked a question on the same subject. Lord Eustace Percy replied that he was aware of the occurrence, which he deeply deplored. At the coroner's inquest the jury, after hearing the medical evidence, found that the boy's death was due to septicaemia from a wound on the finger and was in no way connected with the operation. The performance of this operation appeared to have been a contravention of the local authority's instructions to their school medical officers and of the practice of the school medical service. Mr. Hayes asked how far the responsibility of the local education authority went in respect of the operation performed on this child during the time that he was under the authority's control. Lord Eustace Percy replied that he did not know whether Mr. Hayes was referring to a legal or a moral responsibility. He could not give a legal opinion on the matter. Mr. Hayes asked whether, if there was no legal responsibility, or even if there was, it would not be handsomer that this matter should be dealt with by an *ex gratia* grant. Lord Eustace Percy said that he had no power to make any grant. That was a matter for the local authority, who, he was sure, were impressed with its importance.

Open Dustcarts.—In reply to Mr. Campbell, Sir Kingsley Wood said the Minister of Health did not know how many local authorities now employed open dustcarts. The Minister had no authority to make the use of automatic closing dustcarts obligatory on local authorities, but local authorities were increasingly making use of improved vehicles. Colonel Applin asked whether the Minister would take steps to compel the local authorities to pass by-laws that their dustcarts were to have air-tight covers. Sir Kingsley Wood said the Minister had no such power, and there was also the question of cost. Local authorities had power to deal with the matter.

Baker's Dermatitis.—On March 23rd Sir Kingsley Wood, replying to Mr. Harland, said the Minister of Health was aware of the prevalence in this country of the disease known as baker's itch. This disease, which was not notifiable, was investigated by the medical department of the Ministry of Health in 1922, and these investigations did not disclose any reasons why it should be made notifiable. The Ministry had no evidence to show that the disease was due to the use of chemicals in the bleaching of flour. Sir Frederick Hall asked whether the disease was infectious or contagious. No answer was returned.

Chemicals in Flour.—On the same day Sir Kingsley Wood informed Mr. Harland that the Bread Acts made it an offence to put into flour any ingredient or mixture not the real and genuine produce of the corn or grain. It was doubtful, however, whether this provision would be held to prohibit the use of gases for bleaching purposes. A departmental committee was at present considering whether it was desirable in the interests of public health that the treatment of flour with chemical substances should be prohibited or restricted.

Small-pox.—On March 23rd Mr. Groves asked the Minister of Health whether the incidence of small-pox had increased or decreased since the operation of the present regulations affecting exemption from vaccination. Sir Kingsley Wood replied that it was presumed that the hon. member was referring to the Order issued by the Minister of Health's predecessor (Mr. Wheatley), which had the effect of reversing an Order issued by him on July 20th, 1923, and of reinserting the form of statutory declaration of conscientious objection in the notice of requirement of vaccination handed to the parent or guardian when the birth of a child was registered. The Order of the former Minister of Health came into force on October 1st, 1924, and since that date the incidence of small-pox had considerably increased. Mr. Groves, in a supplementary question, asked whether it were not true that since the number of exemptions had increased small-pox had diminished, and whether the Minister would not change the law to provide that people should be vaccinated only if they desired it.

V.A.D.—Sir L. Worthington-Evans, Minister of War, stated, on March 23rd, that as the Voluntary Aid Detachment personnel would be employed principally in general hospitals in the event of war, it was considered that they derived more useful experience from the training which they received in military hospitals than it would be possible to obtain by training with Territorial divisions.

Arsenic in Apples.—On March 23rd the Minister of Health stated that he had received representations from the Surbiton District Council about fruit exposed for sale and found to contain arsenic. The present Imported Food Regulations enabled port and riparian sanitary authorities to seize and destroy any imported food which was unfit for human consumption, and he did not think that it would be practicable to strengthen these regulations in any way short of imposing an absolute prohibition on the importation of apples, a measure which would not, in his view, be justified in the present circumstances. He was not aware of any case in which an excessive quantity of arsenic had been found on home or empire grown apples.

Asylum Officers.—In the House of Commons, on March 23rd, Mr. Taylor presented a bill to amend the Asylum Officers Superannuation Act, 1909, and it was read the first time.

Medical News.

At the annual general meeting of the governors of the National Hospital for the Paralysed and Epileptic, Queen Square, held on March 23rd, it was announced that through a supplementary Royal Charter the name of the institution will be changed to "The National Hospital, Queen Square, for the relief and cure of diseases of the nervous system, including paralysis and epilepsy." This step has been taken because the present title leads to the belief that the hospital is exclusively for paralysed and epileptic people. Moreover, patients suffering from other nervous diseases are deterred from coming owing to the fear associated with epilepsy, although actually only a small percentage of the patients are epileptic. In addition, people are inclined to gather from the old title that the hospital is an institution for incurables. The majority of the cases admitted are upon the recommendation of members of the medical profession, to whom the hospital is already widely known either as "The National Hospital" or "Queen Square Hospital."

The third annual congress of the Incorporated Association of Hospital Officers will be held on Friday, April 16th, at the Central Hall, Westminster. It will be opened at 10.30 by the president, Sir Arthur Stanley, G.B.E., and a paper will be read by Miss R. E. Derbyshire, Matron of University College Hospital, on the nursing requirements of a modern hospital. In the afternoon Mr. E. W. Morris, C.B.E., house governor of the London Hospital, will open a discussion on the geographical distribution of hospitals in relation to community requirements. At a dinner to be held in the evening at the Holborn Restaurant the Earl of Arran will be the chief guest. Full particulars can be obtained from the Secretary, 28, Bedford Square, W.C.1.

The Fellowship of Medicine announces that on March 31st, at 2 p.m., a demonstration in clinical surgery will be given by Mr. A. Tudor Edwards at the Westminster Hospital general course. On April 15th a similar demonstration will be given by Mr. W. E. Tanner at the Prince of Wales's General Hospital, Tottenham. On March 30th and April 1st Dr. Low and Dr. Manson-Bahr will give lecture demonstrations, illustrated by cases, at the London School of Hygiene and Tropical Medicine, at 2 p.m. A two weeks' clinical course will start at St. Peter's Hospital on April 19th, and a series of four lecture demonstrations on treatment by electrotherapy will be given by Dr. C. B. Heald, at the Royal Free Hospital, at 5.15 p.m., each Wednesday, beginning on April 14th. A special all-day course in proctology will be held at St. Mark's Hospital from April 19th to 24th, and a course in general medicine, surgery, and the specialties at the Bollingbroke Hospital, for two weeks starting April 19th. Copies of all syllabuses and of the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

A SPECIAL course of lectures and demonstrations will be delivered at the Ancoats Hospital, Manchester, on Thursday afternoons, commencing April 8th, when Dr. Langley will give the first of a series of three on diabetes in general practice. On April 23th, May 6th and 9th Mr. McEvedy and Dr. Twining will deal with the surgical dyspepsias. Tea will be served at 3.45 p.m. and the lectures will commence at 4.15.

A BUSINESS meeting at which it is proposed formally to inaugurate the Association of Special Libraries and Information Bureaux will be held at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 2.30 p.m., on Monday, March 29th. All interested are invited to attend. The association (to which several references have been made in our columns) is being formed to facilitate the co-ordination and systematic use of sources of information in science, industry, commerce, and public affairs generally; when fully developed it will function as a clearing-house for those wishing to get into touch with specialized knowledge.

APPLICATIONS for the Rose Research Fellowship in Lymphadenoma, value £600 per annum, must be sent in by April 21st to the Professor of Pathology, St. Bartholomew's Hospital, from whom further information may be obtained. The research must be carried out at St. Bartholomew's Hospital under the direction of the Professor of Pathology. The fellowship may be tenable under annual re-election for four years.

A SPECIAL two weeks' post-graduate orthopaedic course will be held at the Royal National Orthopaedic Hospital from April 12th to 24th. Lecture demonstrations will be given at 11 a.m. each day by the staff, and members of the course are invited to attend the practice of the hospital, including operations before the lecture demonstrations, and the out-patient department in the afternoons. The fee for the course is two guineas, and applications should be sent in by April 7th to

the secretary of the hospital, 234, Great Portland Street, W.1, or to the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE annual meeting and festival dinner of the Irish Medical Schools' and Graduates' Association was held at the Piccadilly Hotel on March 17th, with Surgeon Vice-Admiral Sir Joseph Chambers, K.C.B., Medical Director-General R.N., in the chair, and Sir Michael O'Dwyer as the guest of the evening. The association, which was founded in 1878, has for its object the support of efforts to improve the status of the profession, with especial regard to medical practitioners holding Irish degrees or diplomas. It promotes social intercourse among those who have studied at an Irish school of medicine, and an autumn meeting and dinner is also held in London. The annual subscription is 5s., and applications for membership should be addressed to Dr. F. R. Holmes, 11, Lancaster Road, South Hampstead, N.W.3.

A COMPLIMENTARY dinner was given in honour of Dr. James Thomson, on March 12th, in recognition of his completion of forty-six years as a medical practitioner in Irvine, Ayrshire. The guests included Professor Glaister of Glasgow University, and Dr. Chalmers, who recently resigned the position of chief medical officer for Glasgow. During the evening Dr. Thomson was presented with a diamond ring, and his wife with a silver tea service; his daughter, Dr. Isabel Thomson, who is in partnership with him, received a watch.

At a meeting of Jewish members of the medical profession, held in London on March 14th, it was decided to form a medical branch of the society "Friends of the Hebrew University of Jerusalem." Sir Philip Hartog, president of the society, emphasized the great importance of the research work now in progress in the biochemical and microbiological institutes of the university in Jerusalem. Dr. M. D. Eder stated that the first institute opened at the university had been for medical research, with special reference to the investigation of serological, hygienic, and parasitological problems in Palestine and the neighbouring countries. Post-graduate study for medical practitioners was also being organized. The chairman of the medical branch is Dr. A. H. Levy and the secretary Dr. M. Sourasky.

THE Royal College of Physicians of London will be closed from Friday, April 2nd, to Wednesday, April 7th, both days inclusive.

DR. C. W. DEAN, on the occasion of his appointment as consulting surgeon to the Royal Lancaster Infirmary after forty-one years' service at the institution, has been presented by the general committee, the medical committee, the matron, and staff, with a silver salver in appreciation of his long and devoted voluntary service.

DR. ROBERT A. LYSTER, county medical officer of health for Hampshire, has been elected president of the Association of County Medical Officers.

DR. JOHN GRIFFITHS, J.P., of Llandrindod Wells has been appointed sheriff for Radnorshire.

THE *Journal of Physiology* will be conducted in future by the Physiological Society, which has appointed an editorial committee of four. The change has been rendered necessary by the lamented death of Professor J. N. Langley, who had been responsible for editing this very valuable periodical.

THE League of Red Cross Societies, the office of which is at 2, Avenue Velasquez, Paris, has published a calendar for 1926 illustrated with reproductions of posters designed by the Red Cross societies of various nations, and the prize poster in the international competition organized by the League.

THE sixth annual congress known as the Journées médicales de Bruxelles will be held at Brussels from June 26th to 30th.

It is announced by the Great Western Railway Company that on and after April 1st "certified" milk alone will be used on the restaurant cars attached to all the express trains to and from Paddington.

THE Oxford University Press announces for early publication an illustrated monograph by Dr. Jamieson B. Hurry, entitled "Imhotep, the Vizier and Physician to King Zoser and afterwards the Egyptian God of Medicine."

DURING the period September 13th to November 7th, 1925, 2,577 cases of plague occurred in Java, all of which were fatal.

THE following officers have been elected in the International Society for Combating Tuberculosis and Cancer for the year 1926: Professor Charles Richet, president of honour; Dr. Loir, president; Professor Rappin, Dr. Bailler, and Dr. Joseph Thomas, vice-presidents; and Dr. Simionescu, general secretary. The monthly meetings will be held in the Hôtel du Dispensaire Marie de Roumanie, 17, Square de Messine, Paris, on the fourth Friday of each month.

THIRTY-THREE cases of typhoid fever, of which three were fatal, have been traced by the Michigan State Health Department to a woman who assisted in serving a church dinner.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

INCOME TAX.

Succession: Appointments not Retained.

"E. B." writes: H. and B. were assessed under Schedule D as partners, to include in one sum the salaries of all appointments. H. retired and B. took W. into partnership, but the new firm did not obtain two of the appointments previously held by H. Can B. and W. deduct the value of these appointments from each year's takings?

* * The case of Whelan v. Henning does not govern these facts, as the judges expressly declined to say that the rule there laid down would be applicable to the assessment of profits from a trade or profession. We are clear that the salaries of specific offices are in strict law assessable separately and not under Schedule D, and that therefore B. and W. are entitled to exclude the earnings of such appointments from the Schedule D average. But some caution is advisable because if they hold other appointments they may find themselves in a difficulty in obtaining the allowance of expenses referable thereto—in fact, that difficulty is the origin of the pressure brought to bear by the medical profession for the inclusion of salaries, etc., in the general Schedule D assessment. An alternative which "E. B." may like to consider is to accept the assessment, and if at the end of the new firm's first year he finds that the profits have fallen short of the sum assessed by reason of some specific cause—that is, the discontinuance of the appointments in question—he can claim to have the amount of the assessment reduced to the actual profits of the year of assessment.

LETTERS, NOTES, ETC.

ANOTHER DISEASE DUE TO FASHION.

DR. H. W. BARBER (London, W.) writes: With regard to the note under the above title by "C. K." in your issue of March 20th (p. 554), the condition to which your correspondent doubtless refers is seborrhoeic dermatitis, which, as he suggests, is particularly likely to spread downwards from the scalp in women with seborrhoeic scalps whose coiffure is so arranged that pads of hair completely cover the ears. The modern closely fitting hat is certainly an aggravating cause. The patients invariably have seborrhoea of the scalp, and a heavy infection with the "bottle bacillus" and staphylococci. The hair-pads and the closely fitting hat act as fomentations, and encourage the active growth of the micro-organisms responsible, providing for them exactly the conditions they require—namely, warmth, moisture, accumulation of the abnormally acid excretions of the sebaceous and sweat glands, and absence of light and air. Decomposition of the secretions takes place with secondary eczematization, producing the "denn'd moist unpleasant" surface referred to.

ESTIMATION OF SUGAR.

DR. J. BARKER SMITH (101, Holmdene Avenue, S.E.24) writes: I have received a courteous letter from Dr. John Livingston of Barrow-in-Furness with respect to my using the term "my char test." He writes: "I thought it was mine." He informs me that he described a char test in the **BRITISH MEDICAL JOURNAL** of May 6th, 1922. Dr. Livingston

has no doubt discovered the char test independently of myself; but I described a char test in the *Medical Press* of November 3rd, 1920, in an article on the silica spoon in the surgery. What Dr. Livingston, I think, has not described is the adhesive quality of the sugar char of one droplet of urine evaporated gently to an extract, and that extract strongly charred, plunged into water, and rubbed with the soft fingertip. The residue char of sugar remains and is in ratio to quantity of sugar. As I said, a fraction of a milligram of sugar affords evidence of its presence. There is yet another important feature to be noted both in Dr. Livingston's char test and my own—namely, that urine of medium specific gravity containing on an average three or more per thousand of sugar is often associated with eczema, boils, nettle rash, etc., and the patients must be treated as potential diabetics with respect to starch and sugar. I should be pleased to send any reader a reprint of an article on this relation of this small amount of sugar in the urine which the char test reveals and which has been passed over by other tests. The same aspect applies to the blood sugar and eczema, as we see in the work of Dr. H. Haldin-Davis and Dr. L. Wills, published in the *British Journal of Dermatology and Syphilis*, August-September, 1925.

SOMATIC ORIGIN OF MALIGNANT DISEASE.

IN the course of a letter received a few weeks ago Dr. HERNAMAN-JOHNSON (London, W.), referring to a paper by Mr. C. R. Crowther on the somatic origin of MEDICAL JOURNAL, January 23rd, p. 1, if the body could be induced to ignore naut growth it would remain harr might conceivably induce this attitude of passivity—receives some support from certain experiments conducted by Dr. J. A. Hadfield at the Royal Naval Hospital, Haslar, in 1917. A subject was discovered so sensitive to hypnotic suggestion that blisters could be raised on him at will. With the consent and co-operation of the patient, experiments were performed with burning cigarette ends. It was found that a suggestion that there should be no pain resulted in an entire lack of reaction. The small portion of tissue actually destroyed came away as an aseptic slough, and the area healed in a few days without pain or discomfort. One could well believe that were such a patient the subject of cancer, the growth might be favourably affected by suggestion. In the above case we have a definite example of an irritant being rendered harmless by causing the body to ignore its presence, but apparently something more is needed than paralysis of sensory nerves if the spread of a cancer is to be stopped. I have recently had under my care a patient with rodent ulcer of the nose who, being also a sufferer from severe trigeminal neuralgia, had been successfully treated by alcohol injections. The anaesthetic area included one side of the nose: the rodent ulcer extended about half an inch on either side of the mid-line. It was decided to treat it by x rays. A preliminary test by an erythema dose of ultra-violet light showed no redness in the anaesthetized side of the nose. Nevertheless, under x rays healing proceeded equally on both sides, and was complete in about six weeks. Some months later the disease recurred, and again attacked both sides of the nose to an equal extent, the hemianaesthesia being still maintained. This clinical experiment would seem to show that both the healing of a cancer under x rays and the direction of its spread are—or, at any rate, can sometimes be—-independent of the functioning of the nerves of sensation. Even after the blocking of the sensory nerves supplying a part, this part retains its organic unity with the body as a whole. It is still, if I may use the expression, represented in the somatic consciousness, and I fear there is no way of putting Dr. Crowther's theories to the test of practice unless perhaps, by the lucky chance of finding a superficial cancer in a subject specially susceptible to hypnotic suggestion.

ANTIMONY IN EYE DISEASE.

DR. F. G. CAWSTON (Durban) writes: In the English edition of E. Merck's annual report for 1926, among reviews of articles appearing in the **BRITISH MEDICAL JOURNAL** and elsewhere, I notice that I am said to recommend "antimony (even in the form of ointment)" in tuberculous affections of the eyes. I do not see how any statement that I have made can be thus interpreted, and wish to dissociate myself from the use of antimony (either in solution or in ointment) in eye conditions of any kind.

ERRATUM.

MR. A. LEYLAND ROBINSON (Liverpool) writes to correct a slip in the typewritten report of the proceedings of the North of England Obstetrical and Gynaecological Society, published in our issue of March 13th (p. 483), where it was stated that a fibromyoma would be called a "dermoid" by some pathologists. The word should be "desmoid."

MESSRS. H. K. LEWIS and Co. have this month issued from their second-hand department two catalogues—one of early scientific works and biographies and the other of early medical works. Both catalogues are noteworthy for the number of interesting and important books and for the very reasonable prices. The catalogues are sent gratis and post free to any address.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 47, 48, 49, 52, and 53 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 103.

Lumleian Lectures ON ENDOCARDITIS.

BY

SIR THOMAS HORDER, Bt., K.C.V.O., M.D.,
PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

LECTURE I.*

My first and pleasing duty is to thank you, Sir, and the Censors of the College, for the honour of my appointment to the post of Lumleian lecturer. The gratification which I feel is tempered by humility when I recollect the long line of distinguished Fellows who have held this lectureship, a line which includes the illustrious name of Harvey. A man of my temperament must needs be appalled by such knowledge, and though my mind is thrilled by the thought that the subject which I have chosen for these lectures is not distinctly related to matters which the greatest of our Fellows illumined by the light of his genius, I tremble at another thought—my incapacity to prove myself worthy of your choice. I shall be satisfied if a few of my audience, generously disposed, may feel helped by reconsideration of old facts by a frank effort to discriminate between what we do and what we do not know, and by the exercise of some care in suggesting how the present gaps in our knowledge may perhaps be filled, whether by clinical observations or by laboratory research. I shall resist the vanity of trying to say all that can be said on so large a subject, rather contenting myself by selecting certain features which overlap with my personal experience and reflections.

CARDITIS.

It may be advanced that in these days, when more exact knowledge of the inflammatory changes taking place in the heart as the result of rheumatic infection has led us to the realization that the lesion produced is a pancarditis rather than an endo-, peri-, or myo-carditis, the subject of endocarditis has become one of secondary importance. But given this concept of the effect of the rheumatic virus upon the heart, there has arisen, *pari passu* with its recognition, a growing interest in another type of heart infection in which, as is generally admitted, the brunt of the invasion and of the interaction between the infecting agent and the tissues certainly comes upon the endocardium—I refer to that group of infections which is for the nonce termed "bacterial." Of the growing importance of this type of endocarditis, which, but for the objection of adding one more name to a nomenclature already overburdened, might justly be called, in contradistinction to the rheumatic type, "endocarditis vera," we are all fully aware. I shall ask no indulgence for making it the main purpose of these lectures, nor for bearing it constantly in mind when dealing with other types of endocarditis, with one and all of which it has important relations.

I know of no classification of cases of endocarditis which is scientific, and therefore none that is helpful. Nor do I propose to offer one. If it be true that to have overcome the desire to classify is to have attained a little wisdom, then in this matter I have attained a little. A mere recital of the known infecting agents causing a morbid condition is not a classification, and in the case of endocarditis such a recital must perforce at present find the cause of the majority of cases lacking. I propose to proceed without a classification. I shall deal first with endocarditis as it results from rheumatic and syphilitic infection; I shall then consider the influence upon the endocardium of certain factors which are not, so far as we can judge, microbial; I shall follow this by a statement of our present knowledge of so-called "bacterial" infections; and I shall conclude by considerations of pathogenesis, prognosis, and treatment.

It was in the course of his Lumleian Lectures in the

* Delivered before the Royal College of Physicians, London, on March 23rd.

year 1894 that Sturges preached the doctrine of rheumatic carditis. Sturges's subject was "Heart inflammation in children," and he laid emphasis upon the fact that rheumatic heart affections in children were almost always both endocardial and pericardial. Although he noted the frequency with which the myocardium was also involved, he thought this occurred as the result of the pericardium having become adherent. This idea was probably a survival of the teaching current before this time, and indeed still prevalent at the time of Sturges's lectures. In Fagge and Pye-Smith's excellent textbook, in the edition appearing three years prior to Sturges's reference, occur the words: "there is no true carditis as there is no true inflammation of the brain. The inflammations of the heart do not directly concern the muscle but the covering and the lining membranes." When this was written careful histological examination of the myocardium in rheumatism had not been undertaken, and, I might add, encephalitis was not prevalent.

It is significant of the slowness with which ideas, however lucidly stated and however logically supported, gain permanent and practical acceptance in medicine that the doctrine so ably advanced by Sturges thirty-two years ago still requires, and receives, reiteration to-day. The growing conviction of clinicians that the heart was seriously involved as a whole, and from the first, in most severe cases of acute rheumatism, coincided with more critical investigation into the state of the heart wall in fatal cases; the discovery by Aschoff of the nodes which bear his name, and the confirmation of these and other changes by many histologists, put this conception of the unity of the cardiac inflammation in this disease upon a firm basis.

FREQUENCY OF CARDITIS IN RHEUMATISM.

Norman Moore, the Lumleian lecturer in 1909, when treating of "Rheumatic fever and valvular disease," advanced the view that the endocarditis of acute rheumatism was the "central condition in the disease." According to Norman Moore, "endocarditis is always present" in acute rheumatism. "The conclusion to which I wish to attain," he says, "is that every case of rheumatic fever, whether the pains in the joints are slight or severe, is a case of endocarditis, and that the condition of the endocardium is not to be regarded as a frequent complication but as the essential and invariable feature of the disease." Again, "If no evidence of endocarditis is to be found throughout an illness of which a symptom is arthritic pain, then that illness is not rheumatic fever, and the arthritis has some other cause." According to this view, the various peripheral expressions of the rheumatic infection, such as arthritis, the cerebral symptoms, the lesions in the skin and subcutaneous tissues, etc., are secondary to the heart affection. Whether he considered the mechanism by which these peripheral symptoms arose to be by a process of embolism or no Norman Moore did not say, but quite recently Krogus has taken this view, considering the symptoms both in acute rheumatism and in gonorrhoeal rheumatism to be metastatic in nature. The alternative conception, of a virus which invades the blood stream and exercises a special affinity for heart muscle, serous membrane, subcutaneous tissue, skin, and certain parts of the brain, so that more or fewer of these structures are involved structurally and functionally at the same time, seems rather more probable in the case of acute rheumatism.

Be the mechanism of the infection what it may, we have become satisfied concerning two points in relation to heart affections incident upon acute rheumatism: (1) that there is involvement of the heart in so great a proportion of the cases that it is wise to assume that it may be involved in all, and this even in the absence of any direct evidence by physical signs; (2) that the inflammation, especially in children, is of the nature of a carditis.

Carey Coombs complains that the subject of rheumatic heart disease is still divided up in even the most recent textbooks under all sorts of headings, and is therefore only dealt with "in scraps" rather than as an entity possessing a specific cause and presenting a clear clinical and pathological picture. This complaint seems reasonable, and the great importance of the matter justifies the

strenuous and repeated efforts of this author, as also those of Poynton, an earlier worker along similar lines, to get recognition of the facts as we now know them.

Of the other relations existing between acute rheumatism and endocarditis there is little or nothing to add to the facts as established many years ago. It is a little humiliating, for example, to read again the conclusions drawn by Church just forty years ago from his examination of 700 cases of the disease, an analysis which is still quoted in the manuals. True, his estimate that only one-half of the patients affected had some heart affection in their first attack has been considered too low, as seen by my reference to the views of his colleague Norman Moore; but Church's other conclusions have received confirmation down to the present day. For example, he said that the heart, when affected, is usually implicated during the first week of the attack; that the liability to cardiac involvement diminished with age; that no system of treatment, whether by drugs or otherwise, had until then been shown to influence the tendency to endocarditis in acute rheumatism; that relief from pain and fever occurred four or five days sooner in patients treated by salicylates than in those not so treated. It is doubtful if an analysis of the last 700 consecutive cases of acute rheumatism at the same hospital would lead to any different conclusions. Some things, however, which mere statistics could not convey, would, I think, strike the thoughtful investigator, if he took the trouble to study the individual records rather than merely to catalogue the main results.

GROWING INFREQUENCY OF RHEUMATIC FEVER.

There seems little doubt that cases of severe acute endocarditis during the first attack of the disease are less common than formerly. Further, and perhaps explaining the fact, rheumatic fever in the severe form which was so common even twenty-five years ago is not at all a common disease to-day. Is it not rather uncommon to see a young man, either in hospital or in private practice, presenting the picture of severe rheumatic fever? Yet such cases were an almost daily experience a generation ago. The hyperpyrexial form of the disease, and cases in which cerebral symptoms were a striking feature, seem entirely to have disappeared. Church, in the analysis just quoted, refers to the fact that already both pericarditis and lung complications had even at that time become much less frequent, and he adds with caution that it remained to be proved whether this was due to salicylate treatment or to other causes. After forty years I fear that we must add that we still do not know. May it not have been even then due to some change in the interaction between the virus and the tissues resulting from a change in the virulence of the infecting agent; or to some change in the resistance of the tissues infected? And may not the continued tendency, since Church's analysis was made, for pericarditis, and especially pericarditis with liquid effusion, to become less common, together with the lessened severity of the cases of acute endocarditis, and of rheumatic fever generally, be expressions of one or both of these same changes?

Following the line of thought introduced by Swift, who refers to two distinct types of response on the part of the tissues to infection by rheumatic fever—the proliferative and the exudative—we should say that the facts just mentioned suggest that exudative changes have become less common, whereas proliferative changes have remained as frequent as before, or have perhaps tended to increase in frequency. I shall refer again later to the relative infrequency of a first attack of acute rheumatic endocarditis in young adults. The possibility of a more complete resolution taking place in a valvulitis at this age, provided no further infection takes place, than in children, in whom the valve cusps are exceedingly thin and delicate, must not be overlooked.

But with this change in the character of the disease we call acute rheumatism or rheumatic fever, so that its more severe forms and the coincident forms of acute endocarditis and pericardial effusion have become much less common, there has probably occurred an increased frequency of the subacute and chronic forms of the infection, together with subacute and chronic endocarditis. I have not the benefit

of a large experience at a children's hospital, yet I gather that this statement applies equally to children as to adults. It is constantly noted by those who see many ill children that rheumatic heart disease frequently arises in the absence of arthritic signs or indeed of any signs other than those indicative of the carditis. Although this fact was well known to physicians forty years ago, the number of cases of rheumatic heart disease found in children who present no other feature seems now to bear a larger percentage to the whole than formerly.

RESIDUAL VALVE CHANGES.

Let me turn now to a consideration of the types of endocardial lesions which result from rheumatic infection, whether acute, subacute, or chronic. In the first place, let me trace the course of a mitral endocarditis set up during an attack of rheumatic fever as closely as the known facts will allow. Since we must regard the inflammation as being essentially a valvulitis—a point emphasized by Swift in his recent studies—it is difficult to see how complete resolution can take place in so delicate a structure once it has been inflamed in the particular manner we know to be characteristic of rheumatism. It is probable, therefore, that few if any cases escape some degree of resultant injury. It is also probable that the conservative estimates of the earlier observers, such as Church, relative to the frequency of involvement of the heart valves in rheumatism, and also of the proportion of complete recoveries, are explained by the fact that the estimates were made at too short a period of observation after the attack. It was known that the systolic bruit so frequently present during the attack not infrequently disappeared for a time, and then reappeared; but it is likely that many cases, and especially hospital cases—upon which, almost entirely, statistics are based—were registered as being free from valve mischief during this very interval when there were no signs of heart disease. Kemp, as the result of a careful analysis of cases of acute rheumatism in the Radcliffe Infirmary, concludes that these older estimates of the incidence of heart affections, and of subsequent damage, were correct. He also concludes that much that was termed endocarditis in acute rheumatism was really myocarditis, and largely recoverable.

What were the recognized results of the valvulitis caused by acute rheumatism other than the hypothetical recoveries? They were three. (1) Cicatrization takes place, leaving the valve cusps deformed and shrunken, but eventually settling down into permanent shape and remaining so for a long time, it may be many years, until some other factors come into play to disturb the compensating mechanism in the heart. To this condition the term "mitral incompetence" was given. (2) Further and frequent attacks of rheumatic infection may enhance the damage and increase the valvular defect. The resultant state of the mitral orifice imposes more difficulty upon the circulation, embarrassed further by associated changes in the mural endocardium, in the myocardium, and perhaps also in the pericardium, attendant upon the repeated invasions of the virus. The net result of this recurring type of acute rheumatism was the production of what was termed "double mitral disease." (3) The third alternative sequel was the gradual, or rarely the rapid, transition of the case into one of the ulcerating type of endocarditis. Of this sequence more anon.

What was the recognized result upon the mitral valve of rheumatic infection with more insidious and more chronic symptoms—"growing pains," mild chorea, myalgia, and various fibrositic manifestations? Although it was believed that many of the cases in this group might develop mitral incompetence with or without stenosis, there was a general belief that the net result was likely to be the production of mitral stenosis, with little or no regurgitation. I speak here of tendencies and of average results merely, not of absolute or universal findings. The more purely regurgitant a mitral lesion was found to be the more likely was it that the patient had had an acute attack of rheumatism and one attack only, or, if more than one attack, then with intervals of some years between the attacks. The more purely stenotic the mitral lesion was found to be, the more likely was it that the patient had

never had an attack of acute rheumatism, but had had some mild rheumatic manifestations of the chronic kind just mentioned, or gave no history of any rheumatism at all. Looked at from another angle, the type case of mitral incompetence was an adult man who had had a severe but single attack of acute rheumatism in his teens. The type case of double mitral disease was a child or young adult who owed the defect to repeated attacks of rheumatism, largely subacute, and who had considerable myocardial damage in addition. The type case of mitral stenosis was a middle-aged woman, who rarely gave a history of acute rheumatism, and often gave no history of rheumatism at all.

How do these views compare with current ideas as to the resultant valve changes following rheumatic infection? There has been of late years a tendency to consider mitral incompetence a very uncommon sequel to acute rheumatism; indeed, many cardiologists of the present day have discarded the term altogether, or use it only to signify patency of the mitral orifice resulting from cardiac dilatation, temporary or permanent. When faced with a patient who presents signs of what others would term cardiac hypertrophy with a blowing systolic bruit transmitted to the axilla and a diastolic interval free from both bruit and thrill, they explain the state of affairs by postulating a diseased myocardium and a dilated mitral ring; and when dilatation of the heart arrives in such a case they read this to be due to failure of the myocardium originally and permanently damaged by rheumatism rather than due to inability of the hypertrophied ventricle to compensate further for the regurgitation. Others wander still further from the old conception, and, feeling so certain that the end-result of rheumatic mitral valvulitis is more or less of mitral stenosis, they actually apply this latter term to cases presenting the signs just mentioned. So the apparent anomaly arises, that of two physicians who examine the same case, one will label it "mitral incompetence" and the other "mitral stenosis." All this is much to the confusion of the student's mind. Without, as yet, the help of proper figures to guide me, I think it is true to say that *post-mortem* experience favours the view that mitral incompetence due to old rheumatic endocarditis is much less common to-day than formerly.

It is not so very important that such a paradox arises as it is that the circumstance denotes very definitely a changed conception in the rheumatic process. The change is far-reaching in its effect upon our attitude towards post-rheumatic hearts; it is only as yet partly reflected in the textbooks and in the routine teaching of the schools. It is, I think, of more than academic interest to inquire if this change be due to more careful and more prolonged observations carried out upon hearts affected by rheumatism or to an actual change in the material observed. That our predecessors were not less skilled than we are with their hands and ears scarcely admits of doubt; and certainly they gave as much time to thought on all these matters. Moreover, be it noted, the particular point is not one upon which either x rays or instrumental methods have thrown much light. It is, however, possible that the opportunity for prolonged observations upon large numbers of cases of heart disease has been greater during the post-war period.

I am as yet uncertain which of the two explanations I have offered for this change of attitude is the correct one, or whether it be each explanation in part. Auricular fibrillation has been the subject of so much attention of late years, and is so intimately bound up with heart failure in mitral stenosis, that there is possibly an added factor here in concentrating the mind upon this particular condition. Put briefly, the changed conception resolves itself into this—that very much of the life-history of the rheumatic heart may be expressed by the term "chronic rheumatic valvulitis." There certainly seems much reason in disallowing that the progressive sclerosis which goes on in the mitral cusps and adjacent endocardium, up to the production of the "button-hole" mitral orifice, is merely a slow residual contraction after an initial injury. That some chronic and persistent irritant is still at work through long periods of time seems certain. But is that irritant the rheumatic virus?

THE PROBLEM OF MITRAL STENOSIS.

The occurrence of "pure mitral stenosis" in women who give no history of any illness prior to the development of cardiac symptoms has always been a puzzling fact, and remains so to-day. An analysis of the last 100 cases of pure mitral stenosis admitted to St. Bartholomew's Hospital shows that 76 were females and 24 were males. In 63 out of the 100 cases there was no history of acute rheumatism, and in 36 out of the 100 cases there was no history of rheumatism or of any allied condition. Of these 36 cases, 27 were women and 9 were men. In a careful analysis of 50 cases of mitral stenosis in soldiers Cotton found a history of acute rheumatism in 22 only. French observers have considered that the condition is a congenital one—that is to say, that it begins as a congenital defect, and that this increases as time goes on. Dieulafoy, commenting upon the frequency of, and the unique features presented by, this form of valvular disease, says, "It is sometimes associated with congenital malformations" (but he does not cite instances of this). "It is independent of rheumatism and the other causes which usually give rise to endocarditis. This stenosis is associated sometimes with chlorosis." But we in Great Britain do not seem to have found this association any more than we have found Virchow's hypoplasia of the aorta in this connexion. There has been an effort made by other French observers to associate mitral stenosis with tuberculosis, not so much directly as indirectly, through tuberculous toxins. But this view, again, lacks confirmation. Poynton drew attention to the constancy with which renal sclerosis was found *post mortem* in association with these cases of advanced mitral stenosis, and it is interesting to reflect that it is in the same sex, and about the same age, that another mysterious sclerosing lesion appears in type form—namely, the so-called "contracting white kidney." Until we know more of the specific cause of rheumatism we do not seem likely to get nearer to the solution of the problem of this special form of mitral sclerosis. At present it is impossible either to assert or deny that these cases are the result of the specific action of the rheumatic virus. The fact that the specific histological lesion of rheumatism is not found in them certainly must not be taken as excluding the possibility of their being rheumatic, for the chronicity of the process, and the fibroid nature of the changes in the valve segments, would, by analogy with other chronic infections, explain this fact. We do not (readily) find gummatous formations in parasymphilitic diseases, nor tubercles in fibroid types of tuberculosis. Moreover, it is not easy always to demonstrate Aschoff's nodes in some cases of carditis in which, on all other grounds, we have no reasonable doubt that the infection is rheumatic. Whatever the etiology of mitral stenosis in its extreme form in adults may be, it seems certain that the proportionate incidence of chronic sclerosing endocarditis is greater than it formerly was. It is tempting to associate this fact with that other fact to which I have referred—the decline in the incidence of severe acute rheumatism and a relative increase in mild and recurring cases.

Of the endocarditis occurring in scarlet fever I will only say this—that there seems to be a proportionately greater tendency for aortic involvement than in the case of acute rheumatism, a point to which I shall refer again.

SYPHILIS OF THE ENDOCARDIUM.

The affections of the endocardium due to syphilis are probably less difficult to define than in the case of rheumatism. We know that the part most often affected is that of the aortic cusps, and we also know that such affection is in most cases part of an aortitis. Syphilitic disease of the aortic cusps leaves these delicate structures fibrosed and contracted, leading to aortic incompetence and its various sequelae. Rheumatism affects the mitral much more often than the aortic cusps, and probably affects the aortic cusps alone quite rarely. The converse is the case with syphilis. It is generally held that the mitral cusps are not affected at all by syphilis, but I have been struck by the not infrequent presence of a well marked apical systolic bruit in cases of parasymphilitic disease of the central nervous system, and in the absence of any history of

rheumatism. The bruit has been musical in character in some cases—a feature which makes it unlikely that the murmur has been due to mere dilatation of the mitral ring. I am not here referring to cases in which aortic disease is present, and in which, therefore, there might be secondary changes at the mitral orifice.

We owe to Warthin a very complete investigation into the changes induced in the heart and aorta by syphilis. Warthin's studies make it clear that these changes are both diffuse and focal, and we cannot but be struck by the resemblance in many points between the mode of attack of syphilis and of rheumatism. In both infections there are produced proliferative lesions, largely perivascular in nature, with nodal structures which are recognizable histologically. There is some not distant resemblance between these nodal lesions in the two diseases, so that it is a little strange that the likeness between the Aschoff bodies in rheumatism and the small gummata in syphilis of the heart has not led observers to consider if the virus of acute rheumatism may not be spirochaetal in nature. Warthin and others have pointed out that the *Treponema pallidum* is sometimes demonstrated in large numbers in the myocardium, even when there are none to be found elsewhere in the body. So far as the endocardium is concerned the typical lesion of syphilis is undoubtedly a mesoarteritis affecting chiefly the base of the aorta, which includes the sinuses of Valsalva, the roots of the aortic cusps, and the part of the aorta just above these structures. No doubt in many instances the process includes a true aortic valvulitis. The disease is prone to be very latent, so that our evidence of its actual incidence, in terms of frequency, can only be assessed indirectly. The sources of this indirect evidence are three. (1) Patients occasionally come under observation with symptoms which render a diagnosis of syphilis of the aortic ring extremely probable, and they respond well to antisyphilitic treatment. I shall return to these later. (2) Aortic incompetence in men about the age of 40, who give no history of acute rheumatism, or of any other infective process likely to cause endocarditis, and whose blood gives a positive complement fixation test for syphilis, is quite common. We seem justified in regarding these cases as residual after old syphilitic disease of the aortic cusps, or indeed as being still the subjects of aortic syphilis. (3) In the post-mortem room we frequently come across undoubted evidence of syphilitic disease of this region of the aorta which has not been suspected during life. This may be because death has been sudden or because the actual damage to the aortic cusps has not been so severe or so prolonged as to lead to symptoms. The extreme latency which is so marked a feature in syphilitic disease of the aorta was strikingly illustrated in the case of a policeman admitted to St. Bartholomew's Hospital.

His age was 32 years. His history was to the effect that whilst assisting a fellow constable to lift a corpse down a flight of stairs his companion, who went before, slipped on a step and fell. The patient, in order to save himself from falling also, leant back heavily, still holding on to the dead body. At the moment that he did this he felt a sharp pain in his chest and became faint. He was assisted downstairs and to the open air, sat down, and soon felt better. However, he was sent home, and, still feeling queer, he went to bed. His wife, who was out at the time of his arrival, returned and brought him some tea. As he was taking this he saw his wife looking about the bedroom as though searching for something, and on his inquiring what it was, "I was looking for the cat," she replied. She then explained to him that she could hear the cat purring. However, no cat could be found, and the woman discovered to her surprise, on approaching the bed more closely, that the purr proceeded from her husband's chest. The pain from which the patient at first suffered had gone completely in three or four days; he was kept in bed for ten days, and then sent by ambulance to hospital. When seen, the bruit was still very loud, and could be heard distinctly by leaning over the bed, it being not necessary for the observer's head to touch the chest wall. The murmur was highly musical in character and was diastolic in time. There was no evidence of cardiac hypertrophy, but there were the usual arterial signs of aortic regurgitation. A fairly marked anaemia was present and a "triple plus" Wassermann reaction. There was a history of syphilitic infection ten years previously. The patient improved rapidly under treatment by potassium iodide and mercury, and left the hospital well, but with the signs of aortic regurgitation. There can scarcely be much doubt that this was a case of rupture of an aortic cusp already the site of a syphilitic valvulitis.

All this indirect evidence, taken together, makes it certain that syphilitic aortitis, with aortic valvulitis, is a

not uncommon disease. It is obviously very important that we should bear this fact in mind in our practice, and be prepared to suspect the disease, even though, as I shall now proceed to show, our means of diagnosing it with certainty are slender. If we wait until gross structural changes are produced in the aortic cusps we wait too long. It is to be doubted whether, in syphilis, as in acute rheumatism, complete resolution can ever take place once valvulitis has been present. But by checking, or by stopping altogether, the process of active infiltration and proliferation in the valve cusps, we can lessen the residual damage in these structures, and thus prolong considerably the period of relative cardiac sufficiency which every case of aortic incompetence can only at best enjoy. No doubt a part of this increased freedom from undesirable sequelae is due here, as it is in rheumatism in similar circumstances, to the fact that the myocardium has been protected from gross damage.

AGE-INCIDENCE OF AORTIC SYPHILIS.

An important question arises: At about what interval after the primary infection does syphilitic disease of the aorta begin? At about what age shall we begin to consider the possible presence of the disease? In treating quite recently of a series of cases of cardiac syphilis Carey Combs computes that the period between infection and the onset of the symptoms was over twenty years; he gives the average age of his patients as 53. Combs does not distinguish between the cases showing evidence of aortic disease and those whose main defect happened to be myocardial, and it may perhaps be assumed that such distinction would have affected these figures. As the result of a still larger number of cases studied by him, Strickland Goodall has recently put the period elapsing between the primary infection and the appearance of symptoms even higher than this. Although I am unable to give statistics, I am led to the view from my own experience that these figures give no true expression of the early cases of the disease. It is notoriously difficult to differentiate between the fibrotic residues of old inflammation and the lesions of still active disease; no more common problem arises in the post-mortem room than the proper interpretation of the changes frequently seen in the aorta. And no less difficulty arises in regard to the interpretation of symptoms during life: are they due to active disease or to atheromatous changes in the production of which syphilis is only one causative factor? If we follow the view that smouldering infection still remains in all cases in which there is to be obtained a positive complement fixation test, this makes it more, and not less, likely that the first invasion of the tissues by the *Treponema pallidum* takes place much earlier than signs or even symptoms show themselves.

Is it not probable that the known facts in regard to that other distinctive and equally common syphilitic arterial disease, cerebral arteritis, give us some guide in this connexion? Unless we have some reason for taking a different view it is at least likely that the time of incidence in the course of syphilis of arteritis in the branches of the circle of Willis approximates to the time of incidence of syphilis of the aorta and the aortic cusps. And the former we have fairly good evidence for placing at from five to ten years after the primary infection. The difference in the age incidence when calculated from a large series of cases would be explained by the fact that syphilis of the cerebral arteries can scarcely remain long without symptoms, whereas syphilis of the aorta can, and frequently does. Perhaps this matter may be stated most clearly by postulating two somewhat different types of lesion produced by syphilis in the aorta, as there are two somewhat different types of lesion in the central nervous system. There is an earlier lesion, of the gummatous kind, largely proliferative in character and possessed of focal lesions in a high degree, and a later type of lesion, largely fibrotic in its features, to which the term "para-syphilitic" may be not inappropriately applied. If this conception be admissible then the apparent discrepancy to which I have referred would be explained. So also would be explained, and rendered again analogous, the known lack of effective response to antisyphilitic treatment in cases of syphilitic aortitis when once the signs of aortic

incompetence are present. No doubt both types of lesion may be present at the same time—a fact which accounts in part for the great difficulty often experienced in the interpretation of *post-mortem* findings. If this view be substantially correct it becomes a still more urgent matter to track down the early cases by all means in our power. We must look for these cases in men (by preference) who are between the ages of 25 and 40.

SYMPTOMS OF AORTIC SYPHILIS.

The main—and in perhaps most of the cases the only—symptom is pain, anginoid in character, situated in the region of the sternum rather than in the region of the precordium, with a zone of reference or spread less extensive than is usual in angina pectoris. The pain is usually induced by, or increased with, effort, but this feature is not constant. Shortness of breath and the effort syndrome are sometimes present, but when this is so it is probable, from our general knowledge of these symptoms, that there is myocardial disease in addition to, or rather than, aortitis. There may be complaint of more general symptoms, such as slackness and vague dyspeptic symptoms, and the patient may be anaemic. But since these latter symptoms are common to so many diseases it remains that it is the pain, and the pain alone, which arouses our suspicions in most of the cases.

As regards physical signs, these are absent or are equivocal. Lack of clearness in the aortic second sound, whether directly over the valve or at any point where the aortic second sound is listened to critically—and this should include the region just above the xiphisternum—is very suspicious. A ringing character to this sound, in the absence of high arterial tension, is perhaps equally significant. More change than one of these—to wit, a definite diastolic bruit—probably means that the valvulitis is not early, and that resolution will not occur completely with treatment. I have only once, in a case of syphilitic aortitis, heard a definite diastolic bruit which disappeared with antisyphilitic treatment. It returned some two years later, despite continued treatment, and the patient then developed the arterial signs of aortic regurgitation. It is to be inferred that the disease was not detected at a sufficiently early stage to avert cicatricial changes. It is perhaps doubtful if we could ever completely avert some degree of cicatricial changes if a syphilitic valvulitis were once established, any more than we can in a rheumatic valvulitis, even though our means of treatment are much more "specific." The disappearance of the bruit and its reappearance later in permanent fashion is very reminiscent of what we know to happen not infrequently in the case of rheumatic fever.

I have never satisfied myself that the disease in its curable stage yields demonstrable dilatation of the aorta by physical signs. Nor have I ever got this evidence from x-ray examination, though I understand that Price has met with a different experience. Our French colleagues construct a more elaborate picture of the signs and symptoms of early degrees of aortitis, but I find it difficult to follow them in actual practice. I doubt if at present we can go further than to say that a man below the age of 50, whose arterial tension is not raised, whose blood gives a positive complement fixation for syphilis, and who complains of pain that may reasonably be attributed to the aorta, is probably suffering from syphilitic disease of this structure. If his age be under 40 the diagnosis is less uncertain. Treatment should be carried out promptly and thoroughly, and, since it is held strongly by some high authorities that active syphilitic infection should be presumed so long as the complement fixation test remains positive, here, at least, this doctrine should determine our action, since there is so much to gain if it be true, and so little to lose if it be false. The important points are these: first, that it may be possible to detect and to treat syphilitic aortitis before the aortic cusps are involved; and secondly, that if it be detected and treated while as yet the degree of valvulitis is slight, the resultant valve damage may be so little, and so unprogressive, as not to prejudice the patient for an indefinite number of years.

OBSERVATIONS ON THE FRONTAL SINUS.

BY

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CATARRHAL INFLAMMATION.

It is during quiet intervals that the diagnosis of the milder forms of recurrent catarrhal inflammation of the frontal sinus presents most difficulty. Deep tenderness may be elicited, but the floor of the sinus is a tender spot in most individuals. Often the nasal chambers appear healthy; transillumination is of no help, and the radiographer makes a negative report. Everything depends on a reliable account of the symptoms. The following case exemplifies this common type.

CASE I.

A woman, aged 41, complained of intermittent aching and feeling of congestion in the frontal region. During the attacks, which recurred at varying intervals, usually after a cold in the head, and lasted for a few days, the timbre of the voice was slightly altered. Six months previously, after confinement to bed for a week owing to severe frontal pain on the left side, there was a sudden escape of slimy fluid into the nose, with immediate relief.

Pain was elicited on pressing upwards on the roof of the orbit on both sides. There was a little mucoid secretion in the nasal vestibule, but none in the middle meatus on either side. Prominent opercula did not permit of the passage of a probe up the fronto-nasal ducts. On radiographic examination the paranasal sinuses were reported normal. The patient preferred to await further developments before resorting to any form of operative investigation or treatment.

The early and continued use of a nasal spray containing menthol, chlorotone, etc., in an oily base sometimes wards off an attack. During an attack the introduction of a pledget of cotton-wool moistened with cocaine and adrenaline solution beneath the middle turbinal may give relief. Resection of the anterior portion of the middle turbinated bone, with or without probing and dilatation of the duct, yields more consistently satisfactory results; but to persuade patients during a quiet interval to submit to operation would in most cases entail an unjustifiable promise of cure without risk.

MUCOCELE.

Mucocele is less frequent in the frontal than in other accessory sinuses. The first complaint is generally of pain, or of some visual disturbance, such as epiphora, diplopia, or proptosis. The conditions which would appear to favour the development of mucocele are closure of the outlet, which may be partial or intermittent, and absence of pyogenic organisms. The walls are expanded or a breach is made and an external swelling forms. Pressure over the swelling may cause some of the thick glairy green contents to trickle into the nose. The obstruction may be developmental, but a variety of causes, among them osteoma of the frontal sinus, have been recorded. In the following case, associated with polypoid disease, the walls of the sinus were much expanded but still intact at the time of operation.

CASE II.

A man, aged 30, complained of a swelling which was becoming increasingly prominent in the right supraorbital region, of nasal obstruction of some years' duration, which was now complete on the right side, of a sense of heaviness about the eyes, and of frontal headache.

The swelling, which was smooth and round, occupied the space between the inner canthus, the superciliary ridge, supraorbital notch, and root of the nose. It was firm to the touch, and merged imperceptibly into the adjacent surfaces. The nasal obstruction was due to polypi, which blocked the right side of the nose completely and obstructed the left side to a minor degree. A skiagram showed spacious paranasal sinuses, the shadows of which were clear (especially that of the right frontal sinus), except that there was some degree of "veiling" of the shadow of the right antrum.

Operation.—Under general anaesthesia, administered through Kuhn's tube, a curved incision was made along the inner third of the superior orbital margin and continued downwards to the inferior orbital margin. The lacrimal sac was displaced from its groove, and, commencing just above this point, the bone was removed from the outer wall of the nose and inner part of the floor of the sinus. On incising the mucous membrane the infundibulum was found to be packed with polypi. The sinus itself was filled with greenish viscid fluid of unpleasant

odour. The opening was enlarged, without disturbing the trochlear attachment of the superior oblique muscle or removing much of the supraorbital plate. Working partly through the nose and partly through the incision, the middle turbinal and ethmoidal cells were removed. A flap of mucous membrane preserved for the purpose was turned outwards to cover the floor of the wide passage which now connected the frontal sinus with the nose. The skin incision was closed. The maxillary antrum was explored, but no fluid was found.

Healing was rapid and free from complications. A fortnight later polypi were removed from the left side of the nose under cocaine anaesthesia. There appeared to be no indication for further operative measures.

PURULENT INFLAMMATION.

Empyema of the frontal sinus is due to ascending infection from the nose. This may be secondary to trauma, or to a great variety of other causes, of which influenza, foreign bodies or insects in the nose, and ethmoid suppuration are examples. Empyema may be acute or chronic, and is sometimes described as open, intermittent, or closed, according to the state of the fronto-nasal duct. Pressure on the walls of the sinus may cause necrosis. The worst cases are those in which the symptoms are latent, as in brain abscess, and the empyema is part of an osteomyelitis of the frontal bone.

CASE III.

A youth, aged 18, was kicked on the head whilst playing football and sustained slight concussion. There was neither bruising nor bleeding from the nose. He gradually became

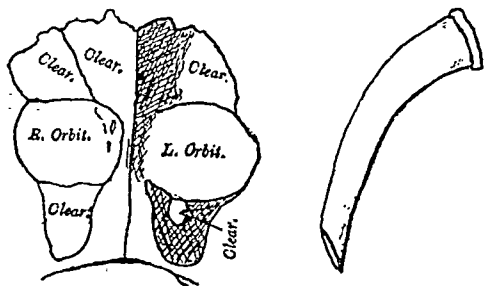


FIG. 1.—Case IV. Tracing from skiagram of nasal accessory sinuses before the insertion of the tube. Opaque areas shaded.

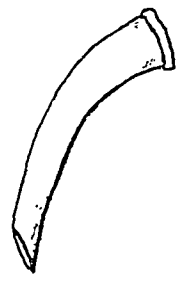


FIG. 2.—Case IV. Actual size of the tube.

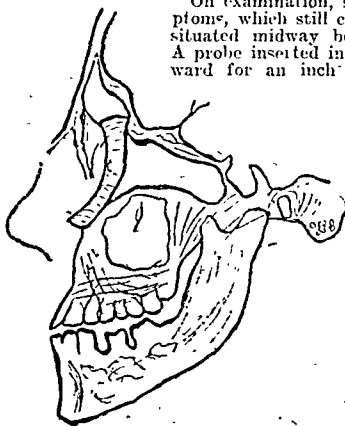


FIG. 3.—Case IV. Left frontal sinus drained by a silver tube clear of the maxillary antrum, into which discharges were previously finding their way.



FIG. 4.—Case V. Appearance with rubber drain in position on left side. There is a silver tube in the right infundibulum.

trowsy and strange in manner, and complained of generalized headache. Finally a swelling appeared on the forehead, and rigors occurred. The patient came under my care a month after the original injury. The pulse rate was 84, temperature 99.8° F., respirations 24. In the right supraorbital region was a swelling, which pitted on pressure—a typical Pott's puffy tumour. The lids were swollen and the conjunctiva chemosed. Palpation of these parts caused pain all over the head. There was commencing papilloedema on both sides. Pus was visible in the middle nasal meatus on the right side.

Operation.—On exposing the right side of the frontal bone pus exuded from minute apertures in the outer table. No fracture was visible. The frontal sinuses were full of pus, and far beyond the area of most acute osteomyelitis the diploë presented an appearance of dry gangrene. There was a thin layer of pus beneath the bone. On incising the dura localized purulent leptomeningitis was found. Haemostasis was secured, and a dressing was applied. The patient rallied after the operation, but died on the following day.

The next case to be recorded was less acute, and the patient recovered.

CASE IV.

A nurse, convalescent from influenza, complained of lancinating supraorbital pain, radiating to the back of the head. An inflammatory swelling developed beneath the left upper eyelid, causing ptosis and downward displacement of the eyeball. On rhinoscopy the anterior end of the left middle turbinal and ethmoidal bulla appeared swollen, but no pus was visible. The temperature was normal, the pulse rate 108. On incising the swelling pus welled into the wound from an aperture in the supraorbital plate. *Staphylococci* were cultivated from this.

Operation.—Killian's operation was carried out. Parts of the sinus walls were eroded, and granulations in the infundibulum bled freely; consequently, after removal of the frontal process of the superior maxilla, a satisfactory flap of mucous membrane to cover the surfaces facing the nasal cavity was not obtained. The middle turbinal and ethmoid cells were completely excised, but the uncinate process was left intact.

After-treatment.—All went well until the thirty-fourth day, when the opening into the nose became blocked with exuberant granulations, the lids swelled, and there was local pain and throbbing. A fistula at the outer angle of the wound discharged

periodically. An attempt was made to clear the passage, but without lasting benefit. A suspicion that pus might be flowing into the antrum instead of into the nose was confirmed by a skiagram, which showed that the greater part of the left maxillary antrum was opaque. The wound was reopened, and a silver tube was placed in position to secure drainage into the floor of the nose. The whole condition promptly cleared up, and the patient was able to go home. The tube was withdrawn three months later.

Chronic purulent inflammation of the frontal sinus is much less frequent than the more acute forms. Pus is discharged into the nose or intermittently from an external fistula. One or two cases secondary to gunshot wounds have come under our observation. It is sometimes hard to say where deep-seated disease of the frontal bone will end.

CASE V.

A woman aged 24, one of whose brothers had died of tuberculosis, who was herself convalescent after influenza, complained of persistent fronto-occipital headaches. An operation was stated to have been performed on the turbinated bones and sphenoidal sinuses at this period. Two months later a swelling appeared in the forehead. The swelling was incised and the pus evacuated. A fistula remained which continued to discharge for the next three months.

On examination, six months after the onset of symptoms, which still continued, a discharging fistula was situated midway between the glabella and bregma. A probe inserted into the fistula passed directly backward for an inch and upward for an inch and a half. Bare bone could be felt inferiorly. The whole forehead was tender.

There were polypoid excrescences on the right middle turbinal, but no pus was visible in the nose. A probe could be passed into the infundibulum on the right side but not on the left. The optic discs were normal. There was slight flattening of the chest wall at the right apex, but no sign of active pulmonary disease. The Wassermann reaction was negative and remained so after a provocative injection of novarsenobillon. The von Pirquet test was negative.

The radiographer reported extensive erosion of almost the whole width of the frontal bone, which had not been evident at a previous examination made by him. He observed that the rapidity of progress did not suggest a tuberculous process.

Operation.—By means of a coronal incision within the hair line the integuments of the forehead were drawn down over the face. On enlarging the fistula a cavity an inch and a half in depth was discovered. This extradural abscess communicated by a track traversing the diploë of the frontal bone with the left frontal sinus. Sequestra were removed, and the carious anterior walls of both sinuses, which contained unhealthy granulations, were excised. At a later stage Killian's operation was completed on the left side, and by retracting the inner angle of the wound a silver drainage tube was inserted into the infundibulum of the right sinus. After a protracted convalescence the disease subsided.

The scars were mainly hidden by the hair. It can only be hoped that the disease is finally stamped out and will not recur as in the following inveterate case.

CASE VI.

A woman, aged 36, with scars over both frontal sinuses, complained of recurrent pain on the left side, where a fluctuating swelling was evident. She stated that since the age of 12, when the swelling at the root of the nose (shown in the photograph, which she permitted me to have copied) first developed, she had undergone a dozen operations on the frontal sinuses.

The odour seeming inauspicious, nothing further was done save the introduction of a tube through dense fibrous tissue into the sinus. Later the patient was provided with a suitable bougie and instructed how to pass it daily into the sinus.

MISCELLANEOUS AFFECTIONS.

Tuberculosis of the frontal bone commencing in the diploë in children is characterized by the gradual produc-

tion of a discoid sequestrum with eroded edges. In gummatous periostitis more than one bone may be affected, as in the following case.

CASE VII.

A young man developed a brawny fluctuating swelling of the left upper eyelid, ptosis and downward displacement of the eyeball. A nodule was palpable over the right parietal eminence. Nothing abnormal was seen on rhinoscopy. Temperature 99° F., pulse 108. Recently there had been intense headaches culminating in brief periods of unconsciousness. No other relevant history was obtained, though it is perhaps proper to mention that sclero-corneal trephining operations for buphthalmos had been performed on both eyes.

X-ray examination showed periostitis of the frontal bone with absence or complete obliteration of the left frontal sinus. An exploratory incision revealed the state of affairs to which the small parietal nodule was the real clue. Intravenous treatment was commenced; the Wassermann reaction was strongly positive. The condition subsided under treatment.

A frontal swelling in infants may safely be assigned to causes other than sinusitis. Sarcoma by its rapid growth is apt to simulate an inflammatory condition. Osteoma of the sinus occasionally gives rise to inflammatory complications. If we except osteomata, metastases, and invasion of the sinus by rodent ulcer (only too readily recognized by the ghastly deformity and foul discharge), neoplasms of the frontal sinus are rare.



FIG. 5.—Case VI. Swelling at root of nose in a girl aged 12, due to bilateral frontal sinusitis.



FIG. 6.—Case VI. Patient preparatory to her thirteenth operation.

RADIOLOGY.

Skiagrams reveal the width, depth, and height of the sinuses. To this end antero-posterior, side-to-side, and stereoscopic projections may be studied. One frontal sinus may overlap its fellow of the opposite side, be traversed by incomplete septa, or be absent altogether. Alterations in contour from trauma or gross pathological changes may also be recognized. Forewarned, the operator proceeds with confidence and precision. It is when finer discrimination between normal and abnormal conditions is required that difficulty arises.

In the case of the frontal sinus the relative physicochemical density of the bones of the face must be measured. The presence or absence of air in the sinuses is immaterial. With tubes of the degree of penetration ordinarily used for the purpose, sinuses filled with polypi or cystic fluid may throw a normal shadow. Rarefaction and sclerosis of bone are slow processes. At the first suspicion of trouble the frontal sinuses may be reported normal, at a later stage "veiling" may be found. Conversely, a sinus commonly appears opaque after all symptoms have subsided. Before interpreting altered permeability of a sinus to x rays in clinical terms we should ask ourselves how the suspected condition is likely to affect the deposition of lime salts in the walls of the sinus, and whether it has had time to do so.

In two of the cases the maxillary antrum was more opaque although the primary seat of the disease was in the frontal sinus. In periostitis decalcified areas almost transparent in the x-ray film are sometimes only distinguishable from surrounding bone at operation by being slightly raised and scored with fine fissures. Naturally, values are different in photographs taken by means of rays whose waves are ten thousand times shorter than any with which the human eye is familiar.

CHOICE OF OPERATION.

Removal of the anterior portion of the middle turbinal often facilitates drainage, and it is possible in a proportion of cases to probe and dilate with graduated bougies the fronto-nasal duct. The intranasal use of rasps or trephines is apt to lead to subsequent stenosis.

When the walls of the sinus are intact an incision along the inner wall of the orbit permits of removal of the ethmoid cells and of lining the new passage to the frontal sinus with a broad mucous flap. When the sinus walls are diseased Killian's operation is called for. In osteomyelitis or necrosis of the frontal bone an incision from temple to temple within the hair line yields maximal access and minimal deformity, although a separate incision is required for removal of the ethmoid cells. In complicated cases—for example, when the frontal sinus drains into the maxillary antrum, or when bilateral suppuration exists and a radical operation on both sides is impracticable—good results may be obtained by drainage for three or four months with a silver tube.

These observations merely represent present practice in endeavouring to apply surgical principles to the problems presented.

CHRONIC PELVIC PAIN IN WOMEN.*

BY

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THE chief reason that prompts a woman to see her doctor is usually pain, either in the front or back of the pelvis. The pain is most frequently chronic. Acute pain is comparatively rare, and its origin much more easily determined. Like all other vague pain syndromes, these cases require a minute and painstaking examination, and a clear classification of the causes of pain in the lower part of the back must be kept in mind. The pain is either (1) nervous, (2) structural (skeletal or muscular), or (3) referred from a disorder of the internal organs.

THE NERVOUS SYSTEM.

To sift the cause of the pain the attitude of mind of the patient must be first elicited. The neurasthenic is a pitfall to many of us, but our suspicions that the case is one of the functional majority must only make our preliminary examination the more careful. Something very trivial may be wrong; I have actually had one patient who was reassured when told that it was natural for a froth to form on urine during micturition. Above all, remember that the suspected neurasthenic is in her own estimation suffering intensely.

The patient must be completely examined, and until then no hint must be given as to the possibility of the presence of appendicitis, displaced kidney or uterus, etc. A bimanual examination is essential, and if the patient be a married woman a satisfactory conclusion can usually be formed; but in the case of virgins a rectal examination is not as a rule very hopeful, and it is advisable to make the diagnosis sure by examining under an anaesthetic.

When it has been decided that there is no evidence of organic disease, the treatment is summed up in the words "assurance" and "reassurance." If the patient can be assured that she has no pelvic disease, a course of laxatives of the type of pil. aloes comp. (B.P.), together with a mixture containing potassium bromide, will frequently effect a cure. A suggestion from the examiner that she "may" develop appendicitis, or that the womb is slightly displaced, will upset the confidence of the patient, and lead her to seek further advice.

THE SKELETAL STRUCTURES.

The patient should be stripped in a good light and the spine examined in the erect posture, any limitation of movement being carefully noted. Any doubt as to the spine will be cleared up by an x-ray photograph. The sacro-iliac synchondroses must receive careful attention,

* Abstract of Presidential address to the Gloucestershire Branch of the British Medical Association

but early disease in this area is most difficult, if not impossible, to detect.

The diagnosis between early tuberculous disease of the spine and the so-called weak back is very difficult; but in the absence of x-ray evidence I pin my faith on limitation of movement.

Curves of the lumbar spine is not the only cause of a rigid spine; the conditions which must not be forgotten are (1) secondary carcinoma, usually associated with either a mammary or an ovarian tumour (possibly unsuspected), and (2) arthritis of the lumbar spine. In these conditions the skiagraphic appearances are definite. In the latter, tipping of the edges of the bodies of the vertebrae with osteophytic outgrowths are characteristic.

I believe that arthritis of the lumbar spine is quite a common cause of lumbo-sacral pain. This region is submitted to jars and sprains more than any other, and such parts are notoriously very susceptible to circulating toxins. Arthritis can be benefited considerably by systematic treatment. In the initial stages complete rest should be ordered, and much relief can be given by applying strapping round the pelvis. Later on exercises should be ordered, combined with massage and radiant heat. Spa treatment may be advised when it can be obtained. All possible sources of infection, such as septic teeth, tonsils, accessory sinuses, etc., having been eliminated, baths and washing the system out with the evil tasting and smelling waters of Harrogate, etc., will complete the elimination of toxins.

The Sacro-iliac Joints.

I have seen cases where the chronic lumbo-sacral pain has been referred to one or both of these joints, and I believe that, though tuberculosis is rare, arthritis frequently occurs. When one considers how commonly these structures are submitted to strain, especially in childbirth, this is not surprising, and pain in these regions coming after parturition should be adequately treated with absolute rest, to allow complete involution to take place. In an article on orthopaedics in gynaecology¹ Matthews states that subluxation of the sacro-iliac joint is one of the chief causes of backache. He says that reduction of the subluxation often gives immediate relief.

Paul Roth, speaking in a discussion on the diagnosis and treatment of affections of the sacro-iliac joints,² said that sacro-iliac strain had interested him for many years. He advocated manipulation and then support. Manipulation consisted in forcibly hyperextending the thigh on the trunk with the patient lying prone. I tried this treatment on a patient who was sent to me suffering from pain in the right iliac fossa, thought to be due to chronic appendicitis. The pain, in my opinion, was referred from the right sacro-iliac joint, and treatment as suggested by Mr. Roth effected an immediate cure. Dr. Mennell, in the same discussion, called attention to John Baer's sacro-iliac point, which is situated on a line from the umbilicus to the anterior superior spine, 2 inches from the former joint. He contrasted this with McBurney's point, and said that this explained the persistence of pain in the right iliac fossa after an appendix had been removed.

PAIN REFERRED FROM DISORDER OF INTERNAL ORGANS.

Pain from a disorder of the internal organs is due to two conditions: (a) tension within the muscular structures, and (b) dragging upon the mesentery. The viscera themselves have no sensation of pain; they can be cut, torn, and sutured without the production of pain. When they are irritated the pain will always be interpreted as coming from the peripheral distribution of the nerve fibres which are involved.

In the pelvis we are concerned with the organs associated with the segments of the cord below the eleventh dorsal—namely: (1) the large intestine and appendix, (2) the kidneys and bladder, (3) the uterus and appendages.

The Large Intestine.

The caecum and sigmoid are common sites for distension, and are either the cause or effect of chronic constipation in women. I am of the opinion that the condition is a defect in the neuro-muscular mechanism, as it is so frequently the result of overwork and worry. In normal

well developed women, constipation is never accompanied by chronic pain, but in those whose nervous systems are unstable, gurglings and discomforts in the right and left iliac fossae are gradually interpreted as pain.

The Appendix.

I wish to emphasize the statement that, if a woman complains of constant dragging or aching pain in the right iliac fossa, the cause of that pain is *never* the appendix. A needless operation for the removal of this organ brings discredit to the surgeon, and a continuance of its practice threatens the future confidence of the public in surgery.

While this was being written I saw three cases in one day in which an appendicectomy had been performed some few months previously for chronic pain in the right iliac fossa. The pain recurred as soon as the excitement of the operation had worn off, and, as is so often the case, a fresh opinion was sought—this, in one case, despite the fact that she had been told that her appendix was in "a shocking state." It is a pity surgeons do not always see and learn about their failures.

Appendicitis, either acute or chronic, does *not* give rise to persistent pain or aching in the right iliac fossa. In acute conditions the pain subsides entirely after a few days, and probably recurs later; and in the so-called chronic appendicitis—more correctly termed appendix dyspepsia—the symptoms are referred to the stomach and epigastrium, and rarely to McBurney's region. In one case that I operated upon I found the appendix bulbous and distended, and thought and hoped that the distension was the cause of the pain. Seen a month afterwards, the girl seemed to delight in saying to me, "I am feeling better, but the pain is still there." The subject of appendix dyspepsia is not relevant to this paper. Sir James Goodhart used to say, "God help a woman when she knows she has an ovary." I think the same can be applied to the womenfolk and the appendix.

The Kidneys and Bladder.

I will not weary you with a list of diseases of the urinary organs which may give rise to persistent pain in the pelvis, but will be content to describe the conditions which often cause women to present themselves at outpatient departments and elsewhere, complaining of pain in the iliac fossae, more commonly the right than the left. These are divided into two classes: (1) inflammatory, (2) excessive mobility.

Inflammation of the Kidneys.—Pyelitis is a common cause of chronic pain in the iliac regions, and many cases sent to me under suspicion of chronic appendicitis are found to be suffering from an infection of the kidney. The symptoms are frequency of micturition and mild persistent pain in the distribution of the twelfth dorsal nerve, accompanied by chilliness and mild shivering fits. Bacteriological examination of the urine often shows a pure culture of *Bacillus coli communis*. Palpation of the kidney will sometimes elicit tenderness, but the condition may be present without pain on pressure. A complete examination of a catheter specimen of urine is most important in the diagnosis of vague pelvic pains. The cure of these mild infections of the pelvis of the kidney is not easy. I find that an intensive course of potassium citrate in half-drachm doses combined with infusion of buchu is most beneficial if given for several weeks. Urinary antiseptics of the formaldehyde type are of little value in renal infections. The administration of drugs must be combined with liberal drinking of water and other innocuous fluids, and it is a question whether the abstinence from drinking, so common in young women, is not a large factor in the etiology of this complaint; and similarly the cure may be ascribed more to the mechanical flushing of the pelvis of the kidney than to drugs held in solution. The large intestine, as being the probable *fons et origo* of the condition, must be thoroughly cleared, and the inertia of its musculature stimulated by suitable measures.

Excessive Mobility.—In the large majority of cases of movable kidney the patient suffers from a dragging/aching pain in the lower abdomen and back. Such sensations are pain in the lower abdomen and back. Such sensations are usually constant when the patient is walking about, but subside after a few hours of recumbency. The chronic pain

is associated as a rule with digestive disturbances and nervous symptoms suggestive of neurasthenia. Pathological mobility must be distinguished from a mere palpable kidney, which occurs in 85 per cent. of normal women, but rarely in men. Acute attacks of renal colic—"paroxysms" as they have been termed—may supervene, and are the result of either kinking of the ureter with a transient hydronephrosis, or torsion of the pedicle with increased venous congestion of the kidney and increased intracapsular tension. The treatment of excessive mobility of the kidney is a severe strain on our professional patience and resourcefulness. I will tackle the question under (1) general tonic measures, (2) abdominal supports and trusses, and (3) surgical measures. Under (1) the first principle is to give the patient absolute rest for body and mind. She should be put to bed in bright surroundings and made to understand that she must lie altogether in the recumbent position. Diet should be liberal and all the ordinary laws of health and hygiene obeyed. After three weeks exercises should be commenced, helped, if practicable, by massage. The essence of treatment thereafter is to strengthen the muscles generally, and it is only with the cheerful co-operation of the patient that success can be obtained. The complaint is the result of "flabbiness" both of the muscular and nervous systems, and it is only cured by putting both into training, as an athlete would set about making himself fit to undergo the strains of a football or tennis season. (2) The only correct abdominal support is a well developed abdominal wall. A mechanical support can only lead to atrophy and weakness of the natural structures. Still, many women cannot develop their abdominal walls sufficiently to stand the strain of the erect posture—a condition not yet corrected by evolution, and comparable to varicose veins and piles. This being so, some cases are helped considerably by wearing a well fitting corset for general support. For the much vaunted kidney belts and trusses I have no use; in my experience they are usually discarded, as they give more pain than they relieve. (3) I hold the opinion that the only indications for operation in movable kidney are the recurrence of acute attacks of pain and vomiting, and the supervention of hydro-nephrosis or pyelitis.

The Bladder.—The constant pain associated with bladder lesions is felt behind the symphysis pubis. The distress is usually interrupted by paroxysmal attacks of pain occurring during micturition, either just before or at the termination of the act. The diagnosis is, as a rule, obvious.

The Uterus and Appendages.

Tumours of the pelvic organs, although they grow to such enormous dimensions, rarely give rise to chronic pain. The lesions which produce persistent discomfort are (1) inflammatory or haemorrhagic, and (2) mechanical—the former by producing tension, and the latter by dragging on the mesentery and fascial supports.

Chronic Endometritis and Chronic Metritis.—In *Diseases of Women*, by Ten Teachers, the pathology of these conditions is clearly discussed, and it is stated that there is clear proof of the inflammatory nature of both these conditions. The former, endometritis, is either a disease *per se*, or, if not cured, is the first stage of the latter. Chronic pain in the back in the sacral area is associated with menorrhagia and leucorrhoea. Menstruation is prolonged and profuse, and there may be slight intermenstrual haemorrhage suggestive of the presence of a malignant growth. Early cases may be cured by promoting an improvement in the general health, and benefit is undoubtedly obtained from ergot and calcium lactate. I might mention also the improvement noticed after intramuscular injection of colloidal calcium. If good result does not follow medical treatment, curettage must be advised without delay. It has been said that the sharp curette should only be seen in a museum of antiquities: I do not agree. Early cases of endometritis can be cured by curettage, but this must be performed thoroughly, carefully, and, above all, aseptically. If no relief follows, and the microscopical report of the endometrium negatives any idea of malignancy, chronic metritis has probably supervened.

Fibrosis uteri (or bleeding uterus, as it is also called) is common after the age of 40, and from the continued

haemorrhage and chronic pain is productive of much suffering. On examination very little abnormal can be felt, for frequently the uterus is not even enlarged. Curettage is useless as a mode of treatment in this condition, and I have no hesitation in advising hysterectomy with conservation of the ovaries. The entirely successful results, with freedom from anxiety as to the future, which hysterectomy offers in this condition, make me hesitate to advise the doubtful benefits of radium or x-ray therapy.

Chronic Salpingitis.—Here the Fallopian tubes are thickened, and, as a result of the closure of the fimbriated extremities, become distended. The surrounding structures are matted together by the inflammatory exudate. The pain is situated in the lower lumbar region and is of a gnawing character. In the treatment of this disease I wish to lay stress on the value of conservatism. It is a proved fact that in these cases of chronic pelvic peritonitis the bacteria will die off and the inflammation will undergo absorption. Complete rest in bed, with hot packs and douches to relieve pain, for several weeks is essential. Should abscess formation occur I strongly advise vaginal as against abdominal drainage.

Pelvic Haematocoele.—I mention this condition briefly as causing similar symptoms. The slow leaking of blood into the pelvis is due either to a ruptured tubal pregnancy or to bleeding from a ruptured lutein cyst in the ovary. I emphasize the latter condition, as on three occasions I have found blood in the pelvis which was the result of ovarian bleeding and unconnected with pregnancy.

Retroversion.—This is a bone of contention to the gynaecologists. Personally, I am very doubtful if a retroverted uterus ever gives rise to pain. I am confident that an organ three and a half inches long and freely movable does not cause symptoms. If it is enlarged, and so being under tension, it will give pain, but then the concomitant endometritis or metritis is the prime factor. The hyperplasia can be cured and the patient relieved without correcting the retroversion. Similarly, descent of the uterus always causes a certain degree of retroversion, and it is the prime factor in giving rise to pelvic pain. Most cases of retroversion do not require any treatment. If pain in the back is complained of and a retroverted uterus is discovered, another cause must be sought for the pain, and, as is so important with most displaced organs, no mention of it should be made to the patient, but a near relative may be told that the fact is recognized. If correction is deemed advisable, this can be done by bimanual manipulation and the insertion of a ring pessary to prevent the uterus from falling back again. A Hodge or other hard pessary is harmful, and not so efficient as a soft rubber ring, which in any case can do no harm. At the British Medical Association meeting at Bath, Dr. Russell Andrews gave as his opinion that the only absolute indications for operative treatment were sterility, dyspareunia, and prolapse. The first two are rare, and the subjects are often willing to have an operation as a speculative measure, and the third comes under another heading altogether. The procedure recommended is Mayo's modification of Gilliam's operation. The idea of suspension is correct in theory, but often useless in practice. Ventrofixation has had its day—it is unsound in theory, and so liable to be followed by complications that it can be regarded as dangerous in practice.

Prolapse of the Pelvic Organs.

Descent of the pelvic organs, and the resultant dragging on the peritoneal attachments and fascial supports, is the most frequently found cause of lasting pelvic pain. The perineum has been expressively termed "the inferior abdominal wall," and certainly what we understand as prolapse is a hernial protrusion through this structure; and I believe that the weakening of the muscular and fascial layers which constitute it is the first principle in the production of prolapse. If the wall is torn or lacks tone, only a slight increase of intra-abdominal tension is necessary to bring about a hernial protrusion. The so-called ligaments of the uterus are not made to withstand any tensile stress. The structures responsible for the support of the uterus are therefore (1) the levator ani muscle and (2) the pelvic fascia. It must be remembered that

prolapse can occur in nulliparae and virgins, in which case an elongated cervix is almost invariably the cause. As in hernia, so there are degrees of prolapse; there may only be a slight bulging of the anterior vagina wall with slight descent of the cervix, or the os may descend to the vaginal orifice; or, as a final stage, the uterus may be protruded completely from the vagina. A small degree of prolapse as a rule gives more pain than a procidentia.

The treatment should be the same as that adopted in an ordinary case of hernia elsewhere, which, in short, means a truss for relief, and an operation for cure. But before discussing treatment in detail, let me say a few words about prophylaxis. Most cases of prolapse are the result of parturition, therefore it must follow that something can be done to lessen the incidence of this complication. During labour it is all-important to preserve the pelvic floor; and if it has been lacerated an efficient repair is very necessary for the future of the patient. It is so common to find a thin skinny structure where, before labour, a strong support in the form of the perineal body existed. Then, in the third stage of labour I deprecate the commonly adopted plan of forcing the uterus down in order to express the placenta; this practice must weaken the fascial supports round the uterus, and twice I have seen a careless midwife produce an inversion of the uterus by her vigorous efforts to expel the placenta for the treatment of haemorrhage; inversion is more readily produced by this procedure than by pulling on the cord. I may be guilty of heresy, but I see no harm in delivering the placenta from the vagina by pulling it out, instead of using the uterus as a wedge to push it out. In the puerperium much might be done by maintaining muscular tone, and for this end I advise not only abdominal exercises, but exercises for the levator ani muscle. The latter are carried out by telling the patient "to contract herself as if she were trying to hold in a motion." In the treatment of early cases following childbirth the patient should be made to spend most of her time in the recumbent position, but exercises should be carried out thrice daily. If the uterus has not involuted completely, a course of ergot and strychnine will be beneficial. Treatment on these lines is advised for a month, and if the prolapse is still present at the end of this time the condition must be regarded as one of hernia, and a truss in the form of a pessary is necessary. There is no question as to the relief so obtained. If a pessary or a truss gives relief and is comfortable I see no harm in its use. I use only soft rubber pessaries, and I have many patients who complain of pelvic pain immediately they cease to wear them. They must, of course, be changed and cleaned regularly. Many patients, however, are not relieved by wearing a ring pessary—either it cannot be retained, or it fails to give relief; in these cases operative treatment is essential.

I perform one operation for prolapse only, and this I call the operation for the radical cure of perineal hernia. In the last eight years I have practised Fothergill's operation, with certain modifications, without experiencing a failure. Among others, I have operated on cases of procidentia which had previously undergone some form of ventrofixation operation with subsequent recurrence of symptoms, and obtained a complete cure. The chief points in the operation are: (1) careful pre-operative preparation, (2) amputation of the cervix, (3) restoring the muscular and fascial supports under the bladder, (4) restoring the muscular and fascial layers in front of the rectum, and (5) building up a new perineal body.

CONCLUSION.

Earlier in this address I threw doubt on the value of many operative measures for the relief of chronic pelvic pain. I close it with an enthusiastic faith in the surgical treatment of the most constant cause of this condition. Why is this? It is because surgery is able to restore a damaged part to its originally correct anatomical state. In the many "pexy" operations which are practised, the failure of them is, in my opinion, attributable to the fact that organs are placed or tied up contrary to Nature's intention.

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NON-INFECTIVE ARTHRITIS IN WOMEN.

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WHEN the process by which a morbid condition arises is obscure its elucidation may be facilitated by considering the results of treatment. This may be true whether the method of treatment has been arrived at empirically or not. We have found that the process producing arthritis may, in a certain class of case, be brought to an end by heating the pelvic organs by diathermy.

Since 1912 the treatment of arthritis by diathermy has been investigated in the electrical department of St. Bartholomew's Hospital. Before 1914 it was found that diathermy had a marked effect on gonococcal arthritis when applied to the affected joints. After the war it was found that it was unnecessary to apply the current to the joints if the application were made to the foci from which dissemination occurred—namely, the cervix uteri in women and the prostate and vesicles in men.

As the work proceeded it became evident that patients were being successfully treated in whom gonococcal infection was more and more doubtful, and later that cases of arthritis, both in men and in women, in whom gonorrhoea had definitely not occurred were also efficiently treated by diathermy. It was supposed that the effect upon the arthritis was due to the action of the current upon the cervix or prostate and vesicles infected with organisms other than gonococci.

A series of cases has, however, occurred in which it seemed clear that no infection existed. These cases were either in young women in whom the onset of the arthritis coincided with the establishment of menstruation, or in women at or about the age of the cessation of the menstrual function. An illustrative case at either end of menstrual life will be described later. It is held, we believe, by most authorities that the so-called rheumatoid arthritis is in all cases due to a focus of infection giving rise to a toxic arthritis, or to an arthritis in which there is actual bacterial invasion of the structures of the joint. This opinion is held in spite of the fact that in many, if not in most, cases a focus of infection is not found. We have no doubt, however, that the number in which a focus is not discovered would be considerably reduced if the cervix were more often examined.

The so-called rheumatoid arthritis is far commoner in young women than in men. It seems a fair deduction from the results of this treatment that this is due to the fact that the cervix is liable to an infection capable of producing the arthritis, and that although the prostate may play a similar part in the causation of arthritis in men it is not nearly so commonly infected with organisms other than gonococci in comparatively young persons.

There still remain cases in which a focus cannot be discovered and which are not due to an infective toxæmia. It is true that in these the teeth are often affected by the same process as the joints, and are held to be responsible for the toxæmia when they are really a manifestation of it. This accounts for the great number of cases in which complete removal of the teeth is not followed by any improvement in the condition of the joints.

It seems that at all events some of these cases of arthritis—namely, those in which no focus of infection can be found—are due to absence or deficiency of hormones of the ovary or other pelvic organ. These are amenable to treatment by diathermy applied to the pelvic organs. Heating of these organs by diathermy has resulted in subsidence of the inflammation of the joints and complete functional restoration, unless such new bone formation or other organic changes have taken place as to render restoration of function impossible.

In virgins the treatment may be effectually carried out by means of a rectal electrode, the procedure being similar to that used for heating the prostate in men. In married women an intrapelvic electrode, introduced into the vagina, is used.

CASE I.

In a girl, aged 16, the illness began at the end of 1923. The symptoms were then a general feeling of illness and pain in the left hip. She was confined to bed for a short time, but was able to walk after this till just after Easter, 1924. At this time the knees became swollen and stiff, and when admitted to the West Middlesex Hospital on May 1st she was unable to walk. Most of the joints were affected, the knees and wrists most severely.

When first seen the knees were flexed and could not be extended beyond a right angle, and the wrists were fixed in an extended position; the patient was thin and anaemic. Diathermy was applied by a rectal electrode on eight occasions, over a period from June 2nd to June 30th, 1924. At the end of this time the knees could be completely extended and there was full range of movement of the wrists and fingers. There were no pains and she was beginning to walk. Synovial swelling of the knees was still present. The quadriceps extensor muscles, especially the vastus internus, in both limbs were wasted.

Massage and exercises were then commenced. On August 8th her general condition was good and she walked fairly well, but with an awkward gait. On November 3rd she walked well. All joints were freely movable. There was slight swelling of the wrists and knees. On November 27th the wrists and knees were still slightly swollen. She was then doing physical exercises, including skipping.

At Christmas, 1925, complete functional restoration of all joints had taken place. She was fat and well, but still had an awkward gait. Menstruation had started at the age of 15, and had been regular for six months. It then ceased for six months. At the end of this time it was re-established and remained regular afterwards.

CASE II.

A woman, aged 40, suffered from generalized arthritis resulting in much suffering and ill health. She was so crippled as to be hardly able to walk with the aid of two sticks. She was thin and had a sallow, unhealthy appearance. There was a marked tendency to growth of hair on the face. The wrists, knees, and ankles were swollen, painful, and tender. The right knee could be fully extended, but the left was flexed and could not be extended and the patella was fixed. The left hip was flexed and fixed in that position.

The illness had begun two and a half years previously, and she had had a long course of treatment, including various forms of electrical treatment. During this the tonsils had been removed without effect. Treatment by diathermy applied by a rectal electrode was begun on January 24th, 1921. At the end of one month her general health had much improved, and she had gained 7 lb. in weight. The joints were more movable and almost free from pain. Treatment was then left off till November, when she was found to have continued to improve during the interval. Her general health was good and pain slight. The right knee was normal, the left knee only slightly movable from the fixed position of 120 degrees. The left hip was still fixed. The treatment was renewed for one month and then left off till March, 1925. At this time her general health was good. There was no pain, but the left knee remained fixed to 120 degrees and almost fixed.

During the last course of treatment she had menstruated quite normally, though the periods had been absent for four or five years previously. X-ray examination of the left knee showed diminution of joint space, great lipping of upper and lower margins of the patella with osteophytic formation, and extensive lipping of tibia and fibula at joint surfaces, with a fair amount of bone destruction.

It is obvious that when the destruction and new bone formation in the joint has advanced to such a condition as existed in this case in the left knee, restoration of function is out of the question. The treatment resulted, however, in relief of pain and in restoration of function in the other joints, and a return to good general health. It is only when the arthritis is recent and destruction and organic changes of bone have not proceeded beyond a certain point, that complete functional restoration may be obtained, as occurred in the first of these two cases.

Both of these patients were virgins, and in neither was there any evidence of infection of the pelvic organs. In both there was evidence, apart from the arthritis, of deficiency of ovarian internal secretion. In the younger of the two patients it may be considered doubtful whether the onset of puberty can be considered abnormal. There is, however, some evidence of deficiency of ovarian internal secretion in the interval of amenorrhoea after the original onset of menstruation. In the older there was evidence of deficiency of ovarian internal secretion in the early cessation of menstruation and in the growth of hair on the face. It is noteworthy that in this case, as in some others of a similar kind treated in this way, the menses appeared after having ceased for some years.

Corroboration of the possibility of stimulating the formation of the ovarian hormone by heating the pelvic organs

consists in the relief by this means of subjective symptoms and irregular haemorrhage due to the deficiency of ovarian internal secretion at the menopause. Several such results have been obtained recently in this way in the electrical department of St. Bartholomew's Hospital.

The object of this paper is to put forward the contention that there exist cases of arthritis occurring at either end of menstrual life which are not due to infection, that in some of these, at all events, the arthritis is due to deficiency of ovarian hormone, and that in these the arthritis and accompanying ill health are efficiently treated by heating the pelvic organs by means of diathermy.

This is the first of a series of articles which we hope to publish on work carried out in the electrical departments of St. Bartholomew's and West Middlesex Hospitals on the treatment of arthritis and of gynaecological cases.

A REVIEW OF THE LATER RESULTS OF INSULIN TREATMENT.*

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In this paper I propose to review the results obtained by the insulin treatment of 100 cases of diabetes, in all of which the treatment began over a year ago, and in rather more than half of which it has continued for nearly two years. Detailed consideration of early progress under insulin treatment will be omitted—first, because this matter has already been extensively reported, and it is now well known that the vast majority of cases do very well in the initial period; and secondly, because the progress of patients after their return to ordinary life is a matter of greater practical importance.

The cases have been taken in strict chronological order, and no case of any type that has received insulin treatment for diabetes has been excluded, with the exception of 15 patients it has been impossible to trace. Of the 100 cases (44 in hospital, 56 in private) whose records are available, 25 are now dead (13 in hospital practice, and 12 in private); 15 deaths occurred during the early period of treatment, the remainder within a few months of beginning insulin.

Causes of Death.

In no fewer than 17 of the 25 cases it was clear that death resulted from some complication of the diabetes: 5 of them had severe tuberculosis (4 pulmonary and 1 renal); gangrene was present in 4; 2 patients died of angina, and 2 of heart failure without coma (both were over 70 when insulin treatment was tried as a last resort); 3 cases had gross septic infections (1 mastoid disease, 1 pyonephrosis, and 1 ischio-rectal abscess); 1 case of renal infantilism with slight diabetes died of uraemia; 7 cases died of coma that was apparently uncomplicated (there were *post-mortem* examinations in 3 only). In 2 early cases which occurred when the supply of insulin was limited the treatment was inadequate; 2 others were of the special type of coma to be described later; in 1 case death followed rapidly from coma when insulin was left off against advice and an unrestricted diet was taken; the treatment of the 2 remaining cases was begun when the coma was far advanced. One patient died as the result of insulin treatment, a woman with diabetes of moderate severity who was doing well when she suddenly became unconscious. The diagnosis of hypoglycaemia was made at once, and glucose was given intravenously. She appeared to rally slightly and a small injection of adrenaline was made intravenously to expedite recovery, but ventricular fibrillation occurred and was immediately fatal. Death was probably due to the adrenaline, and this case demonstrates again the danger of the intravenous injection of this drug.

An examination of these details shows that the 25 per cent. mortality recorded in this series gives too serious an

* Being the substance of a post-graduate lecture at the General Hospital, Birmingham.

impression of the true position of patients treated by insulin; it is clear that many (at least 10) of these patients who died were fatally ill from causes other than diabetes before treatment was begun, and I think it is fair to point out that with greater experience of insulin four others might have been saved.

Coma and its Treatment.

The general features of full diabetic coma, which are familiar, need not be described, but I wish to emphasize the fact that it is comparatively rare for this serious complication to develop suddenly, and that now that insulin is available it should be possible to avoid it in a larger number of cases. Quite frequently the warning symptoms of commencing coma extend over a few days, and they are frequently ushered in by vomiting and either constipation or diarrhoea, with vague abdominal pain without rigidity. If the urine be examined diacetic acid is always present, and these symptoms, particularly if associated with hurried respiration, in a patient known to be passing sugar should call for energetic treatment.

Diabetic coma cannot, of course, be properly treated on any routine plan, but, for the sake of clearness, I will state dogmatically the important points.

The patient should be put to bed and an enema and saline purge should be given at once. Complete and repeated physical examination should be made for any complicating factor, such as sepsis, which may have precipitated the attack, and treatment of this complication will accompany the treatment of coma, and is, indeed, a feature of it; this is a matter of extreme importance, for it is probable that the majority of attacks of coma are precipitated by infection. It should be emphasized, too, that the absence of fever in severe diabetes does not warrant the assumption that no infection is present, for it is undoubtedly true that diabetics may have severe general infections (such as pneumonia) while the temperature remains normal. Hot broth, weak tea or coffee, with very little milk, should be given every hour by the mouth. If the patient cannot drink, subcutaneous, rectal, or intravenous salines should be given instead; 10 grains of sodium bicarbonate should be given with each drink until the urine becomes alkaline, and then should be discontinued, for excess of alkali may do harm.

In average adult cases I give 30 units of insulin at once, 20 units in two hours' time, and 10 units two hours later, making 60 units in the first four hours in decreasing doses. Later, 10 units are given every four hours for as long as the glycosuria persists. The nurse is told to obtain hourly specimens of urine, by catheter if necessary, and to test them at once for sugar; immediately a specimen of urine is obtained free from sugar, 4 oz. of hot milk and some thin bread-and-butter is given by the mouth.

With treatment of this kind, most cases of diabetic coma, not too far advanced and uncomplicated by gross sepsis, recover very well.

A Special Form of Coma.

I wish to draw attention to what is, I believe, a special form of coma occurring in patients previously treated by insulin; the following is a description of a case illustrative of the condition to which I refer.

A farmer, in whom diabetic symptoms first declared themselves in July, 1921, when he was 30 years of age, was treated in September of the same year on Allen lines in a nursing home, and returned to his ordinary work on a diet of 1,500 calories, with a carbohydrate content of 30 grams, protein 70 grams, and fat 110 grams. He was then sugar-free and his blood sugar was normal.

During the next two years he had several breakdowns; it was necessary to restrict his diet still more, and he became extremely wasted. Early in 1923 he slipped into coma, and was rescued by some injections of pancreatic extract which I was then using for some experimental work with animals in conjunction with Dr. A. F. Wright. In May, 1923, insulin became available and he steadily improved. In September of the same year the daily dose of insulin was 40 units and he began to gain weight.

I saw nothing of him until November, 1924, by which time he had become extremely fat. I warned him against excess of diet and told him to take free exercise, but within a month he was again admitted to a nursing home in coma. He was treated energetically with insulin (120 units in twenty-four hours) and that his blood sugar was normal, that his urine was free from sugar and contained no diacetic acid, he remained unconscious and

extremely ill. His pulse became very rapid and feeble, respiration was shallow and slow, and, although glucose was given intravenously with further doses of insulin, he died.

Shortly afterwards I saw a woman who had run a very similar course; and after her second attack of coma, when she remained unconscious with normal blood sugar and without glycosuria, I performed lumbar puncture, withdrew about 20 c.cm. of cerebro-spinal fluid, and injected 5 units of insulin, diluted with 10 c.cm. saline, direct into the theca. Within a few hours she was conscious and well on the way to recovery. The cerebro-spinal fluid gave a strongly positive Rothera test, and contained 0.5 per cent. sugar. In a third similar case I injected the insulin by cistern puncture. Recovery followed in about the same time, but the method appeared to have no striking advantage over simple lumbar puncture and injection.

I do not suggest that these cases are very common, but, on looking back over the hospital records, I have met with two other fatal cases. Both had been previously treated with insulin, and were admitted to the hospital in coma. The notes show that some hours before their deaths the blood sugar was normal and the urine free from sugar and diacetic acid.

The explanation of these cases is, I believe, that the changes in the blood after administration of insulin occur very much more rapidly than they do in the cerebro-spinal fluid, and that the medulla is poisoned by the acidosis of the fluid while the blood is normal. Gross disparity between the condition of the blood and cerebro-spinal fluid is more likely to occur in cases already undergoing treatment by insulin. I mention these cases because it seems to me that they justify one further measure in the treatment of diabetic coma when the response to the normal treatment by insulin is not satisfactory within a short time—namely, intrathecal injection of 5 units of insulin diluted with saline.

Twenty-one attacks of coma were treated—9 in hospital and 12 in private practice. Of the 9 hospital cases 5 recovered, but all of these died within a year; they were all cases in which the diabetes was complicated by other factors. Of the 12 attacks treated in private practice 5 cases died, but the remaining 5 are in good health and two of these have had two attacks of coma each.

The Survivors.

Of the 75 patients who survive 14 are in poor or moderate health—that is, they are still unable to do their usual work. I have made a careful analysis of these cases to discover the causes of failure in them, and I have come to the conclusion that the principal factors, in order of importance, are:

1. *Incidence of Infections.*—Frequent catarrhal illnesses, the source of which is commonly in the nose and throat; they seem to be due to diminished resistance. Of this group several have refused treatment for fear of operations. In three cases in which vaccines have been used no benefit has resulted.

2. *Lack of control of diet* due to want of care or intelligence on the part of the patient.

3. *The Secrecy of the Disease.*—There appears to be a small group of cases in which, despite efficient treatment, the condition becomes more serious as time goes on.

Of the 100 cases, 61 remain in good health, able to do their ordinary work comfortably, some doing very hard work. They include manual labourers, men controlling large businesses, and children going to ordinary schools and developing normally. In several women menstruation has been normal and two of them became pregnant; one of them unfortunately had an extrauterine gestation which ruptured. My colleague Mr. B. T. Rose operated, and she recovered and is still well. In the other case the pregnancy was terminated.

This seems to be a satisfactory result, particularly when it is remembered that in this early period the cases treated were severe, as many of those of moderate severity did not receive insulin owing to expense and the uncertainty of its value.

An examination of the records of these 61 cases shows that the chief factors of success in treatment are the adequate instruction, self-control, and intelligence of the

patient, coupled with circumstances which are favourable to good personal hygiene. The care of the teeth, of the nose, nasal sinuses, and throat, the regulation of the bowels, scrupulous attention to the feet, are details which in the diabetic assume great importance. Careful routine overhauling to discover and eradicate focal sepsis should be an essential in the after-care of every diabetic patient, whether treated with insulin or not.

As regards the diet, I have used slight modifications of the scale which I have already described (BRITISH MEDICAL JOURNAL, March 15th, 1924, p. 457), and my aim has been to keep the patients at work at a weight a few pounds less than the average for their age and build; the dose of insulin has been adjusted accordingly, but I do not exceed 40 units daily for general use, and the diet and weight are reduced when necessary.

Whether it is essential to keep the blood sugar normal and the urine constantly free of sugar is a question of interest and practical importance; on theoretical grounds it is desirable to do so, and all those in whom this aim has been attained have done well; but I am bound to confess that they are few, and I have been surprised to find that in spite of the fact that the greater number do at times pass sugar they nevertheless remain in good health. I insist that no effort should be spared to keep the first specimen passed in the day free from sugar, as by that means it is possible to make sure that the blood sugar is normal or nearly so during the hours of sleep, and as an ideal this has been of practical value. Conscientious patients become very worried about occasional glycosuria, which, in the many vicissitudes of their daily lives, seems to be almost unavoidable, and it is a relief to be able to tell them that they need not worry provided the early morning specimen is free. Elaborate blood sugar control is unnecessary once the condition has been stabilized.

Certain other points emerge which are of importance. As a general rule those patients have done best in whom insulin treatment has been instituted soon after the symptoms of diabetes have first appeared. This is particularly true of the younger cases; it is, I think, significant that there is no record in this series of satisfactory subsequent progress in a patient under 25 years who put off insulin treatment for more than four months from the onset of symptoms, even when dietetic treatment had been stringent and efficient during the early period of the disease. The conclusion is warranted that all young diabetics should be treated with insulin without delay.

I have been compelled to revise my former opinion that insulin treatment in the elderly and long-standing cases of diabetes was not of much value, for I am bound to admit that several cases of this type have shown remarkable mental and physical improvement with it. In early days I was misled by the fact that in this class of patient improvement comes more slowly and much less dramatically than in the young, and it may be some months before the advantage is manifest.

There appears to be no definite relationship between the rate of early progress and the ultimate prognosis. Recovery of tolerance undoubtedly occurs in a greater proportion of cases and to a far greater degree than in the days of simple dietetic treatment. Four of my patients (all of them over 40) have given up insulin after varying periods of treatment, and have now a tolerance for an adequate diet with nearly 100 grams of carbohydrate. The most striking case is that of a man who, on leaving hospital over a year ago, took 60 units daily and yet did not remain sugar-free. He has now been without insulin for three months and remains sugar-free with a more liberal diet. It is unwise for the border-line case to give up insulin; several patients have attempted to do this and to continue treatment by dieting alone, but almost without exception they are glad to renew the irksome injections for their "tonic effect."

Summary.

1. Of 100 cases of diabetes of all types treated with insulin and dieting 75 survive—61 in good health and 14 in poor or moderate health. This result will almost certainly improve in future, as during this period the treatment was mainly limited to the more severe cases. Of the 25 deaths that occurred, 1 resulted from the treat-

ment and 10 others were not directly due to diabetes but may have been accelerated by it; in 17 of the fatal cases there were definite complications.

2. Of 21 attacks of coma either actually treated in the stage of full unconsciousness or close to it, 12 recovered. Of the 10 patients concerned, 5 remain in fairly good health; the others have since died.

3. A type of persistent coma which is, I believe, particularly liable to occur in treatment by insulin is described. Recovery from this type of coma after intrathecal injection of insulin is recorded.

4. The importance of early insulin treatment in young patients is emphasized.

5. All cases which have kept a normal blood sugar and have remained free from glycosuria have done well; their condition at this time, however, does not appear materially better than that of those who have shown glycosuria at times but who nevertheless have managed to keep the early morning specimen free.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

FISSURED FRACTURE OF THIGH WITH FEW SYMPTOMS UNTIL A MONTH LATER.

THE following history of fracture of thigh in a youth is so unusual as to warrant its being reported.

A lad, aged 16, a pony driver in a pit, met with an accident on October 13th, 1925, which was diagnosed as a contusion of the right hip; he had some discoloration in this region. He was able to walk about after the accident, at first with the aid of a stick; by November 14th the contusion had cleared up, and he could walk and bend his hip perfectly and felt quite well. He returned to work in the pit on November 16th; there was no work in the pit on November 17th, but he worked on November 18th. Whilst out for a walk on November 19th he slipped on frosty ground with his left foot and states that his right leg gave way. He was removed to hospital, where x-ray examination revealed an oblique fracture of the right thigh at the junction of the upper with the middle third, and marked angular deformity.

At subsequent proceedings in the county court, taken under the Workmen's Compensation Act, it was maintained successfully that a result of the accident on October 13th had been a fissured fracture of the right thigh; it was given in evidence that there was callus when the x-ray examination was made six hours after the accident on November 19th, and that the callus was not firm on account of the youth walking about too soon.

I have never before heard of a case where a person with a fractured thigh could walk about, practically without pain, resuming work for two days, and that then a trivial accident should reveal a fissured fracture of a month earlier.

Barnsley.

H. A. L. BAXHAM.

ACUTE GASTRIC ULCER ASSOCIATED WITH PERNICIOUS ANAEMIA.

The combination of acute gastric ulcer and pernicious anaemia in the following case seems to be of sufficient interest to be placed on record.

A married woman, aged 42, was admitted, as an emergency case, to the Royal Alexandra Infirmary, Paisley, on March 1st, 1926, with a history of having, on February 25th, while at housework, retched and vomited 10 ounces of dark blood; two brighter coloured vomits of similar amount followed the same day. The next day a mouthful of bright blood was brought up. Her next and last vomit was half an hour after admission—about 6 ounces of partly clotted blood. She stated that she had had "bilious turns" for two years, that she had been yellow for five weeks, but that she had been able to do her household duties quite well.

On admission the temperature was 101° F., pulse 160, and respirations 28; she was a well nourished woman. The skin was decidedly lemon-tinted and the mucous membranes very blanched. She was very collapsed. The pulse was barely perceptible at the wrist; sounds heard easily on auscultation over brachial and femoral arteries; blood pressure 115/40.

She died in thirty-six hours. Examination of the blood showed: haemoglobin 9 per cent., white cells 27,000, red cells 940,000, colour index 0.5. Poikilocytosis, anisocytosis, polychromatophilia,

and basophil degeneration were seen. There were numerous nucleated red cells and megaloblasts (33 of the latter were noted during a count of 100 white cells).

Dr. Mary B. Hannay, pathologist to the infirmary, conducted a *post-mortem* examination, and reported three simple ulcers on the lesser curvature of the stomach; a blood vessel opened into the floor of one of them. The contents of the lower small intestine and of the colon were much blood-stained. The heart was dilated, especially the right ventricle, and the muscle pale and soft, showing faint yellow mottling. The liver was fatty, and gave a faint Prussian blue reaction.

I have to thank Dr. W. Clow, to whose ward the patient was admitted, for permission to report this case, and also Dr. Hannay for permission to quote from her report.

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CHONDRO-SARCOMA OF INDEX FINGER.

THE following case is of sufficient interest to be placed on record since the occurrence of sarcomata of the phalanges and metacarpals is exceedingly rare.

The patient, a single woman aged 21 years, was admitted to hospital on September 29th, 1925, with a large chondrosarcoma of the left index finger. She stated that, some

eighteen months before admission, the growth started as a white mark resembling a blister, and that it grew slowly. At first it was very soft, but it gradually increased in hardness. During the previous two months it had been growing rapidly. She said she had experienced no pain until a week before she was seen, and that she only came for advice because of the inconvenience caused by the size of the growth. There was no past history of rickets.

On examination a tumour the size of a billiard ball was

seen on the palmar surface of the index finger of the left hand; it was situated on the proximal phalanx. It was fluctuating in parts, had a broad base, and the skin was nowhere adherent (Fig. 1).

An x-ray photograph showed destruction of the shaft of the proximal phalanx of the index finger and a large soft tumour extending outwards; there were several areas of ossification (Fig. 2). Examination of the chest by x rays showed no evidence of secondary deposits in the lungs.

The patient was operated upon by Mr. Rodney Maingot on the day after admission. The index finger and the distal half of the second metacarpal bone were amputated. Microscopical examination of the parts removed showed the tumour to be a chondro-sarcoma undergoing myxomatous degeneration in parts. The central portion of the growth was necrotic.

Examination of the hand on February 28th, 1926, showed a painless scar. The movement and gripping power of the fingers were good, and the patient experienced but little inconvenience. There was no clinical or x-ray evidence of metastases in the lungs, or locally in the region of the scar.

I am indebted to the courtesy of Dr. Cleveland Smith for permission to report this case.

CLIFFORD H. LEE, M.R.C.S., L.R.C.P.,
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Reports of Societies.

THE CONTROL OF INFECTIOUS DISEASE.

A DISCUSSION on modern methods of control of infectious disease took place in the Section of Medicine of the Royal Society of Medicine on March 23rd, Dr. HUGH THURSFIELD presiding.

Sir JOHN ROBERTSON (M.O.H. Birmingham) exhibited charts to illustrate the incidence and mortality rates in respect to certain infectious diseases in England and Wales during the last half-century. He said that the mortality from small-pox had reached vanishing point. As to enteric fever, the difficulty was to get a case in hospital for teaching purposes. The mortality from scarlet fever, diphtheria, measles, and whooping-cough had enormously declined, though the decline in incidence had not in all cases been parallel. In dealing with infectious diseases in the past, four methods had been employed—notification, isolation, quarantine, and disinfection. Within recent years immunization methods had been added, although, of course, small-pox prevention furnished an early example of immunization, which was still the most successful. All who had been engaged in small-pox prevention would agree that the disease could be entirely abolished by general vaccination and revaccination. But in a community in which 30 to 40 per cent. of the people were unvaccinated, and an additional number not efficiently protected, it was necessary to bring into operation isolation and quarantine. A number of cases of small-pox were now so mild as to escape notification. Apparently there was very little natural immunity to small-pox—that is, few unprotected people escaped small-pox if exposed to infection. In passing he mentioned a striking case within his experience in which a book read on his deathbed by a sufferer from confluent small-pox, and not disinfected, was the means of infecting other cases in three different houses within a period of thirteen months.

In scarlet fever natural immunity played an important part. Somewhere between 12 and 20 per cent. of the population under 15 years of age were at one time or other susceptible to scarlet fever, while the rest, either by natural immunity or by reason of non-exposure to infection, escaped the disease. Natural immunity played an important part not only in preventing this disease but in reducing its virulence. Many hospital superintendents were now making use, with very good results, of the recent work done on immunization to scarlet fever, and he had no doubt that in the very near future it would be possible for the medical man to protect entirely any individual from scarlet fever. Isolation was a great convenience to the public, and was of great value to the patient acutely ill, but it had considerable disadvantages, among them the liability, unless the discipline in the fever hospital was exceptional, for the children to contract other infections. Home isolation for all but the poorest or the most severe cases was sufficient for scarlet fever. Scarlet fever was now a mild disease, and reliance must for the present be placed upon the old methods of isolation and disinfection in the hope that in the near future the work done on immunization would yield a satisfactory method of limiting scarlet fever incidence.

Diphtheria was a disease in which hospital isolation, quarantine, and disinfection had apparently accomplished nothing so far as incidence was concerned, although mortality had fallen greatly. Most cases of diphtheria should be removed to hospital for skilled supervision and nursing, though not necessarily to prevent spread. The virulent carrier cases might be divided into two groups: those who were in the carrier condition for a short time only, and the chronic carriers, who were mostly those with tonsils and adenoids needing the attention of the otologist. The Schick test had demonstrated that there existed in many people a natural immunity to diphtheria. He produced some figures relating to the recent experience in New York of immunization to scarlet fever.

In 1915 the number of new cases reported was 15,279, and of deaths 1,278; in 1905 the numbers were respectively 13,686 and 1,544, and those years were at about the usual

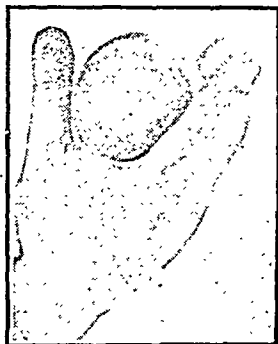


FIG. 1.

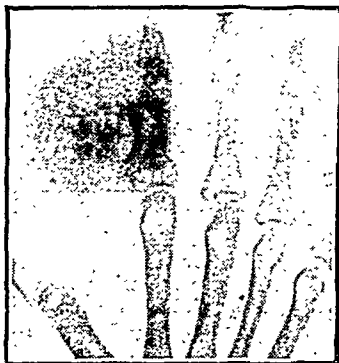


FIG. 2.

	New Cases Reported.	Deaths.	Persons Immunized by Toxin-antitoxin.
1921	15,110	891	42,000
1922	10,427	873	48,496
1923	8,050	553	42,818
1924	9,637	714	58,936
1925	9,051	673	38,191

level for the ten-year period. He also drew attention to the work going forward at present in Paris in the immunization of children to measles. Two public dispensaries were now open for dealing with cases of commencing measles or contacts, and good results were claimed. In conclusion he raised the question as to whether there was some non-specific general immunization of the people taking place. It seemed possible that the improved general health might confer some immunity.

Dr. C. R. Box said that there was no stereotyped method of preventing infectious disease. Each disease was to a certain extent a law unto itself, and it was only by increasing knowledge of the nature and the cause of the disease, the manner of its spread, and also perhaps the mechanism of bodily defence, that any campaign could attain success. The diminished incidence of small-pox was due, no doubt, to vaccination; that of plague, typhus, cholera, and enteric fever to sewage control, pure water supply, and general sanitary measures. He questioned whether there was such a thing as natural immunity to infectious disease. Was it not more correct to say that the body had a defensive mechanism which was brought into action on attack? He attached a good deal more importance as a result of his experience to the scarlatina carrier than Sir John Robertson appeared to do. In diphtheria he noticed that the case incidence had not materially fallen, but the mortality was greatly lowered, a tribute, of course, to treatment and nursing. The separation of virulent and avirulent carriers had also been a great help.

Dr. E. W. GOODALL agreed with Sir John Robertson's generalization that the better the knowledge of the natural history of infectious diseases the more efficient would be the control. It was now realized, however, by most epidemiologists that it was not possible to get rid of the micro-organism spreading the infection. The word "control" was loosely used; it was not the disease which was controlled, but chiefly the actions of people and animals. The methods of control available were: (1) to prevent the attack without destroying the organism, as, for instance, to preserve drink and food from contamination; (2) to kill the germs immediately, as by boiling or cooking drink and food which might have been infected; (3) to kill the insect or animal host, as the louse in typhus and the rat in plague; (4) to render the individual immune to attack. Of these methods the last was the most efficacious, but a note of warning should be raised against promising too much from immunization. The mistake of Jenner and his disciples in supposing that complete protection ensued from one vaccination must not be repeated. In the first three of the methods just cited it was not the individual who was dealt with, but the herd; in the fourth it was the individual, and that was where the trouble began, at least in this country. Immunization to measles and whooping-cough might come to be established on a firm foundation, but the best method of applying such immunization would be a nice problem for the administrator. Possibly some future bacteriologist would arise with a mithridate whereby immunization to all these infections might be secured with the one injection.

Dr. R. A. O'BRIEN described the methods and results of control against diphtheria by immunization as practised in certain residential institutions. In three such institutions in which a good deal of diphtheria had previously occurred the immunization method was introduced, and since that time, for the last four years, there had been no case of clinical diphtheria among the children tested and at once found negative or immunized and found negative afterwards. He also dealt with the immunization of nurses in fever hospitals. He estimated that for every

100 cases of diphtheria in institutions one nurse or attendant became infected, and as the total number of cases of diphtheria in this country was 50,000 a year, probably 500 cases of diphtheria occurred annually among nurses. In one fever hospital in which the number of nurses who got diphtheria amounted to about twenty each year for several years in succession, a striking fall followed the introduction of immunization of all new entrants into the service; in 1923 the number of nurses infected was four, in 1924 it was eight, and in 1925 it was four again.

Major PARKINSON mentioned experiences with typhoid fever in the early stages of the war; the sheet-anchor then was antityphoid inoculation. Tetanus was another disease which caused anxiety, but when a serum was found the disease greatly diminished in importance. At one stage the serum ran out, and immediately the figures went up considerably, but when a fresh supply of the serum arrived control was re-established. In war time, of course, the men were under complete discipline, and measures could be much more effectively applied. Moreover, there were sanitary sections which looked after the water supply, the sewage disposal, and so on, and a map showed the danger spots. It was also a help, during a campaign, to know something of the general health of the populace among whom the soldiers were billeted.

The PRESIDENT, in closing the discussion, remarked that the fall in the incidence and death rate in infectious diseases generally was not shared by influenza. Infectious disease incidence was largely a question of mass infection. When a community was carefully guarded and no massive infection was allowed to enter there would be a drop in incidence, but when the circumstances were the converse an increased incidence was noted. Sir John Robertson had pointed out that although in pneumonia there had been little reduction the death rate from bronchitis in all forms had come down. For the general drop in the bronchitis rate the better social conditions, and particularly the factory regulations imposed by the Home Office, should receive the credit.

EFFECTS OF ULTRA-VIOLET RADIATION.

A discussion on the effects of ultra-violet radiation took place at the Royal Society of Medicine, in the Section of Comparative Medicine, on March 24th. Professor FREDERICK HODDAX presided.

Two preliminary papers were read, in one of which Dr. J. F. HALLS DALLY gave an account of the principles underlying ultra-violet radiation treatment and the various kinds of lamps in use. He agreed with Professor Sonne of Copenhagen, in holding that the biological effects produced with this form of treatment were not solely a function of the ultra-violet energy, but depended also upon the luminous rays, which had a heating effect of importance in the destruction of toxins and the formation of antibodies. He spoke of the need for more research in connexion with the analgesic properties of ultra-violet radiations; his own work led him to think that these were of importance. Indeed, the medical profession was still awaiting the results of co-operative observations by chemists, physicists, and physiologists. With standard electrodes, strengths of current, positions and distances of subject, and times of exposure, the effect of groups of measured wavelengths of definite intensities should be carefully studied. The other paper was by Mr. MIDDLETON PERRY, who gave some account of successful treatment with a quartz mercury vapour lamp in veterinary medicine—skin diseases, indolent wounds and ulcers, and rickets in dogs.

Professor LEONARD HILL, in opening the general discussion, gave it as his opinion that what any source of artificial ultra-violet rays could do was neither more nor less than what the high sun could do at the seaside or in the clear country air or in the Alps. What the sun would do these artificial sources would do in seasons when the ultra-violet rays, and to a great extent the visible rays also, were cut off by the mist and cloud of our climate, not to speak of our industrial and domestic smoke-screen. A great deal of nonsense was being talked nowadays about different sources and methods of getting ultra-violet

radiation. It did not signify much what the source was, whether mercury vapour or arc, or whether a plain carbon arc or one with a core of iron, magnesium, or tungsten. Results could be obtained from any of these different sources. One distinguished clinician had stated that nothing should be used except the short-flame carbon arc with direct current, giving a flame that never flickered. That dogmatic kind of statement was unwarranted. One could get equally good results with long-flame arcs, which incidentally were far more economical in cost. The intensity of ultra-violet radiation obtained depended upon the energy which was put through the arc. If the energy, say, of a 200-volt current were broken up into four poles instead of two the same ultra-violet energy would not be forthcoming as from two in series. By careful management comparatively weak sources of ultra-violet radiation might furnish whatever was necessary, but, of course, such weak sources were time-wasting. It had to be borne in mind also that the skin rapidly immunized itself against the dose it was receiving. The horny layer thickened, the skin became oedematous, and penetration correspondingly difficult. The active region in the ultra-violet spectrum was from 3,200 to 2,400 Angstrom units. Rays shorter than this lower limit would kill bacteria, infusoria, and so on, but would not penetrate the horny layer of the epithelium. He had had his skin subjected for half an hour to ultra-violet radiation of a wave-length of 2,320—an intensity which would kill all infusoria in a drop of water in a minute or so—and no erythema was produced at all. A slight erythema was produced with a wave-length of 2,500, and the maximum erythema effect was in the region 2,950-3,000. He passed on to speak of the conclusions of the long investigation on rickets. By ultra-violet radiation stearyl could be activated so that in a minimal dose it would cure rickets. If 1 mg. a day of the activated stearyl were given to the animal there would be no rickets. The activation was brought about by half an hour's exposure. This activated stearyl or cholesterol was vitamin D. Ultra-violet radiation, therefore, could produce a vitamin, and produced it, as physicists told them, by altering the energy of the atoms. When eaten by the animal this activated substance enabled it to absorb from its alimentary canal the minimal quantity of salts of phosphorus and salts of lime which was deficient in the diet, so that what was previously wasted in the faeces and not absorbed was now absorbed and went to build the bones. With regard to respiratory metabolism, he emphasized the importance of skylight. The sky was the most valuable source of ultra-violet rays. Bright clouds and blue sky gave even more ultra-violet radiation than the high sun, and far more than the low sun. Respiratory metabolism might also be put up by 100 per cent. in winter, not to any measurable extent by ultra-violet rays, but by exposure to wind and cold air. That was one of the great secrets of open-air treatment; exposure to cold put up the appetite, toned the muscles, and so on, and to this might be added the energetic action of ultra-violet rays and of visible rays also on the skin. In conclusion, Professor Leonard Hill referred to the need for studying the stimulating and lethal effects of ultra-violet radiation in different doses on the living cell.

Dr. M. WEINBRENN said that, while it was always possible to measure what was being emitted by the ultra-violet source, it was not possible to measure what the patient was absorbing. It was not like x-ray work, where the pastille dose could be repeated with fair certainty. The erythema dose in ultra-violet was quite vague and alterable. It was this uncertainty which gave a vogue to empirical methods, and brought about the many different types of apparatus. He went on to speak of the proved value of ultra-violet radiations in surgical tuberculosis, especially from the long-flame arc, and illustrated a number of cases with the object of showing that the existence of a pulmonary condition need not contraindicate ultra-violet treatment in surgical tuberculosis.

Dr. A. EIDSNOW spoke of experiments in which he had taken a share at the National Institute for Medical Research. In these experiments no results at all of any great biological significance had been found when radiations of a wave-length longer than 3,000 Angstrom units

had been used. It was possible that these longer radiations would have some effect if employed for a longer time, but so far as he was aware it was not possible to get any of the beneficial results which were put down to light treatment without some of the so-called shorter ultra-violet rays. Without these rays it did not seem possible to cure rickets, for example, or readily to destroy bacteria, or to produce without difficulty an erythema of the skin. The reason why these shorter waves were so important was their greater absorptibility by the irradiated tissues. He laid stress upon the importance in experiments upon animals or in the treatment of patients, when the object was to increase the bactericidal power of the blood, of getting the erythema dose. Short of that dose there seemed to be no effect at all. It had been found that if a very small area of skin, corresponding to 1 to 5 sq. cm. per kilogram body weight of the animal, were exposed even for a full hour a rise in the bactericidal power of the blood could not be obtained, the reason being that the area of skin was too small. On increasing the area exposed to 15 to 40 sq. cm. per kilogram there was a definite rise in bactericidal power after five minutes' exposure; but on exposing a still larger area—100 to 120 sq. cm.—no rise in the bactericidal power of the blood was manifest at all, either with a small or a large dose, the blood even appearing to be a little weaker. This was due to the surface area of the skin exposed being too large. By a system of careful exposure of a moderate area of skin, always aiming at producing a minimal erythema, and not repeating the dose on the same area at too short intervals because of the great tolerance of the skin for light—the skin desquamating under light action and thereby cutting out the whole ultra-violet effect—one might hope to get the maximum effect in increased bactericidal power of the blood.

THE ACUTE ABDOMEN IN CHILDHOOD.

At a meeting of the London Association of the Medical Women's Federation on March 9th, Dr. CHRISTINE MURRELL, the President, in the chair, Miss GERTRUDE HERZFELD gave an address on the acute abdomen in childhood.

Miss Herzfeld first related the differences between the pathology of this condition in adults and in children. In children the lesions were limited to the embryological mid-gut, corresponding to the small intestine and the first two-thirds of the large intestine. The manifestations of inflammatory or obstructive conditions were more speedily noticeable in children. Inflammation proceeded to suppuration much more rapidly, and obstruction soon gave rise to symptoms of toxæmia. For these reasons the practitioner should not wait to make a differential diagnosis once he was convinced of the presence of an acute condition in the abdomen, but should at once call in surgical aid. Prior to laparotomy the child should be kept warm and given plenty of fluid; subcutaneous saline injections should be administered if there had been much vomiting. It was the speaker's custom to give atropine in large doses—gr. 1/200 to gr. 1/150—to infants under 2 before operation, and gr. 1/100 to children over 2. Warmth in the theatre, speed in operating, and gentle handling were essential to success. Only two incisions were used by her: the gridiron incision when appendicitis or an intussusception proximal to the transverse colon was suspected, otherwise a vertical paramedian incision. Post-operative saline infusions were always given. The conditions giving rise to an acute abdomen in childhood could be divided into inflammations and obstructions. Among the former appendicitis (50 per cent. of all abdominal cases), pneumococcal peritonitis, streptococcal peritonitis, Meckel's diverticulitis, and tuberculous abdomen had to be considered. Congenital obstructions to be looked for included imperforate anus, congenital hypertrophy of pylorus, maldevelopment of gut, bands, and Meckel's diverticulum. Acquired obstructions might be due to intussusception (20 per cent. of abdominal cases in childhood), tuberculous peritonitis, hernia, or volvulus. Miss Herzfeld discussed in some detail acute appendicitis and intussusception as being relatively common conditions, and gave an account of recent investigations into the rare condition of pneumococcal peritonitis. Acute appendicitis

could occur at any age, but generally the patient was over 2 years. It was rarely diagnosed before suppuration supervened; over 90 per cent. of Miss Herzfeld's cases were already suppurating at operation. She had found pus as early as within twelve hours of the first attack. Vomiting was almost invariable except where the appendix was in the pelvis, in which case pain might be localized at the umbilicus in the young child, or in the suprapubic region in the older one. There might be frequent and painful micturition through involvement of the bladder, or diarrhoea. There was little rigidity of the abdominal wall, but on rectal examination tenderness was found not only during insertion of the finger, which was usual in normal children, but on movement of the finger-tip in certain directions. The feature of inflammation of a retro-axial appendix was a lack of resistance in the abdomen associated with posterior rigidity in the region of the lumbar muscles; vomiting might occur. If the appendix was associated with an undescended caecum the rigidity and tenderness were to be found higher up in the abdomen. The differential diagnosis of appendicitis from diaphragmatic pleurisy and pleural pneumonia could be very difficult. In the last condition the rigidity and tenderness were not so well marked nor so persistent as in appendicitis. Sometimes a re-examination twenty minutes after the first examination revealed a shifting of the signs to another place. The general appearance of a child with pneumonia was characteristic. Acute and subacute pyelitis could be distinguished from appendicitis by a microscopic examination of the urine, which was usually acid, and by the presence of lumbar tenderness. In ileo-caecal tuberculosis abdominal tenderness was very marked but rigidity was less, and the child on the whole was not so ill. This condition might be very difficult to distinguish from appendicitis, and in doubtful cases it was better to explore. The possibility of cyclic vomiting must be borne in mind and excluded, since an anaesthetic was injurious in this condition. The history of vomiting previous to the attack and the presence of acetonaemia were diagnostic features. Pneumococcal peritonitis was a rare condition, but the mortality was high (70 to 75 per cent.) irrespective of treatment; it could be primary (idiopathic) or secondary to pneumonia or some other lesion. The pathology of the primary form had only been determined by Professor J. Frazer and Dr. Macartney of recent years in Edinburgh. It occurred only in little girls of the hospital class, the average age being 5½. It began as a pelvic peritonitis, and was an ascending infection, through the vagina, in children who had a vaginal discharge. The class incidence might be accounted for by the inadequate clothing and the habit, among the poorer children, of sitting on dirty steps. A septicaemia rapidly followed the peritonitis, with a positive blood culture in six to twelve hours. Experimental work on rabbits had enabled the course of infection to be traced, and had proved that the blood infection was a secondary one. The child suddenly complained of acute abdominal pain, followed by vomiting, delirium, and high temperature. In the less acute cases the septicaemia might be delayed for forty-eight hours. The only possible treatment was drainage of the lower abdomen. Blood transfusion had not proved of much avail. The typical features of intussusception were onset of acute abdominal pain in a fat, strong, healthy baby, usually a boy of over 4 months. The usual history was that the child screamed and drew up his legs, then "fainted away," and, exhausted, fell asleep, only to awake half an hour later with another attack; vomiting would begin at this stage, and sooner or later blood would be passed per rectum. Since the contents of the bowel distal to the ileo-caecal region had first to be emptied, blood was not necessarily passed at once. Miss Herzfeld quoted cases to show the difficulty of diagnosis even when blood was passed. It was unwise to operate unless the tumours could actually be felt under anaesthesia. If the patient was under a year old reduction alone should be performed at operation, for any mutilation at the time was not well borne by the infant.

Dr. HAZEL GREGORY pointed out that in children rigors, if present, were pathognomonic of acute *B. coli* pyelitis; and Miss L. MARTINDALE described a fatal case of pneumococcal peritonitis in a child of 5.

Reviews.

THE BASIS OF VITAL ACTIVITY.

THIS little book on *The Basis of Vital Activity* is a review of five years' work at the St. Andrews Institute for Clinical Research by its distinguished director, the late Sir JAMES MACKENZIE. Much of it has already appeared in various articles published by him in this JOURNAL, and also in the last edition of his textbook on *Diseases of the Heart*, reviewed in our columns last year. The reader will quickly perceive that although it is described as a review of five years' work it is really a summing up of forty years' observation and thought by one of the most original physicians of our time.

Mackenzie did not set out at St. Andrews to study disease as a whole. He began with the intention of noting the earliest symptoms of common and chronic diseases and of watching their development during the lifetime of the individual. He found that while the number of symptoms of disease was constantly being added to, the explanation of symptoms was sadly defective. In order to make any progress he had to find out certain laws or principles underlying the production of symptoms, and the extent to which he had got is recorded in this book.

When Mackenzie began his epoch-making study of heart disease he was fortunate in having before him the recent physiological investigations and experiments of Gaskell on the functions of the heart muscle. The clinician showed how the work of the physiologist was confirmed by a study of diseased conditions of the heart. Pursuing a wider study of disease processes in general Mackenzie found that physiological teaching failed him. Many so-called physiological laws proved to be wrong when tested clinically, or the experiments were too artificial to be of any value, or knowledge was entirely absent regarding the ordinary vital processes and cellular action. Mackenzie therefore proceeded to deduce from clinical observation certain physiological laws and to elucidate physiological processes. These are here described and discussed. It will be interesting to find out whether physiologists will accept these views and will not be biased by the fact that they come from a clinical observer and thinker, and not from a laboratory.

Scottish theology demands a sense of sin on the part of the sinner before any real repentance can follow. English medicine in the person of Sir James Mackenzie demands a sense of ignorance on the part of the clinical observer before any real progress can be made. "He was always recognizing his own ignorance, and this stimulated him to further investigation and thought. He found that "a lack of guiding principles is responsible for many haphazard methods," and that "mere observation of phenomena is usurping the place of deduction and discovery." One of his basic principles is that "all vital activities are the outcome of the functioning of living cells." Among the forms of vital activity he deals with are the processes known as "contraction," "conduction," "inhibition," "control," and "secretion." In the performance of their various functions living cells are never at rest; they are either discharging energy or renewing it. Modifications of cell activity can only be brought about by hastening or delaying the renewal of energy. Cells in discharging their energy exhibit their peculiar function (for example, contraction) and at the same time discharge an impulse. This impulse exerts an influence on neighbouring cells by increasing or delaying their period of renewal of energy. The application of these and other basic principles to the clinical phenomena of disease, and more especially of chronic heart disease, is dealt with in the later part of the book.

While all readers will find this book interesting and instructive, we should like more especially to direct the attention of research workers to it. Often the research worker does not know what profitable line of investigation to take up, and often the path followed leads nowhere.

The Basis of Vital Activity. By Sir James Mackenzie, M.D., F.R.S., F.R.C.P., LL.D. With a Foreword by JAMES ORR, M.B. London: Faber and Gwyer, Ltd. 1925. (Cr. 8vo, pp. 122, 6s. net.)

Mackenzie was a brilliant and successful research worker. By no means the least valuable part of this book are the indications it gives as to many fruitful lines of research. The book may be said to be packed with them.

TREATMENT OF GONOCOCCAL INFECTION BY DIATHERMY.

THE lack of progress in the treatment of gonococcal infections may be illustrated by the story of the officer commanding a venereal hospital in France who, when asked if there had been any reduction in the average of six weeks for the treatment of gonorrhoea, replied that he thought the average in his hospital had been reduced to forty-one days! In their book on the *Treatment of Gonococcal Infection by Diathermy* Drs. CUMBERBATCH and ROBINSON point out how unsatisfactory is the treatment of infected joints, of the cervix uteri and urethra in the female, and of the prostate in the male, whether by irrigation, external applications, or vaccines. On the other hand, the gonococcus can be destroyed by a temperature which is not high enough to damage the living tissues. Hence the experiments carried out by the authors for some years past in the use of diathermy, in the electrical departments of St. Bartholomew's and the West Middlesex Hospitals. By their methods the tissues of the body conduct electricity and are heated by the current; so that the poor conductivity of the tissues for heat plays no part, because they are conducting, not heat, but electricity. As the diathermy current is restricted to a relatively small region, a high degree of heat can be produced without harm to the rest of the body. The gonococci are destroyed by the heat. In almost all their cases of gonococcal arthritis Drs. Cumberbatch and Robinson were able, within a comparatively short time, to abolish pain, reduce the swelling, and increase the range of movement. They were convinced of the therapeutic power of diathermy when they found that application to the original site of infection led to the disappearance of pain and swelling in infected joints. They attribute the failure of the treatment so far in urethritis in the male to the difficulties in the elaboration of a suitable technique. It will be noted that the authors of this book have contributed to our columns this week a paper in which they have got some remarkably good results in the treatment by diathermy of non-infective arthritis in women. This seems rather to throw the whole subject into the melting pot.

UTERINE HAEMORRHAGE.

IN a volume entitled *Uterine Haemorrhage* Dr. S. J. CAMERON and Dr. J. HEWITT of Glasgow have presented a full discussion of the various obstetrical and gynaecological conditions which cause this symptom. Their reason for so doing is that this one symptom, above all others in the whole range of obstetrics and gynaecology, should claim the attention of the general practitioner. The ample practical experience of the writers is enough in itself to vouch for the soundness of the teaching, which covers in systematic fashion the different conditions causing haemorrhage.

The obstetrical haemorrhages are discussed first—abortion and uterine moles, extrauterine pregnancy, ante- and post-partum haemorrhage, rupture of the uterus, lacerations of the cervix, and inversion. We were rather disappointed and surprised to find no mention of Hendry's method of controlling post-partum haemorrhage, which seemed, when his paper appeared, to be one of the most practical of recent contributions to this subject. The first chapter in the gynaecological section is devoted to the physiology of menstruation, and gives a very full and adequate account of the subject, although we have found no mention of the most recent work of Novak on the quantity of the endometrium which is shed monthly. The remaining chapters deal with the different gynaecological conditions of which

haemorrhage is the principal symptom, including the various forms of malignant disease, fibroids, endometritis, and chronic subinvolution. Under the treatment of the last-named condition there is no mention of the intra-uterine application of radium.

The volume concludes with an appendix upon the clinical manifestations of profound haemorrhage and shock, and a discussion of the technique of blood transfusion. It is written in a very readable style, and shows a wide familiarity with the literature of obstetrics and gynaecology. Our principal, and indeed only, difficulty about it is in regard to the advisability of writing a monograph upon a symptom. If this practice be followed to any great extent the output of literature will become even more overwhelming than it already is. The present book may be justified by the excellence of its substance, but on the whole we are inclined to think that the principle of it is in this respect unsound, and to hope that the example will not be followed.

HUMAN ANATOMY.

IN *Elements of Surface Anatomy*,⁴ by Assistant Professor MACLAREN THOMPSON of McGill University, we have a volume devoted to those parts of anatomy which can be studied from the surface, and which consequently are of special importance in diagnosis and treatment. The book does not differ much—naturally it cannot differ much—from other volumes devoted to the same subject, the only originality allowed being in the arrangement of the facts and in the choice of the nomenclature employed. The author covers the prescribed ground in some 170 pages, the text being divided into short paragraphs, in which the information given is not infrequently tabulated, thus facilitating reference and memorization. There are no illustrations. The nomenclature selected is that known as the B.N.A., the English equivalents for the terms, where the nomenclatures differ, being given in parentheses. The choice we regard as unfortunate from the point of view of the British student, who can scarcely, we think, be expected to welcome the substitution for such simple and adequate terms as "external and internal abdominal rings," of such pleonasms as "the subcutaneous (or superficial) inguinal (external abdominal) and the abdominal (or deep) inguinal (internal abdominal) rings"! The information in the book is, on the whole, full, accurate, and clearly expressed. A few relatively unimportant omissions and errors may, however, be noted. In the enumeration of the areas drained by the supraclavicular lymph glands the subdiaphragmatic area is ignored, while all that is said of the very important parotid group of lymph glands is that they lie in relation to the parotid salivary gland. The great sciatic nerve is stated, in agreement with so many other authors, to lie midway between the ischial tuberosity and the great trochanter, whereas its position is much nearer the former than the latter eminence. The tuberosity of the navicular (scaphoid), again, is not the most prominent landmark in the foot, the base of the fifth metatarsal having that distinction if we exclude the heel. The sternal angle (of Ludwig or Louis) is, of course, the angle of Louis, who was a French physician, not a German. Apart from such minor inexactitudes the volume is both reliable and attractive, and we have every confidence in recommending it, particularly to those of our readers who can readily adapt themselves, or who possibly have already adapted themselves, to a foreign nomenclature.

The fifth edition of SPALTEHOLZ's well known *Hand-Atlas of Human Anatomy*,⁵ translated from the original German by Professor LEWELLYS BARKER, seems to be a reprint pure and simple of the fourth edition, which was reviewed in the columns of this JOURNAL as recently as September 27th, 1924 (p. 578). The only differences to be noted are in such adventitious as the title-page and the prefaces, the former

⁴ *Elements of Surface Anatomy*. By I. MacLaren Thompson, B.Sc., M.B., Ch.B. Edin. Edinburgh: L. and S. Livingstone. 1925. (Cr. 8vo, pp. 172, 5s. 6d. net.)

⁵ *Hand-Atlas of Human Anatomy*. By Werner Spalteholz. Translated by Lewellys F. Barker. Fifth edition in English. In three volumes. London: J. B. Lippincott Company. 1925. (7 x 10: Vol. I, pp. 253, 331 plates; Vol. II, pp. 200, 231 figures; Vol. III, pp. 508, 432 figures. 24 net.)

² *Treatment of Gonococcal Infection by Diathermy*. By E. P. Cumberbatch, M.A., M.B., B.Ch.Oxon., M.R.C.P., and C. A. Robinson, M.B., London: W. Heinemann (Medical Books), 1925; 11 figures. 7s. 6d. net.
³ Samuel J. Cameron, M.B. Glas., F.R.F.P. (R.Glas.) London: Edward Arnold and Co. 1925; 1 figure. 8s. 6d. net.)

of which has been simplified while the latter have been suppressed. In the later edition the impressions of the blocks are perhaps a trifle sharper and the colour registration a trifle more accurate.

There can be no question as to the accuracy, completeness, and general excellence of the atlas, and we have every confidence in declaring it *facile princeps* in its own particular class. The only improvement we venture to suggest—and we do so with considerable hesitancy, for both as regards size and price the work should be kept within reasonable bounds—is the inclusion of a few representative transverse sections.

EVOLUTION.

PROFESSOR GRAHAM KERR's *Evolution*⁶ purports to be a book for beginners, intended to provide a sketch in outline, not overburdened with detail, of the evolutionary science of to-day. A book of this kind is badly needed, and Professor Kerr has supplied the want in a manner that leaves nothing to be desired. While the subject is treated in a thoroughly scientific spirit, it is presented in terms that should render it readily comprehensible to the laity. After giving a general idea of what evolution is, the author sets out to show that such a process has existed in nature. The proof is embodied in a series of chapters dealing severally with the embryology, palaeontology, comparative anatomy, and geographical distribution of animals, for the author confines himself to the animal kingdom as being his own province. Evidence of the existence of evolution having been adduced, the next step is to explain what conditions need to be postulated in order that the process of evolution may be conceived as possible—namely, the transmission of parental characters to the offspring, not in their completeness, but with a certain degree of variation. In this connexion the subject of heredity is fully discussed, including the significance of chromosomes, the statistical and experimental facts bearing on inheritance, and the Mendelian principle. The chapter on chromosomes, more particularly, contains matter of great interest, which will probably be new to most readers. Finally, there remained to be shown the manner in which evolutionary change has been brought about, and in dealing with this part of the subject the author has adopted, with some modification, the Darwinian theory of natural selection. This theory is, in some quarters, considered to be exploded, but it is pointed out that it never claimed to apply to any but natural, savage conditions, such as are to be met with in tropical regions; and the author asserts that no one who has had personal experience of the conditions of life in those regions will have the least doubt of the truth of the theory.

Having dealt with the phenomena of evolutionary change in its general aspects, the author turns to the application of the theory of evolution to man, both as an individual and in his communal relations. This part of the work contains a useful summary of knowledge of the fossil remains of man, and of his affinities with other members of the group of primates. The social development of man is necessarily touched upon very briefly, but it is made sufficiently clear that a citizen cannot be regarded as satisfactorily equipped, intellectually, unless he has a knowledge of the principles of evolution. Hitherto this knowledge can hardly be considered to have been necessary, for Nature succeeded, by somewhat ruthless methods to be sure, in producing a fine type of individual without any essential co-operation on his part. Now, however, when civilization is incessantly thwarting Nature's methods, the type of individual developed will depend more and more on the policy of the individual himself. To mention one point only in which a knowledge of the subject may be serviceable to the citizen, it will impress him with the extraordinary adaptability of the individual to his environment. If the latter is such as to favour a low type that type will assuredly emerge, whatever hopes may be entertained to the contrary. Unconsciously he will seek to define what is meant by high and low types, and be led to inquire how some of the more notable modern innovations—such

as the cinema and gramophone, contraceptives and the dolo—stand in relation to them. The man who is imbued with the principles of evolution will probably attach more importance to character and bearing than to such things as making a fortune or having a good time.

CANCER OF THE RECTUM.

IN 1923 Mr. ERNEST MILES, senior surgeon to the Cancer Hospital, delivered the Lettsomian Lectures before the Medical Society of London, and he has now printed them in a little book entitled *Cancer of the Rectum*.⁷ At the time of delivery these lectures were greatly appreciated because of their clear account of the pathology and surgical treatment of rectal cancer. Nothing fresh has been added to the lectures since they were spoken, and no attempt has been made by the author to comment on the opinions and practices of other surgeons. They have therefore an individualistic tone. The two particular subjects on which Mr. Miles can speak with the authority of the pioneer—namely, on the lymphatic spread of cancer of the rectum and the abdomino-perineal operation—are both set forth very clearly in these three lectures. A description of the spread of cancer through direct continuity of tissue, by way of the venous system, and by means of the lymphatic system, forms most of the substance of the first chapter, and is illustrated by a number of diagrams and photographs. Nearly all of the third and last lecture is devoted to the radical abdomino-perineal operation, which is described in all its stages and backed by strong arguments based on knowledge gained from pathological researches. The fifty illustrations of this little book are very useful—particularly, perhaps, the schematic representations of the lymphatic system.

NOTES ON BOOKS.

THE first edition of Dr. CAMMIDGE's handbook *The Insulin Treatment of Diabetes Mellitus* was reviewed in these columns soon after it appeared (BRITISH MEDICAL JOURNAL, February 23rd, 1924, p. 325). The book was out of print for a short time, but a second edition⁸ has been issued, and the opportunity has been taken by the author to bring the subject-matter up to date by adding a summary of the advances made in the experimental investigation of insulin and its uses in clinical medicine since the first text was written.

English readers will be glad to know that the English translation of the second volume by Professor HAAS has been made by Mr. T. VERSCHOYLE and published with the title *Introduction to Theoretical Physics*.⁹ In this volume the distinguished Viennese professor of physics deals with the atomic theory, the theory of heat, and the theory of relativity. The book is translated from the German third and fourth editions, and in the period since these were published rapid advances have been made in atomic theory and in the experimental researches upon which it is based. Professor Haas has supplied a brief summary of the more important work carried out between the publication of the German edition and the present English edition of volume ii. This summary has been placed under the heading of addenda, and the reader's attention is drawn to this new matter by asterisks. We called attention to the first volume of this authoritative work when it appeared (BRITISH MEDICAL JOURNAL, April 18th, 1925, p. 745).

THORPE and WHITELEY's *Manual of Organic Chemical Analysis*¹⁰ is a well prepared volume of instruction in qualitative recognition and quantitative determination of organic substances. The practical recognition of organic substances is the source at first of a good deal of perplexity to the student of organic chemistry. All attempts to frame an ordered plan of examination come inevitably to an end at an early stage in the scheme of directions. The branches in the lines of search

⁷ *Cancer of the Rectum*. By Ernest W. Miles, F.R.C.S. London: Harrison and Sons, Ltd. 1925. (Demy 8vo, pp. viii + 72; 50 figures. 7s. 6d. net.)

⁸ *The Insulin Treatment of Diabetes Mellitus*. By P. J. Cammidge, M.D. (Lond.), D.P.H. (Camb.). Second edition. Edinburgh: E. and S. Livingstone, 1924. (Cr. 8vo, pp. viii + 216; 51 figures. 6s. net.)

⁹ *Introduction to Theoretical Physics*. Vol. II. By Arthur Haas, Ph.D. Translated by T. Verschoyle, M.C., B.Sc., A.R.C.S. London: Constable and Co., Ltd. 1925. (Demy 8vo, pp. x + 414; 130 figures, 2 plates. 21s. net.)

¹⁰ *A Student's Manual of Organic Chemical Analysis: Qualitative and Quantitative*. By Jocelyn Field Thorpe, C.B.E., D.Sc., Ph.D., F.R.S., F.I.C., and Martha Annie Whiteley, O.B.E., D.Sc., A.R.C.S., F.I.C. London and New York: Longmans, Green and Co. 1925. (Roy. 8vo, pp. x + 250; 3 figures. 9s. net.)

⁶ *Evolution*. By J. Graham Kerr, F.R.S. London: Macmillan and Co., Ltd. 1925. (Demy 8vo, pp. x + 278; 53 figures, 2 plates. 12s. net.)

carbohydrate by means of simple addition. Each card contains five columns giving the name of the food and the quantity in ounces, and the remaining columns give the content of protein, fat, and carbohydrate in grams and the calorie value. The idea is extremely simple, and a box of cards containing details of more than sixty foodstuffs costs 2s. 8d. It can be obtained from Messrs. David Challen, Ltd., 10, City Road, London, E.C.1.

Pure Thyroxin.

We must congratulate the British Drug Houses on their enterprise and skill in preparing pure thyroxin on the commercial scale. An impure product has been on the market in the form of tablets, but it has been offered at almost prohibitive prices. A pure product—(sodium salt of pure thyroxin B.D.H.) is now available at a rate equivalent to £11 5s. a gram. This represents a very great reduction on previous prices. The dosage of thyroxin ranges from 0.2 to 2 mg. a day, and the cost from a penny to sixpence a day. The activity of preparations of dried thyroid varies greatly, and unfortunately no reliable method of standardization has yet been devised. Pure thyroxin B.D.H. consists of a chemically pure substance of known activity, and the price places it within the reach of everybody. This preparation should prove of great utility in the treatment of hypothyroidism.

MEDICAL PROGRESS IN MALAYA.

KING EDWARD VII COLLEGE OF MEDICINE AT SINGAPORE.

THE annual meeting in February, at Singapore, of the Malaya Branch of the British Medical Association was of special interest since it was held in the new King Edward VII College of Medicine, which was formally opened by the Governor, Sir Laurence Guillemard, during the proceedings. As we mentioned on December 1st, 1923 (p. 1060), the foundation stone of the new college was laid during the fifth congress of the Far Eastern Association of Tropical Medicine in Singapore, in September, 1923. The old college was founded in 1905, and in 1916 its diploma was recognized by the General Medical Council as a registrable qualification.

After the ceremony of opening the college, the principal, Dr. G. H. K. Macalister, read a message of cordial congratulation from Sir Humphry Rolleston, and recounted the ideals of medical training and research which would enable the college to become a great asset to the whole of Malaya. Sir Laurence Guillemard described the origin of the college, which, though a Government institution, had at its foundation received generous support from Chinese citizens; among its benefactors also were the King Edward VII Memorial Fund Committee and the Rockefeller Foundation. During the previous month the college had received visitors from far distant lands, including Brazil, Gibraltar, New York, Manchuria, Sydney, and Tokyo. The establishment in Singapore of the Eastern Bureau of the Health Section of the League of Nations would provide a great incentive to the study of hygiene in the college. The Governor pointed out how visitors to Singapore on entering the harbour would see a group of commanding buildings, at the heart of which were the classic columns of the College of Medicine. Singapore contained no other example of the pure school of classical architecture, and the choice of design was appropriate in that it symbolized the strength of the bond between modern medicine and the ancient philosophy of Athens, giving expression to the reverence paid to the endowment of wisdom handed down through the ages.

The Governor then presented the three first honorary diplomas of the college to three past presidents of the Malaya Branch: Sir David Galloway, who for forty years had been prominent in public health work and the municipal government of Singapore; Dr. Lim Boon Keng, who was for many years lecturer on materia medica and therapeutics in the college, and became in 1921 president of the Amoy University; and Sir Malcolm Watson, a medical officer of the Federated Malay States, who was renowned throughout the world for his work in the prevention of malaria.

Dr. A. L. Hoops, the president of the college council, and of the Malaya Branch for the current year, thanked the Governor and Lady Guillemard for their attendance, and explained how Chinese support had made possible the foundation of the college on its present scale. The professorship of physiology was founded mainly by Chinese subscribers in memory of King Edward VII, and the

building for the anatomy department was presented by a Chinese benefactor. There were now nine whole-time professors paid entirely by the college; those who were clinicians had charge of their respective specialties in the Government hospitals. In addition to the whole-time staff there were fifteen part-time lecturers. The medical course occupied six years, and the licentiates were free to practise throughout the British Empire.

Annual Meeting of the Malaya Branch.

At the annual meeting of the Malaya Branch, Dr. A. L. Hoops, principal civil medical officer for the Straits Settlements, was elected president, and Dr. J. W. Scharff honorary secretary. The retiring president, Dr. A. R. Wellington, described the activities of the Branch during the past year, Sir David Galloway delivered an address on anomalies in the course of congenital syphilis in Chinese; Dr. A. Neave Kingsbury read a paper on the prophylaxis of measles, Dr. M. J. Ratray dealt with notification of venereal diseases in males, with reference to co-ordinating treatment in different ports, and Mr. A. Dickson Wright read a paper on lymphuria. A visit was paid to the new Singapore General Hospital, where clinical demonstrations were given. Surgeon-Commander D. H. C. Niven arranged a microscopic demonstration of culicine mosquitos and their larvae found on Singapore island. An excursion was made to Gunong Pulai, where Dr. Hunter gave an account of the successful drainage work that had been undertaken to combat malaria among the labour force. The social part of the programme included the competition for the Watson golf cup, which was won by Dr. Hunter, and the annual dinner and dance.

The Origin of Western Medicine in Japan.

Dr. A. L. Hoops, in his presidential address to the Malaya Branch, described the progress of Western medicine in Japan since it had been introduced in 1549 by Luis Almeida of the company of Francis Xavier, who established charity institutions for the care of lepers, orphans, and the indigent sick. He was followed by Portuguese priests, who introduced medicinal plants and taught medicine, but later in the century severe restrictions against Christianity were imposed and many Portuguese and native medical practitioners were put to death. The Japanese, however, kept the lamp of medical science burning, and at the beginning of the seventeenth century the Dutch obtained a concession in Japan, the medical department of which enabled Western surgery to be learnt by the Japanese. Dr. Hoops mentioned that the book of Ambroise Paré had been translated into Japanese early in the eighteenth century, and that the first necropsy was performed in 1777. Up to that date it had been believed that the viscera of the European barbarians were transposed, and that only those of the Japanese and Chinese were arranged normally. The foundation of a school of Dutch learning followed at Narutaki in 1825; by it various Western instruments, such as the clinical thermometer and stethoscope, were introduced. In 1857 the first permanent medical school was founded in Tokyo; it was the precursor of the Medical Faculty of the Imperial University. English medical science had played only a minor part in Japan up to the middle of the nineteenth century, but in 1867 a British physician, Willis, was appointed instructor in the Tokyo Medical College and director of the hospital. He was replaced by German teachers in 1871, but continued to teach in Satsuma. Japan quickly acquired a knowledge of Western medical science, and since 1900 all the teaching posts in medical schools had been filled by Japanese. There were now twenty-seven medical schools in Japan, of which eighteen were of University standing; two schools were for women alone. Dr. Hoops gave a detailed account of modern laboratory research in Japan, with especial reference to the work of Kitasato and Shiga. The investigation of nutritional problems had now been made an independent branch of medical science, and a Government Institute had been established in 1920 for research into foodstuffs and a scientific study of nutrition. Dr. Hoops concluded with an account of the present hospital system in Japan, and of the general sanitary administration, including preventive work.

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SATURDAY, APRIL 3RD, 1926.

LONDON UNIVERSITY SITE.

THE Treasury has given notice to the Duke of Bedford that he is free to resume possession of the site in Bloomsbury which it had agreed with him in January, 1921, to purchase under conditions which restricted its use to university and college buildings in connexion with the University of London. This offer to return is in accordance with the strict terms of the original conveyance, and the Duke has six months to decide whether or not he will accept it. The Senate of the University does not, evidently, consider the Treasury's decision final; it seems, indeed, to be somewhat startled by its ruthlessness; possibly that was the reason why the Treasury wrote to the Senate in the terms it did on March 23rd. As soon as it learnt from the Treasury letter of March 23rd what had happened—namely, "that the Lord Commissioners of the Treasury have actually offered the Bloomsbury site for resale to the vendor"—the Senate wrote off to the Treasury (on March 24th) expressing the hope that "the Treasury will take such steps as are now practicable to secure the retention of as large a part as possible of the site for University purposes." It is therefore to be concluded that the Senate has decided that it would be to the advantage of the University to move to the Bloomsbury site.

The delay in coming to a decision has undoubtedly been very great, for Mr. H. A. L. Fisher, the then President of the Board of Education, offered the site on April 7th, 1920. The Senate has now issued a memorandum to the press explaining how the delay of nearly six years has come about. It is an interesting document, and appears to prove that the Senate itself has been little, if at all, to blame for the delay, which had its origin in a slight difference between the Government's bargain with the Duke of Bedford and the offer made by Mr. Fisher to the University. The agreement with the Duke of Bedford was that the site should be used only for university and college buildings in connexion with the University of London.¹ The offer of Mr. Fisher was that the site was to be used "for new headquarters of the University and for colleges and institutions connected with it, including King's College." The Senate interpreted this to mean that the movement of King's College from its existing site in the Strand to Bloomsbury was an absolute condition of the offer. King's College took four years and a half to make up its mind, and even then the communication it addressed to the Senate was not in itself an absolute refusal to move; it indicated that it was reluctant to move, and asked certain questions as to finance, by which its action was finally to be determined. The communication from King's College was at once (December 18th, 1924) sent to the Treasury. No reply having been received from the Treasury by May 13th, 1925, a reminder was sent on that day, and on June 3rd the Treasury replied that it was not

without hope that it would be possible to make arrangements with the vendors whereby at least a part of the site might be occupied for other university purposes. To this the Senate replied that as the only conditions upon which King's College would move were not to be fulfilled, and since the offer made to the University was conditional upon King's moving, the University could not accept that offer. On October 27th, 1925, the Senate again wrote to the Treasury asking whether it would consider suggestions for the occupation of the whole or part of the Bloomsbury site for the central offices of the University or other university purposes. The Treasury did not reply, and on March 1st, 1926, the Senate wrote again, and then received in reply the bombshell to the effect that the Bloomsbury site had already been offered back to the Duke of Bedford, "no effective scheme for the utilization of the site having been matured during the five years which have elapsed since the purchase." The Treasury, however, still shows reluctance to abandon the Bloomsbury site altogether. The Senate had suggested on March 1st last that a conference should be held between representatives of the Treasury and of the University, and in its letter of March 23rd the Treasury said that "it would be glad to consider any representations or to examine any proposals which the Senate of the University may desire, either in writing or, if preferred, at a conference." In reply the Senate has notified the Treasury that it has appointed six persons, in addition to the official members, to confer with the Government on the general situation in accordance with its suggestion. The persons selected by the Senate, in addition to the official members, are Sir William Beveridge, Sir William Collins, Professor Filon, Dr. Graham Little, M.P., Sir Josiah Stamp, and Sir Holburt Waring. That, as far as we can ascertain, is the position at the present moment. The Senate still awaits the reply of the Treasury to the offer of a conference, and we can only hope that the reply will not be long delayed.

The Senate's memorandum, to which we have already referred, concludes as follows: "The Bloomsbury site cannot be used within the narrow terms of the original offer made by the Government to the Senate, since that implied moving King's College, but it is clear that the site can be effectively used for 'University and College buildings in connexion with the University of London' within the much wider terms of the agreement between the Government and the Duke of Bedford. Nothing, in fact, is more certain than that the whole of the area now in question can be fully utilized for these purposes. If this area is now lost to education, it or more expensive land in the same neighbourhood or near by will have to be acquired again later, bit by bit, by the University or its Colleges." The Senate, therefore, appears to have come round completely to the opinion that the University ought to move to the Bloomsbury site, an opinion which has been held all along by a large proportion of those interested in the future of university education in London.

A NEW CONCEPTION OF THE THYROID GLAND.

NOTHING could have been more simple than the structural conception of the thyroid gland imparted to students by teachers of a former generation. It was made up of minute vesicles, each about one-hundredth of an inch in diameter, lined with a cubical epithelium, and filled with a colloid secretion. The conception of

¹ The site is a British Museum to other side of which Russell and Woburn runs north and south, and is situated by Mr. Fisher's surveyor of 83 or Square were or we roads. Its north is British Medical Association.

the north end of the ringite Church, on the eastern side abuts on in Mallet Street, which of Gower Street. It was by the county council gardens of Torrington estimate included the the new House of the

the thyroid now being taught by Dr. G. Scott Williamson,¹ and supported by an array of observations drawn from glands in all stages of growth and in all states of activity, is that it is made up, like the liver, of an enormous number of minute units or lobules, each about one-twenty-fifth of an inch in diameter. But whereas each hepatic lobule is embedded within a venous or blood sinusoid, the thyroid lobule lies within a lymph space or sinusoid. The thyroid gland is thus planted on the lymph system, a relationship which Mr. R. H. Burne has demonstrated in the anatomy of the angler fish. Each lobule or unit of the thyroid has its own hilum, its own delicate capsule, lined by lymphatic endothelium. Each lobule, during its active phase, has its thyroid epithelium arranged in convoluted cylinders; the cells of each cylinder are grouped round a lumen, and are surrounded by capillaries and enclosed by a covering of lymphatic endothelium. The output of a lobule in the phase of active secretion appears within the lumen of the cylinder, and Dr. Williamson is convinced that he has traced its passage into the lymph space surrounding the cylinder, and that it is through the lymph system that the secretion, which in the active phase is clear and watery, passes out into the general circulation of the body.

Such is Dr. Williamson's picture of a lobule or gland unit in a state of activity—a state which may be seen throughout the gland at birth, in the years of adolescence, in pregnancy, and in Graves's disease. In some stages of growth, as in children under the age of 5, most of the lobules or gland units pursue another form of activity. A colloidal substance, which Dr. Williamson regards as altogether different in nature from the clear secretion of the active phase, collects in the lumina of the cylinders; the cylinders become broken up, and produce the vesicles with which all are familiar. No new light is thrown on the manner in which the colloid content of the vesicles is formed; apparently it passes into the blood capillaries which surround the vesicles, and thus is carried by the blood to the tissues of the body. Dr. Williamson presumes that the vesicles may become abnormally distended, either through a too rapid formation of colloid or by a failure in the rate of its absorption. The mechanism which causes one lobule to pass into a state of active secretion while a neighbouring lobule applies itself to the storage of colloid is not known; but Dr. Williamson is of opinion that the tissues of the body have some means of making their wants known to the thyroid and of evoking a direct response from it. However this may be, the solid fact remains that in endemic goitre of the vesicular type—where colloid storage has been carried to an excess—iodine medication is effective, whereas in the hyperplastic or secretory types of goitre, as in secondary Graves's disease, iodine medication is useless or even injurious. Also another result emerges—namely, that when we have to interpret the pathological appearances presented by the thyroid gland we obtain no guidance from the old teaching of thyroid structure, whereas Dr. Williamson's observations give us the key to a rational interpretation.

In drawing inferences as to a direct functional relationship of the thyroid to the parathyroids, and of both to the thymus, Dr. Williamson enters a field of bold speculation, and yet one which is justified in the present state of our knowledge. The lymphatic systems of the thyroid and thymus are certainly in

close union; thyroid and thymus have a similar origin in the embryo, and it may be that the endothelial cells of the thymus store and disseminate substances formed by the epithelium of the thyroid. Much has to be done before such speculations can be seriously entertained. But of this we may rest assured: the method of inquiry pursued by Dr. Williamson has much to commend it. He has broken down the barriers that lie between anatomist, physiologist, and pathologist. In his inquiry into the disorders of the thyroid he has played the triple part of anatomist, physiologist, and pathologist, and each department of his inquiry has helped the other. His research is one of the many benefits which have flowed to medicine through the wise encouragement and support of the Medical Research Council.

VOCATIONAL GUIDANCE.

An interesting research, undertaken by the Industrial Fatigue Research Board and the National Institute of Industrial Psychology, on the subject of vocational guidance¹ has been published this week by the Medical Research Council. A corps of expert workers was gathered under the direction of Professor Cyril Burt, and as a preliminary step an analysis of the occupations taken up by 1,000 children leaving the schools in a London borough was made. The investigation proper consisted in an intensive study of all the children due to leave three schools in this borough in the course of the next year, and of making vocational recommendations based on this study. After a lapse of two years as many as possible of those who had been tested were traced, and the successes and failures noted and related to the indications of the tests. The range of occupations available was wide, ranging from professional work to van boys. In the specific investigation of the children inquiry was made into the following points: home conditions; physical state; mental conditions (both for general intelligence and special capacities); educational attainments; special interests; and finally temperament and character as shown by emotional, moral, and social qualities. The vocation indicated was thereon assigned to the particular child. The selected children numbered 100; the highest mental ratio was 134, the lowest 62, the individual rate of intelligence being scattered over a range of more than nine mental years. A modification of the Stanford revision of the Binet-Simon tests was used. The time occupied in testing each child was thirty to forty-five minutes. A high correlation between the tests and the teachers' ranking was found. In making the choice of occupation for the child the tabulated list of occupations (which is given in full) was found to be of great value. A full account of the tests employed is given. Boys and girls were in nearly equal numbers. Girls gained higher marks in decidedly linguistic questions; boys were easily first in their account of an invention. Home conditions proved to be superior in 14 cases, good in 34, moderate in 32, poor in 16. There was a close correlation between home conditions, parental intelligence, and the mental ratio of the children; both the latter were highest in the superior homes and lowest in the poor homes. Physical conditions were in general far less important than mental; only exceptionally did such data bear directly upon the choice of occupation, and then the inference was rather negative than positive—for example, the child with hypermetropia or astigmatism was advised not to take to work involving eye-strain, such as needlework. Speech defect contraindicated such work as that of shop assistant. Laundry girls must have strong arms; and the aspirant to the finest needlework must have dry hands. The 100 children were

¹ The Applied Anatomy and Physiology of the Thyroid Apparatus, *Brit. Journ. Surg.*, 1926, vol. xiii, pp. 456-458. Dr. Innes Pearce collaborated with Dr. Williamson in this and other published researches on the thyroid.

¹ A Study in Vocational Guidance. Medical Research Council. London: H.M. Stationery Office, 1925. (Pp. 169. Price 4s. net.)

marked out for fifty different occupations; thereupon a letter was sent to the parents stating the occupation recommended, with possible alternatives, and giving reasons. In 47 an occupation was recommended different from that suggested by parents or teachers; in 35 the recommendations from both sources were the same. The suggestions of parents and teachers were apt to be vague, but the tests and the intensive examination led to suggestions that were quite specific. After the lapse of two years the homes of each of the children were revisited. Six could not be traced; only 2 were out of work; 25 were engaged in unskilled work, 35 in semi-skilled work, and 26 in skilled work; 6 fell into the category designated above as highly skilled. The general outcome of the inquiry is held to speak strongly in favour of the methods used. Judged by the after-histories of the several children, those who entered occupations of the kind recommended have proved both efficient and contented in their work. As compared with their fellows they are, on an average, in receipt of higher pay; they have generally obtained promotion earlier; they have experienced fewer changes of situation; and very few indeed have incurred dismissal. Over 80 per cent. declare themselves satisfied alike with the work they have taken, their prospects, and their pay. On the other hand, of those who obtained employment different from the kind advised, less than 40 per cent. are satisfied. Among the latter group nearly half dislike their work; and among the former only one dislikes it, and that simply because it is not identical with what was originally suggested. Though no great weight must be attached to figures from so small a group, yet the results are considered to be encouraging. It is hoped to continue observation on these particular children, and also to extend the inquiry to secondary and other types of schools.

CHRONIC ARTHRITIS AND ITS ETIOLOGICAL ASSOCIATIONS.

ALTHOUGH general opinion is to the effect that at least the vast majority of cases of what is commonly called chronic rheumatoid arthritis are infective in origin, there is wisdom in the reservation that after all this may not be universally true. For not only are there many cases in which an exhaustive, and indeed sometimes an expensive, search fails to find an infective focus, but there is good evidence of the existence of toxic forms of arthritis and synovitis in gout and serum sickness, and probably in the rare condition of intermittent hydrarthrosis. Whether or not in rheumatoid arthritis and osteo-arthritis errors of metabolism, such as may be due to endocrine disorders, do more than favour infection is open to philosophic doubt, and any further light on this difficult problem is therefore welcome. In a paper published in this issue (p. 612) Drs. E. P. Cumberbatch and C. A. Robinson have reported cases in women of arthritis, without any evidence of infection, coming on about the onset and cessation of menstruation and so at periods of changes in ovarian function. These patients are described as being much benefited by diathermy of the ovaries, and it is definitely suggested that the rationale of the treatment is to correct deficiency of an ovarian hormone. This no doubt is a rather speculative explanation, but it deserves investigation and consideration in virtue of the practical success reported, even though it may prove to be empirical only. Diabetes mellitus is an outstanding example of disordered metabolism of endocrine origin, and so the question of arthritis associated with it may not be without interest in this connexion. In a number of papers Ralph Pemberton has considered the relation between carbohydrate metabolism and chronic arthritis, and found that a restricted carbohydrate diet benefited chronic arthritic patients even though a septic focus was present. The old view that sugar is bad for

rheumatism was also shown to be correlated in the majority of cases with a lowered sugar tolerance which roughly was proportional to the activity of the arthritis. As diabetics are subjected to such a diet for long periods, he thus explained their comparative freedom from arthritis as shown by his experience and by that of F. M. Allen and of Elliott P. Joslin. It is therefore interesting to note Schmitt and Adams's figures¹ given from the Mayo Clinic, which are of a rather different complexion: during 1925, among the 474 well defined but as a rule comparatively mild diabetic patients in the clinic, 51 had arthritis, usually of the so-called hypertrophic type and not of a kind in any way peculiar to diabetes. Besides being on a restricted carbohydrate diet they had the ordinary methods of treatment for arthritis. There was not any noticeable difference in the results between the ordinary run of cases treated by the usual methods alone and the diabetic arthritics who in addition were on a restricted carbohydrate dietary.

THE ECONOMICS OF RECOVERY HOMES.

THE economics of the recovery home or auxiliary hospital as an alternative to an increase of ward accommodation on the main hospital site were debated at a meeting of the Incorporated Association of Hospital Officers on March 19th. A recovery home, it should be explained, is not a convalescent home; it is an establishment, preferably in the country or at the seaside, for patients who no longer need the specialized treatments available in the ordinary wards, but are not well enough to be discharged even to a convalescent home. About three years ago a committee of the King Edward's Hospital Fund for London considered the question of recovery homes in connexion with hospitals, and visited all such homes in the neighbourhood of London. The committee came to the conclusion that, while recovery homes were excellent institutions from the point of view of the comfort of the patient, their effect in reducing hospital costs on the basis of each occupied bed was no greater than would be achieved by adding an equivalent number of beds on the hospital site. Last year a memorandum expressing a different view was published by Dr. F. N. Kay Menzies and Mr. R. H. P. Orde,² who argued that recovery homes were an economic and financial advantage to the hospital, as well as being, as everyone admits, of value to the patients concerned. At the recent meeting of the Association of Hospital Officers a reply to this memorandum was made by Mr. H. R. Maynard, secretary of the King's Fund, who, in an elaborate exposition of hospital costing, claimed to disprove the view that to segregate "recovery patients" in separate homes is inherently cheaper than extension at the hospital site. It would be difficult in a short space to follow Mr. Maynard through his maze of figures, but he advanced illustrations to show that the financial and economic effects of extending a hospital on its site and of establishing recovery homes elsewhere were approximately the same. He warmly approved recovery homes, but thought that their advocacy should be based on the ground of real advantage to the patient, and not on that of some phantom saving of costs or some supposed addition to the number of patients who could be more economically treated for the same number of beds. One or two hospital secretaries supported Mr. Maynard's conclusions. Mr. G. G. Panter, of the Royal Northern, said that for the last ten years there had been attached to his hospital both a recovery home and a convalescent home. The purpose of these homes was to expedite recovery of the patients who were accommodated in them, more particularly by stimulating in them the will

¹ Schmitt, E. O. G., and Adams, S. F.: *Journ. Amer. Med. Assoc.*, Chicago, 1926, lxxv, 535.

² *BRITISH MEDICAL JOURNAL*, September 26th, 1925, p. 576

to recover, and to free the ordinary wards of those cases for which the special equipment available in those wards was no longer necessary. In his experience the best proportion of recovery beds to hospital beds proper was 35 or 40 to 100. Since the home of recovery had been started in connexion with his own hospital it had been possible to reduce the total length of stay in hospital by three days on the average. He was of opinion, moreover, that there must be some little saving of cost by the use of a recovery home. Mr. Orde, one of the authors of the memorandum to which Mr. Maynard's paper was a reply, repeated his contention that even from the economic and financial point of view recovery homes were advantageous. He said it was not unusual in the ordinary wards of a hospital to find that 15 per cent. of the patients did not require the specialized treatment which the ward provided. It could never be an economic proposition to add beds to the parent hospital and utilize them for the retention of patients a moment longer than was absolutely necessary. Where recovery homes had been possible in connexion with a hospital it had been found that the combined cost of each occupied bed in the whole institution—the hospital itself and the recovery home together—was nearly £3 a year lower than in the parent hospital alone. Sir Arthur Stanley, in closing the discussion, said there could be no doubt that the real value of recovery homes was to the patients themselves, whether or not any considerable saving of costs was effected for the hospital.

MENTALLY DEFECTIVE OFFENDERS.

THE Prison Commissioners have paid acknowledgement on previous occasions to the very great benefits conferred on the community by the Mental Deficiency Act of 1913. This acknowledgement is again made in their recently issued report¹ for the year 1925-26. They instance the fact that during the past four years close on a thousand mentally defective offenders were dealt with under the provisions of this Act, and sent to institutions; the result being the depletion of the ranks of the habitual offenders to that extent and the prevention of a considerable amount of crime. There are two considerations, however, which cause the Commissioners to temper their acknowledgement with criticism. The first of these is the difficulty frequently encountered by medical men in obtaining definite information of the early life of the defective. Very often such information is withheld by the parents. The Act stipulates that the mental defect must be shown to have existed since birth or from early age; and the absence of the definite knowledge of this makes it impossible to certify certain cases of undoubted mental defect, and cases in which the need of care and control is urgent. The Commissioners strongly favour some amendment of the Act so as to enable medical men to give a certificate in cases of mental defect just as they do in cases of insanity—that is, upon the facts of the present condition, and without reference to past facts. The second consideration arises from the presence of a considerable number of offenders who are definitely subnormal and mentally unstable, but who are not certifiable under the Mental Deficiency Act. They are unfit for prison discipline, and are injuriously affected by that environment. They need special care and curative treatment, and the Commissioners are of opinion that if it be thought too strong a measure to make them certifiable as mental defectives, it should at any rate be possible to place them under suitable control when they have come in conflict with the law. The medical officer of Brixton Prison reports that those cases which are found to be defective and yet which are not certifiable far outnumber those who

have been certified. He also draws attention to another class of offender for which adequate provision is not made. This class comprises the mildly senile and other cases of dementia, who commit trifling offences, often because they are unable to earn a living. They are not certifiable as insane, and yet are not able properly to look after themselves. Compulsory detention in the workhouse or infirmary is suggested as the best means of dealing with such cases. During the year, 1,523 men and 490 women were remanded to prison for mental observation and report. Dr. G. B. Griffiths, the Medical Commissioner, points out that there is never any difficulty in obtaining a medical report if the person is remanded for the purpose, and that there is no reason for the practice of some benches of justices of convicting prisoners and sending them to prison requesting observation on their mental condition. The medical officer of Birmingham Prison is not satisfied that a sufficient number of cases are remanded for mental examination. Only a particular type of case is at present so remanded, and he urges the necessity of psychological examination in a much larger number of cases. His point is that only in this way can the existence of mental abnormality be detected. He considers that the whole question of the correct treatment of offenders is a purely psychological matter, and it is because he regards society as being most inadequately protected by our present methods that he presses for this change. At present the performance of routine duties in a large prison leaves only too little time for essential psychological investigation. During the year 97 prisoners undergoing sentences in local prisons were certified insane (84 men and 13 women). The corresponding figures for 1923-24 were 98 (81 men and 17 women). Besides these, 191 men and 46 women were found by the prison medical officers to be insane while on remand or awaiting trial; 14 men and 6 women were found by juries to be insane on arraignment, and 13 men and 8 women "guilty but insane."

HEALTH OF HONG-KONG.

WE gather from the report of the medical department for the year 1924 that Hong-Kong is a healthy colony. The year was free from any serious outbreak of infectious disease, although the small-pox epidemic of 1923 overlapped into the early months of the year under review. For the first time for many years the colony was entirely free from plague. Beri-beri was prevalent, and in one gaol 200 of the prisoners showed some signs of the disease. The rice supplied to this prison showed a percentage of phosphorus pentoxide well above the standard which is considered safe. At the same time the prison was overcrowded; and when this overcrowding was remedied the trouble subsided without any alteration in the diet. Many of the policemen recruited from Wei-hai-wei suffered severely from malaria. There were no fewer than 591 admissions to hospital for this disease during 1924 from a force of 275 men. In the statistics of the Tung Wah Hospital, Victoria, a considerable decrease in admissions is noted. The decrease was due to admission being refused to patients who were suffering from destitution and general debility rather than from any recognized disease. No case of scarlet fever was treated at this hospital; and it appears that the Cantonese are almost, if not "quite," immune to this disease. As Europeans suffer from scarlet fever in Hong-Kong the immunity is regarded as racial and not regional. The Chinaman's appendix vermiformis seems less vulnerable than the European's, possibly owing to the differences in diet; but the principal civil medical officer suggests that the endocrinologist will attribute the infrequency of appendicitis to thymic differences in the races. The only complaint we have to make about

¹ Cmd. 2597. H.M. Stationery Office. Price 1s. 3d.

this report and many others of the same kind is that no indication of the country to which it applies is given on the title-page, beyond the address of the firm which printed it.

OPHTHALMIC HOSPITAL OF THE ORDER OF ST. JOHN OF JERUSALEM.

THE recent visit to Palestine of the Sub-Prior and Knights of the Order of St. John of Jerusalem in England has directed attention to the Ophthalmic Hospital of the Order, in Jerusalem, which has for many years won the deep gratitude of the various nationalities composing the population of the city and the surrounding country. No national, political, or religious propaganda work is associated with the hospital, but its beneficent activity proceeds in such an unostentatious way that many of those making use of it are unaware that any special nation or creed is concerned in its management. A valuable and striking manifestation of the local appreciation was given when free permission was granted to the members of the Order to visit the Dome of the Rock and explore certain historical sites which have hitherto been frequently barred to others than Moslems. As a closing incident of the celebrations in Jerusalem the Sub-Prior held a reception at the hospital, and the numerous improvements effected, particularly during the last year, were demonstrated. The thirty-fourth report of the committee of the Ophthalmic Hospital, which has just been issued, contains the information that during 1925 the number of new out-patients increased from 16,225 in 1924 to 16,640; the total attendances from 75,560 to 81,495; and operations from 4,283 to 4,407. The in-patients numbered 1,527, as compared with 1,676 in the previous year, which is explained by the temporary closing of the operating theatre and the wards for cleaning and re-decorating, and the increased performance of trichiasis operations in the out-patient department; the in-patient accommodation was, therefore, used for intraocular cases requiring longer stay in the hospital. The water famine in Jerusalem from January till April demonstrated the value of the two cisterns in the hospital, since the town supply was only available for two hours each day, and even then was far from satisfactory. The outstanding event of the year was the installation of electric light and power in the hospital, all the equipment being British-made. The x-ray equipment was in working order in September, and a new sterilizer was presented by Canadian sympathizers. A giant magnet for the extraction of metallic fragments from the eye is being supplied by other supporters, and an American visitor has promised to give a slit-lamp; in consequence of the receipt of an anonymous donation the building of a new annexe for cases of acute infectious conjunctivitis will be facilitated. As we mentioned on February 13th (p. 295), the warden of the hospital is in charge of the establishment of ophthalmic clinics throughout Palestine, the Order undertaking the responsibility of posting nurses at six of the twelve clinics. One of these clinics is at Acre, and thus, after the lapse of 735 years, the Order is again established in its last crusading stronghold in the Holy Land. The report of the warden, Lieut.-Colonel J. C. Strathearn, M.D., contains numerous details of clinical interest. An analysis of the causes of blindness showed that 30 per cent. was due to secondary glaucoma; 22 per cent. to totally opaque cornea; 19 per cent. to shrunken globe; 14 per cent. to different types of cataract; 7 per cent. to disease of the uvea, retina, or optic nerve; 6 per cent. to chronic glaucoma; and 2 per cent. to injury and other causes. Thus in more than 70 per cent. of the cases blindness was traceable directly or indirectly to acute conjunctivitis which, if taken in time, could have been successfully treated. Trachoma was recorded in 87 per cent. of the patients, and 2,854 operations were performed for trichiasis and

entropion, which in Palestine result almost invariably from trachoma. The warden mentions the training of Government medical officers in the essentials of ophthalmology, which is being undertaken; nine have already received a practical course of six weeks' duration. The training of nurses is also being actively carried on.

BRITISH SPA FEDERATION.

ALL the leading spas of Britain were represented at the recent annual meeting in London of the British Spa Federation. There were discussions on the steps taken to meet the competition of the foreign resorts. No definite evidence was forthcoming at the meeting that the foreign spas offered any advantages over the British resorts except their alleged cheapness owing to the abnormal rate of exchange. Disappointment was expressed at the small amount of encouragement offered by the railway companies to visit the home health and pleasure resorts. The lack of inducement to travel in Britain, especially in the winter and spring, when it might be supposed that increased passenger traffic would be welcomed by all companies, compared with the cheap tickets issued to the Continent, was the subject of surprised comment and of a representation to the railway companies. The honorary secretary of the federation (Mr. John Hatton, director of the baths at Bath) reported on the position with regard to the treatment of insured persons at the spas arising out of the recent report of the Royal Commission on National Health Insurance. Some important administrative details still remain to be settled, but it is hoped that the time is within measurable distance when insured persons suffering from rheumatic diseases will be able to obtain the benefits of mineral water and other treatments at the British spas. In comparison with France England suffers from the lack of any chairs or lectureships in medical hydrology at the universities or medical schools. During the past two years an effort has been made to meet this to some extent by occasional lectures on the subject at a number of medical schools at the universities and hospitals. This work has been undertaken by a body of medical experts known as the Committee for the Study of Medical Hydrology in Great Britain, and at its last meeting the British Spa Federation decided to continue its financial support of this important work. Grants were voted also to the International Society of Medical Hydrology and to the British Committee on Rheumatism.

DR. HENRY DEVINE, O.B.E., for the past twelve years medical superintendent of the Portsmouth Corporation Mental Hospital, has been appointed medical superintendent of the Holloway Sanatorium, Virginia Water, an institution for the care of insane and nervous invalids of the upper and middle classes. Dr. Devine is M.D. of the Universities of London and Bristol, was elected F.R.C.P. in 1919, and during the war was consulting neurologist to Netley Hospital. His character and attainments have caused him to be held in the highest esteem by his colleagues in the specialty to which he has devoted his life. He is a man of independent judgement and very widely read, and is well known, both to the profession and beyond its borders, for his success as an administrator. He is co-editor of the *Journal of Mental Science*, and is one of the editorial committee of the *Journal of Neurology and Psychopathology*. At the Annual Meeting of the British Medical Association at Portsmouth in 1923 he was president of the Section of Neurology and Psychological Medicine, and has always shown himself ready to place his knowledge and experience at the disposal of the Association.

TUBERCULOSIS.

JOINT MEETING AT CAMBRIDGE.

A JOINT meeting of the Tuberculosis Society and the Society of Superintendents of Tuberculosis Institutions was held at Cambridge on March 25th, 26th, and 27th. The meetings were held in the Pathological Laboratory, by kind permission of Professor H. R. Dean, and arrangements were made for members to stay in St. Catharine's College.

Ultra-violet Rays in Tuberculosis.

The proceedings commenced with a paper by Dr. JAMES CROCKET (Glasgow) on ultra-violet rays in tuberculosis, in which, after a brief account of the history of the treatment, he referred to the variety of available rays. In Scotland there is a paucity of sun rays, and in low-lying districts and in large cities there is a loss of from 50 to 60 per cent. of ultra-violet rays by filtration through fog and soot; the rays are intensified from reflection from snow and sea. He considered the tungsten arc lamp to be the most powerful, and to produce most short-length rays; short-time doses, gradually increased, should be used—five minutes to back and front of the chest up to thirty minutes daily. In his experience cases of tuberculous disease of the glands, bones and joints, larynx, and certain pulmonary cases were benefited by light treatment in addition to other forms of treatment. He found that adenitis of the cervical, mediastinal, and mesenteric glands improved under light treatment combined with x-rays; a year's treatment might be required. Striking results were obtained in tuberculous ulceration of the skin and scrofuloderma, in which general exposure was given; in lupus local application was desirable. In laryngeal infection he obtained help from general exposures combined with light from a carbon arc lamp reflected by a rustless steel mirror on to the interior of the larynx. Tuberculous peritonitis was benefited by combined light and x-ray treatment, and the pain of pleurisy might be removed by three to seven minutes' exposure to the tungsten arc lamp. In pulmonary disease the results were not discouraging. In 72 cases 85 per cent. improved after general exposures; there was a reduction of cough and sputum, sleep was improved, there was no increase in temperature, and no haemoptysis. Light treatment could not cure tuberculosis; it must be used in conjunction with other methods, when it would enable the patient to put up a more effective fight.

A discussion followed, in which Sir STCLAIR THOMSON, Dr. WALTERS, Dr. BASIL PRICE, Dr. JOHNSON, and others took part; emphasis was laid on the necessity for the proper ventilation of artificial light departments, and for the immobilization of cases of surgical tuberculosis undergoing the treatment.

Tuberculosis and Pregnancy.

Dr. GEOFFREY MARSHALL opened a discussion on tuberculosis and pregnancy. At one time, he said, it was held that pregnancy flourished in tuberculous cases, which mostly went successfully to term, and consumptive girls were advised to marry, as pregnancy was considered to benefit the tuberculous. Statistics were difficult to obtain, but available data tended to show that parturition did increase mortality in the tuberculous. Bronchitis not infrequently occurred during pregnancy, and cleared up after delivery. Of 25 tuberculous mothers, 3 were apparently unaffected by pregnancy or confinement, though subsequently they declined; 4 had a definite exacerbation soon after delivery; 19 became worse during pregnancy, and of these 5 had an obvious exacerbation during the third month. Of 118 children of these infected women, 44 died in infancy.

Dr. ERNEST WARD held that 60 per cent. of tuberculous women were unaffected by pregnancy, that the condition of 20 per cent. was improved, and that marriage had a beneficial effect on tuberculosis. On the child the effect was very bad; the offspring of a tuberculous mother were seven times more liable to infection than others. Dr. JANE WALKER was of opinion that any acute pulmonary tuberculosis was definitely made worse by pregnancy. Sir STCLAIR THOMSON asked for guidance as to the truth of two categorical statements which he had accepted for many

years—namely, that a tuberculous woman might have one pregnancy, possibly two, but never a third; and that premature induction did not benefit the mother. Dr. YOUNG said that from a large experience of childbirth in general practice he was convinced that pregnancy and parturition were definitely harmful to the tuberculous.

Catarrho-pyogenic Infections and Phthisis.

Sir HUMPHRY ROLLESTON, Bt., Regius Professor of Physic, in opening a discussion on catarrho-pyogenic infections and tuberculosis of the lung, began by welcoming the visitors, and said that Cambridge was an appropriate centre for such a meeting, for that great man Sir Clifford Allbutt and the late Professor Sims Woodhead were keenly and actively interested in Papworth Colony in the immediate neighbourhood, which was organized with such conspicuous success by Dr. P. C. Varrier-Jones. "Catarrho-pyogenic and tuberculous infections of the lower respiratory tract" was the title of Dr. Batty Shaw's Bolingbroke Lecture, published in the BRITISH MEDICAL JOURNAL of December 26th, 1925 (p. 1212). In that lecture he considered "the possible influences one sort of infection has upon the effects of another different kind of infection," criticized the current conception of pulmonary tuberculosis, and pleaded for a revision of the nomenclature. These difficult problems might well be discussed. The subject of catarrho-pyogenic infection, combined with tuberculosis, active or quiescent, raised a number of questions. When a tuberculous focus, though progressive, was closed and so not made manifest by tubercle bacilli in the sputum, it would not be justifiable to certify the condition as tuberculous. The right policy surely was to "wait and see"; such a course would be in accordance with Dr. Batty Shaw's views. The time relations of tuberculous and other pulmonary infections were of interest and might vary in different cases. Of course, the signs of bronchitis might be recognized before the existence of pulmonary tuberculosis was proved by the demonstration of tubercle bacilli in the sputum; but in such cases it was very difficult to prove the absence of closed tuberculous lesions which, by their presence, had favoured a catarrho-purulent infection. Dr. Batty Shaw had definitely laid it down that tubercle bacilli did not encourage catarrho-pyogenic infections; but this statement might apply only to the tubercle bacilli and not to the presence of tubercles, for it was difficult to deny that the presence of tuberculous material did not, by reducing the local resistance, favour a secondary infection. With regard to ordinary chronic bronchitis and the subsequent incidence of pulmonary tuberculosis, Sir Humphry's own impression was that this sequel was rare, and, indeed, that a moist condition of the lung, such as occurred in chronic bronchitis, militated against tuberculous infection by facilitating the removal of tubercle bacilli before they had time to invade the lung tissue. The influence of the catarrho-pyogenic infection of the lung in favouring pulmonary tuberculosis might occur in one of two ways: (1) By allowing the entrance of tubercle bacilli inhaled from without to take place through a breach of surface into tissue with its power of resistance reduced. The site of the catarrho-pyogenic infection was usually in the lower part of the lungs and not in the apices. This was against the acceptance of this sequence of infections; further, though no great stress could be laid thereon, a local infection might tend to prevent the spread of tuberculous infection into the lung by obliterating the lymphatics. (2) By activating latent obsolete tuberculosis acquired in early life in from 75 to 90 per cent. upwards of urban dwellers; this would be an infection from within, and was suggested by the appearance of symptoms and physical signs of tuberculosis after measles, influenza, and other diseases which reduced general resistance. As tuberculous infection in early life was mainly in the lymphatic glands at the root of the lung, an extension due to a breakdown of the local defences would be expected in this situation; but, probable as such a sequence would appear, tuberculosis starting primarily in the lower lobes of the lungs was unusual in adults, though, of course, radiological examination might reveal areas of infiltration unsuspected clinically; the mechanism of infection from within still needed further elucidation. That bronchitis often super-

vened on existing tuberculous disease of the lungs did not require any argument; but how often bronchitis, by, so to speak, washing out the bacilli, revealed a carrier of tubercle bacilli which were not doing any damage by their presence was another question; no doubt such cases cropped up from time to time, but it was a dangerous assumption, in the light of the extreme chronicity of tuberculous lesions of the lung, to assume the existence of tuberculous carriers on the same lines as pneumococcus carriers. Sir Humphry Rolleston concluded by discussing the question of nomenclature raised by Dr. Batty Shaw. Mixed infections in pulmonary tuberculosis were so common and were often serious from the prognostic standpoint, that, though it might be etymologically correct, it would appear undesirable to alter the nomenclature in any way that would lose sight of the primary underlying factor, or to confine the term "pulmonary tuberculosis" to a pure infection with the tubercle bacillus.

Dr. BATTY SHAW referred to the age incidence and mortality among tuberculous children, pointing out that from 1 to 3 years the infection was largely military; from 5 to 10 years there was an ascending curve of pulmonary infection. Radiography had convinced him that the terminal stages of pulmonary tuberculosis were due to something in addition to the tubercle bacillus. Dr. Clive Riviere had suggested that the victim frequently reinfected himself. Hilus tuberculosis had come to stay; it might not give rise to physical signs, but the diagnosis was confirmed by x rays and examination of the sputum. Dr. Shaw gave figures of *post-mortem* examinations by Gohn showing that infection occurred in approximately 53 per cent. of cases in the upper lobe and 47 per cent. in other parts of the lungs. He concluded that the disease spread from the hilum owing to the supervention of infection by catarrho-pyogenic organisms. Pus and blood in the sputum did not come from pure tuberculous infections but from a superimposed infection by pyogenic organisms.

Dr. ERNEST WARD found Dr. Batty Shaw's remarks very stimulating; some were very true, some were very false. Probably some 40 per cent. of all people were at some time or other infected with tuberculosis; some had a high resistance, others a low resistance, and these were the subjects of the military variety; the middle grade suffered from fibro-caseous tuberculosis and cavitation. A case of catarrhal pulmonitis might become infected by tuberculosis from without or within. Carriers, especially grandmothers, were a very real consideration. Dr. Ward did not agree that the tubercle bacillus did not cause the formation of pus.

Dr. F. R. WALTERS remarked that the presence of tubercle bacilli in the body did not cause illness; this was due to failure of resistance. Granted a primary infection, the disease was chiefly due to non-tuberculous causes.

Dr. VERE PEARSON held that the physical signs and symptoms of pulmonary tuberculosis were distinct from those of catarrhal affections, and that it was usually possible to say in any case of relapse whether the condition was due to tuberculosis or to catarrhal organisms. During the past twenty-nine years he had administered vaccines for secondary organisms in a large number of cases of pulmonary tuberculosis. In only a very small proportion had he been able to ascribe undoubted benefit to the treatment. In his opinion hilus tuberculosis was a very rare condition.

Dr. CROCKER said that if in the examination of sputum many other organisms were present, it was unlikely that tubercle bacilli would be found. He referred to a case of apparently advanced disease with high temperatures and much sputum, which very much improved under treatment by vaccines of streptococci and staphylococci. He believed relapses were often due to lack of rest, and that hilus tuberculosis was of very frequent occurrence—a pre-pulmonary condition. A great deal of chronic bronchitis in elderly people was associated with tuberculosis; such people were dangerous to the community.

Galvano-cautery Treatment of Laryngeal Tuberculosis.

Sir STCLAIR THOMSON spoke of the indications, technique, and results of galvano-cautery treatment of tuberculosis of the larynx. As a local help the galvano-cautery was a most useful adjunct, but the cases in which it should be

used were relatively few. Of such cases a large proportion were cured. The most favourable sites were the margins of the glottis; it should not be used where the glottis was infiltrated. If in spite of sanatorium treatment the condition, generally, was not improving, the cautery should not be used. Disease in the chest might be improving while the condition in the larynx was stationary; but the converse was rarely seen. At Midhurst, in 620 cases only 103 were considered suitable for treatment by the galvano-cautery; of these 64 per cent. were cured. The technique was described.

Dr. TRAILL emphasized the value of an expert opinion on the larynx and considered the galvano-cautery a great adjunct in the hands of an expert. In quiescent cases there was no reaction of any consequence after treatment.

Sanocrysin.

Professor LYLE CUMMINS gave the results of his experience with sanocrysin. He considered it to be an actively beneficial drug in the treatment of pulmonary tuberculosis, but a potentially dangerous remedy. It certainly had some bactericidal action on the tubercle bacillus in the tissues; it freed toxic substances and was a metallic poison. Those cases in which there was a prospect of relief could now be recognized. Careful consideration must be given to the nature of the lesion and the density of the infiltration; also to the state of efficiency of the eliminative organs, such as the kidneys. The advanced toxic case was unsuitable; the early case in good general condition was likely to do well. The use of 2 rays, co-ordinated with clinical signs, was absolutely indispensable. With regard to dosage, at first undoubtedly too large doses at too short intervals were given. The drug was cumulative, and gold might take as long as a month to be excreted. For a resistant, afebrile case he recommended commencing with a dose of 0.25 gram, and increasing by this amount at seven days' interval to 1-gram doses. A total of 6 grams should be given. In pyrexial cases in an early stage 0.2 to 0.75 gram should be given and repeated at seven-day intervals; no further dose should be given until all visible effects had subsided, and a tolerance developed. In spite of some reaction it was found that cough, sputum, and fever all diminished, and tubercle bacilli disappeared from the sputum; weight usually increased after the course was finished. Danger signals were a diminution in the amount of urine, the occurrence of aphthous ulcers in the mouth, diarrhoea, and a tendency to sweating, indicating a postponement of the next dose. Complications were rise of temperature, albuminuria, loss of appetite, jaundice, general exfoliative dermatitis, shock, and an oedematous condition of the lungs. The first four cases were a dramatic success, but they all relapsed; however, after a subsequent course of injections they all recovered. The paper was illustrated by a striking series of lantern slides. Dr. HEATH related his experience of twenty-eight cases treated with large doses. On the whole the results were favourable. Two cases became definitely worse with profuse sweating and the presence of pus and tubercle bacilli in the urine.

Artificial Pneumothorax.

Dr. H. DE CARLE WOODCOCK opened a discussion on artificial pneumothorax, with a demonstration of apparatus. He was in favour of a double manometer which would indicate when the gas was flowing. Dr. PARRY MORGAN demonstrated such an apparatus.

Mr. MORRISTON DAVIES considered that though this form of treatment was a great asset in many cases others were unsuitable and did not do well. Phrenic evulsion helped in some, especially those in which there were adhesions about the lower lobe between diaphragm and lung, and thoracoplasty was indicated in certain conditions such as thin-walled cavitation. His remarks were amply illustrated by an excellent series of slides. Dr. VERE PEARSON described the condition of mediastinal bulging after artificial pneumothorax had been induced. Displacement of the heart and bulging of the posterior mediastinum were observed and were due to too high pressures.

Dr. JANE WALKER gave the end-results of 132 cases treated by induction of artificial pneumothorax during the

period 1912-23. Of these, 21 were under 16 years of age; in 13 tubercle bacilli were present in the sputum; 12 had died, and 9 survived. Of the total number there were numerous tubercle bacilli in the sputum of 114, and none in 18. The total mortality was 65.76 per cent.

Dr. BURRELL reported 309 cases treated by artificial pneumothorax; of these, 128 developed a considerable quantity of fluid and 181 did not. The mortality among those with fluid was 41.4, and among the others 36.7 per cent. In cases with clear fluid the mortality was 29.3 per cent.; in those with pus it was 55 per cent. He concluded that the effusion of clear fluid did not influence the mortality. The effusion did not depend on the gas used or on its warmth; it was a tuberculous process. In spontaneous pneumothorax 18 out of 23 developed pus; the outlook was serious and thoracoplasty should be considered.

Dr. Z. P. FERNANDEZ said that pleural effusion had been a rare occurrence in Leeds during pneumothorax treatment. He thought that replacement of the fluid was less beneficial than simple aspiration.

France.

(FROM OUR SPECIAL CORRESPONDENT.)

Foreigners in Paris Hospitals.

FATE seems to have decreed that those countries most sorely tried by the war and with a depreciated currency should afford an irresistible attraction to foreigners. Some of these foreigners help the country to live, but others are parasites difficult to put up with. Recent statements—notably those of M. Weil to the Académie de Médecine, and M. Marie to the Medical Society of Paris, dealing with the proportion of foreigners in the hospitals of Paris—have attracted the attention, not only of the public authorities, but also of the public at large. M. Berthoumeau has now raised this same question in relation to the great convalescent home for patients discharged from the hospitals of the capital. He finds that 14.6 per cent. of the inmates were born outside French territory; in 1914 the percentage was 5.6, and even that was a heavy charge on the ratepayers. There seems to be no remedy short of establishing rigorous medical inspection at the frontier. It is to be noted that the number of British subjects in Paris hospitals is negligible.

Treatment of Pulmonary Tuberculosis with Sanocrysin.

Once again we have evidence that every new subject is discussed more or less simultaneously in Paris and in London; thus, while the Section of Medicine of the Royal Society of Medicine was engaged in discussing sanocrysin, the same subject was being debated by the Section for Scientific Study of the "Œuvre de la Tuberculose," of which our best known specialists are members. Their conclusions are not so encouraging as those of our British confreres. Professor Bezançon, who has treated twenty-six cases, obtained favourable results in two only. In his opinion sanocrysin has no effect on the fever, the pulse, the cough, or the expectoration. It does not produce any modification in the skin reaction, nor on the deviation of the complement by the tuberculous antigen. Professor Bernard does not regard sanocrysin treatment as specific. The symptoms produced in the patient are not, he thinks, related to an intoxication due to the liberation of tuberculous poisons and toxins, but to the metallic nature of the remedy, and Dr. Rist finds his results far from being as positive as those announced by the Danish authors. Professor Sergent reports disastrous results in two cases and favourable results in four; no effect was observed in eight other patients. M. Calmette has reported some laboratory experiments from which he concludes that *in vitro* the gold salt is little toxic for the tubercle bacillus. Experiments on rabbits did not give evidence of any modification of the virulence of the tubercle bacilli. Sanocrysin does not liberate any specific toxic principle. Finally, the antituberculous serum, the use of which is proposed in order to limit the toxic effects of sanocrysin in tuberculous subjects, does not modify the toxicity of tuberculin. In conclusion, it may be said that the French

observations and experiments support the attitude of Sir Almroth Wright in opposing the views expressed by clinicians who took part in the discussion at the Royal Society of Medicine.

Prevention of Syphilis by Bismuth.

MM. Fournier and Schwartz have reported to the Académie des Sciences the result of their researches on the preventive action of bismuth in experimental syphilis in the rabbit. They have shown that intramuscular injections of bismuth protect the animal effectively against syphilitic infection; the refractory state lasts from three to six months; the duration is proportional to the dose administered, but is influenced also by whether the salt used is insoluble or soluble, being longer in the former case. Guided by these results, the authors have begun to test the value of bismuth in the prevention of syphilis in human subjects specially exposed to possible contamination.

Social Service in Hospitals.

The fourth year of the system of social service, copied from the organization which exists in the United States, has just come to an end. In 1922 the number of such services in Paris was thirteen; now it is forty, seven of which have come into existence during the last year. It is not a charitable undertaking, but a simple and practical method of helping to meet the expenditure of the hospitals, whose existence is made necessary by agglomerations of population. Previously the organization was chiefly concerned with tuberculosis, but during the past year it has attacked a much more delicate problem—that of syphilis. It is easy to understand that difficulties of all kinds are encountered by the women visitors who have to inquire into the family situation of such patients. But the results are most encouraging. It seems that everything depends on the tact and devotion of the lay missionaries who undertake this ungrateful task. Immense progress has been achieved since the war, and is changing altogether the attitude of the hospital, which has ceased to be content to act merely as a place of refuge, but is coming out of its entrenchments to assault the enemy positions. Not only does the community profit, but the teaching of students is becoming more humane and more genuine. This is one of the most striking results of the evolution of modern conceptions and a great advance on the road on which the French have been long preceded by the English-speaking nations.

Social Assurance.

The assurance law on which I have written on several previous occasions will shortly be discussed by the Senate, which it can hardly be doubted will pass it, as has the Chamber of Deputies. The great majority of the French medical profession do not believe that this law will assure to the beneficiaries the best medical treatment; they believe, however, that the measure will be improved in the course of time, and therefore consider it unwise to fight any more against the inevitable. Behind this law are hidden political manoeuvres, the nature of which it is not difficult to guess. It is very much to be regretted that we have not in France an organization comparable to the British Medical Association, which possesses the authority necessary to speak in the name of all medical practitioners. The organization which approaches it most nearly is the Union of Medical Syndicates. Unfortunately, at the time when the Union is most necessary to us, a schism has broken out in it concerning some questions of procedure regarding this new bill which we are expecting to become law. It is still possible to hope that the Union will surmount its differences; if not they will bring about our ruin, for we shall see ourselves lose advantages which it has taken long to win, discredit will fall on our corporate mentality, and feelings of doubt and hesitation will take possession of our minds; it will be a lamentable defeat for our liberal profession, which owes it to itself, particularly in times so difficult as those in which we live, to maintain an attitude of dignity and serenity. We envy Great Britain its professional organizations. We can only console ourselves with the hope that our present griefs will help to provide us with sure foundations for the establishment of a French Medical Association on the model of the British.

G. MONOD.

Scotland.

EDINBURGH MEDICAL FACULTY BICENTENARY.

IN connexion with the bicentenary of the Faculty of Medicine at the University of Edinburgh, which is to be celebrated in June of the present year, the Senatus Academicus has resolved to offer the honorary degree of LL.D. to the following: Andrew Balfour, C.B., C.M.G., M.D., Director of the London School of Hygiene and Tropical Medicine; Robert Howden, M.B., C.M., Professor of Anatomy, Durham; Sir George Newman, K.C.B., M.D., Chief Medical Officer, Ministry of Health and Board of Education; Alexander Primrose, C.B., M.B., C.M., Professor of Clinical Surgery, University of Toronto; Sir John Robertson, C.M.G., O.B.E., Professor of Public Health, University of Birmingham; Ralph Stockman, M.D., Professor of Materia Medica, University of Glasgow; Arthur Logan Turner, M.D., President of the Royal College of Surgeons, Edinburgh; Sir Norman Walker, M.D., LL.D.; James Thomas Wilson, M.B., C.M., F.R.S., Professor of Anatomy, University of Cambridge.

GLASGOW ROYAL INFIRMARY CLUB.

The annual business meeting, followed by the annual dinner, of this club was held in St. Enoch's Station Hotel, Glasgow, on the evening of March 12th, when the president, Sir John Thomson-Walker of London, occupied the chair. There was a large attendance of members, the company numbering ninety-three. After the toast of "The King" had been pledged, the chairman proposed the toast of the "Glasgow Royal Infirmary" in a speech which was largely reminiscent of his own time as resident in the old Royal Infirmary. Replies were made by the guests of the evening—Professor A. Louise McIlroy, London, and Dr. A. Maitland Ramsay, honorary director of the James Mackenzie Institute for Clinical Research, St. Andrews. The toast of "Past and Present Residents" was given by Professor J. M. Munro Kerr, and was responded to by Professor John R. Currie on behalf of the past residents, and by Dr. McCrone for the present resident staff. The toast of "The Chairman" was proposed by Professor Archibald Young, and Sir John Thomson-Walker suitably replied. The joy of the evening was enhanced by songs from Dr. A. N. McLellan, Dr. A. Charteris, Dr. G. Dalziel, and Dr. J. Henderson. During the evening, as on former occasions, a collection was taken on behalf of the Royal Medical Benevolent Fund Guild, and a sum of over £8 was realized. Dr. R. O. Adamson, Glasgow, was appointed chairman for next year.

CLOSE OF THE WINTER SESSION IN THE GLASGOW EXTRAMURAL SCHOOLS.

In the Anderson College Dr. A. Maitland Ramsay, of the James Mackenzie Institute for Clinical Research, St. Andrews, delivered an address to the students on medicine as a career, in which he made special reference to preventive medicine as the greatest achievement of all medical work in ridding the community of many ills. As instances he gave the conquest of malaria and of typhus fever. Their constant endeavour should be to discover the cause of disease, and thereby to arrive at preventive methods. He advised the students to cultivate the spirit of research, even in ordinary practice, as much could be done in that way even apart from laboratories; it would also give to practice an added interest. At the closing meeting of St. Mungo's College, the chairman, Dr. James Macfarlane, D.L., addressed the students, and his remarks were supplemented by those of Dr. James MacKenzie. In both colleges, medals, prizes, and certificates were presented to the successful students.

"PROPOSED NEW CHILDREN'S HOSPITAL AT ABERDEEN.

At the annual meeting of the Aberdeen Royal Hospital for Sick Children it was intimated that an appeal to the public which was made last year for £45,000 had been met to the extent of £34,035 by subscriptions. The first appeal for funds for a new hospital had been made in 1910, and the directors had only recently seen their way

to proceeding with plans for the erection of a new building. It was estimated that the cost of the new hospital would be £100,000. A site had been provided by the generosity of Mr. and Mrs. Herbert Taylor (Aboyne), and the directors would shortly make arrangements for laying the foundation stone of the hospital. H.M. the Queen was re-elected patroness of the hospital, and the Marchioness of Aberdeen and Dowager Lady Burnett of Leys were elected vice-patronesses.

TESTIMONIAL TO DUNDEE RADIOLOGIST.

The committee in charge of the public testimonial to Dr. George A. Pirie in recognition of his pioneer work as a radiologist and of the disablement he had received by assiduous attention to this work, at a meeting on March 23rd, agreed that the presentation should take the form of a cheque for 1,000 guineas.

Ireland.

MEDICAL ORGANIZATION IN NORTHERN IRELAND.

At a meeting of medical men in County Tyrone, held recently, it was decided to form a branch of the British Medical Association for the county, and a resolution was passed unanimously that the Belfast Medico-Political Committee did not represent the medical profession throughout the Six Counties, and had no right to make representations to the Northern Government on behalf of any medical men except those resident in the immediate neighbourhood of Belfast. Further resolutions were passed in favour of the appointments of school medical officers being left in abeyance pending the appointment of a medical officer of health for the county, and stating that medical certificates should not be issued free in the case of school children who are ill, but the Regional Committee should pay a reasonable fee for certificates for children who are dispensary patients.

The following reply has been published by the Medical Committee of Northern Ireland:

We note that at a meeting of the medical practitioners of County Tyrone a resolution was passed to the effect that the Belfast Medico-Political Committee does not represent the medical profession throughout the Six Counties and has no right to make representations to the Government on behalf of any medical men except those resident in or in the immediate neighbourhood of Belfast. We should like to let the public know that: (1) There is no such body in existence as the Belfast Medico-Political Committee. (2) There is a Medical Committee of Northern Ireland. (3) This Committee is constituted as follows: (a) The Council of the Ulster Branch of the British Medical Association; (b) the Council of the Ulster Medical Society (these are the only organized bodies of the medical profession in Northern Ireland); (c) a representative of the Medical Faculty of the Queen's University of Belfast; (d) two representatives of each of the local Medical Committees of the County Borough of Belfast and Londonderry, and of each of the Six Counties of Northern Ireland. If a Medical Committee so constituted has no right to speak on behalf of the profession in Northern Ireland, it is difficult to see what should be the constitution of a committee that would have such a right.

(Signed)

R. J. JOHNSTONE,

Chairman.

H. P. MALCOLM,

ROBERT MARSHALL,

Honorary Secretaries, Medical Committee
of Northern Ireland.

THE CORONERS BILL (IRISH FREE STATE).

A Select Committee of the Senate has had under consideration the Coroners Bill, 1925. Lord Glenavy, who presided, said that the bill in its present form was a very meagre measure and dealt only with what were the present duties of the coroner. The only recommendation for the first section was that it was taken 'practically from the bill that was now before the House of Lords. He suggested that it would be better for the Committee to discuss the whole question with regard to coroners' duties. Senator Brown, K.C., then explained that there were three Acts governing the duties of coroners in Ireland. The first was the Act of 1846, the second the Act of 1881, and the third the Local Government Act of 1898, transferring the appointment of coroners to the county councils. The law left it in the discretion of a coroner to hold an inquest,

except in cases where there was reasonable cause for suspicion that the person died by violence or unnaturally, or through some cause unknown, or died in prison. He suggested that the coroner should be empowered to hold a *post-mortem* examination, and if the report satisfied him as to the cause of death no inquest should be necessary. Senator Brown also explained the provisions of the bill at present before the House of Lords, and suggested that sections should be embodied in the present measure dealing with the powers of a coroner to hold inquests without summoning a jury, also limiting the jury summoned to twelve in number, and obviating the necessity, as at present, for the jury to view the body. Sir E. Coey Bigger said that at present there was no way to certify the cause of death in 70 per cent. of the deaths in country districts. A provision should be inserted in this bill directing that the coroner should hold an inquest in every case where no certificate of medical attendance at death was sent to the registrar. This would help in the compilation of statistics, which at present afforded no information on the point. After further discussion Senator Brown promised to prepare and circulate his suggested amendments, which would be considered by the Committee at its next meeting.

QUEEN'S UNIVERSITY OF BELFAST.

After the spring ceremony for the conferring of medical degrees in the Queen's University, Belfast, on March 26th, a tablet to the memory of the late Right Hon. J. C. White was unveiled by Mrs. White in the new biochemistry and bacteriological laboratories. The Vice-Chancellor presided, and explained that owing to the munificent gift of £60,000 by the late Mr. White the University was now in a position to have a professor, a lecturer, and an assistant in biochemistry, and a lecturer in bacteriology. These departments were well equipped, and, by the grants provided, the authorities would be enabled to keep them thoroughly up to date. This munificent bequest meant the endowment of the study of two important branches of medicine, both of which originated in the work of Pasteur; the discovery of insulin and of vitamins was proof of the value of chemistry. To make full use of their hospitals universities would have to carry on research and to train the doctor for hospital duties. The pathologist and the chemist might make a discovery which would revolutionize methods and means. The war against disease was waged on a wide front, and the final discovery was the result of endless research all over the world. The medical faculty had 400 students, and this gift would enable them to be well taught, so that they went forth properly trained and equipped. Mrs. White then unveiled the tablet, which bears the following inscription:

"In memory of the Right Hon. John Campbell White, Privy Councillor, some time Lord Mayor of Belfast, under whose testament the studies of biochemistry, for which this building is designed, and of bacteriology, were endowed, and the professorship and lectureships that bear his name, founded in this University, 1924."

A vote of thanks to Mrs. White was proposed by the Lord Mayor and seconded by Professor Lindsay, who said that Belfast was following the very laudable and wise example of the United States of America in the liberal endowment of research.

England and Wales.

LIVERPOOL MEDICAL INSTITUTION: JUBILEE OF DR. THOMAS CLARKE.

A SPECIAL meeting of the Liverpool Medical Institution was held on March 23rd to congratulate Dr. Thomas Clarke on reaching his jubilee year of membership of the Institution. Sir James Barr, proposing the resolution of congratulation, reviewed the salient points of Dr. Clarke's professional career. He went to Liverpool in 1872, and after having held a post of ship surgeon was a resident medical officer for three years in the Brownlow Hill Infirmary, after which he commenced the private practice in which he was still actively engaged. In 1879 he was appointed honorary physician to the Hospital for Consumption and Diseases of the Chest, which post he held till 1911,

when he became consulting physician. During the war he resumed active work till 1919, owing to the depletion of the staff. He also held the appointment of visiting physician to the East Dispensary. He joined the Liverpool Medical Institution in December, 1875, and was vice-president in 1923-24. Dr. Thomas Clarke had taken an active part in civic affairs, and proved himself an indefatigable worker, gifted with sound judgement. In 1893 he became a city councillor, and served for several years on committees. In 1895 he became chairman of the Port Sanitary and Hospitals Committee, and in 1901 was made an alderman. On his retiring from the chairmanship he had the unique distinction of being presented with a handsome testimonial. In 1897 he was appointed a magistrate of the city, and still exercised his magisterial duties. Since 1889 Dr. Clarke had held the post of medical referee under the Workmen's Compensation Act. Dr. William McAfee (West Kirby, Cheshire), seconding the resolution, said that his friendship with Dr. Clarke dated from 1876, when he became a fellow resident with him at the Brownlow Hill Infirmary. At that time the nursing of the patients was of the most elementary type, but this was later remedied through the influence of the late Mr. William Rathbone. Dr. Clarke had rectified numerous difficulties in the infirmary, and his success there foreshadowed that ability which he had so successfully displayed in municipal affairs. Dr. E. W. Hope, late medical officer of health, supporting the resolution, said that it was owing to Dr. Clarke's tact and perseverance that the city had been able to secure the Fazakerley estate for the erection of the fine hospital there. Dr. Clarke had been indefatigable in visiting various hospitals in the country so as to ensure that the structural arrangements should be complete in every particular. Dr. Hope mentioned how much Dr. Clarke had endeared himself to the members of the committee, and how they deplored his resignation from the post of chairman. Dr. J. C. M. Given, president of the Liverpool Medical Institution, then put the resolution to the meeting, emphasizing the great public service Dr. Clarke had rendered; it was carried with acclamation. Dr. Clarke, replying, said that he greatly appreciated the honour the Institution had paid him. He gave numerous reminiscences of his experiences as a ship surgeon and as a resident medical officer at the Brownlow Hill Infirmary on the medical as well as on the surgical side. When he began private practice, at the end of two months' work he made £1, but at the end of six months he was self-supporting. He admitted that municipal affairs had engrossed his attention when not occupied with the exigencies of practice. His domestic life had been happy; a widower now, he was the father of eleven children, and in May next he would complete his 80th year. He attributed his good health to plenty of occupation and the friendly sympathy of those with whom he came into contact. Lastly, he enjoyed a good dinner, which was incomplete without a good glass of wine. He regularly took a warm bath in the morning followed by a cold shower, which he regarded in the light of a tonic for the day's work. In conclusion Dr. Clarke expressed his sincere thanks for the honour the Institution had paid him.

NATIONAL LEAGUE FOR HEALTH, MATERNITY AND CHILD WELFARE.

The wide range of activities of the National League for Health, Maternity and Child Welfare and of its constituent sections is illustrated by the annual report for the year ending December 31st, 1925. The League came into existence in 1905, largely in consequence of the issue in the previous year of the report of the Royal Commission on Physical Deterioration. Since then it has played a pioneer part in promoting the establishment of infant welfare centres, and in providing education in mothercraft, the laws of health, and kindred subjects. During the year under review a cinematograph film was prepared to show how all classes in elementary schools in Sheffield carried on a simplified physical training in confined playgrounds, and how the children were taught organized games and swimming. It is stated that the film is available, free of charge, for any local education authority or individual school for demonstration to teachers, parents, or the general public. Health lectures have been given to working

girls' clubs, girl guides' companies, branches of the Mothers' Union, and to factory workers. The League was responsible for a very large number of new publications during 1925. These included pamphlets and small books dealing with everyday psychology in the nursery, cookery for children, maternity and child welfare centres in rural districts, and the work of ante-natal centres. Several of the publications of the League have now been translated into foreign languages. The sales reached nearly 450,000 copies, as compared with 397,000 copies in 1924. The League's report includes the annual reports of the associated societies and a statement of accounts for 1925.

Correspondence.

EFFECT OF INTRAVENOUS INJECTIONS OF GLUCOSE ON THE ACTION OF X RAYS.

[Translation.]

SIR,—Working in my institute in the General Hospital, Vienna, and in Professor Hajek's laryngological clinic, Dr. E. G. Mayer has discovered that the effect of irradiation of non-malignant and malignant tumours is much increased if it is preceded and followed by the intravenous injection of glucose. The solution employed contains 30 per cent. of glucose, and is administered in doses of 10 c.cm. The glucose must be quite pure and free from albumin. The injection is made shortly before each irradiation, and subsequent injections are not required. No modification in the administration of the x rays is needed.

Dr. Mayer brought the subject before the Medical Society of Vienna and showed several remarkable cases and reported on twenty others, in more than one-half of which an enhanced effect was recognizable. During the subsequent discussion Professor Hajek expressed the opinion that the results were superior to any hitherto observed. In order to obtain a true estimate of the value of Mayer's method it is necessary to compare the results with those obtained with x rays alone. It has been ascertained that, in sarcomata treated by the latter method, a primary atrophy of the tumour occurs in about 30 per cent., with prolongation of life. The diminution of the growth commences in a few days and extends over some weeks; there is, therefore, a short latent period and a rapid course. In carcinoma the action is less satisfactory and much more prolonged. In about 2 per cent. of the cases cure lasting for five years has been observed. In the relatively favourable carcinoma of the cervix uteri the percentage reaches 10 to 20; with growths in many other regions the result is often nil. The primary diminution of the tumour in favourable cases begins about the third to the sixth week, and the action continues in varying degrees for some months. The latent period in the case of carcinoma is, therefore, long, and the course has to be prolonged. In cases treated by Mayer's method, some of which I have myself observed, there is, in the first place, a deviation from these results, both as regards the latent period and the rapidity of the subsequent atrophy. The first evidences of a diminution in the size of the growth appear much earlier; the latent period, reckoned by weeks with the older method, would be reckoned by days with Mayer's method. The subsequent atrophy is, moreover, more rapid in its course. In the second place, cases which are considered to be unfavourable for treatment with x rays alone, or in which their administration has been found to be without effect, are brought under the influence of irradiation when treated by Mayer's method. It may be said that, as the result of the injections of glucose, carcinoma acquires the characters of sarcoma in respect of its reaction to the x rays. Combined treatment in x-ray work has hitherto consisted of the employment of some agent (1) conjointly with the x rays, to produce an added effect; (2) before applying the x rays, to produce a sensitizing effect; (3) after the x rays, to produce an adjuvant effect. In the first case may be mentioned Bier's injection of tumours with the patient's serum and the numerous tumour serums; the application of scarlet-red to ulcerating growths and pre-cancerous lesions, in which an undoubted effect has been

observed; Andersen's treatment of carcinomatous ulcers with sodium chloride in high concentration, the action of which extends to a considerable depth and sometimes leads to healing, as I have myself observed; and the tumour autolysates of Juvanovic and the recent tumour serum of Blumenthal, which are employed both in superficial and deeply seated carcinoma. To obtain sensitizing and adjuvant effects the parenteral administration of sodium chloride and albumin and the so-called fever therapy have been tried, but notwithstanding favourable reports I do not anticipate that much advantage is to be expected from these measures.

With Mayer's method permanent results are, naturally, not to be looked for; there is no question of cure. On the other hand, it promises to be more effective than the x rays have hitherto been, and has already been of great service in the more distressing type of cases. The fundamental position of surgery in the treatment of tumours remains unaltered; Mayer's treatment merely confers on irradiation a rapidity of action hitherto unknown, and brings under its influence types of tumour which so far have proved to be refractory to x rays alone.—I am, etc.,

G. HOLZKECHT,
Professor, Roentgen Laboratory, Allgemeine
Krankenhaus, Vienna.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

SIR,—I am inclined to think that the nervous irritability mentioned by a correspondent in your issue of March 13th (p. 503) is due to the brightness of the sun's rays.

This irritability is not confined to the tropics. I practised for three years in Alberta, Canada. Friends remarked to me on arrival that nervous breakdowns were very common, and that everyone had to go "to the coast" after two years' stay. During my first winter I was particularly energetic and invigorated, not feeling the cold to any extent. During the last winter I became more irritable, more sensitive to cold; "one's blood got thinner," in local parlance. Now the climate, as everyone knows, in the winter is very dry, very bright, and very cold, with snow to accentuate the rays of the sun. It was a very pronounced physical relief to put the light out at night. In the summers which were stormy, damp, and hot one did not feel this irritation nearly so much.

I found too, in giving anaesthetics, that the absorption of both chloroform and ether was extremely rapid, and that with the former the risk of an overdose was great unless great care was taken. The same rapid absorption applied to the taking of alcohol, and men were known to get hopelessly intoxicated on very little if coming fresh into town from the country in the very cold weather. I think that these incidents had some bearing on the demand for prohibition of spirituous liquor.

There is no doubt that nervous breakdowns and other allied symptoms of nervous irritation were common, and the facts seemed to point to the excessive and continuous brightness of the winter season. I compared it to the effect of drinking a couple of glasses of champagne daily year in and year out, the cumulative stimulation of the nervous system resulting in the various forms of breakdown.—I am, etc.,

Long Sutton, Wisbech, March 16th.

R. MURRAY BARROW.

SIR,—The Bishop of Singapore is only too right when, in his letter under this heading in the *JOURNAL* of March 13th (p. 503), he emphasizes the importance of the upset of mental and nervous balance which is so common in the tropics.

A few years ago Sir Havelock Charles wrote a paper on neurasthenia, in which it was pointed out that this disease accounted for far the largest number of the invalidings from India. The same thing is true for West Africa. The sanitarian is steadily getting the better of the parasitic diseases and, in that respect, the tropics become healthier and healthier; but only very little progress is being made in reducing the incidence of neurasthenic troubles, and that small improvement is due to better living and social conditions.

At the Annual Meeting of the British Medical Association at Portsmouth in 1923 Dr. George Mahomed of Bournemouth communicated to the Section of Medicine the results of some investigations he had been making on the electrical content of the atmosphere. He had devised an instrument which measured this, and had been able to show that there was a marked and measurable difference between the electrical content of fresh and vitiated air. He found that this difference was even greater than the chemical difference, and suggested that it was more potent in producing the phenomena due to exposure to a vitiated atmosphere than the usually blamed chemical one. I have seen no note of further similar work.

Now, is it not possible that the nervous deterioration which occurs in the tropics may be accounted for on these lines if the results in the paper referred to have been confirmed? It may be that the electrical content or potential of the atmosphere in the tropics is less than it is in the temperate zones. The nervous mechanism of the inhabitant of the latter is attuned to work in the higher potential and, when transferred to an atmosphere with a lower potential, a continual leak from the analogue of his batteries occurs, resulting in the familiar nervous phenomena and ultimately necessitating the long leave at home for recharging.

I apologize for producing an idea which is so entirely conjectural and for which I can offer no scientific evidence; but it seems no worse, in that respect, than the altitude, the sameness of the climate all the year round, the bright light, and the other theories put forward, and it has the advantage of fitting in with observed facts better than they do.

One can see an analogy between the working of the human organism and a motor car. If the car has a long day of short runs with continual starts from the self-starter and much use of the horn, and a long night with the lights on, the result is that its batteries are run down; if it then gets a long fast non-stop run during which no call is made on its batteries it returns with them fully recharged and fit for more gruelling work. Similarly, if a man does a hard day of worrying work and has a late night he retires worn out, with his batteries run down, so to speak. If he then has a good long rest and sleep he is in much the same position as the car on the long run—his engine is running, but there is no call on his nervous mechanism or "batteries," and he wakes up fresh, fully charged, and fit for work. If, however, he continuously gives himself inadequate rest and sleep the result is a nervous breakdown, for which the cure is a very long and complete rest, just as, in the car, if it never gets a long run, the batteries get completely discharged and have to be sent to the garage for recharging, an annoyingly slow and lengthy process. The car with discharged batteries will run, but no more than run—no self-starter, no horn, and no lights; similarly the man with run-down batteries will exist, but shorn of all his better attributes.

I am obviously no electrician, and see no hope of ever becoming one, or possessing the requisite apparatus to see if there is anything in this tentatively suggested theory; but possibly someone better equipped might look into it. —I am, etc.,

J. W. THOMSON, M.O., W.A.M.S.

London, S.W.1, March 19th.

LEAD IN THE TREATMENT OF MALIGNANT DISEASE.

SIR,—If Dr. Adami is satisfied that the suggestion he now puts forward (BRITISH MEDICAL JOURNAL, March 27th, p. 594) explains the apparent discrepancy between his figures and those given by Dr. Blair Bell three pages earlier in the same paper (Lancet, March 13th, 1926), then we may accept it. His suggestion is that the excellent results for which he vouched may have included a certain number of cases which, even three and a half months later, were considered too recent to be classified as "believed cured," a certain number where the cancer had only been arrested, and a certain number which had had incomplete treatment.

¹ BRITISH MEDICAL JOURNAL, 1923, vol. ii, p. 1144.

The acceptance of this suggestion would necessitate two things. First, his description of the cases as "*old patients who had from the beginning been subjected to Professor Blair Bell's treatment*" will have to be withdrawn. Secondly, his statement that "there was not a single example of recurrence in this group" will require to be amended by the addition of some such phrase as "Some of the cases I examined might still bear their original cancer." Such emendations would, of course, considerably change the atmosphere of his report. There may even be other explanations possible, but conjecture could quite easily be converted into certainty if Dr. Adami cared to publish the notes of his examination and compare them with the official records. He will realize that every scrap of evidence justifying the treatment is of importance, and I would earnestly implore him to publish these notes.

It has grieved me very much to think that Dr. Adami should entertain the suspicion that I reflected on his honesty. I, and I am sure all other pathologists, regard him with respect and affection.

Whether it was worth my while dilating on the serious divergencies shown in Dr. Bell's successive reports of his cases, and using these in the forensic method for testing the "credibility of the witness," may be doubtful. The matter is relatively unimportant. Of what I did say at the meeting I retract nothing, I regret nothing. What is of paramount interest is the question of the secrecy of the drug employed. While Dr. Bell vehemently protests that his method of preparation of colloidal lead was disclosed in 1924, and that those who doubt this (of whom I am one) betray colossal ignorance of elementary physical chemistry, he has nevertheless departed from the traditions of medical practice by patenting his preparation. One need not be an authority on physical chemistry to be sure that a patent is never sought for a method already known. On this question my "*animus*," as Dr. Adami calls it, is not concealed. I trust that I shall always be prepared to attack with the utmost vigour I am allowed, and with whatever weapons are at my command, anyone who would dare to withhold from even the humblest member of our profession a professedly successful means of treating inoperable cancer.—I am, etc.,

London, S.W.3, March 27th.

ARCHIBALD LEITCH.

DYSENTERY IN MESOPOTAMIA.

SIR,—Dr. Boney (March 27th, p. 594) claims that I very succinctly proved his case by admitting in my letter (March 20th, p. 545) that all the hospitals in Mesopotamia during the war, except 133 British General Hospital, found the bacillary type of dysentery more prevalent than the amoebic. As this was published by the consulting pathologist it hardly requires proof, and Dr. Boney is hardly justified in calling it his case.

His case appears to be this: that during the war most investigators found the bacillus much more often than the amoeba, and that therefore the recent army report which reverses this order is surprising, not to say incredible.

My point is merely this: that at 133 British General Hospital the amoebae were seen in almost every case of dysentery in 1918, but no bacilli found. This, I consider, makes the recent army report less surprising; and incidentally the opinion formed at Kut is strengthened by the army report. Dr. Boney discards the Kut opinion as isolated, and therefore suggestive of faulty observation. It is certainly less isolated now.

Without in any way implying that Dr. Boney failed to find *E. histolytica* when it was present, I claim that various conditions in different parts of Mesopotamia caused the prevalence of different types of dysentery during the war, and that the change in conditions, as a result of peace, may have again led to a different type of dysentery being prevalent now in the country as a whole.

In support of the Kut findings I should like to add the following:

1. Not only in 1918, but for the two and a half years that the hospital existed at Kut, *E. histolytica* was usually found in dysenteric stools.
2. During that time at least four different men did the bacteriology.
3. Since Kut failed to agree with the majority, the work there

received constant supervision from the consulting pathologist, and each successive worker was warned against reporting the presence of *E. histolytica* unless perfectly sure about it.

4. In 92 cases out of the 141 in which *E. histolytica* was reported the report specially stated "*E. hist. tissue invading*," meaning that the amoebae were seen showing activity and containing red blood cells.

The explanation I put forward was of course "fanciful." It did not claim to be anything else. The adjective "hypothetical" would mean the same thing and sound a little less scathing.—I am, etc.,

Tadworth, March 28th.

B. E. JERWOOD, M.D.

BROMISM: THE SODIUM CHLORIDE TREATMENT.

SIR,—Dr. Semon's memorandum in your issue of February 27th (p. 372) has been of service to me in treating a troublesome case of bromism. I have had a patient whose illness began with a septic tonsillitis and pyorrhoea and continued with an exanthematous or scarlatiniform eruption all over the body, worst in the neck and limbs, which became swollen and then peeled very rapidly. Scarlet fever was soon ruled out, and a second opinion I called in considered the condition one of exfoliative dermatitis. The temperature was round 100° F., and the pulse 90. I had given her some bromide and arsenic and stopped this as soon as the skin began to be troublesome, fearing it as the possible source of irritation. The septic tonsillitis subsided, and the mouth improved after extraction of some decayed teeth and use of hydrogen peroxide.

Thinking the dermatitis was really due to an auto-intoxication, I again gave bromides in small doses, with some Fowler's solution on account of the patient's very "nervy" state. She is 49, but the catamenia are normal. In two days she developed large irritating patches of urticarial eruption all over the body, and these were followed by a host of apparently permanent small warts on the trunk. I stopped the bromide with the first appearance of the second eruption, some three weeks ago. The eruption gradually faded, but in spite of all efforts to eliminate the bromide she continued to feel very weak, irritable, and ill. There was no albuminuria.

After I had read Dr. Semon's suggestion I exhibited sodium chloride, giving cachets gr. x b.d. After five days the patient has made very rapid progress—the depression and weakness are gone, and she is making plans to go away for a change of air before resuming her normal duties.

I think this a noteworthy example of bromism well relieved by sodium chloride.—I am, etc.,

Margate, March 7th.

R. W. NICHOL.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

BEFORE rising on April 1st for the Easter Recess the House of Commons had a second reading debate on the Electricity Bill and commenced the Committee stage of the Economy Bill. The Births and Deaths Registration Bill has been returned with amendments from Standing Committee A, and the Midwives and Maternity Bill is next on the list for examination by that Committee. Important evidence has been taken by the Select Committee on the Registration of Nursing Homes. The Home Secretary has promised to introduce the Factories Bill this session for preliminary examination, and Mr. Chamberlain has invited another debate later about the recommendations of the Royal Commission on National Health Insurance.

National Health Insurance.

During the consideration of the Consolidated Fund Bill, on March 25th, the Liberal party in the House of Commons opened a discussion on the Report of the Royal Commission on National Health Insurance. Sir Kingsley Wood said the Ministry of Health was very grateful to the Commission for valuable suggestions which would increase the efficiency of the National Health Insurance scheme. Neither by the recommendations of the report nor by any Government action was there any likelihood that the health of the nation would be impaired. They had excellent results in health progress, and looked forward confidently to the future. Mr. Rhys Davies, for the Labour party, said he was surprised the Commission did not report in favour of bringing all young persons into the insurance scheme as soon as they entered industry. Young persons should be provided with medical attention from school right through industry to the end of their

days. In school they were attended by medical officers, but between leaving school and the age of 16 all that happened was that they were looked after in a somewhat haphazard manner by the certifying surgeon if they desired to enter a factory.

Mr. Lloyd George said that, on the assumption that the Economy Bill passed into law, he would like to discuss whether benefits would be affected—medical benefits, dental benefits, and maternity benefits—and the question whether a man should be taken to a specialist or the specialist should be brought to him. Everyone agreed that, on the whole and within the powers it possessed, the Ministry of Health had administered the Insurance Act very efficiently, but there was a real need for changes. The proposal of the Royal Commission that suitable medical benefit should be extended ought to receive the earnest consideration of the House. The extension of medical benefit would improve the health of the people, and if a reduction of sickness followed the Government would get a relief in the amount it had to pay. They could not reduce the contributions of the insured person or of the State without placing the whole scheme in jeopardy.

Mr. Chamberlain said it had been recognized from the beginning that one of the principal defects of the National Health Insurance scheme was that the medical benefit provided was insufficient. No change would be more warmly welcomed by approved societies than one which would extend the scope of medical benefit and give insured persons the advantages of expert and specialized advice and treatment. General practitioners themselves, through being brought constantly into touch with these men who had made a special study of particular diseases or particular forms of weakness, would find their interest aroused and stimulated, and their knowledge widened and extended, and therefore even the present medical services under the Act would be improved and strengthened. The report of the Royal Commission showed that this extended medical service at any rate was not affected by the Economy Bill. The financial proposals of the Commission could be effected by a partial pooling, though that was not popular among the approved societies. He suggested that the House should discuss the matter at a subsequent and convenient time.

Answering Mr. D. Grenfell, Mr. Chamberlain said about 3,500 approved societies and branches in England, having a total membership of over 10,500,000 insured persons, had adopted schemes of additional benefits that included payments towards the cost of dental treatment. These numbers were likely to be materially increased from July, when schemes following the second valuation would become operative for societies. Mr. Grenfell asked at the end of 1923. Mr. Grenfell asked whether the Government would take steps to ensure that dental treatment was included in the dentures should be included in the treatment provided under the National Health Insurance Acts. Mr. Chamberlain replied that the Royal Commission on National Health Insurance came to the conclusion that, while a complete dental service for the whole insured population would be eminently desirable, it was not at present financially practicable, and it recommended that the general arrangements for dental services under additional benefit schemes should be continued. Societies and branches having a sufficient disposable surplus on valuation were reminded of the possibility of their adopting dental benefit as an additional benefit, and he proposed that this should remain the practice. The report of the Royal Commission showed that, even if the Government had not decided to reduce the State contribution to national health insurance, it would not have been possible to make dental treatment and the provision of dentures a general benefit under the Act.

Coroners Bill.

The Coroners (Amendment) Bill was again considered in the House of Lords on March 25th, and further amendments were made on the report stage.

On the motion of the Lord Chancellor, a series of amendments were agreed to, the effect of which was to disqualify an alderman or councillor from being a deputy to the coroner appointed by his council.

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Coroners Act, 1892, relating to coroners should apply, with the amendment proposed by the Lord Chancellor, to coroners for the King's Household.

An amendment, also proposed by the Lord Chancellor, was made to Clause 20, to provide that a coroner, instead of directing a local medical practitioner to perform a post-mortem examination, might request any legally qualified practitioner to do it. This might, he explained, sometimes be the more convenient course.

Clause 21 deals with the power of a coroner to request specially qualified persons to make post-mortem and special examinations. The Lord Chancellor moved to omit Subsections 2 and 3, which provided that any person who consented to comply with a coroner's request to make a post-mortem or special examination might be summoned as a witness: and that Section 22 of the Coroners Act, 1887, which related to fees payable to medical witnesses, should not apply to any person requested by the coroner under this clause to make an examination, whether he was summoned as a witness or not. His lordship moved to substitute two new subsections. He explained that Subsection 2 was re-drafted, so as to avoid casting any doubt on the power of the coroner under the common law to summon any person he thought fit. Subsection 3 was re-drafted, so as not to legislate by reference to Section 2 of the Act of 1887, and to make provision for the precise fees to be paid. These amendments were agreed to.

An important new clause was inserted, on the Lord Chancellor's motion, after Clause 21. It reads as follows:

"The fees payable to a legally qualified medical practitioner who has made any post-mortem examination by the direction or at the request of a coroner, or who has attended an inquest in obedience to a summons of a coroner under the Coroners Act, 1887, shall (save as in this Act otherwise expressly provided) be as follows, that is to say: (a) for attending to give evidence at any inquest where a post-mortem examination has been made by the practitioner, one guinea; and (b) for

making a *post-mortem* examination of the body of the deceased and reporting the result thereof to the coroner without attending to give evidence at an inquest, one and a half guineas; and (c) for making a *post-mortem* examination of the body of the deceased (including the making of a report, if any, of the result thereof to the coroner) and for attending to give evidence at an inquest on the body, two guineas:

"Provided that no fee or remuneration shall be paid to a medical practitioner for the purpose of a *post-mortem* examination instituted without the previous direction or request of the coroner."

The Lord Chancellor explained that this clause fixed the fees of medical witnesses. The object was to make specific provision as to the amount of fees for a *post-mortem* examination without an inquest under Clause 20 of the bill, and also to re-enact Section 22 of the Act of 1887, with various amendments and omissions, instead of leaving persons to gather the effect of that section and the present section by piecing the two together.

A further amendment was agreed to, on the Lord Chancellor's motion, providing that after the next vacancy in the office of coroner for the City of London the provisions of the bill should apply to the City coroner. He explained that otherwise the City coroner in time would become the only coroner appointed by a local authority and yet be left out of some of the provisions of the ordinary law.

Births and Deaths Registration.

Consideration of the Births and Deaths Registration Bill was resumed in Standing Committee on March 25th. On the motion of Dr. Fremantle, the Committee decided that in London the Common Council of the City or the London County Council, and in the rest of the country the county councils and county borough councils, should be the authorities who should arrange to make available the services of a registered medical practitioner for verifying, at the request of the coroner, the death of any person whose body had not been seen by a registered practitioner since death. A motion that the clause as amended stand part of the bill was, however, defeated by 19 to 7, as the subject is more proper for consideration on the Coroners Bill. Drafting amendments were made at the instance of Dr. Fremantle and Dr. V. Davies in the clause compelling the registration of stillbirths, the word "stillbirth" being substituted for "stillborn child." Other provisions relating to the duties of coroners were deleted on the motion of Sir Kingsley Wood. Sir Richard Luce moved words authorizing the Minister of Health, with the concurrence of the Home Secretary, to make regulations "as to the period of time a body may be retained after death in an inhabited house or other premises." These words, which had been suggested by the British Medical Association, were accepted by Sir Kingsley Wood and the Committee. An amendment was accepted from Sir K. Wood which more precisely defined the "person effecting the disposal" of the body. A new clause for construing the bill when applied to cremations was brought up by Sir K. Wood and added to the bill. The bill then passed through Committee and was put down for report in the House on March 31st.

Registration of Nursing Homes.

The Select Committee on the Registration of Nursing Homes met a first time at the House of Commons on March 25th.

Those summoned to attend as witnesses on that day were Mr. L. G. Brock, principal assistant secretary, Ministry of Health; Mr. M. L. Gwyer, legal adviser to the Ministry of Health; and Miss Rundle, secretary of the College of Nursing.

Mr. Brock, in his précis of evidence, announced that the information available in the Ministry was insufficient to justify the expression of any definite view for or against the registration of nursing homes. The Minister had not received any representations from local authorities, nor from associations of local authorities, suggesting that registration demanded the attention of Parliament. The Minister neither advocated registration in principle, nor would he oppose it, if the committee decided that, from the point of view of public health, the advantage was in favour of registration. It was sometimes alleged that there was a case for supervision of nursing homes in the interests of morality. That was a question for the Home Office and the police, not for the Ministry of Health. No local authority, so far as was known, had any power to inspect nursing homes as such, but various authorities had power to inspect maternity homes, and could, in fact, inspect any home receiving maternity cases. The Midwives and Maternity Homes Bill introduced by Dr. Fremantle had the sympathy of the Minister of Health. The Minister thought there was a special case for inspecting maternity homes. Without a power to the supervising authority under the Midwives Acts to inspect such homes there was a real danger of the employment in the less reputable homes of unqualified women as midwives. Maternity homes of a certain type were resorted to by women about to be confined of illegitimate children. In such cases there was no one with any motive to see that at birth the child was given a fair chance of life, and apart from carelessness or deliberate negligence these so-called homes might be used for baby farming. He pointed out that other nursing homes existed for the reception of acute surgical and medical cases, for the reception of cases with nervous trouble, and for the reception of chronic senile or paralytic cases. In all three types of home patients needed more or less constant attention, and were not fully able to look after themselves. The function of the first type of nursing home was substantially that of the hospital, and the second type was very near the mental hospital receiving voluntary boarders. All three types differed from hospitals in being carried on for gain, but there were homes for the reception of senile paralytics which were partly charitable, but were perhaps more in need of inspection than many homes conducted on business lines. The Ministry therefore suggested that if registration of nursing homes was recommended the definition should include any premises intended

to be used for the reception of persons suffering from any sickness, injury, or bodily or mental infirmity for the purpose of providing such persons with nursing where any payment or reward was made or promised by or on behalf of any person so received. Local authorities might be given power to exempt any home which they were satisfied was *bona fide* conducted for charitable purposes. The witness pointed out that in homes for nervous cases, in the absence of inspection by responsible authority, patients might be kept after certifiable mental disorder had developed. Cases of suicide by patients described as suffering from nervous-breakdown, and under treatment in nursing homes, suggested that in this special type of home there were grounds for inspection which did not apply to other types. Turning to the case against supervision of nursing homes, the witness pointed out that the real responsibility of seeing that the patient was properly looked after rested with the doctor, who was bound to be in regular attendance. It was against the interest of the doctor to send patients to an unsatisfactory nursing home. The provision of nursing homes was a legitimate industry meeting a real need, and the Minister was bound to say that the evidence in his opinion would not establish any widespread existence of abuses. There was at present no demand by local authorities for power to supervise. Supervision and the imposition of statutory requirements in regard to the qualification of the nursing staff would tend to increase the cost of treatment in nursing homes, which was already high, and in some cases almost prohibitive.

A statement submitted by the College of Nursing in favour of registration declared that many homes were not managed in a satisfactory way, and that the number of such homes was increasing. The College was of opinion that the prestige of nursing homes could only be safeguarded by a system of State registration. It suggested that inspection should be by a registered nurse, with or without a medical practitioner. Agreement with the principle of registration had been expressed, said the statement, by the British Medical Association, the Society of Medical Officers of Health, the County Councils Association, and other bodies.

Mr. Gwyer and Mr. Brock were examined together on the memorandum prepared by the Ministry of Health. They stated that the Ministry had no evidence to show how many maternity homes were run as separate businesses. Dr. Shiels asked whether the Midwives and Maternity Homes Bill introduced by Dr. Fremantle, and now before Parliament, might not overlap the ground proposed to be covered by the Nursing Homes Bill which had been introduced last year. Mr. Gwyer said this was possible, and that if either bill passed before the Select Committee reported the researches of the Committee would be useless. Mr. Gwyer said the Ministry could only give two instances where charges had been brought against nursing homes other than maternity homes. The Chairman of the Committee, Sir Cyril Cobb, asked whether it was the case that the Ministry had little information that would guide the Committee on the desirability of registering nursing homes. The witness admitted that this was the case. Miss Wilkinson asked the opinion of the Ministry on the suggestion made by the College of Nursing that the chief of a nursing home should always be a registered nurse. Mr. Gwyer said there were so many registered nurses available that such a condition appeared needless. He knew of one thoroughly qualified but unregistered woman conducting a nursing home who would not receive a licence under the bill presented last year, although doctors were eager to send patients to her. The Committee adjourned till March 30th.

Factories Bill.

On March 26th Miss Wilkinson moved the second reading of the Factories Bill. This measure was prepared by Mr. Arthur Henderson when Home Secretary. Miss Wilkinson said it was to consolidate and amend the enactments relating to factories. It dealt with health, safety, welfare, accidents, industrial diseases, and the employment of women, young persons, and children. It proposed to increase the air space for each worker from 250 to 400 cubic feet, and made new provisions in regard to lighting, heat, sanitation, and cleanliness. No man should carry on business if he could not ensure his workers a reasonable standard of health.

Captain Macmillan moved that the House, while recognizing the need to introduce a Factories Bill this session, should reject the present one as being a proper subject for a private member's bill. He said the Minister of Labour on achieving an agreement on hours of labour, and hoped that the hours of women and young persons would be regulated without reference to any international agreement.

The Home Secretary said that nineteen-twentieths of Mr. Henderson's bill would be included in the Government's Factories Bill. The Prime Minister and Cabinet authorized him to say that this bill would be introduced this session for discussion and reintroduced early in 1927 as one of the principal measures of that year. The Government would then do its utmost to pass the bill into law. The Government bill would not include the Labour party's proposals against night baking, but it would abolish the distinction between textile and non-textile factories, as also between factories and workshops. His bill would deal with overcrowding, temperature, and lighting in factories, sanitary conveniences, the provision of water, of first-aid outfits, and of special clothing, and would secure protection against dust and safeguards against the lifting of undue weights. Factories of trades where there was exceptional liability to disease would have special medical supervision.

Dr. Vernon Davies objected to Miss Wilkinson's bill allowing certifying factory surgeons to be appointed by local authorities as well as by the Home Office. That was a retrograde step, and

might lead to a conflict of opinions on factory conditions. The Home Office should make all these appointments and standardize the system. Dr. Watts referred to shuttle-kissing as still being one of the greatest dangers to health in the cotton mills, and thought that the bill did not provide enough security against the danger from the practice. He also argued in favour of a unified factory medical service. Dr. Fremantle complained that the bill did not provide for a staff of Home Office medical officers to collaborate with the officers of the Ministry of Health. Captain Macmillan's amendment being carried by 184 to 109, Miss Wilkinson's bill failed to secure a second reading.

Artificial Sunlight.—Mr. Chamberlain told Sir Harry Brittain that he had no complete information on the number of hospitals in this country in which artificial sunlight treatment was provided, but arrangements for this treatment had been approved, in connexion with tuberculosis and maternity and child welfare schemes, in twenty-six hospitals and sanatoriums, exclusive of tuberculosis dispensaries and maternity and child welfare clinics. Reports on the approved schemes were being considered by the Ministry of Health. The treatment, if appropriately applied, was undoubtedly beneficial in many cases, but he was not yet able to give a complete reply to the question whether the treatment was proving successful.

Encephalitis Lethargica.—In answer to Mr. Briant, Mr. Chamberlain circulated statistics showing that in England and Wales, including port sanitary districts, 454 cases of encephalitis lethargica were notified in 1922; 1,025 in 1923; 5,039 in 1924; and 2,635 in 1925, the last figure being provisional.

Hertford Hospital, Paris.—Mr. A. M. Samuel informed Sir Richard Luce that the medical staff of the Hertford British Hospital, Paris, resigned in November, 1924. They had been replaced and no action by the British Government appeared necessary.

Bethlem Royal Hospital.—Objection was again taken to the second reading of the Bethlem Hospital Bill when this was moved in the House of Commons on March 29th.

Notes in Brief.

On January 1st, 1926, the persons in receipt of Poor Law relief in England and Wales were 1,441,500, compared with 1,205,267 a year previously.

The Minister of Health has extended till the end of April the time during which he will receive representations on the draft Order proposed to be made under the Milk and Dairies Act, 1915.

Sir Austen Chamberlain states that so far as he knows no foreign Power has yet ratified the Opium Agreement and Dangerous Drugs Convention, signed at Geneva in February, 1925. The agreement will come into force on the ninetieth day after the receipt in Geneva of ratifications by two Powers.

Universities and Colleges.

UNIVERSITY OF OXFORD.

ROBERT JAMES BROCKLEHURST, B.M., M.A., of University College (formerly scholar), and of St. Bartholomew's Hospital, has been elected to a Radcliffe Travelling Fellowship of £300 for two years. Bernard Thomas Quives, exhibitor of University College, student of medicine, has been elected to a Christopher Welch Research Scholarship of £100 for four years.

At a congregation held on March 27th the degree of Bachelor of Medicine (B.M.) was conferred on R. H. B. Bettington.

UNIVERSITY OF LONDON.

At a meeting of the Senate on March 24th regulations were adopted for the award of the recently established Laura de Saliceto studentship for the advancement of cancer research.

It was resolved to institute an academic diploma in anthropology. Sir Holburt Waring was appointed the representative of the University at a meeting to be held next month to consider the steps which should be taken to organize an appropriate celebration in April, 1927, of the centenary of the birth of Lord Lister.

The appointment of obstetric house-surgeon at the Royal Northern Hospital has been approved by the Senate of the University of London for the purposes of the M.D. examination (Branch IV).

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—Part I: T. Blezard, H. C. Calvey, F. R. Craddock, L. de Jongh, Lillian W. Edwards, E. E. Glenton, L. S. Goldman, A. W. Green, R. E. Hughes-Davies, Edna Morris, T. C. Newman, Alfred S. Roberts, J. B. Rushon, E. P. Thompson, J. L. Walker, A. J. Walsh, Joan Watkins. **Part II:** L. de Jongh, T. Lotter, J. H. Rowlands, J. L. A. Webster.

DIPLOMA IN TROPICAL MEDICINE.—W. J. Aitken, A. Ashworth, R. N. Bansikar, N. Bligh-Peacock, Elsie G. Bolton, E. H. Goodrie, M. A. B. Brito-Mutunavagau, T. Cullen, H. N. Davies, B. G. V. Dias, E. G. A. Doh, H. P. Powrie, Isabella J. Fowler, Katharine M. Hodgkinson, H. Jackson, R. H. Kamakaka, D. Tennor, A. W. Lewis, A. G. Mackay, N. McLean, M. Macneaney, S. B. Malik, M. E. Merchant, E. D. Molony, S. G. Nashikkar, F. Oppenheimer, F. S. Paterson, L. D. Quigley, M. Rodriguez, S. A. Sachdev, H. Singh, J. Singh, S. A. Talib, Yama, C. Tan, Catharine F. Taylor, N. S. Turnbull, B. K. Vardja, T. N.

DIPLOMA IN TROPICAL HYGIENE.—G. Clark, Ivy Collier, B. L. Davis, A. J. Hawe, D. M. Mackay, D. A. Skan.

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—J. H. Barrett, R. Herndon, J. M. Hosey, Irene E. Kenworthy, H. McE. Morris, D. Ramage.

UNIVERSITY OF EDINBURGH.

At the graduation ceremonial held on March 25th the degree of D.Sc. was conferred upon Dr. Ronald Gray Gordon (physician to the Royal Mineral Water Hospital, Bath) for his thesis on "Personality"; and the degrees of M.B., B.Ch. upon Roderick Macdonald.

UNIVERSITY OF ABERDEEN.

At the graduation ceremony on March 24th the following degrees and diplomas were conferred:

L.D. (honoris causa).—Dr. Robert Wm. Reid, Professor of Anatomy, University of Aberdeen.

M.D.—Alexander Lyall, Charles Reid, Charles W. Walker, Alexander A. McIntosh Nicol, Adam A. Turner.

M.B., Ch.B.—The names of the successful candidates were published in our issue of last week (p. 638).

D.P.H.—J. F. Davidson.

* Awarded honours for thesis.

The following prizes were also presented:

Fife Jameson Memorial Gold Medal in Anatomy: G. A. G. Mitchell. Keith Gold Medal for Systematic and Clinical Surgery: G. Stephen. Shepherd Memorial Gold Medal for the Principles and Practice of Surgery: T. B. Anderson. Dr. James Anderson Gold Medal and Prize in Clinical Medicine: T. E. Anderson and Victoria C. Enslie (equal). Matthews Duncan Medal in Obstetrics: A. W. Forrest and W. Marshall (equal; silver medal each). The Alexander Ogston Prize in Surgery: G. I. M. Gleton. Dyce Davidson Memorial Gold Medal in Materia Medica: M. G. Gibb.

UNIVERSITY OF DUBLIN.

SCHOOL OF PHYSIC, TRINITY COLLEGE.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., PART I.—Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology and Bacteriology: R. R. Woods, M. F. N. Griffin, T. C. M. Corbet, M. Gerber, E. G. M. Montgomery, I. Isaacson, S. R. Elmes, R. W. T. H. Stewart, H. Dundon, H. A. Ferguson, J. M. McElligott, L. R. Bramberg, I. F. Rathaus, W. F. Knobel, J. K. Harper, C. F. Cope.

PART II.—Jurisprudence: H. O. Clarke, A. J. Conlin, E. H. Hall, P. F. Palmer, G. A. Wainwright, T. J. W. Keown, W. C. G. Potts, J. M. Solkon, E. W. Blugham, M. A. W. Roberts, Nancie N. Lowther, A. E. A. O.

PART III.—Physiology and Pathology: H. J. Roche, D. N. Power, J. H. M. Lean, Margaret W. Pike, Mary S. Miller, R. G. Kears, J. N. S. Gouws, J. V. Pincus, W. Russell, H. Wilson, G. A. A. Powell, Lucy E. R. Pigott, Mabel E. Brittain, C. G. Nel, G. T. L. Archer, A. B. Brooks, W. C. Sloan, J. F. MacManon, W. G. Maule, A. Sachs, C. L. Taylor, W. Magowan. **Anatomy:** E. E. Malou, E. E. Satchwell, S. Smyth, D. St. C. Mackenzie, H. A. Ferguson, J. Quigley, J. B. Patrick, C. F. M. Wilson, M. G. J. Booyssen, Norah E. Fenton, J. Johnston, N. J. U. Mather, W. P. Culbertson.

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS.—I. V. Yoffa.

* Passed on high marks.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary comitia of the Royal College of Physicians of London was held on Monday, March 29th, at 5 p.m., the President, Sir Humphry Rolleston, Bt., being in the chair.

The President delivered the annual address, which was much appreciated of the large amount of business before the meeting was made to the changes made in the Membership. Brief obituary appreciations of fellows who had died during the year, Tooth, Sir Richard Douglas Powell, Dr. J. W. Russell, and Dr. G. H. Hunt, the retiring President, Sir Humphry Rolleston, was moved by Dr. Mitchell Bruce and carried.

The College then proceeded to the election of President. At the first ballot Sir John Rose Bradford received 51 votes, Lord Dawson 37, Sir William Hale-White 19, Dr. Raymon Crawford 14, and Dr. John Fawcett 11. The first two of these names were then submitted to a further ballot, when Sir John Rose Bradford received 81 votes and Lord Dawson 65. Sir John Rose Bradford was then inducted to the President's chair.

Dr. R. O. Moon was elected Assistant Registrar, having been nominated by the President at the last meeting of the comitia.

Dr. J. Walter Carr was elected a representative of the College on the Professional Classes Aid Council, in place of Dr. Newton Pitt, retired.

A resolution of the Royal Society asking the College to attend a meeting in the Society's purpose of organizing a celebration of Lord Lister (April 5th, 1927). The President was appointed.

Diplomas in Tropical Medicine were granted to 27 candidates. (The names were published in the report of the meeting of the Council of the Royal College of Surgeons of England, printed in our issue of March 20th, p. 552.)

Lord Dawson drew attention to the discontinuance of the publication of *Medical Science Abstracts and Reviews*. The College affirmed its appreciation of the value of this publication, and the hope was expressed that the Medical Research Council would resume it.

Obituary.

DR. THOMAS HORNE, who died on March 8th, at the age of 75, was one of the senior members of the public health service. He received his medical education at Anderson College, Glasgow, where he obtained the diplomas L.R.C.P., L.R.C.S.Ed., and L.M., in 1874, graduating M.D.Durh. in 1892. After holding the post of medical officer of health for Sandwich he went to Stockton-on-Tees, and for twenty-nine years devoted himself to improving the health of the town. The control of infectious diseases first engaged his attention, and after several years' activity he had the satisfaction of seeing a considerable measure of success result. Another reform achieved after persistent effort was the conversion to the water carriage system of the numerous privy middens in the town. Dr. Horne was long handicapped by ill-health, which compelled his retirement two years ago, when he was appointed consulting medical officer of health for the borough. For a short period he was temporary medical inspector under the Local Government Board. He was for many years a member of the British Medical Association.

Dr. JOHN STEWART HENDRIE, who was killed accidentally on March 8th, at the age of 23, while on his way to an urgent case, was educated at Galston Higher Grade School, Kilmarnock Academy, and Edinburgh University, where he graduated M.B., Ch.B. in June, 1925. He obtained a British Medical Association Prize for an essay on the diagnosis and treatment of chronic intestinal obstruction in the preceding April. He became assistant to Dr. John Brown at Durham in October, and during his short professional career won much popularity. Much sympathy is felt for his mother and two brothers in their sad bereavement.

The following eminent foreign medical men have recently died: Dr. Van de Vloete of Brussels, formerly president of the Société de Neurologie Belge; Dr. Juan B. de Landeta, doyen of the medical profession in Havana; Professor Serafino Patellini-Rosa, professor of social eugenics in the University of Milan.

Medical News.

THE Fellowship of Medicine announces that on April 15th, at 2 p.m., Mr. W. E. Tanner will give a clinical surgery demonstration at the Prince of Wales's General Hospital, Tottenham, free to members and general course ticket-holders of the Fellowship. From April 19th to May 1st the Bolingbroke Hospital, Wandsworth Common, will hold an intensive course in medicine, surgery, and the specialties. During May there will be two courses lasting the entire month: a course in psychological medicine at the Maudsley Hospital, Denmark Hill, will include lectures on the psychoneuroses, crime, and insanity, and a clinical course in venereal diseases at the London Lock Hospital. From May 3rd to 22nd there will be a clinical and an operative course at the Central London Throat, Nose, and Ear Hospital. The Royal Waterloo Hospital will hold a course in medicine, surgery, and gynaecology from May 3rd to 22nd, and from May 3rd to 15th the Infants Hospital will hold an afternoon course under the direction of Dr. Eric Pritchard. A three weeks' course will be given by the Royal Westminster Ophthalmic Hospital from May 3rd to 22nd. Copies of all syllabuses and of the general course programme may be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

A NUMBER of members of the International Society of Medical Hydrology will visit the spas of Czechoslovakia in the middle of April, and other medical men are invited to join the party, which will leave London on Wednesday, April 14th. Medical discussions will be held at Karlsbad on April 16th and at Marienbad on April 17th. The party will be officially received at Prague on April 19th, and there will be a special conference on rheumatism at Pístany, in which Sir William Willcox (London), Dr. Kahlmeter (Sweden), Dr. van Breemen (Amsterdam), Professor Strasser (Vienna), Professor Netousek (Bratislava), and Dr. Baltaceanu (Budapest) will take part. Visits will also be paid to spas in the Tatras mountains. Members of the party will be guests of the Czechoslovakian Government and of the various spa

municipalities. Full particulars can be obtained from the Honorary Secretary of the International Society of Medical Hydrology, 36, Devonshire Place, London, W.1; application must be made not later than the first post on Monday, April 5th.

ON March 23rd a large silver loving-cup, suitably inscribed, was presented to Lieut.-Colonel A. Alcock, C.I.E., F.R.S., LL.D., by his colleagues at the London School of Hygiene and Tropical Medicine, where, until his recent resignation, he had been director of entomology since 1907. Dr. Andrew Balfour expressed the indebtedness of the school and its students to Colonel Alcock, and referred to the valuable scientific results of his work.

THE twenty-first international post-graduate course will be held in Vienna, from June 14th to 27th, and will deal with tuberculosis, with special reference to treatment. From June 28th to July 3rd there will be a series of practical courses. Applications for membership should be addressed to the secretary of the international post-graduate courses, Dr. A. Kronfeld, Porzellangasse 22, Vienna IX, from whom further information may be obtained.

A TOUR for medical practitioners to the spas and climatic health resorts of Italy is being arranged for September 12th to 28th, and will be conducted by Professor Guido Ruata. The general arrangements will be similar to those of the tours of 1924 and 1925, and the places to be visited include Abbazia, Portorose, Grado, Venice, Merano, Bolzano-Gries, Riva, and Salsomaggiore. Medical lectures will be given at each resort. The party will be limited to 200, but each medical practitioner may be accompanied by a relative if early notice is given. The cost of the tour from its commencement at Abbazia to Salsomaggiore is 1,600 lire, and further information may be obtained from the Ente Nazionale Industrie Turistiche, 6, Via Marghera, Rome.

THE International Society for the Protection of Childhood will hold its fifth session at Rome on May 25th, when the following subjects, among others, will be discussed: situation of children in the colonies, prophylaxis of tuberculosis in families, prophylaxis of rickets, and the statistics of infantile mortality.

THE following appointments have recently been made in the French faculties of medicine: Dr. G. Portmann, professor of oto-rhino-laryngology, in succession to Professor Moure, at Bordeaux; Dr. Desoil, professor of medical and pharmaceutical zoology at Lille; and Dr. Laporte, professor of medical pathology at Toulouse.

Dr. DEAN LEWIS, professor of clinical surgery in the State University of Chicago and editor of the *Archives of Surgery*, has been nominated professor of surgery in the Johns Hopkins University in succession to Professor W. S. Halsted.

JOHN WRIGHT AND SONS, LTD., of Bristol will publish in May the first number of the *Cancer Review*, under the direction of the British Empire Cancer Campaign, 19, Berkeley Street, London, W.1. This journal will be devoted entirely to reviews and abstracts of current publications in all countries and languages, dealing with tumours in general and malignant new growths in particular. The abstracts will be arranged under two main headings: (1) General, including experimental and biochemical work on cancer, culture *in vitro* of malignant tissues, association of tumours with parasites and other irritants, pre-cancerous conditions, physiological changes associated with malignancy, radiological and other methods of diagnosis and treatment, prognosis, epidemiology, and statistics; (2) Clinical and regional, including publications on the clinical pathology of tumours of the various organs and systems of the body. Ten numbers will be published each year. Subscriptions (50s. a year) may be sent to the publishers, or to any bookseller.

A PAMPHLET of twelve pages, *The Problem of the Intoxicated Motor-driver*, has been issued, at the price of 2d., by the True Temperance Scientific Committee, Donington House, Norfolk Street, Strand, W.C.2. The pamphlet is signed by Sir James Crichton-Browne, Sir W. J. Simpson, Drs. H. Wansey Bayly, W. H. B. Stoddart, H. W. Southgate, and Mr. Ernest E. Williams. Three aspects of the problem are discussed—the legal, the scientific, and the social—and detailed reference is made to the paper by Drs. Southgate and Carter, published in the *BRITISH MEDICAL JOURNAL* of March 13th, 1926, on the excretion of alcohol in the urine as a guide to alcoholic intoxication. We may recall here that a representative committee on tests for drunkenness was appointed last year by the British Medical Association, and is now engaged on its inquiry.

APPLICATIONS for the Dickinson Research Travelling Scholarship in medicine, value £300 for one year, and for the Dickinson Pathology Scholarship, £75 for one year, must be sent in by May 1st to Mr. F. G. Hazell, secretary to the trustees, Manchester Royal Infirmary, from whom copies of the regulations governing the scholarships can be obtained.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the British Medical Journal are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Ailology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

STATIC ALBUMINURIA.

"F.R.C.P." asks for advice in treatment to cure static albuminuria. After searching many books he finds little to guide him. Of course, prolonged rest cures for the time, but patients cannot be kept indefinitely in bed.

SODIUM CHLORIDE.

"W.G." asks to salt (sodium chloride) writes, of B. suspect that some present-day physiologists state that we eat too much salt. Does an excessive intake of salt cause any harmful condition in an otherwise healthy individual?

* * We have referred this question to our pharmacological adviser, who writes: I do not know of any evidence to show that a moderate excess of sodium chloride is unhealthy provided that the kidneys are normal. If the kidneys are diseased they often lose the power of excreting chlorides, and then excess of NaCl produces oedema. Excess of NaCl can produce oedema in infants, but this is not of any practical importance, as the amounts needed are larger than are likely to be taken. I do not know of any injurious effects that have been shown to follow the taking of large amounts of NaCl in the diet of normal individuals.

TREATMENT OF LIPOMATA.

DR. R. CLARK WAKEFIELD (Milby, Seine-et-Oise) writes in reply to Dr. A. Y. Massouda (Cairo):—In *Erichsen's Surgery*, eighth edition, we read: "It is true that we have the sanction of Sir B. Brodie's high authority for the administration of the liquor potassae in some cases, under which treatment this eminent surgeon states that fatty tumours have occasionally disappeared. I tried it on one case of a lipoma of the upper arm, left, size of an orange. It quite disappeared under 20-drop doses of liq. potassae in small tumbler of water three times a day. This patient declined any surgical help."

INCOME TAX.

Motor Car Replacement and Depreciation.

"J. McE." replaced a car in 1923; the new car cost £525, of which he was allowed to deduct, as a net expense of renewal, £320. In computing his assessment for (apparently) 1926-27 the Inspector has taken into account the depreciation allowance for 1923-24 on the written-down value of the car, taking the original value as £520.

* * "J. McE." may be referred to the reply to A, B, and C in our issue of March 13th. In his case we are of opinion (1) that the Board of Inland Revenue is not likely to insist on the proposed partial cancellation of the renewal allowance, and (2) that his depreciation allowance for 1926-27 should be calculated as follows:

Original cost of car in 1923	£	525
Depreciation for 1924-25 at 20 per cent.	105	
	420	
Depreciation for 1925-26 at 20 per cent.	84	
	336	
Depreciation for 1926-27 at 20 per cent.	67	

Our correspondent should bear in mind that when he renews the present car he can claim, as an obsolescence allowance, the net cost of replacement less the depreciation allowances to which effect has been given.

Replacement of Car.

"J. A. S." has written to the Board of Inland Revenue, as suggested in our issue of February 27th, and has received in reply an intimation that while the matter is primarily one for the adjudication of the District Commissioners, the Board holds the view that the amount to be allowed "is the excess of the cost at the date of replacement of a car similar in type to the old car—so far as this may be ascertainable—over the price realized by the sale of the old car."

* * On this basis a fall in the general level of motor car prices results in an allowance which is insufficient to cover the original outlay on the car. Nevertheless, the view taken by the authorities is, in our opinion, one which the courts would not be likely to overrule, and consequently we cannot advise "J. A. S." to take the matter to appeal before the District Commissioners: the risk of ultimate expense is too heavy for the object sought. The matter would be of considerable general importance were it not for the alternative depreciation allowance which is now obtainable for cars; where the allowance is claimed in lieu of the cost of replacement the inequitable result of falling prices does not apply.

LETTERS, NOTES, ETC.

CAUTION.

SOME inquiries have recently been received from members who have had begging letters from a Mrs. E. M. Etheridge, described as of Taunton. Members who receive further letters of the kind might, before giving assistance, be well advised to communicate with the secretary of the Charity Organization Society, Denison House, 296, Vauxhall Bridge Road, London, S.W.1.

A DISCLAIMER.

DR. G. MURRAY LEVICK (London, W.) writes: I have received cuttings from certain lay newspapers in which reference is made to "research work" carried out at the British Humane Association Artificial Light Clinic at Westminster in connexion with the mental deficiency. Will you allow me, the **BRITISH MEDICAL JOURNAL**, to disclaim any responsibility for such statements? No such research work has taken place at the clinic, of which I am in honorary medical charge.

WASTE OF COAL AND LOSS OF HEALTH.

"A. Y." writes: I consider that your article in the JOURNAL of March 20th (p. 537) is a masterly exposition on the madness of the present system of using coal in this country. If some such paragraph could be published in every newspaper in the country with the authority of the British Medical Association behind it, in order to rouse public opinion, so that determined action may be taken, then the whole outlook for the trade and prosperity of this country will be changed.

THE BATHS OF SALSOMAGGIORE.

PROFESSOR C. CATTANEO contributes to the *Salsomaggiore Terme* for November-December, 1925, a discussion of the value of the waters under certain conditions. He reports that among 1,000 cases there 26 per cent. were cured, 65 per cent. benefited, and 9 per cent. remained without improvement. The greatest advantage was derived by patients with tertiary syphilis, in whom 43 per cent. of cures was reported, all the remaining patients showing some improvement. In bone and joint tuberculosis 42 per cent. of the cases were cured, 50 per cent. improved, and 8 per cent. were unaffected. The proportion of cures in various other groups of disease is given as follows: skin diseases, 40 per cent.; anaemias, 37 per cent.; neuritis, including sciatica, 34 per cent.; sequelae of wounds and the menopause, 33 per cent.; chronic non-tuberculous conditions of the respiratory tract, 32 per cent.; sequelae of pleurisy and peritonitis, 31 per cent.; and rhino-pharyngitis, laryngitis, and otitis, 30 per cent. No cures were obtained in diseases of the veins and lymphatics, but improvement was shown by most patients. In disordered metabolism and uricæmic arthritis there was 73 per cent. improvement. Professor Cattaneo concludes that, although the waters of Salsomaggiore cannot be considered a panacea, yet their therapeutic action is considerable in a large number of conditions. He believes that a still higher percentage of cures would be obtained if repeated courses of treatment were undertaken by those who derive benefit from a single course.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 40 and 41. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 112.

Lumleian Lectures ON ENDOCARDITIS.

BY
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LECTURE II.*

NON-MICROBIC ETIOLOGICAL FACTORS IN THE PRODUCTION OF ENDOCARDITIS.

I PASS now to consider certain etiological factors in the production of endocarditis, both of the valve cusps and of the chambers of the heart, which, though the exclusion of a chronic infective element must only be presumed at any time with great caution, appear to be outside the sphere of microbic activity.

Having spoken of the possibility of *congenital defects* in connexion with some cases of pure mitral stenosis I will take these first. It has been for a long time held that congenital defects in the heart are almost confined to the right side of this organ. Such defects as are found in the left side, if we except those gross defects which lead to such massive disturbances of the circulation that there are early and lethal results, have been too lightly passed over. There is good reason to believe that we have been too cavalier in our observations concerning the intimate anatomy of the heart valves, and of the aortic valve in particular, in relation to endocardial disease. Deviations from the normal in these delicate structures may well prove to be a determining factor in infection of a grade hitherto unsuspected. This possibility did not escape the eyes of older observers. Thayer reminds us that the recognition of the fact that bicuspid aortic and pulmonary valves predispose to disease is as old as Paget. Osler also pointed out the liability of these malformed segments to sclerotic endocarditis. Of seventeen cases examined by him all presented sclerotic changes, and the majority of them had, during life, the clinical features of incompetence.

Glynn, who gave the Lumleian Lectures upon infective endocarditis in the year 1903, refers in detail to a specimen obtained from a man aged 48 years, in which one of the two cusps was found to be torn and everted, and whose fatal illness started after a strain, during which it is presumed that the diseased cusp was damaged. I pointed out in 1909 that congenital defects that were compatible with good health and were outside the category of those grosser lesions which were to be recognized during life might still be of great importance in inducing active endocarditis. I cited cases of this as illustrated by defective inter-ventricular septum and patent ductus arteriosus, in patients of 31 and 42 years of age respectively. I drew special attention to the association of bicuspid aortic valves with bacterial endocarditis in 1905 when publishing the first cases of endocarditis due to Pfeiffer's bacillus. In 1909 I dealt with this point more fully, having found bicuspid aortic valves in two other hearts in the museum of St. Bartholomew's Hospital, each the site of bacterial endocarditis. In still a fourth specimen, from a case of pneumococcal endocarditis, the pulmonary valve cusps were only two in number. Since that date four other hearts have been added to the museum, all showing bicuspid aortic valves, and all affected by bacterial endocarditis. In addition, Dr. T. H. G. Shore, the curator, possesses three unmounted specimens of a similar kind, which he obtained from soldiers dying of this disease in France. It is very clear that the condition here dealt with is one of considerable importance.

In 1923 Lewis and Grant contributed a valuable paper to *Heart*, in which they treated of the normal structure of the aortic valve and especially of the relations of the aortic media to the annulus fibrosus. They describe in detail four cases of the condition of bicuspid aortic valve and seven further cases associated with bacterial endocarditis. There follows an analysis of 116 cases collected from the literature. Of these, 63 were males, 20 females, and in 33 cases the sex was not stated. These authors estimate that no fewer than 23 per cent. of males reaching

adult life, and possessing congenitally bicuspid aortic valves, die of active endocarditis. The moral of all this is, as Libman remarks, that it behoves us to be much more critical than we have hitherto been in our examination of diseased hearts in the dead-house. Interpretations of our findings must needs be very cautious since the matter is by no means easy. We must endeavour to distinguish (a) true congenital defects, (b) the sclerotic residua of effete infections by rheumatism, (c) the results of healed bacterial infection, and (d) sclerosis from purely mechanical causes. With so many possibilities before us it is obvious that the task is full of difficulties. I shall return to this matter in dealing with questions relating to pathogenesis.

PHYSICAL AND EMOTIONAL STRESS.

But if we have been cavalier in our consideration of these congenital defects and the anatomical strain which they impose upon these delicate structures, situate as they are at the very centre of the hydraulics of the circulation, may we not also have been somewhat cavalier in regard to *strain* of a functional kind? It has been the custom of late years to minimize the factor of physical and emotional stress in general in cardio-vascular disease, and therefore it has been largely discounted in the production of endocardial changes. This is a material age, and we have become accustomed to discount functional elements in the etiology of organic disease. We have been told that the healthy heart cannot be damaged by volitional effort. But whose heart is "healthy"? If a heart is found to be damaged after effort, then the onus of the damage is laid at the door of toxic agencies. But are we not all of us potentially, if not actually, "toxic"? And if this be so, does the doctrine of the heart's immunity from self-imposed strain carry any more practical application than that it is desirable, in order to reduce the effect of the strain to a minimum, that we should see to it that we are as little "toxic" as possible?

It is necessary to distinguish between sudden and occasional strain on the one hand and prolonged strain on the other. There seems good reason for believing that both physical and emotional strain, if prolonged, may lead to endocardial disease, both of the sclerosing variety and, with or without this, of the active bacterial type. Since prolonged strain is inseparable from *fatigue*, this element may also be included in this group of etiological factors.

The recent experiences of those who have had charge of ex-soldiers suffering from endocarditis of the bacterial sort throws much light upon this matter. Reports concerning these cases are to hand from careful observers in nearly all the belligerent countries, but are not yet complete in many important points. So far as the observations go, however, we have strong confirmation of the view taken here. The cases reported have been almost entirely aortic in disposition, there has for the most part been no evidence of previous disease of the valves, and the type of soldier affected, and his war record, suggest strongly that the factor of strain has been considerable. In this country Starling and Carey Coombs have made memorable contributions on the subject. Starling, in a report on fifty-two cases of infective endocarditis in ex-soldiers, in half of which the disease was of the chronic type, says of them:

"the disease occurs in individuals of fine health and physique who have had little or no previous illness. The majority of those suffering from it have undergone a considerable degree of physical stress—e.g., those who were serving in the fighting line in the years 1916-17. The infection is primary in the endocardium. The *post-mortem* appearances show no evidence of previous rheumatic endocarditis."

Carey Coombs, in his equally important paper, is led to almost identical conclusions. He says, as the result of his analysis of thirty cases of post-war chronic endocarditis of the bacterial type:

"the predisposition of the ex-soldier to endocarditis lenta is not due to infections of the heart prior to enlistment, since approximately four-fifths of the cases, even after the Ministry of Pensions had scrutinized their histories, failed to disclose any evidence of such infections. . . . The facts as to lesions and diseases contracted during service are, of course, open to the criticism that it is quite impossible to assess in figures the liability to injury of the various 'portals of entry' of infection; but it does seem reasonable to conclude that the reason why soldiers have become victims of endocardial infection does not lie in their liability to be invaded by micro-organisms through any particular tract. . . . There is, however, a very remarkable

* Delivered before the Royal College of Physicians, London, on March 25th.

fact, only imperfectly presented by the statements that 80 per cent. of the men were engaged in the more strenuous forms of military service, and that the average duration of service was 3.05 years, or nearly three-fourths of the whole length of the war. The fact is one which is not susceptible of arithmetical statement. It is this, that almost without exception the men whose military service was followed by the development of endocarditis lenta were men of fine physique and morale: men who joined the army early, served with all their might, and exerted themselves to the utmost limit of their physical power. . . . Looked at from the obverse side the same fact is equally striking. At the bases and elsewhere, both at home and overseas, there were large numbers of men of indifferent physique serving in the army; yet I have not so far encountered a single example of chronic endocardial infection amongst such men."

Carey Coombs does not miss the obvious point that excessive fatigue may predispose the body to infection, and thinks a biochemical link between fatigue and infection may be suggested by Walker Hall's work on the effect of dilute acids in accelerating blood cultures in nutrient broths.

Strain and fatigue overlap with arterio-sclerosis, with which in most cases hyperpiesia goes hand-in-hand. Upon these factors in the production of chronic endocardial disease I do not propose to dwell.

MARANTIC AND TERMINAL INFECTIONS.

I agree with Irving Simons, to whom we owe an excellent critical review of the whole subject of endocardial infections up to the year 1914, that the lesions occurring in the heart in cases of the so-called cachexias lack clinical significance, and are to be regarded rather as marantic thromboses than as true endocarditic manifestations. This statement refers to most of the positive *post-mortem* findings in cases of chronic nephritis, tuberculosis, cirrhosis of the liver, and carcinoma. They are to be distinguished, however, from cases of terminal septic endocarditis occurring in patients suffering from these same diseases, a class which, in my original survey, I included in the "latent" group. Although they usually are latent, it would be better to call them "terminal," since the word "latent" is more properly used for those cases of chronic infection which only come under observation as the result of one of the accidents incident to the disease, and especially embolic infarction.

I now pass on to consider that large and important, but heterogeneous, group of cases of endocarditis variously termed "ulcerative," "malignant," "infective," or "bacterial." The limits of this group are ill defined. At one end of a possible series into which they may be placed they fuse with the rheumatic group. Poynton and Paine, together with some other workers, describe a "malignant rheumatic endocarditis," considering that the rheumatic virus alone—in their judgement a specific streptococcus (the *Diplococcus rheumaticus*)—is responsible for such cases. At the other end of such a series are cases in which the endocardial lesions may be regarded as little more than intracardiac thromboses occurring in the course of a pyaemia.

A CONFUSING NOMENCLATURE.

The present nomenclature is avowedly very unsatisfactory. "Ulcerative" has the double objection that, even if we leave out of account for a moment Poynton and Paine's cases of malignant rheumatism, a process of ulceration occurs in severe forms of acute rheumatic endocarditis, as may be seen not infrequently in the *post-mortem* room, whereas by no means all cases of the bacterial group are associated with ulceration. Indeed, the absence of ulceration is an important feature in some of the more chronic cases. "Malignant" is an ugly and forbidding word to use, and however high may be the mortality in the fully fledged cases within this group some patients do certainly weather through. To both the words "infective" and "bacterial" the objection applies equally—that the rheumatic cases are presumably of this nature, despite our ignorance of the cause of the infection, and the syphilitic cases certainly are. The tendency during recent years to change the word "infective" for "bacterial" is curious, seeing that we have no knowledge of infections which are not bacterial. Beyond sharing the general dissatisfaction with any and all of these names, I am not anxious to introduce a new one. But I have a leaning towards a still older name than any of those now used, reactionary though it may sound to speak of

"septic" endocarditis. The word commits us to nothing in regard to pathogenesis, yet is expressive of the main differential features between this form of endocarditis and the rheumatic and syphilitic forms. Irving Simons regards the term "septic" as unfortunate, in that the lesions in many cases are not suppurative. But suppuration is by no means a necessary part either of acute or of chronic sepsis. Witness our use of the term in such conditions as "puerperal sepsis" and "focal sepsis"; in neither of these expressions does the word "sepsis" necessarily connote suppuration.

Unfortunately the confusion in words does not end here; confusion has of late years also invaded the terms by which we designate the type of disease as regards the intensity of the morbid processes involved and the duration of them. Although the words "acute" and "chronic," like a good many very common words, cannot be accurately defined, there is general consensus of ideas as to what they mean when applied to diseases. They are a convenient estimate of the two combined qualities already mentioned—intensity and duration. Now everybody seems agreed on the use of the word "acute" in relation to certain cases of bacterial infections of the type I am now discussing, but the cases that are not acute have been called "chronic," "subacute," and "slow" by different authors. As between "chronic" and "slow" there seems to be no difference. Schottmüller's account of the cases which he described under the name "endocarditis lenta," and which appeared in 1910, the year following the accounts contributed in this country by Osler and myself, makes it clear that he was dealing with the same kind of case which we called "chronic endocarditis." Individual cases of this chronic type had been described earlier than this, as by Bristowe, Lenhart, and others. In the same year Libman introduced the term "subacute bacterial endocarditis," and by a rapid series of papers, embodying observations and reflections of fundamental importance, has succeeded in establishing this term, for a time, as synonymous with both the earlier names.

Most of those who have considered the matter, and have contributed to our increasing knowledge of the subject, fail to distinguish between the cases originally designated "chronic" and Libman's subacute cases. And so it comes to pass that these two terms are, for the most part, used indiscriminately. Strangely enough, if there is any tendency to make a distinction between these two terms it is to use Libman's new term for a class of case which, on analysis, seems to be of even slower development and less intense symptomatology than the class of cases formerly called chronic. I shall refer to this point again, because of its important bearings upon pathogenesis.

ACUTE SEPTIC ENDOCARDITIS.

Acute septic endocarditis was recognized clearly by Wilks and others. Wilks introduced the excellent term "arterial pyaemia," and the words very aptly express the main features of the disease. Little or nothing has been added to our knowledge of this group of cases since Wilks's time. The heart and heart valves share in a general infection. The micro-organisms concerned are highly virulent in character—*S. aureus*, *Strep. pyogenes* (vel *haemolyticus*), the pneumococcus, and less often the gonococcus.

The onset of the disease is usually abrupt, the symptoms severe throughout, fever is high, rigors are common, and the course of the disease is rapid. A few doubtful recoveries occur. Death usually takes place in from ten days to a month, but there are fulminant cases which terminate in three or four days, and some, of less than the ordinary severity, which drag into the second month. The disease sometimes complicates osteomyelitis, erysipelas, pneumonia, puerperal sepsis, and less often some other acute local infections. I deal with it here thus briefly so as to give my groups of cases more clear definition.

Septic Endocarditis of the Right Side of the Heart.

Among the cases of acute septic endocarditis which I have observed of late was one in which the tricuspid valve was affected, and this valve alone. Since I regard the case as presenting the clinical picture to be expected in this somewhat rare condition, I will give a brief note of it.

A bar manager, aged 42 years, was admitted to St. Bartholomew's Hospital on the sixteenth day of an acute illness which was ushered in by shivering and headache. The man was seen by his doctor on the second day of his illness and put to bed, where he had been ever since. He became delirious on the third day and was transferred to a nursing home. About this time a patch of pleuritic friction was noted near the region of the right nipple, which disappeared in less than a week. There were no physical signs of pneumonia. The temperature chart, which was brought to the hospital with the patient, showed that there had been a fairly continued fever for four days after the record was begun, the temperature reaching 103° to 104° . It fell, but not by crisis, on the eighth day of the illness, and remained nearly normal for three days. It then rose sharply, with a rigor, reaching 104° to 105° . The delirium, which had subsided with the defervescence of the fever, returned. There was no headache. From the twelfth to the sixteenth days there were daily rigors, with profuse sweats.

On admission the patient was very ill, with low delirium, dry cough, and slight cyanosis. Examination of the chest yielded a soft systolic bruit near the apex, and a few rhonchi over both lungs. There was a leucocytosis of 10,800. A lumbar puncture gave normal fluid. A blood culture was sterile. Agglutination complement fixation test for tubercle bacilli were no choroidal tubercles seen. No organisms were found in the stools. The urine was sterile. The spleen was not palpable. No petechiae were present. Rigors continued almost daily, with high quotidian intermittent fever. On two separate occasions definite areas of crepitation, with soft pleuritic rub, were found, one in the right flank and one in the left axilla. There were no sputa. The frequency of the respirations was constantly raised. These, and the persistence of the apical systolic bruit, were the only physical signs elicited. Two further blood cultures were negative, but on the thirty-third day of the disease the blood yielded a growth of pneumococci. The patient, very ill at all times, died on the thirty-fifth day of his disease. At the post-mortem examination recent vegetations of the septic type were found on the tricuspid valve, and both lungs contained recent infarcts. There was about a pint of blood-stained serous fluid in the right pleural cavity. This fluid and the heart's blood both showed pneumococci in film preparations.

The chief diagnostic feature in a septic endocarditis of the right heart, whether tricuspid or pulmonary, is the association of the signs of endocarditis with multiple pulmonary infarction. The intensity, and the duration, of the disease process depend, as in left-sided cases, upon the virulence of the infecting microbe. The case just mentioned, being pneumococcal in nature, approximated to the acute forms of septic endocarditis. In a case which I included in my first series the micro-organism was a salivary type of streptococcus, and the infection was grafted upon a congenitally stenosed pulmonary orifice. The patient was a young adult, and her illness dated from the extraction of a septic tooth under local anaesthesia. In the first three months of her disease she had twenty-two attacks of pleurisy. Although she was known to be the subject of congenital heart disease of a mild type, the real nature of the disease was not recognized, and the repeated bouts of pleurisy, from which, however, she seemed to recover well, and a persistent pyrexia, led to her being sent to a tuberculosis sanatorium. Eventually her blood was cultivated and a streptococcus of the type *S. salivarius* was isolated. After an illness lasting for some nine months, and very thorough treatment, she recovered.

CASES INTERMEDIATE IN INTENSITY AND DURATION.

Between this group of acute cases and the group of chronic septic cases, which I shall take in more detail, there occur cases which I originally termed "subacute"—that is, cases in which the onset was less abrupt, the symptoms less dramatic, and the course less rapid. The causative micro-organisms are less virulent; the gonococcus and the pneumococcus are found in them at times, but more often the cocci approximate to those found in the chronic cases. Those cases termed by Lenhartz and by Poynton and Paine "malignant rheumatism" are of this class. So also, quite frequently, are those young adults who give a clear history of rheumatic fever in childhood or in the teens, and who present clear signs of residual valvular disease. The duration of these cases is from about three to six months. In view of the present confusion in the use of the term "subacute," I think it better to give no name to this group, but to be content to regard them as an intermediate class between the acute and the chronic cases. In any individual case we may, if we feel unhappy without a label, strain a point and call it chronic.

CHRONIC SEPTIC ENDOCARDITIS.

It is to the chronic cases, however, that much attention has been directed of late years, and deservedly so. The experience of the ex-soldier in this connexion is, given no other experience, very striking and very helpful in our understanding of endocardial diseases. But in civilian work also there is a growing recognition of the importance of these cases, and of the urgent necessity of detecting them as early in the course of the disease as possible. I shall deal with some of the main points of clinical interest as these have appealed to me, deferring matters of pathological importance until my next lecture.

Chronic septic endocarditis is a disease of adult life; its maximum incidence comes during the third and fourth decades. It is nearly twice as common in males as in females, a disproportion which exists quite independently of the war cases. It is a very insidious disease; it is not at present possible to estimate, except approximately, the date of its origin in the great majority of cases, nor, in those few cases in which we have good evidence of recovery, can we say when it ceased to be an active disease process. But allowing for these things, it is probable that the disease lasts, on an average, about six to nine months. Not a few cases reach twelve months, and there are reliable records of cases lasting two and two and a half years. Proofs are accumulating that there are recurring cases, also that spontaneous cures occur. Of these cases I shall say more later.

The earliest symptoms of the disease are undoubtedly of the toxic kind. Chills or sweats are perhaps amongst the earliest but an accidentally discovered pyrexia, frequently leads to observations that discover something seriously wrong in many of the cases. Pyrexia is almost always present at some time or other in the course of the disease. It has little or no recognizable features to guide us. It is rarely high. Apyrexial periods are not uncommon, even when the temperature is taken every four hours, an important point in the general observations. Rigors are quite unusual.

VARIATIONS IN THE PYREXIA.

Exacerbations in the pyrexia are often concomitant with embolic events, and especially with embolism in branches of the splenic artery; the attendant perisplenitis is probably the main source of the fever in this case. That the pyrexia frequently ranges higher with the occurrence of embolic infarction was pointed out by Douglas Powell in his Lumsden Lectures in 1899, when he showed temperature charts illustrative of this fact. But I do not know that attention has been drawn to the fact that the pyrexia not seldom falls to a lower level after these exacerbations and remains there for several days. This is not the result of decreased ability to react to the toxæmia, because the patients often feel fitter during this period of lower pyrexia following an exacerbation. It certainly looks as though the mechanism of embolic infarction results in some instances in the manufacture of antibodies to the infecting agent. It would be interesting to examine the patient's blood for these substances by complement fixation or by other means after such a process, and compare the titre with that obtained at other times. I have wondered if the process of embolism in this disease is not sometimes of service to the patient, as well as being, at other times, the direct cause of a tragic end. Provided the infecting microbe is not so pathogenic as to overthrow the local resistance altogether and lead to an abscess—which is rarely the case—and provided the embolus does not occur in a vital part like the brain—an all too common contingency—it is quite possible that the extraordinary slowness with which the disease sometimes progresses may in part be explained by such a view. I have been struck by the fact that in the two cases in which I have seen the largest spleens—in both the organ was visible on inspection of the abdomen, and its lower border lay well below the umbilicus—the general condition of the patient was well maintained for months together. In one of these cases the spleen had increased so greatly in size during a stay of five months in the winter in the open air at the South of France that on the patient's return I wondered if she had developed leukaemia. In the other case my opinion was asked because, though a diagnosis of septic endocarditis had been

made provisionally, the very large size of the spleen had actually thrown doubt upon it. In this latter case the effect of splenic infarction, as estimated by attacks of pain in the upper and left side of the belly, was seen in striking fashion in the temperature curve, as also was the subsequent improvement in the general symptoms. Remissions in the disease are often attributed to some special line of treatment which is being pursued, such as the use of a vaccine. Before such a conclusion can be accepted it is important to inquire if the remission be not possibly correlated to splenic infarction.

SOME IMPORTANT SYMPTOMS AND SIGNS.

Clubbing of the fingers has, since Cotton's observations published in 1922, become a valuable help in diagnosis. This observer, working in Lewis's clinic, found that of 63 out of 798 cases of structural heart disease in pensioners in whom this sign was present, 44 proved to be cases of chronic septic endocarditis, and of the remaining 19 cases 4 were regarded as doubtful instances of the same disease. This observation has found corroboration from many sources. Starling thinks that in the majority of cases the occurrence of clubbing indicates that the disease has been present for some time. It is clear that the association of this sign with acquired valvular disease must put us on our guard.

I referred in my original account of the disease to the frequency of *pains in or about the joints*. I do not think sufficient attention has been paid to these symptoms by subsequent writers. There is a point of great importance in connexion with the manner of their appearance, and that is their suddenness. A second important point is the difficulty that patients often have in locating them; and a third is the absence oftentimes of any recognizable effusion when the affected part is a joint, so that I have sometimes spoken of these pains as being arthralgic rather than arthritic. The situations of these pains are very numerous; the regions of the foot and ankle are the most common, then perhaps the hip and shoulder. But the wrist, the back, and the sacrum are not uncommon. The abrupt onset of the pain, and the fact that in not a few cases critical examination discovers a dusky red patch of tender skin in the neighbourhood of the pain in those cases in which the affected part is not a deep structure, makes it probable that the origin of the event is embolic. Many of these pains, even if there be associated swelling, are of quite short duration, passing off completely and leaving no residue, either subjective or objective. In the investigation of a doubtful case, if no history of these pains be given by the patient, inquiry should be made, because it not seldom happens that the event has been considered of no special significance owing to its transient character.

The *ephemeral cutaneous nodes* of French physicians—now generally called after Osler because of the detailed description given of them by our late gifted and lamented colleague—have been proved to possess all the pathognomonic value which he attributed to them. I know of no feature in a suspected case which possesses such dire significance. Again, owing to their fleeting nature, inquiry should be made for these lesions if they are not present when the patient is first seen. No doubt they, too, own an embolic source. The most common situation for them is the pulp of the finger or toe. They also occur on the thenar and hypothenar eminence. I have described analogous lesions as occurring occasionally in the bed of the nails, where a thin splash of red may be seen, accompanied by exquisite tenderness if pressure be made upon the affected part. These nodes arise suddenly, with sharp pain, as though the finger has been pricked; indeed, patients often examine the part carefully to make sure that some sharp object, like a thorn or a splinter, has not been the cause of the sensation. One patient, a typist, found that she could not use a particular finger for two or three days because of the tenderness caused by pressure on the keys of her instrument. A few hours after the onset of the pain an erythematous patch appears, pinkish at first, and later dusky red, with oftentimes a centre of white skin rather suggestive of an urticarial wheal. There is usually slight swelling of the discoloured skin. The redness disappears, and the tenderness also, in about one to three or four days.

The presence of *petechiae* in the skin is quite a different sign from that last described; though of much less diagnostic value it is still very important. As I have pointed out, a favourite and early situation for these lesions is about the neck and clavicles; other common situations are the chest, forearms, legs, and buttocks. Needless to say, two or three scattered petechiae may be very easily overlooked unless the possibility of their presence is specially borne in mind and the body is scoured for them in a good light. Like the nodes just referred to, these petechiae are short-lived; they tend to appear in small crops. We have no proof that they are embolic in origin.

There is general agreement that a *leucocytosis*, at least of any considerable degree, is not a feature in these chronic cases. Indeed, the type of count is very apt to be round about 9,000. In my second series of cases the actual figure averaged 9,300. But a leucopenia is quite common. This contrasts markedly with the leucocyte count in the acute cases, in the second series of which the figure averaged 22,000.

The degree of *anaemia* varies much. It may be so great as to raise the question of pernicious anaemia, especially when a marked leucopenia is present. But the proportionate reduction in haemoglobin seems to be invariably greater than the reduction in red cells. It is to be noted that some patients retain their blood, and especially their content of red cells, surprisingly well under treatment, especially if kept in the open air. I have seen an erythraemia in one well marked case, but the haemoglobin content was well below 100 per cent.

Pallor of the skin is a striking sign in the chronic cases, though if this be marked, and particularly if the curious tint of the complexion to which Libman has given the term "*café-au-lait*" be present, the case is generally of considerable standing. As in the case of the actual blood content, however, it is surprising how well some of these patients keep their complexion for a long time if treated in the open air.

EMBOLIC EVENTS.

Next to the evidence of endocarditis, consideration of which I take later, *embolism* is undoubtedly the most constant of all the signs of the disease. It was recorded in 142 of my second series of 162 cases. The vessels affected were, in the order of frequency, those of the spleen (108 cases), the kidneys (93 cases), the brain (26 cases), and the arteries of the limbs (13 cases). To these situations must be added the retina and the skin. Embolism, or one of its sequels, is not infrequently the event which brings the patient under observation, and in many instances of apparently mysterious signs and symptoms it is this process which offers a satisfactory clue to the problem. Be it remembered that the size of the detached fragment of material may vary from something microscopic to something so large as to obstruct a vessel of considerable size.

1. *The Spleen*.—This is the most commonly affected of the internal organs. The more chronic the case the more common is it to find the spleen enlarged during life; indeed, it is probably correct to say that in chronic cases a palpable spleen is an invariable finding. Early in the disease, and when the organ is as yet not palpable, pains in the upper left quadrant of the belly or hereabouts are highly suggestive. These pains, associated with fever, and perhaps referred to the flank, are sometimes mistaken for pleurisy; when friction is present, as it may be, the error is difficult to avoid. But pleurisy may actually be present in addition. I have only once seen a pleurisy with effusion (which was aspirated) complicate the splenic infarction. Although, as already mentioned, in some of the slow cases the size of the spleen may be very considerable, we must not conclude, from our knowledge of the great frequency of infarction in it, that this is the only factor in the enlargement. There is doubtless the general factor of toxæmia, and there is also the factor of anaemia. Unlike the spleen in acute septic endocarditis, the organ is generally quite firm, and the infected areas almost never suppurate; the nearest approach to this seen *post mortem* is some degree of grumous softening; even this is uncommon.

2. *The Kidney*.—If we consider in connexion with this

organ that the glomerular lesions, which are so characteristic a feature, are embolic in nature, as they probably are, then it is likely that the kidney is affected by the embolic process quite as often as the spleen. The frequency of embolism here must not, as has often been pointed out, be judged only by the appearance of a haematuria; in many cases the number of red blood cells passed in the urine is so small as to call for microscopical search, and this should be undertaken very frequently. I have pointed out that a small haematuria may be missed, but a brief albuminuria consequent upon it may be detected; intermittent albuminuria should, therefore, suggest renal infarction just as intermittent haematuria does. The process of renal infarction is generally, but not always, painless. In one case under observation the renal emboli were accompanied by severe lumbar pain, so much so that calculus and tuberculosis were both suspected. We owe especially to Gaskell and to Baehr our knowledge of the intimate changes in the kidney, only ascertainable by microscopical examination. These investigators described a form of glomerular change which they regard as peculiar, and to which Libman, in particular, has come to attach great significance. Indeed, according to the last-named observer, the discovery of the hyaline-like change in portions of the glomeruli which is the end-stage in the Gaskell-Baehr type of nephritis enables us to say with confidence that an associated sclerotic heart valve is the result of a "healed bacterial endocarditis." If this conclusion be borne out by other workers, and we may regard the lesion as almost a specific effect of septic endocarditis, its value in *post-mortem* interpretations will be very great.

3. *The Brain.*—Cerebral embolism is by far the most serious of all the common events of this nature. It not infrequently brings a latent case very rudely into prominence; it often determines the fatal ending, and not seldom at a stage in the disease when, on all other counts, a hopeful period of quiescence has arrived in regard to the toxic process. Experiences like these it is which lead the physician to speak with caution even in the face of definite improvement in the general state, including quite lengthy periods of apyrexia. Death in this disease may be accidental and mechanical as well as the natural termination of an intractable toxæmia. The most common clinical result of cerebral embolism is hemiplegia, with aphasia if the hemiplegia be right-sided. Monoplegias are much less common. The resultant cerebral shock is usually considerable, and the outlook, even immediately, is grave. I have twice seen a second hemiplegia on the other side, the interval between the two attacks being in one case only three days, in the other case twelve months. The sequence, originally described by Douglas Powell, of haemorrhage following the septic embolus, is common, as *post-mortem* experience shows, but acute cerebral softening, short of actual haemorrhage, is perhaps quite as common a finding. Irritative cerebral effects occur as well as paralytic, and these may sometimes be correlated *post mortem* with subarachnoid haemorrhages. I found ten such lesions recorded in 118 *post-mortem* examinations. In none of four cases in which choreiform movements were present was there, unfortunately, any opportunity for *post-mortem* examination.

4. *Plugging of arteries in the limbs* is probably more common than is thought. Unless the arteries be carefully examined a bout of pain and some swelling, say, in the wrist and hand, or in the foot, is sometimes considered to be arthritic in nature, when it is really the result of embolism in the radial or one of the branches of the posterior tibial artery. That the arterial pulse is not often obstructed for long, and rarely completely obstructed, adds to the deception, since coldness of the part beyond the partial block, still less gangrene, does not occur. We must suppose that the absence of these last-named effects is due to the friability, not to say softness, of the embolus, allowing of rapid disintegration, or channelling, or both. All this is in marked contrast with the results following embolism, if this takes place, in (non-septic) mitral stenosis, when gangrene is not at all uncommon. A common sequel to these septic emboli in vessels in the limbs is *aneurysm*, the development of which helps to explain, no doubt, the absence of serious nutritional changes in the part supplied by the affected vessel.

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I have twice seen *mesenteric embolism*. In one case there was an attack of abdominal pain, followed in three days by a swelling about the size of a golf ball, and situate just to the right of the mesial line and a very little below the level of the navel. Despite the unusually discrete nature of the lump and its peculiar situation, the case would doubtless have been considered one of acute appendicitis had it not been that about the time of this occurrence the patient became suspect on the score of a possible septic endocarditis. A positive blood culture determined the diagnosis. In the other case a surgical colleague removed a small aneurysm from the right ulnar artery near its origin from the brachial. A routine digital examination of the rectum had discovered the presence of two small firm lumps, lying close together, and felt easily through the mucous membrane of the bowel. They were thought to be enlarged glands. A *post-mortem* examination later revealed the fact that these were healed aneurysms on the superior mesenteric artery. There was a third small aneurysm on the hepatic artery. Death had occurred from haemorrhage into the cerebellum, no doubt secondary to another embolism in this situation.

Aneurysm of the *ophthalmic artery* occurred in a case under observation by Foster Moore and myself.

RELATIVE IMMUNITY OF THE HEART.

The state of the heart in chronic septic endocarditis deserves a note. The salient feature, and one upon which there is general concurrence, is that it maintains its functional capacity in a very striking manner. Indeed, it may be said with truth that this is not a disease of the heart at all, but of the endocardium; hence my expression in my first lecture, "*Endocarditis vera*." This fact contrasts markedly with the state of things seen in a rheumatic endocarditis, where to a large extent the converse applies. Many of the patients in the disease now under consideration enjoy complete cardiac sufficiency for months after they fall victims to their infection. This is no doubt the reason why so many of them do not come under our notice until long after the initial stage of the process is past. Soldiers remain in the firing line, doctors continue their arduous profession, farmers proceed with quite heavy labour, until one or other of the accidents of the disease leads them to report themselves. Even then it is often difficult to persuade them to consider themselves ill. This retention of cardiac efficiency, combined with that buoyancy and optimism which I have called "*spes endocarditidis*," renders these patients oftentimes difficult to treat. A doctor, casually mentioning to his partner that he could not see the print on the extreme right side of his newspaper, submitted to a cursory examination; it was found that he had the cardiac signs of aortic incompetence and a retinal haemorrhage; on fuller examination a diagnosis of septic endocarditis was not difficult. He refused treatment and carried on his work. A month later he attended a difficult confinement, using forceps. He woke the next morning to find himself hemiplegic, became comatose a week later, and died.

It is generally agreed that such evidences of heart failure as auricular fibrillation do not occur in these cases—another testimony to the same fact. This relative absence of myocardial involvement tends to persist to the last in many of the cases, though there is considerable divergence in the figures given by different authors as to the frequency of terminal heart failure. This divergence probably depends upon the fact that when small numbers of cases are dealt with the type of case which bulks most largely in the series from which the figures are calculated determines the figures. Taking my two series together, I found death with cardiac failure to occur in from 40 to 50 per cent. But both series contained a good many examples of the old rheumatic type of case. Yet in the groups which chiefly include ex-soldiers death has been due to heart failure in much the same proportion as this. Cotton gives 47 per cent., and Starling gives 60 per cent., in their two series respectively.

Renal failure is admittedly the most frequent cause of death next to heart failure. After this, in probable order of frequency, come *cerebral causes* (and especially *conia* following embolus), *exhaustion* from the prolonged toxicity, and *pneumonia*.

THE SURGERY OF THE JEJUNUM.*

BY

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To the anatomist the jejunum is the upper two-fifths of the small intestine; to the surgeon it is that portion which begins at the duodeno-jejunal flexure and does not descend into the pelvis.

Traumatic Lesions.

Although the jejunum is nowhere protected by any covering but muscle the incidence of small intestine rupture is about equal in both jejunum and ileum. It may be that the relative emptiness of the jejunum affords some immunity. If it is accepted that the three possible mechanisms—a crush, a tear, or a burst—are the factors responsible for intestinal rupture, I think we may take it that the last very rarely affects the jejunum. Undoubtedly fixed portions of the intestine are most susceptible to tearing. The commonest cause of intestinal rupture is a direct blow on the abdominal wall by some object which involves only a small area but will push its way on so that anterior and posterior walls temporarily come into contact. What happens to the bowel between them depends on its fixity and its state of distension. If the rupture occurs at, or close to, the beginning of the jejunum, I think it is right to infer that the lesion is a tear.

The clinical aspect of intestinal rupture has been very closely studied and no description of the physical signs is needed here, but an inspection of hospital statistics does reveal the fact that many cases are watched for hours after admission before operation is undertaken. The most important point to be considered is the nature of the accident. If the abdomen has been struck by the hoof of a horse, the pole of a cart, the dumb-iron of a motor car, this in itself may often be sufficient justification for abdominal exploration. The prognosis can only be hopeful where operation is for rupture of the intestine and not for perforative peritonitis. Marked rise in the pulse rate, recurrent vomiting, diminution of liver dullness, and abdominal rigidity are all late signs. Local hyperaesthesia should be a sign of value, but is often unreliable on account of bruising of the abdominal wall. If improvement does not take place within two hours of the patient being placed in a well warmed bed it is highly probable that internal visceral damage is present, and the abdomen should be explored.

The prognosis of rupture of the jejunum is governed chiefly by the state of emptiness or otherwise of the bowel, and the interval between operation and injury. The time of the last meal should therefore be ascertained. It is remarkable that in not a few cases a very slight fall on the flat abdomen has been responsible for rupture of the intestine. In most of these the accident has probably occurred after a full meal. These are examples of bursting of the gut owing to its sudden compression at two or more points. The method of suture should be such as will avoid serious narrowing of the bowel lumen, and in cases of multiple or extensive ruptures resection may be necessary.

Resection of Small Intestine.

As to the amount of small intestine which can be removed with safety, Bremer removed 17 ft. 9 in. for a strangulated femoral hernia in a woman aged 61, who made a good recovery and lived for two and a half years, ultimately dying of marasmus; the only obvious defect in her metabolism was a slight failure of fat absorption. The jejunum, therefore, is a portion of the bowel which can be dispensed with, and experimentally Flint found that 50 per cent. of the small bowel could be safely removed from dogs; they lived on indefinitely in good condition, and the early diarrhoea soon ceased. Compensatory hypertrophy of the remaining mucous membrane takes place, but there may be evidence that fats are not absorbed, and dietetic error may easily lead to enteritis and marasmus. Fractional resection is more readily tolerated, even up to 75 per cent. of the small intestine.

Removal in the human being of small bowel up to two-fifths of its length makes little difference to metabolism, but I have been unable to find any case on record where the portion removed consisted of the whole jejunum. Most of these resections involve ileum rather than jejunum, since the type of lesion calling for such drastic surgery is likely to be a gangrenous strangulated hernia.

The Jejunum as the Seat of Intestinal Obstruction.

The higher the obstruction the more urgent the symptoms of pain and vomiting. Jejunal obstruction, if unrelieved, rapidly ends fatally. This portion of the intestine may be implicated in any of the ordinary forms of obstruction, whether it be internal hernia, adhesions, intussusception, volvulus, or due to new growth. Naturally its relationship to the duodenal fossae makes it almost certain that an internal hernia in this region will involve the jejunum. Of the other causes of obstruction adhesions are probably the commonest. Intussusception is rarely met with in this part of the small intestine. That volvulus may occur apart from the presence of initial adhesions or abnormal mesenteric arrangements appears certain; irregular peristalsis must in such cases be responsible, and this may be caused by injudicious feeding or the misuse of aperients.

The question of first importance with regard to small intestine obstruction is why it is so often and so rapidly fatal. Much investigation has been carried on to elucidate this problem. It is generally admitted that death from acute obstruction is due to the absorption of toxic material developed within the obstructed bowel.

The source of these toxins and their chemical nature is still the subject of controversy. Whipple has maintained that the poison is a product of the mucosal wall, especially of the duodenum; but many workers have disputed this conclusion, and have found that bacteria and the results of bacterial activity are necessary to the fatal issue. Closed loops of bowel freed from bacteria are quite compatible with health. Protein substances are acted upon by bacteria in closed loops not rendered free from organisms, and of all the products proteoses appear to be the most toxic. Such toxins must be absorbed and reach the general circulation for a fatal result to follow, and a moot point is whether the mucous membrane of an experimentally obstructed loop can or cannot absorb these substances. Vomiting does not remove the toxin, and as more is produced its absorption is increased. If the bowel were unobstructed it would be hurried along and death avoided. In human obstruction the crucial question is the degree of absorption which takes place in the bowel above the obstruction. Wilkie concludes, and I think with reason, that paresis of the jejunum is a most important contributory factor in toxic absorption, and this may exist and persist even when obstruction is successfully relieved by operation. Evacuation of the bowel contents is one important factor in recovery, but restoration of peristalsis is also essential. The jejunum is designed for absorption, and it is probably right to speak of its area as the "poisonous proteose level" in obstruction.

On the clinical side the obstruction due to an impacted gall stone is particularly liable to lead to this latent toxæmia, and not infrequently the obstruction is very easily dealt with and yet the patient dies. Presumably fatal absorption takes place because of failure of peristalsis, and the disease would possess an even higher mortality if the impaction occurred in the jejunum rather than the ileum, where such a stone is more commonly arrested.

Ulcer of the Jejunum.

Any and every variety of ulcer has been found in the jejunum, but that which we are most accustomed to meet with is ulceration following gastro-jejunoscopy. This is an example of man-made disease. The question of greatest importance is whether peptic ulcer can occur in the jejunum apart from this short-circuiting operation, which allows gastric juice to come in contact with the jejunum before neutralization has occurred. The question has been admirably discussed by Richardson and Patterson Brown.

Even in 1924 Patterson Brown was able to collect only thirty-five cases for both jejunum and ileum.

* Abstract of Hunterian Lecture before the Royal College of Surgeons of England on February 3rd, 1926.

Ulceration following Gastro-jejunostomy.

This important sequel to an operation, which (to quote Mr. Sherren's recent Bradshaw Lecture) "has done as much, if not more, for the good of the human race than any surgical procedure," is a most unfortunate blemish on the surgery of the stomach, and I do not think any surgeon of experience can claim that his patients are immune from it. That it is an artefact of gastric surgery is supported by the very rareness of simple jejunal ulcer. That special precautions taken whilst doing the anastomosis have reduced its incidence goes further to prove that the surgeon is often responsible. The use of absorbable suture material appears to be the most essential of these precautions, and Sherren has advised against the use of a clamp on the jejunum, which is a luxury rather than a necessity for the surgeon; it may perhaps be responsible for damage to the jejunum wall and thus be a source of hidden danger.

It is usual to speak of gastro-jejunal (or anastomosis) ulcer, and jejunal ulcer proper; but there is no doubt that the anastomosis ulcer is the commoner, and Walton would have us believe that even when the ulcer is found in the jejunum it has always spread downwards from the anastomotic line. Sherren does not agree with this, and neither do I, for I have operated on a perforating ulcer of the jejunum several inches from the suture line and not connected with it by any fibrous tissue. Nine cases of this lesion have come under my immediate care, and of these six should be classed as gastro-jejunal, two as jejunal, and one presented a gastro-jejuno-colic fistula; in five the gastro-enterostomy was performed by myself, and this represents roughly an incidence of 2 per cent. I am in the habit of using clamps on both jejunum and stomach. Up to 1917 I used to employ silk suture material and also to remove some mucous membrane from the jejunum; this I believe now to be undesirable, and there is something to be said for a separate stitch for the mucosa.

A matter which appears to me of the greatest importance in technique is the treatment of the mucosa. Moynihan in 1914 advocated removal of an ellipse of the mucous membrane from both stomach and jejunum, and other writers have followed the same lines. The more recent textbooks on operative surgery urge economy of mucous membrane. The object is to secure an immediate and relatively large opening and avoid a mere slit, but I do not believe this can always be done without risk of delayed healing. Better some swelling of the margin of the wound, and temporary blockage of the anastomosis, than failure of mucosal healing and exposure to erosion by acid secretion. How many surgeons realize the importance of the conservation of every bit of mucous membrane it is difficult to know, but Sherren is quite clear on the point, and he does not remove any redundant mucous membrane. That of the jejunum always appears to be excessive, but nevertheless I believe it should never be excised. Exactly how long the process of final healing takes is, I think, unknown, but I should put it down at quite a month, and possibly two. For this reason a careful dietetic regime is rightly insisted upon for at least three months from the date of operation. Fibrous tissue is not proof against the attack of hydrochloric acid.

The two cases which I should classify as true jejunal ulcer in my practice have occurred in patients who started their unfortunate gastric career with a perforation of the duodenum. In both of them an anterior gastro-enterostomy was performed later. In one the perforation was in the afferent loop, and the anastomosis was drawn off into a tubular connexion between the stomach and the jejunum. The other was a recurrent jejunal perforation, and I cannot say positively that there was no inflammatory thickening along the line of the anastomosis. This perforation was in the distal limb of the jejunum, an inch and a half below the junction with the stomach.

The clinical aspect of gastro-jejunal ulcer is rather difficult. Not all patients upon whom gastro-enterostomy is performed for positive lesions are at once converted to the eupeptic state; some are, and their enthusiasm is very gratifying; some convalesce slowly but give a perfect end-result; others relapse. Sherren, I think, has been a little

too sweeping in asserting that a gastro-enterostomy patient who is perfectly happy for two years after the operation never gets trouble again, and does not run the risk of a gastro-jejunal ulcer. But the majority of such patients will admit to periods of discomfort shortly after operation; gradually their symptoms acquire the characteristics commonly associated with duodenal ulcer. Hunger pain is often a prominent feature. The only physical sign in peptic ulcer on purely clinical examination is tenderness on pressure; this in gastro-jejunal ulcer is to the left of the umbilicus and a little above it.

Carman gives the following points in connexion with the diagnosis of gastro-jejunal ulcer by means of x rays:

1. Retention from the six hour meal.
2. Pain on pressure in region of first loop of jejunum behind the anastomosis.
3. Impaired peristalsis.
4. Ampulla-like distension in the region of the anastomosis.
5. Distortion of the stoma and pain on pressure.
6. Narrowing of the efferent limb of the jejunum near the stoma.
7. Dilatation of the duodenum or afferent limb of jejunum.
8. A definite pocket retaining the barium is rarely seen.

Since No. 8 is the crucial sign in the x-ray diagnosis of any ulcer, it will be readily seen that a positive diagnosis by radiography is by no means easy. Certainly not all deformities of the jejunum after anastomosis point to ulcer, but if the clinical signs suggest it there is usually support for the diagnosis in the x-ray appearances.

The Value of Jejunostomy.

Jejunostomy is comparatively rarely done, but there are many conditions for which I believe it may be useful, and several where it is positively indicated. As a place for the reception of food the jejunum is quite satisfactory. Milk, eggs, and sugar poured in by a tube and funnel at four-hourly intervals will easily maintain nourishment. At first the quantity should not exceed six ounces, but in quite a short time the jejunum becomes accustomed to further distension and ten-ounce feeds can be given. It appears to make little difference whether the milk is pancreatized or not. Such jejunal feeding is quite well borne after the first few days, and most patients will cheerfully submit to a regime which permits neither fluid nor solid by the mouth provided they are thus rid of their pain. But the use of a jejunal fistula is not limited to the ingestion of food. Jejunal drainage is the keynote to the successful relief of intestinal toxæmia, which I have already discussed in dealing with high intestinal obstruction. As to technique, a modification of the Witzel gastrostomy, originally suggested by Moynihan, has much to recommend it. It is rapid, it can be done without risk of soiling the peritoneum, and the loop of the jejunum chosen needs very little anchoring to the parietal peritoneum.

The most obvious indication for jejunostomy is as a substitute for gastrostomy. In my experience it is just as efficient, and it is easier to perform without risk of leakage. It is therefore appropriate as a means of feeding in cases of carcinoma of the oesophagus where the stomach is small and immobile, as well as in cases of malignant disease of the stomach itself, unsuitable for excision or gastro-enterostomy.

In certain cases of chronic gastric ulcer there is a distinct field of usefulness for jejunostomy. It is the only method of continuous feeding whereby the stomach can be given absolute rest and the patient's nutrition maintained even while at work. For this reason it has been recommended for bleeding ulcers of the stomach and duodenum. I have found it most useful in inoperable ulcers. Moynihan has made use of this method of feeding, and for irremovable ulcer he has advised it combined with jejunostomy. The x-rays show that the stomach, which is watched by radiographic examination, and he records cures at the end of periods varying from six months to three and three-quarter years; during this time his patients have received neither solid nor fluid food by the mouth. The question arises as to the need for the gastro-enterostomy. Swallowed saliva and gastric secretion of psychological origin are likely to be the only contents that need to be diverted from the pylorus, unless hypersecretion occurs in

such cases apart from digestion. My own impression is that all these activities are so reduced that the stomach is actually put out of action, and the value of the gastro-enterostomy has a bearing on the deformity which may result from cicatrization rather than on the actual healing of the ulcer.

My experience confirms Moynihan's suggestion that ulcers not amenable to gastrectomy may nevertheless be treated by jejunostomy. Possibly medical treatment without artificial feeding could show similar results, but it seems a pity that physicians are apt to rely on clinical signs, and do not appear to submit their patients to routine x-ray examination, which alone affords conclusive evidence of cure so long as the abdominal wall stands in the way of inspection of the stomach itself. Even epigastric tenderness is unreliable at times, and it may disappear when the x rays still show a hold-up of the opaque meal.

Jejunostomy has a further use in connexion with gastric ulcer—namely, as a preliminary to gastrectomy. A poorly nourished patient, worn out with gastric pain, may be made into a "good surgical risk" by simple jejunal feeding, and the large operation, which in the first instance could not be tolerated, may be undertaken with every prospect of success.

Jejunostomy in Intestinal Obstruction.

In opening the discussion on acute intestinal obstruction at the meeting of the British Medical Association in Bath, Sir William Taylor¹ considered the treatment according to the stage of the illness in which the patient was first seen. The early stage of obstruction need not concern us unless it involves the jejunum directly. Full exploration is permissible, and it is only necessary to deal with the obstructing lesion laid bare to the surgeon's view. The second stage is characterized by distension of bowel. Here the obstruction should be relieved, but in addition Sir William advises a temporary jejunostomy; it may be needed only for twenty-four or forty-eight hours. In the third stage the patient's condition will not warrant abdominal exploration. Relief of distension, and that under local anaesthesia, is all he would permit; later the obstructing cause may be dealt with. With this teaching I fully agree, based as it is on the arguments I have already brought forward concerning proteose poisoning from the contents of the upper reaches of the intestinal canal. Operating on patients in the second stage I have often been disappointed in my effort to empty the small intestine, and at the same time unpleasantly conscious of the risk of infection of the peritoneum. If this process can be satisfactorily set going by a jejunostomy it is much quicker and safer. Intestinal lavage can also be instituted, for, in between the periods of drainage, glucose and sodium bicarbonate can be let into the bowel. Toxins may be evacuated and toxins may be diluted; both processes advantage the patient.

With regard to the suggested treatment of the third stage the grave condition of the patient demands that something be done, and jejunostomy can be performed quite well under local anaesthesia; thus one of the greatest risks of operating on such a patient can be avoided. The question which naturally arises is, Why make an opening in the jejunum? Victor Bonney is credited with being the first to insist on the importance of draining at this high level, and his argument is that it is the jejunum which is water-logged with toxic fluid, whereas the ileum contains much gas as well as fluid. I am not sure that this observation is universally true, but, nevertheless, in view of the higher toxicity of the bowel contents at this level, I believe the treatment is sound.

The value of intestinal drainage in true paralytic ileus was well shown in a paper by me in the *Annals of Surgery* in January, 1910. This concerned two cases following fracture of the ribs, and the cause of the paralysis, no doubt, was the irritation of the splanchnic nerves.

The first case ended fatally in spite of abdominal exploration, which revealed no obstructing lesion. The second was much relieved by intestinal puncture, and finally cured by tying a sutured catheter into distended small intestine. I have no doubt

now that this operation was in reality a jejunostomy, and its good effect probably lay in the fact that the opening was high up. Siphonage was used to drain the bowel, and peristalsis was re-established in twenty-four hours. In forty-eight hours the contour of the abdomen was normal and the patient quite comfortable. The faecal fistula continued to discharge for three weeks, but in the end it healed spontaneously.

In this paper I urged the value of ileostomy whatever the primary cause of paralysis, whether peritonitis was present or not. Now I should rather say jejunostomy.

Jejunostomy in Peritonitis.

If we transfer our attention to peritonitis we shall realize that there may be as much risk from intestinal toxic absorption as from peritoneal toxæmia, and in many cases it is difficult to be sure by which route the poisons reach the blood stream. Recent successes claimed for lymphaticostomy would rather point to intestinal absorption as the fatal factor. It is certainly true that fatal cases of peritonitis manifest both true obstruction and paralytic ileus. The former can be caused by bands of very recent formation, not necessarily fibrous, but the mere gluing together and angulation of coils of small intestine. Paralytic ileus means a spread of infection from the serous to the muscular coat of the bowel, or a splanchnic intoxication.

With regard to the closure of a jejunostomy, if this is done by the Witzel technique trouble rarely arises; if carried out in a more primitive fashion (and time and circumstances may sometimes demand this) it is well to bring the tube out through a portion of the omentum, so that this may plug the opening when the tube is withdrawn. A fistula may thus be avoided and the patient saved a further operation for its closure when the danger stage has passed.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, November 28th, 1925, p. 993.

THE EFFECT OF EXERCISE ON INSULIN ACTION IN DIABETES.*

BY

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THE effect of exercise in reducing glycosuria and blood sugar in diabetes mellitus has been known for many years. Allen¹ and others clearly demonstrated its action, and until the advent of insulin nothing material was added to their work. It was shown that in all grades of diabetes exercise caused a fall in blood sugar. The effect was not only temporary, for, if the exercise was continued day after day, the patient's general strength and carbohydrate tolerance were improved. Indeed, some of Allen's patients were able to keep well and sugar-free only when they took regular exercise. Severe cases with little endogenous insulin did not benefit to the same extent as the milder ones.

Early in insulin days Dr. G. A. Harrison and I, working together, noticed that exercise had an effect in increasing the action of insulin in reducing blood sugar, and that on days when exercise was taken symptoms of hypoglycaemia were liable to occur on the usual balance of diet and insulin. As the strength and activity of patients have increased under insulin treatment, this has become still more obvious. The effect of exercise has to be considered to such an extent in arranging the proper balance of diet and insulin that, although I have already mentioned this briefly,² a more detailed record of the problem from the practical point of view seems necessary.

Hetzel³ has recently investigated the effect of exercise on blood sugar in patients taking insulin, but did not directly compare the effect of insulin with and without exercise. He did not investigate the effect of exercise when insulin is most active, from one to four hours after injection, nor of exercise prolonged over a considerable period, such as occurs in manual labour or in games and sports. Consequently he did not observe the marked effect of exercise in reducing blood sugar, which is so important a factor in the treatment of active diabetics.

* Working on diabetes with a grant from the Medical Research Council.

In this paper the clinical evidence of two cases which show this effect of exercise will first be recorded in some detail, and afterwards an experiment carried out on one of these patients.

CLINICAL EVIDENCE.

Both the cases recorded are young men who have been on insulin continuously for over one and two years respectively. They are skillful and careful dietitians, and keen observers of their own condition, following it carefully and almost daily by urine tests for sugar. They have been chosen for record for this reason, and because, though most patients show these changes to a lesser degree, the variation in the conditions of life of these two is such that the effects of exercise have been brought out to a marked degree.

CASE I.

This patient leads a sedentary city life during the week, but plays tennis or some other game regularly over the week-end. In the winter of 1924-25 during week-days he required 16 units of insulin to balance adequately the 20 grams of carbohydrate of his breakfast—that is, to keep his urine sugar-free and to reduce his blood sugar from the fasting level of about 0.16 to 0.01 per cent. or thereabouts. On Sunday mornings, when he played three or four sets of tennis, he found he could not take more than 10 units of insulin without developing symptoms of hypoglycaemia in the middle of the game; 8 units instead of 16 were really sufficient to keep him sugar-free when exercise was taken. The time of onset of hypoglycaemic symptoms (shakiness and palpitation) varied with the time and the vigour of the exercise. Insulin was taken at 8.30 a.m. and breakfast at 9 o'clock, and if he started to play at 10 o'clock hypoglycaemia never appeared before one and a half hours' exercise—about 11.30. If he commenced to play about 11.30 then symptoms often occurred three-quarters of an hour later, about 12.15 p.m., presumably because he then started to play at a time when insulin had already lowered the blood sugar considerably. Being interested in these phenomena, and not caring much about slight hypoglycaemia, from which he always speedily recovered by eating two lumps of sugar, sometimes without interrupting his tennis, although it became temporarily shaky like himself, he tried the effect of playing from 10 to 11 a.m. and then stopping before symptoms occurred. He found that even at complete rest symptoms usually occurred at 12.30 p.m. or soon after, presumably because exercise had burned up more sugar than usual, and as the insulin action proceeded it caused hypoglycaemia even when exercise had ceased.

However, if he took his usual dose of insulin in the morning and played tennis only in the afternoon, symptoms of hypoglycaemia never developed however strenuously he might play, presumably because by that time the activity of the insulin had worn off. But if after such exercise in the afternoon he took his usual evening dose of 12 units to balance the 20 grams of carbohydrate of his evening meal, not infrequently he got symptoms of hypoglycaemia three hours later. Occasionally after unusually strenuous exercise all day the balance of diet and insulin was upset even on Mondays, when the usual dose of insulin sometimes caused slight hypoglycaemia just before lunch time. Further observations were carried out on the effect of exercise on the patient's fasting blood sugar level. Usually this is about 0.16 per cent. It was raised above this to 0.22 per cent. by giving 30 instead of 20 grams of carbohydrate at the evening meal for several days running, during which time the patient was passing sugar in the urine most of the day. Four strenuous sets of tennis after supper was insufficient to cause hypoglycaemia at that high blood sugar level, but reduced the fasting blood sugar next day to 0.151 per cent.; on another morning after several days' exercise it fell to 0.121 per cent.

From the above observations we may conclude that exercise not only increases the power of actively circulating insulin to lower blood sugar, but actually burns up sugar and depletes the carbohydrate stores of the body. The fact that exercise in the afternoon occasionally upset the balance of the evening diet and insulin shows that exercise of itself increases the consumption of sugar even in a severe diabetic when the main action of insulin has worn off. The latter point was already well known, is not material to the main object of this article, and will be discussed in another paper with some other experiments which throw light on the exact site and mode of insulin action.

The same patient made some further observations on himself during a strenuous three weeks' holiday. True no blood sugar estimations were carried out during that period, but he made frequent urine tests for sugar with Benedict's solution, and as his leak point for sugar is about 0.19 per cent. and his hypoglycaemic level about 0.075 per cent., between the two his blood sugar level was sufficiently well known without blood sugar estimations. To appreciate the change that exercise made in his

carbohydrate tolerance I should state that his usual dose of insulin was at that time 28 units a day and his carbohydrate intake 45 grams, and that the addition of 10 and even 5 grams to this immediately caused hyperglycaemia and appreciable glycosuria.

To allow for the effect of the increased exercise during this holiday, instead of decreasing his carbohydrate intake he increased it from 45 to 80 to 100 grams a day. He took exercise, sometimes fairly strenuous, morning, afternoon, and evening. He was sugar-free all day on this largely increased diet, and even had occasional threatenings of hypoglycaemia, which he relieved with biscuits or lemonade. He increased in weight from 10 st. 3 lb. to 10 st. 11 lb., so that the absence of glycosuria was in no way due to a reduced caloric intake of protein and fat. He became noticeably fuller in the face and the bulk and firmness of his muscles was greatly increased. This is evidence that exercise enabled the same insulin to metabolize normally far more carbohydrate than was contained in his usual sedentary diet.

CASE II.

This patient shows the more gradual effect of exercise on insulin requirements. He is a gardener, who varies the amount of his work considerably from time to time. He has been on a diet of 60 grams of carbohydrate, 90 grams of protein, and 135 grams of fat for eighteen months—that is, 31 calories per kilogram of weight—and his weight has remained practically constant during this time. From October, 1924, to April, 1925, he remained on a constant insulin dosage of 10 units in the morning and 6 units in the evening. His blood sugars were always about 0.09 per cent. four hours after the morning dose of insulin and he was always sugar-free. In May he began to do more work and to play cricket in the evening, and very soon a reduction of insulin had to be made to prevent unpleasant symptoms of hypoglycaemia before his midday meal (blood sugar=0.075 per cent.) and occasionally in the evening. His insulin had to be gradually reduced in the beginning of July to 6 units a day—a very marked reduction. In the middle of July he stopped working and playing cricket; by the end of July his blood sugar was beginning to rise (0.187 per cent.), and by the end of August was 0.243 per cent., and sugar had reappeared in the urine. He was put back on 8 and 5 units a day, which kept him all right until he began to work again. This brought on quite marked hypoglycaemia and a blood sugar level of 0.057 per cent., so that the insulin was again reduced to 6 units once a day. He still keeps his diet constant, but has learnt to adjust his own insulin according to the amount of work he is doing.

Although it is a matter of conjecture, which I have not proved, I believe that the insulin requirements of these two cases could be interchanged by reversing their condition of life. If Case I adopted a life of manual labour, I feel sure that only one moderate dose of insulin would be required to keep his metabolism normal (unless his diet had to be increased to meet the increased exercise); while if Case II became sedentary in his habits he would require two moderately large doses a day, so great is the effect of exercise in aiding insulin to metabolize sugar normally.

AN INSULIN-EXERCISE EXPERIMENT ON A DIABETIC.

The results of an experiment on Case I are recorded in the accompanying table and figure. On one day the effect of exercise and insulin on his blood sugar was observed and a few days later the effect of insulin alone. Care was taken to make the conditions before the experiments as similar as possible. Before each experiment insulin was omitted for twenty hours and precisely uniform conditions of diet were observed. The early morning dose of insulin was omitted, breakfast and lunch taken as usual, and the patient allowed to have a moderately high blood sugar and to be in a thoroughly diabetic condition when the experiments were commenced at 2 p.m.—an hour and a quarter after lunch, which contained 7.5 grams of carbohydrate. The blood sugar level fasting in the morning was, on the two days, 0.161 and 0.160 per cent., and from the blood sugar level at the commencement of both experiments it is obvious that the carbohydrate metabolism (the blood sugar and presumably the glycogen stores) was as uniform as can be obtained in a severe diabetic. The experiments were not carried out entirely in the fasting condition, and perhaps one or two grams of the lunch carbohydrate were still being absorbed during the first hour of the experiment.

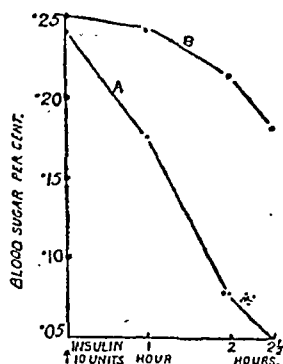
At 2 p.m. a dose of 10 units of insulin was given on both days, and on one day (A) strenuous exercise was carried out for the next two and a half hours with intermissions only for bleeding. The exercise consisted in riding a stationary bicycle against a considerable brake, in rowing

a machine boat against high compression, and in exercise on a sliding seat. Each form of exercise was indulged in vigorously in turn until the groups of muscles used would respond no more. It is a tribute to insulin that this violent exercise could be carried out without undue fatigue, for three years ago the mere ascent of stairs made the patient's legs ache with exhaustion.

Time. Minutes.	A. Insulin + Exercise.	B. Insulin, no Exercise.
2 p.m.	240 Insulin 10 units	254 Insulin 10 units
20	245	—
30	—	242
45	219	—
60	175	239
90	116	230
120	73*	211
150	51*	181
4.30 p.m.		

The effect of 10 units of insulin on diabetic blood sugar. A, with exercise; B, no exercise.

* Symptoms of hypoglycaemia.



The figures give striking proof of the effect of exercise in increasing insulin action. The difference on the two days is far greater than I had anticipated, and it is of interest to record what happened after these experiments. After B the usual 8 units were taken before the evening meal (20 grams of carbohydrate), and nothing unusual occurred either that evening or the next day. Immediately after A, at 4.30 p.m. 20 grams of glucose were given to relieve the symptoms of hypoglycaemia, and no further exercise was taken. In spite of that, symptoms recurred at 6.15 p.m., and a further 10 grams of glucose were taken. No insulin was administered before the usual evening meal, and the usual insulin and breakfast were taken next morning. Hypoglycaemia occurred at 11.30 a.m. in spite of the extra 30 grams of glucose and the omission of one dose of insulin. This can only be explained by the effect of exercise in burning up and depleting the usual carbohydrate stores of the body and upsetting the usual balance of diet and insulin next day.

It may be of interest and some practical importance to note the long time in experiment B before insulin had any appreciable effect on the blood sugar. In some former experiments⁴ I found that even in large doses insulin never reduced the fasting blood sugar level more than 40 mg. per cent. in the first one and a half hours, but Murray Lyon⁵ found that it usually dropped about 100 mg. in the first two hours. It is therefore perfectly safe, and may be deemed advantageous, to give a severe diabetic with a raised fasting blood sugar (0.016 per cent.) his insulin one or even one and a half hours before a meal with a view to lowering his blood sugar before the carbohydrate of his meal raises it.

It is not proposed to discuss here the questions that arise regarding the relative effect of insulin in storing or burning sugar in the body—questions on which other exercise experiments to be reported later have thrown some light. In the meantime it seems clear that muscular activity greatly enhances the action of insulin.

CONCLUSIONS AND PRACTICAL APPLICATION.

I. The immediate effect of exercise in increasing the fall of blood sugar caused by insulin is very great. This occurs only during the maximum period of insulin activity—that is, from one to four hours after injection. Severe and prolonged exercise and half the usual dose of insulin may produce as great a fall of blood sugar as the usual dose without exercise.

II. Besides the immediate fall of blood sugar, exercise causes insulin to burn more carbohydrate than usual and to deplete the body stores of carbohydrate, as the above clinical cases and the aftermath of experiment A show. For this reason the dose of insulin succeeding exercise has

often an unusually powerful effect in producing hypoglycaemia.

III. If the diet is kept constant, an increase of exercise over days and weeks allows a reduction of insulin to be made. This is one of the reasons why the dose of insulin can often be reduced early in treatment when patients leave hospital and adopt a more active existence. If this reduction is not made symptoms of hypoglycaemia appear. When the added exercise is omitted the insulin must be raised again.

IV. It should be the object of all treatment to enable a diabetic to lead a normal and varied life, and to forget all about his disease except at meal times. Accordingly allowances must be made for the changing conditions that may arise in his life. Patients should and do easily learn to reduce their insulin before unaccustomed exercise or activity, or they must take vigorous exercise only at times when the effect of their injections has worn over. Even after exercise, when the usual carbohydrate stores have been partially depleted, it is usually advisable to reduce the next dose of insulin. If exercise is increased over days or weeks it is obviously more physiological to increase the diet instead of, or as well as, reducing the insulin. The increased calorific output must ultimately be balanced by an increased intake, otherwise weight and energy will be lost. A diet which supplies 30 calories per kilogram of body weight may be a sufficient "maintenance" diet for a sedentary life, but 40 calories may not be too much merely to maintain the requirements of a more active existence.

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THE KASTLE-MEYER TEST FOR THE DETECTION OF BLOOD

CONSIDERED FROM THE MEDICO-LEGAL ASPECT.

BY

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SOME time ago my attention was directed to the Kastle-Meyer test for the detection of occult blood present in faeces. Its technique and rationale are described by R. Goiffon in the *Manuel de Coprologie Clinique*. He there states "that the test is an extremely delicate one, with the result that interpretable traces of blood are rendered definitely possible clinically, and, further, that by its use the causes of important errors yielded by certain other tests for blood are practically eliminated." After careful perusal of the article it was thought by the writer that the test might prove of considerable value in the laboratory examination of blood stains from the medico-legal viewpoint. The results obtained from experimental work with the tests are regarded as interesting and important to the medical jurist.

Reagents.—Two chemical solutions are required for the test, one being hydrogen peroxide of strength twenty volumes; the other is composed of a mixture of 2 grams of phenolphthalein, 20 grams of potassium hydrate, and distilled water in sufficient quantity to produce 100 c.cm. of the reagent. These three ingredients are boiled, and during the process 10 to 30 grams of powdered zinc are added. Boiling is continued until the solution becomes colourless, the colour disappearing usually after about ten minutes. The reagent when prepared in this manner will remain effective for long periods if a small quantity of the powdered zinc is left deposited at the foot of the reagent bottle to ensure reduction. The technique of the test consists in adding about 10 to 20 drops of the Kastle-Meyer reagent to the suspected blood-stained surface, thereafter adding a few drops of fresh hydrogen peroxide. If blood be present a deep permanganate colour develops almost immediately.

Rationale.—According to Goiffon the rationale of the test lies in the facts that the phenolphthalein in the reagent is

reduced into phthalein by the zinc and is regenerated by the oxygen liberated from the hydrogen peroxide by the haemoglobin present. The solution being alkaline in reaction, the indicator readily permits of the development of the reddish colour.

Method of Applying the Test.—I have found by experiment that the test can be carried out successfully either with a solution of the blood extracted from the stain, when placed in a test tube, or with the stain placed in a watch-glass and a few drops of distilled water or 0.83 per cent. saline applied to moisten it. In using the watch-glass method the stain need not be left in contact with the distilled water or saline for more than a few seconds, the reaction to the test being given almost immediately after the small quantity of diluent has been added. This is of importance in medico-legal work, as the usual tests—Day's or Schönbein's test and others—require soakage of the blood-stained material for some hours before the testing chemicals are added if reliable results are to be obtained. In adopting the watch-glass method it was found preferable to add a few drops of the reagent and only two drops of hydrogen peroxide, as when more of the peroxide was added the reaction seemed to be delayed, and was not infrequently masked by the development of a copious dense foam; further, excess of peroxide produced a milky hue in the fluid, and when the colour reaction did appear it was retained only for a short period, whereas if but two drops were added the colour reaction developed quickly and remained for several hours or longer. It appears from experiment that distilled water is a more satisfactory diluent than normal saline for the medico-legal application of the test, as a quicker and more intense colour reaction is produced.

Delicacy of the Test.—A positive reaction with the Kastle-Meyer test was obtained with human blood a year old extracted with saline from filter paper on which it had been dried, even when in a dilution of 1 in 212,000. A similar blood-stain diluted to 1 in 800,000 with distilled water yielded an immediate and positive reaction. It should be noted that although a positive result was obtained with these strengths of dilution and would be given in much higher dilutions, it was not considered necessary to conduct further tests, as the delicacy of the reaction was thought to have been fully established from a medico-legal aspect. As the result of noting carefully the colour reactions when using dilutions of blood from 1 in 10 upwards, it was found that the extent of the colour obtained on adding the reagents is quantitative for the blood present only within wide limits.

Experiments with the Test.

In an endeavour to exclude a fallacious positive reaction with certain substances in the absence of haemoglobin, ninety materials were tested at random with the Kastle-Meyer reagent, but in no instance was a true positive reaction exhibited. In most cases where chemical fluids were used the solution was about 20 per cent. in strength, which was regarded as being stronger than a dilution likely to be obtained from a stain composed of such chemicals.

List of the Substances Tested.

Rust, urine, perspiration, seminal fluid, leucorrhoeal discharge, albumin, saliva, human milk, cow's milk, soap solution, red ink, healthy faeces, colostrum, bile salt (sodium taurocholate), aniline dyes (namely, chlorazol fast red, aqueous fuchsin, neutral red, methyl red), pitch, rubber solution, wheat, starch, arrowroot, tapioca, barley, rice, rye, oats, sago, bean, maize, potato, manganese chloride, barium chloride, mercurous chloride, mercuric chloride, phenylhydrazine hydrochloride, aluminium chloride, lithium chloride, ferric chloride, ammonium chloride, ammonium phosphate, calcium chloride, calcium carbonate, magnesium chloride, magnesium sulphate, magnesium carbonate, magnesium oxide, ferrous sulphate, cobalt sulphate, calcium sulphate, magnesium sulphate, aniline oil, sodium bisulphate, sodium acetate, sodium nitrite, sodium nitrate, sodium citrate, ammonium sulphocyanide, ammonium iron alum, silver nitrate, lead nitrate, sulphuric acid, gallic acid, citric acid, pyrogallol, carboic acid, chromic acid, tannic acid, naphthylamine acetate, azobenzol, ortol (photographic developer), copper acetate, copper subacetate, copper sulphate, potassium bromide, potassium bromate, potassium cyanide, potassium ferrocyanide, potassium ferricyanide, potassium nitrate, potassium chromate, potassium iodide, potassium chloride, logwood, bromine, annatto hyssopica (colouring material for milk), calcium fluoride, calcium hydrate, and iodine.

In the case of iodine it was found that on adding the reagents necessary for the test a dark red coloration with

an orange tinge was produced. This colour, however, did not resemble the permanganate colour which the test produces when blood is present. A positive reaction when once seen is not readily confused with other reddish colorations. If a few drops of a solution of one part in three of sulphuric acid be first added to the iodine solution a brownish colour is produced on the addition of the Kastle-Meyer reagents in the absence of blood.

Tests were made with cochineal, using the Kastle-Meyer reagents, because it was thought that the initial colour of this substance might readily mask a positive reaction when blood was present. This surmise was substantiated. It was found, however, that if a solution of blood be added to one of cochineal the latter loses its red colour and becomes orange on the addition of the testing reagents, whereas if they are added to a solution of cochineal which does not contain blood its initial red colour is intensified. On the addition of testing reagents to cochineal containing blood to which a few drops of a solution of one part in three of sulphuric acid had been added, a pale yellowish-green cloudy appearance was exhibited, whereas when blood was absent a milky orange colour was produced. If the testing reagents be added to a solution of cochineal containing blood to which a few drops of one part in three alkaline solution have been added, a very faint clear straw colour is produced, whereas if blood be absent a milky orange colour is noted.

Certain substances contained in the foregoing list—for example, potassium ferrocyanide, sodium nitrite, sodium nitrate, and potassium iodide—occasionally yielded a very faint pink colour on the addition of the testing reagents when blood was absent. The coloration alluded to was so faint that it should never be confused with a positive reaction by anyone who had used the Kastle-Meyer test previously. Goiffon has stated that it is not necessary to note the late colour reactions, or the very faint colorations, on account of the delicacy of the test, with which statement I am in complete agreement. If blood be present the extent of the coloration is well marked. In order to make assurance doubly sure in these cases, if three drops of one part in three of sulphuric acid be added to the substance under test before adding the testing reagents, a pink or reddish colour will not appear in the absence of blood. It is evident that the likelihood of encountering any of the last mentioned chemicals in a blood-stain is very remote.

Tests conducted with lochia obtained at the sixth day of the puerperium and blood-stained pus yielded positive results. The age of the blood stain under examination does not apparently impede the reaction, as markedly positive results were obtained with the test on applying it to a blood stain fifteen years old, as well as to portions of bones some thirty years old. It would appear that heat insufficient in intensity to char or scorch when applied to a blood stain does not prevent a positive reaction being obtained, since it was found that blood stains upon cloth kept for a year and then submitted to a temperature of 160° C. for one and a half hours, and to higher temperatures for varying periods, readily produced a positive reaction when a few drops of distilled water were added and the reagents applied. It should be noted, however, that if the heat to which the stain is submitted is sufficiently great to produce charring a positive reaction will not be exhibited. Scorching vitiates the test to the extent of producing only a faintly positive reaction, not sufficiently marked to warrant it being termed positive from a medico-legal aspect. Blood-stained cloth kept for a year, then boiled for an hour in 200 c.cm. of distilled water, produced a positive result both with the stain and the water in which it had been boiled. Similar stains boiled with 1 gram of Castile soap powder yielded a positive reaction when the soapy solution was tested, although the stained cloth gave a negative result.

The amount of blood present in the solution apparently matters little so far as the production of a positive reaction is concerned, because the smallest speck of blood upon filter paper revealed a strong reaction. If the blood solution under test be heated before the reagents are added the colour reaction is expedited, being almost instantaneous, but the solution quickly becomes milky, more especially if

the stained cloth is present. If the solution be heated after the reagents have been added, a clear ruby-red colour is quickly given. It is a wise precaution to remove the stained cloth before adding the reagents if the material be dyed a deep reddish hue, lest the dye coming into solution impart a pinkish colour, simulating a positive reaction when blood is absent. Stains composed of pig, ox, and sheep blood were also tested, but no difference in reaction from that of human blood of the same age was revealed.

Conclusions.

From my experiments with the test applied medico-legally, it would appear that it is very delicate and reliable in the detection of haemoglobin. It is apparently a worthy substitute for Day's test, which possesses many fallacies, requires fresh reagents, frequently fails to act when only small quantities of blood are present, and in certain cases gives only a faintly positive reaction, creating doubt in the mind of the examiner whether such should be regarded as positive or negative. With the Kastle-Meyer test there are no "border-line" results. The reaction is well marked, is practically immediate, and time is economized in not having to await soakage of the stains before applying the test, if the watch-glass method is utilized. This becomes an important consideration when there are many productions to be examined. The age of the stain does not apparently affect the delicacy of the test. It must not be forgotten, however, that, having regard to the extreme delicacy of the test, the greatest care must be taken to ensure absolute cleanliness of all vessels used in the medico-legal examination of the stains, in order to exclude rigidly extraneous contamination of the vessels as the result of a previous examination. The apparatus should be boiled, the test tubes and watch-glasses carefully scrubbed with a suitable brush and thereafter wiped with gauze.

The results of the foregoing experiments indicate that the test is one of superior value for the detection medico-legally of haemoglobin. The test should be used in conjunction with the microscopic examination of stains for the detection of the presence of mammalian blood corpuscles, and the precipitin or serological test in determining the source of the blood, provided the examiner has by experience of the latter test acquired sufficient knowledge to determine in an accurate manner the results obtained.

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MALDEVELOPMENT OF OESOPHAGUS.

BY

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A MARRIED woman was under my care recently during her second pregnancy. The first child is a healthy boy, aged 3, and is said to have weighed 9½ lb. at birth. She was not a robust-looking woman, and suffered from a series of bad colds with a little bronchitis throughout the eighth month of pregnancy. Towards the end of December she developed hydramnios, so that it became almost impossible to make out the lie of the child. She complained a great deal of thirst. The urine contained no albumin or sugar.

At term labour started with the sudden rupture of membranes and escape of a large quantity of liquor amnii. On my arrival I found the cord in the vagina; the vertex presented and the cervix admitted only two fingers; labour pains were absent. Under anaesthesia I replaced the cord, which was pulsating rather slowly, put on a tight binder, and raised the foot of the bed. Pains came on a few hours later, and about six hours after rupture of the membranes a male child, weighing only 5½ lb., was born. There was a great deal of mucus in its mouth and it was rather blue, but soon recovered. Delivery of a normal placenta caused no trouble.

The next day I was told that the baby had vomited a lot of mucus and most of the water it had been given to drink.

Although it was rather a lean and undersized infant it cried vigorously, and at first there seemed to be nothing much wrong with it. The reports as to the nature of the vomiting were contradictory, but by the third day it was apparent that the child was not keeping much down. As yet it had passed nothing but meconium. I noticed that, after a drink of water, it seemed to choke and soon regurgitated, rather than vomited, all of the water, mixed with mucus. The abdomen was sunken a little, but was otherwise normal. No peristalsis was noticed and no tumour could be felt. A catheter failed to pass more than about 4½ inches from the mouth down the oesophagus. A diverticulum or an impervious oesophagus was therefore diagnosed, and it was realized that no operation was possible that would benefit such a puny infant.

The next day it was reported that some flatus had been passed, besides a little more meconium. X-ray examination showed that an opaque bougie passed down the oesophagus only as far as the level of the fourth dorsal vertebra, and that a barium feed filled up a little pyriform sac at the same level and did not get into the stomach. In the stomach there appeared to be a bubble of air.

It was therefore concluded that we had that type of malformation of the oesophagus which is clearly described by Professor Arthur Keith in his *Human Embryology and Morphology* (p. 250). He states that it is not uncommon. The paratracheal or upper part of the oesophagus, which is developed together with the trachea from the hinder part of the primitive pharynx, ends blindly, while the retrotracheal or lower part, which arises from the primitive alimentary canal, opens from the trachea and is covered by non-striated muscle. This, of course, explained the presence of air in the stomach and the passage of flatus.

The child lived six and a half days, gradually becoming weaker, passing fair quantities of urine, and crying only at long intervals for a feed. It suckled well and could swallow about two or three drachms easily, and sometimes kept it down nearly an hour. Invariably, however, the feed, mixed with mucus, was regurgitated, and occasionally nearly choked the child.

Post-mortem examination exactly confirmed the diagnosis. The oesophagus ended abruptly with a slight dilatation just above the level of the bifurcation of the trachea, having no connexion with the latter at that point. At the same level, in the middle line posteriorly, a narrow tube with a lumen of about 1 mm. opened from the trachea and gradually widened until it joined the cardiac end of the stomach. The stomach and duodenum were normal. The first six inches of the jejunum was collapsed, while the rest of the intestines were somewhat distended with air and contained a little meconium. The bases of both lungs were oedematous. No further abnormalities were discovered. The emaciation was great.

This malformation may, of course, be "not uncommon" as congenital abnormalities go, but luckily it is rarely met with in practice. It is interesting from several points of view.

First, the baby continued to pass a good deal of urine, although the urine was rather highly coloured. Probably, therefore, the pharynx and oesophagus were able to absorb some fluid, as no rectal salines were given.

Secondly, it is proved that a newborn infant, and a puny one at that, can exist for six and a half days on absolute starvation.

Thirdly, this case may have some bearing on the theories as to the purpose and fate of the liquor amnii. That the liquor amnii consists largely of foetal urine is, of course, no longer believed. It is generally supposed that the liquor is secreted by the amnion. That the foetus does swallow some of it is apparently admitted by all authorities, since lanugo hairs can often be demonstrated in the meconium. In this case there was a large excess of liquor amnii, well over a gallon being discharged, and the question arises whether the excess of liquor might not have been a result of the foetus being unable to swallow and absorb the liquor. It seems quite reasonable to believe that normally the foetus swallows liquor amnii, deriving fluid from it wherewith to dilute the waste products of its metabolism and excrete these by way of the placenta.

Although the mother's general condition was not very good during the last few months of pregnancy she remained fairly well nourished. Her condition, therefore, could have had little to do with the undersized child she produced. The placenta macroscopically presented no abnormalities. Again, excessive intrauterine pressure on the placenta came into play only during the last few weeks of pregnancy, so that that could not have had much to do with the small size and insufficient nourishment of the infant.

It seems likely, therefore, that normally the swallowing of liquor amnii is an essential part of the foetal metabolism—not, indeed, for the solids contained in this fluid, but merely to provide an internal fluid supply to the baby.

SUPPURATING GONOCOCCAL EPIDIDYMITIS.

REPORTS OF THREE CASES.

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THESE three cases of suppurating gonococcal epididymitis are recorded on account of the rarity of the condition. They are taken from a total of 1,982 new cases seen in the past seven years. Many of the modern textbooks, such as Thompson's¹ and Luy's,² do not mention it as a complication; Reith Fraser³ states that in a purely gonococcal infection there is never suppuration. Harrison⁴ mentions it, but states, as is borne out by the experience in this clinic, that it very rarely results in abscess formation. It is, however, a possibility that should not be altogether forgotten.

CASE I.

A seaman, single, aged 25, first attended the clinic on July 17th, 1919. He had had a urethral discharge (in which gonococci were found) for about a fortnight, and a primary sore. He received the usual treatment for each condition, and went away to sea a few days later, where he kept up the irrigation. He returned in about a month, and attending at the syphilis sessions had no special treatment for the gonorrhoea, which gave him no trouble until September 25th, when he was found to have an acute epididymitis of the right side and a slight discharge containing gonococci. He was admitted to hospital, and an abscess in the epididymis burst during the night. A smear of the pus from this showed numerous gonococci and no other organisms. The abscess cavity was lightly scraped and sewn up; by October 14th it was quite healed, and there was no discharge. He went out of hospital, but did not attend the clinic again.

CASE II.

A club steward, married, aged 28, first attended on November 21st, 1924. He had had a urethral discharge for a month, which he was treating by syringing with Condy's fluid. Numerous gonococci were present in a slightly purulent discharge; the first urine was hazy, the second clear, and there was a non-tender thickening of the left epididymis. He was shown how to irrigate, and given a mixture of potassium iodide, but did not attend again until January 18th, 1925. He stated that he had kept up the irrigation for a few weeks, and then, as the discharge had ceased, gave it up; it had now appeared again. There was no discharge, but the first and second urines contained many threads and the left epididymis was enlarged and tender. He attended regularly, but on February 9th the swelling burst. He was admitted, and next day the opening was enlarged and lightly scraped. Scrapings were examined by the pathologist, who reported no evidence of tuberculosis in the sections, nor the presence of any of the ordinary pyogenic micrococci, but that some of the cells seemed to contain Gram-negative ovoid bodies strongly suggestive of the gonococcus. On February 25th he was seen by the tuberculosis physician and tested with tuberculin. The reaction was quite negative. The wound soon healed, and he went out of hospital, continuing to attend the clinic for vaccines, etc. On March 12th there was no discharge; the urine was clear, containing a few threads only, in which were no gonococci or other organisms, and only a few epithelial cells. He did not attend for his final test for cure.

CASE III.

A labourer, aged 24, single, first attended on July 17th, 1925. He had had a discharge for three days, following exposure eleven days earlier. Gonococci were present in the discharge; the first and second urines were hazy, with threads. He was shown how to irrigate and given a vaccine, but attended somewhat irregularly until August 17th, when a right epididymitis developed. He improved under treatment, but on September 10th gonococci were still present in the urine obtained after massage of the prostate. On September 28th the urine was clear, and there was some non-tender thickening of the epididymis only. On October 22nd he attended with a single small discharging sinus from the adherent lower pole of the epididymis. The cord was definitely thickened without beading; the prostate was not enlarged, nor were the vesicles thickened. A smear of the pus showed gonococci and no other organisms. He was admitted and the sinus scraped. It was soundly healed by November 17th. On November 23rd he was examined by the tuberculosis physician, who reported no signs in his chest and that a test reaction of tuberculin failed to elicit any reaction at all. On November 24th the urine was clear, and a specimen after prostatic massage showed no gonococci or pus cells. On December 28th there was a similar result after passage of an acorn bougie as well, there being only a very slight thickening of the epididymis.

As Kenneth Walker⁵ points out, it is by no means always an easy matter to distinguish between the various forms of epididymitis. It is, of course, important that a gonococcal epididymitis should not be labelled tuberculous, or vice versa. The history may be misleading, and it is known

that an attack of gonorrhoea may predispose to a tuberculous infection in the organ. In most textbooks the liability of the latter infection to break down is given as one of the points in its favour in making a differential diagnosis.

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- ¹ D. Thompson: *Gonorrhoea*, London, 1923. ² Luy's: *Text-book on Gonorrhoea*, Foerster's translation. ³ Reith Fraser: *Gonorrhoea*, 1923. ⁴ Harrison: *Diagnosis and Treatment of Venereal Diseases*, London, 1919. ⁵ Kenneth Walker: *British Journal of Venereal Diseases*, Vol. 1, No. 2.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL CASE OF CARBON MONOXIDE
POISONING.

A MAN and wife, aged respectively 49 and 63 years, were recently found dead in bed, the woman lying in a natural position and the man lying across the bed, face downwards. There were no marks of violence on the bodies and no evidence that anything of a poisonous nature had been taken; the woman had been under treatment for diabetes. On *post-mortem* examination death was found to be due to asphyxiation by carbon monoxide poisoning, there being a 50 per cent. saturation of the blood with the gas in each case. The organs of the man were quite healthy. The woman, who was the elder, had cirrhosis of the liver, degeneration of the pancreas, and enlarged heart and spleen.

Interest in the case lies in the fact that there was no closed or anthracite or coke stove in the room; no gas was laid on, and there were no gas pipes in the vicinity. There was a small open fire grate, and when the couple retired to bed for the night the fire was left to die out as was the usual custom. Coal only was burnt, and some unconsumed remains were found in the grate. Carbon monoxide must have been produced by the fire and escaped into the room in sufficient quantity to cause death. The room was of about 1,000 cubic feet capacity and the window and the door were shut.

Another point of interest in the case is that the man was employed in a large steel works as a gasman, and was thus exposed to gas. At midday on the day before he died he had complained that the place in which he was working was full of gas and that he did not feel well. However, he walked home from work that evening about 5 o'clock and did not complain of being unwell then or afterwards. The couple were last seen alive about 10 p.m. The question whether the man had not died from inhalation of gas in the works was raised by the solicitor representing the man's relations with a view to compensation. The coroner's verdict was that death was due to asphyxiation by carbon monoxide, the source of the gas being the fire in the room.

Fairfield, Llanelly.

J. A. HUNTER, L.R.C.P. Ed.

ACUTE HAEMORRHAGIC PANCREATITIS WITH
EPIGASTRIC HERNIA.

THE following case appears to me to be of sufficient medical interest to merit publication.

A married woman, aged 49, was admitted to the Blackburn Royal Infirmary at 5 a.m. on February 16th, 1926. She was taken ill fairly suddenly at 9 a.m. on February 15th with violent pain across the middle of the abdomen—below the umbilicus and in the flanks. She vomited twice a little later, but had a constant desire to "belch." She had no pain in the shoulders or back, and the bowels were moved on the evening before admission with an enema, which gave a fairly good result.

She gave a history of having been troubled with her heart and with oedema of feet, etc., for a few years. She had two children, aged respectively 17 and 13, and had had an epigastric hernia ever since her last child was born.

The patient was a very fat woman, and obviously dyspnoeic and cyanosed. She was very tender all over the abdomen, but the maximum tenderness was in the flanks and lower umbilical region. There was definite rigidity, but its degree was masked by fat. There was no marked hyperaesthesia. She had an

epigastric hernia, which was tender and rather tense. No abnormal signs were found in the chest, and the urine contained a trace of sugar. Her temperature was 100.4°, the pulse 144, and the respirations 36. She was obviously suffering from severe shock, and an operation was considered inadvisable. She died in the institution at 12.45 p.m. on the day of admission.

At the post-mortem examination the epigastric hernia was found to contain omental fat, which was a little congested in the neck of the sac. The liver was very much enlarged and very yellow, especially in its right lobe. The gall bladder contained no stones, but it was atrophied, and its walls were very much infiltrated with fat. There was a marked fat necrosis in the omentum, and especially at its attachment to the abdominal wall and in the mesocolon. There was only a little fat necrosis in the mesentery, and the pancreas was very much discoloured with haemorrhage. The stomach was dilated.

Microscopical examination of the pancreas showed areas of free blood in the pancreatic substance. The spaces between the liver cells were very much infiltrated with fat, and the cells seemed to be few and far between. This infiltration was most marked around the area of the central vein. The kidney showed considerable cloudy swelling.

My thanks are due to Dr. W. Briggs, honorary surgeon at the Blackburn and East Lancashire Royal Infirmary, for permission to publish this case, and to Dr. F. S. Adams, honorary pathologist, for the report on the microscopical examination.

D. S. FAIRWEATHER, M.A., M.B., Ch.B.Ed.,
Senior House-Surgeon, Blackburn and East Lancashire
Royal Infirmary.

Reports of Societies.

TYPHOID FEVER IN NORTHERN IRELAND.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on March 26th, Dr. E. W. GOODALL in the chair, Professor W. J. WILSON read a paper entitled "Typhoid fever in Northern Ireland."

Professor Wilson first called attention to the great reduction of mortality from typhoid fever which had occurred, not only in the United Kingdom, but in most European countries. In 1875 the rate of mortality from typhoid fever in Ireland was lower than in England and Wales—1.6 per 10,000, as compared with 3.7. Between 1875 and 1886 the rate declined in England and Wales, but was almost stationary in Ireland; the rates in 1886 were 1.8 in England and 1.6 in Ireland per 10,000. Little change occurred in the next ten years, but since 1900 there had been a considerable decline, greater in England than in Ireland; the rates of 1924 were 0.13 for England and Wales, 0.31 for Ireland. Professor Wilson pointed out that in Ireland the rural population was relatively much more numerous than in England, and that the development of the creamery system, together with imperfect public health control, had been responsible for several outbreaks in rural areas. Passing to the special problems of Belfast, Professor Wilson presented statistical data illustrating the great decline of typhoid fever in that city. The mortality rate was 7 per 10,000 in 1872-75 and as high as 9.7 in 1896-1900; since 1910 it had never reached 1, and in 1924 was 0.07. Professor Wilson referred to the late Dr. L. W. Darra Mair's report incriminating shell-fish, and, while expressing his admiration of that report and his belief that much typhoid in Belfast had been due to the consumption of contaminated cockles and mussels, did not think that the great decrease of recent years could be attributed wholly to a change of habit in the use of shell-fish. He attached much importance to the abolition of privies, the substitution of ashbins for ashpits, improved scavenging, abatement of nuisances, decrease of stables and byres with their concomitant flies, more effective sanitary administration, the higher standard of living and education, and the growth of a sanitary conscience. Professor Wilson also thought that the work of Greenwood and Topley, dealing with the effect of constant additions of susceptibles to an infected population, had a bearing on the Belfast experience, and noted that the highest mortality prevailed during the periods of most rapid

expansion, when the increase of population was due, not merely to excess of births over deaths, but also to immigration. Professor Wilson concluded his paper with an account of a series of outbreaks which had been fully studied.

The paper was discussed by Sir WILLIAM HAMER, Sir GEORGE BUCHANAN, Dr. MAJOR GREENWOOD, Dr. S. MONCKTON COPEMAN, Dr. G. C. TROTTER, Dr. J. A. ARKWRIGHT, Fleet Surgeon W. E. HOME, and Dr. E. W. GOODALL.

TUBERCULOUS SALPINGITIS.

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, held on March 12th, with the President, Dr. D. G. MADILL, in the chair, Dr. BETHEL SOLOMONS and Sir JOHN LUMSDEN contributed a joint communication on an unusual case of pyrexia.

A woman, aged 22, complained of general debility with pyrexia; there had been a previous attack resembling influenza from which she had recovered. Her symptoms suggested enteric fever, but tests for typhoid, and paratyphoid A and B, were negative. For six weeks there was some rise of temperature, the lowest record being 98.8° F., the highest 102.8° F. As no other definite cause of the pyrexia could be established Dr. Solomons examined her recto-abdominally, and finding some degree of fullness in each lateral fornix he advised a vagino-abdominal examination under anaesthesia, when a diagnosis of tuberculous salpingitis was made. The blood examination showed: Leucocytes 38,000 per cubic millimetre; differential count—polymorphonuclears 53 per cent., lymphocytes 33 per cent., eosinophiles 7 per cent., transitionals 7 per cent. When the abdomen was opened the tubes were found to be slightly thickened and larger than normal, with closed fibrinated ends; tubercles were not present. The tubes were removed in their entirety; the ovaries were bound up with them, but it was possible to leave a small portion of the left ovary. After sixteen days the pyrexia subsided and the temperature remained normal. The microscopic evidence made the diagnosis evident, the submucosa being packed with giant cells. Two months later the patient again became ill, and Dr. F. C. Purser diagnosed encephalitis lethargica; she had, in addition, an attack of diphtheria.

Sir JOHN LUMSDEN said that when he first saw the patient, at the beginning of June, she gave a history of having been ill for some weeks and of having had an attack about a month previously of what would appear to have been gastric influenza, though it had been diagnosed as food poisoning. Her pulse was 100, her tongue was furred, and the apex beat was displaced outwards; he thought that possibly some myocarditis was present. The patient went away, but a few days later was admitted to hospital. Her tongue was still furred, she was febrile, rather constipated, and hard to feed. Blood culture and Widal test were both negative. There were at that time no symptoms whatsoever of encephalitis lethargica. He, however, suspected that there was some tuberculous focus, although there was absolutely nothing to be made out in the lungs. The epigastrium was tender, and nausea occurred after food, which made him think that there was something wrong in the abdomen. Dr. Abrahamson then saw the case with him, and they concluded that it was a case of tuberculous peritonitis. Dr. Solomons saw her, and operated; after the operation she remained febrile for about fourteen days. During convalescence she became rather emotional, but improved enough to be sent to the country. Some time later Dr. Purser diagnosed encephalitis lethargica. It was, of course, just possible that the girl had encephalitis lethargica all through, but he did not think it probable. She then developed diphtheria, and died.

Dr. L. CASSIDY said that if tuberculous salpingitis was to be taken as a reason for the state in which the tubes were found it seemed rather an extraordinary procedure to mutilate an unmarried girl on evidence which seemed to him inadequate. Even the microscopical description of the tubes did not seem sufficient to account for the clinical symptoms in the case described by Dr. Solomons and Sir John Lumsden. He would have thought that the condition was either tuberculous meningitis or encephalitis lethargica. He felt that in cases of this kind the wisdom of employing either radium or x rays should always be considered. During the last few years he had seen about thirty such cases, and with the exception of two had seen good results

follow treatment by radium or x rays. He thought that the symptoms in this case pointed to tuberculosis, possibly in the upper abdomen, but not to a condition which would justify removal of the tubes.

Dr. L. ARRAHAMSON said that certainly when he had seen her there had been no sign of either tuberculous meningitis or encephalitis lethargica, and he did not think that when Dr. Purser saw her she had tuberculous meningitis either, as the cerebro-spinal fluid was not under tension when she was seen by him. Encephalitis lethargica was sometimes hard to diagnose, but when this patient was seen by Dr. Purser the symptoms were apparently so typical that the diagnosis was obvious. When the speaker had seen her she was suffering from pyrexia and vague abdominal pain. No evidence of tuberculosis could be found either in the chest or in the abdomen. When the contents of the tubes were examined for tubercle bacilli the result was negative, but when sections were made the bacilli were found. No naked-eye tubercles could be seen, but microscopically they were easily visible. He thought that removal of the tubes in this case was absolutely justified, and that the result was satisfactory; he believed that but for the development of encephalitis lethargica the patient would have lived. She had died from an intercurrent disease which had nothing to do with the original complaint. The result of x-ray treatment in these cases was the arresting of the internal secretion of the ovaries, whereas in this case, after operation, a little ovary had been left.

Dr. GIBSON FITZGIBSON said that the question, "Should active tuberculous tubes be removed or not?" was much discussed, but when he came across cases in which there was evidence of advancing disease he always took away the tubes. If the tubes were not removed the patient was left with disease; and if the tubes were removed the patient was no more sterile than she had been before removal, since if the tubes were tuberculous they were functionally useless. He had recently seen a patient who had been married for five years, but was sterile; he removed the tubes, as he felt sure they were tuberculous and functionally useless. The pathologist reported that the tubes were destroyed by tuberculosis.

Dr. R. J. ROWLETTE drew attention to the very high blood count in this case, which at the time the count was taken was apparently one of tuberculosis. He thought this was possibly evidence of an extreme degree of purely tuberculous toxæmia. Nowadays pyrexia was regarded as a symptom, not of tuberculous toxæmia, but of septic toxæmia; but in this case it was proved to be a symptom of tuberculous toxæmia. A curious feature of the case was that diphtheria occurred when encephalitis lethargica was also present. He thought it possible that tuberculin might have done the girl good, but it was necessary to open the abdomen to see what disease was present, and when the tubes were found to be tuberculous he thought it would have been very risky to leave the tubes and to give the patient tuberculin.

Dr. J. S. QUIN asked if erosion of the cervix was present or if there was any leucorrhœa. He referred to a case of pyrexia in which no tuberculous focus could be found at all, but in which, a few days before death, tuberculosis of the mediastinum set in.

Dr. G. W. TRENDALD referred to a patient who had been admitted to hospital said to be suffering from eclampsia. A lumbar puncture was performed, but the patient died five minutes afterwards. At the necropsy every gland was found to be a mass of tuberculosis. In the case described by Dr. Solomons, assuming that the patient had tuberculosis, encephalitis lethargica, and diphtheria, was it right to assume that the tuberculosis of the tubes was sufficient to cause the very definite symptoms from which she had suffered for a long period of time? Was it not likely that there was some focus of tuberculous infection elsewhere in the body?

Dr. BENJAMIN SOLOMONS said that the diagnosis of tuberculous salpingitis was obtained (1) by a process of exclusion of other diseases, (2) by bimanual examination, and (3) by the appearance of the tubes taken in conjunction with the history of the case. He disagreed entirely with Dr. Cassidy's remarks on treatment. Dr. Solomons had had a

very large experience of tuberculosis of the tubes; he had tried palliative salpingostomy in cases of sterility in these cases, and, as stated in previous communications, the results had been bad: either there was no cure of the sterility or there was recurrence of disease. He therefore strongly recommended complete salpingectomy for tuberculosis of the tubes. In this way the disease was removed, while the chance of pregnancy before removal was nil. There was no need to extirpate the uterus, for if infected the infection cleared up after salpingectomy. Treatment by radium and x rays was useful in general abdominal tuberculosis. There was no erosion of the cervix, nor was there leucorrhœa. So far as could be felt there was no tuberculous disease higher up in the abdomen. He was convinced that this was a case of tuberculosis of the tubes causing pyrexia and cured by operation.

GYNAECOLOGICAL SYMPTOMS.

At a meeting of the Edinburgh Obstetrical Society held on March 10th, with the President, Dr. R. W. JOHNSTONE, in the chair, a communication was given by Professor CARLTON OLDFIELD (Leeds) on symptoms without signs. This title was taken because there was no more common case than the patient who complained of various symptoms but in whom no physical signs could be detected. Out of 1,200 patients examined by Professor Oldfield only 434 (36 per cent.) showed any gross disease, and this he deemed to be due to the majority of the cases being functional. The usual symptoms in such functional cases were headache, backache, weariness, sleeplessness, and frequency, precipitancy, or incontinence of urine. For such conditions curettage was unnecessary and harmful, and likewise were operations such as ventrosuspension, cervical repair, appendicectomy, etc. The main symptoms were then taken seriatim, and backache was first discussed. This was found in 67 per cent. of Professor Oldfield's cases, but in only 34 per cent. of these was any organic disease present. Retroflexion was only present in a few more cases than anteversion, confirming the opinion that retroflexion, though often accompanying backache, was not the cause of it. Cervicitis, with or without laceration, and endometritis were not noted as being in any way definitely associated with backache, though as all these complaints were common they were bound to occur together in many cases. Backache, therefore, was usually a functional complaint. Incontinence of urine was then discussed, the incontinence being of the active kind and not passive, as in a vesico-vaginal fistula, etc. Of Professor Oldfield's cases 12.8 per cent. had incontinence, and yet 29 per cent. had urethrocele; among the cases of incontinence 28 per cent. had urethrocele and 28 per cent. prolapse. Prolapse was present in more cases with incontinence of urine than without, and therefore was probably a causal factor, though only 7 per cent. had cystocele; but urethrocele, on the other hand, occurred more frequently in cases without incontinence. Incontinence, however, was, in Professor Oldfield's opinion, purely functional, and this was proved to his satisfaction by the fact that application under anaesthesia of the electro-cautery cured nearly every case, which would have been impossible were it due to pathological or anatomical reasons, as was generally supposed. Many cases were quoted to support his contention. With regard to retroversion of the uterus, the statistics of Dr. MacGregor Young were quoted, in which 1,000 puerperal uteri were examined on the twelfth day after labour, and retroversion was found in 50 cases, but six months later only 2 were found to be still retroverted. Pessaries might relieve symptoms sometimes, but it was probable that in such cases prolapse was present. Professor Oldfield advised the discarding of the words "retroflexion" and "retroversion," and then pessaries would cease to be used or operations to be done in such cases. Many women were made unhappy by being told that their womb was twisted. In conclusion Professor Oldfield touched on the pernicious vomiting of pregnancy, which he considered always to be functional, and advised treatment by suggestion and feeding. In his experience such treatment had always been successful.

Dr. WILLIAM FORDYCE gave a short note on a case of ectopic gestation with unusual clinical features.

The patient, a multipara of 36 years, was admitted into his ward with the history of severe vaginal haemorrhage following what was supposed to have been an incomplete abortion, as she had three weeks previously passed a lump per vaginam as big as her closed fist. This was corroborated by her medical attendant. When examined under chloroform after her admission the os was found to be patulous, but nothing was found inside the uterus, the discharge being, however, somewhat foul-smelling. The patient progressed satisfactorily for a week, there being no further discharge and the temperature normal. She then began to complain of colicky pain in the right hypochondrium, and she became slightly jaundiced. Cholecystitis was diagnosed and she had a laparotomy performed two weeks after her admission to hospital. The abdomen was found to be full of bright red blood, and a foetus was found later amongst the clots. In all probability the sac had been ruptured by bimanual palpation immediately before operation.

In reviewing the case Dr. Fordyce thought that it must be classed as a "combined" gestation—both intra- and extra-uterine—for though on examination the patient was very stout, there was nothing like an ectopic gestation to be palpated, and yet before her operation a swelling could be felt distinctly. The pain and tenderness in the right hypochondrium was very difficult to explain.

Dr. F. J. BROWNE read a paper entitled "An experimental investigation into the etiology of accidental haemorrhage and placental infarction," which will be published in full in an early issue.

RADIOLOGY IN URINARY SURGERY.

THE ninth Silvanus Thompson Memorial Lecture, under the auspices of the Röntgen Society (of which Silvanus Thompson was the first president), was delivered on March 30th by Sir JOHN THOMSON-WALKER, who took as his subject radiology in urinary surgery. The President of the society, Dr. F. W. ASTON, F.R.S., was in the chair.

Sir John Thomson-Walker dealt in the first place, somewhat briefly, with the use of x rays in the diagnosis of conditions in the kidney and ureter, and showed a number of radiographs indicating normal and abnormal appearances. He gave it as his experience that in not more than 5 per cent. of cases would x rays fail to demonstrate a urinary calculus. The exceptions were cases in which stones did not throw shadows traceable even on the best plate or film, either because the stones were composed of pure uric acid or were hidden behind the wing of the sacrum or the pubic bone. He also spoke of the early diagnosis of dilatation of the kidney by pyelography.

Coming to the question of treatment, he said that malignant disease of the kidney did not appear to be a very promising field for x rays, though there were cases in which the patient was unwilling or unable to obtain skilled advice in the early stages of renal growth, and here the surgeon might be glad to avail himself of the help which x -ray treatment could afford. The only two cases of renal growth in which he had seen striking results follow radiotherapy were advanced cases with secondary deposits; in neither was a cure obtained, but the growth in both was greatly reduced and held under control for a considerable period of time. With regard to growths in the bladder, treatment by operation was very successful, and with better means of diagnosis bade fair to be still more so. The lecturer exhibited a table showing his own results in this condition. In simple papilloma he had employed transurethral electrocoagulation in 119 cases; there was no mortality, and there had been no recurrence in 74.4 per cent., the period which had elapsed since treatment varying from one to eleven years. Operation (excision) had been done in 142 cases, and the mortality was 3.49 per cent., and there was no recurrence in 65.74 per cent. In 126 cases of malignant growth in which resection of the bladder wall was done, the mortality was 6.34 per cent., and there was no recurrence in 66.3 per cent. On the whole, he thought that treatment by operation was satisfactory, but there were cases where diathermy or operation failed owing to the persistence or recurrence of the growth or in which these measures were unsuitable owing to the advanced state of the growth, the septic or contracted state of the bladder, a diseased condition of the kidney, or the feeble general state of the patient. Such cases were to the last degree un-

promising as subjects for radiotherapy, and the failure of x rays to cure them or to bring about any appreciable improvement could not be regarded as a reproach. Could radiotherapy be used to reduce the size of the bladder growth so as to bring it within the range of operation? In 491 cases of bladder growth under his care 118 were unsuitable for radical operation, in the majority of cases because of the extent of the growth. In view of the successful results obtained by radiation elsewhere in the body there seemed to be some prospect of success here also, but his experience in a few cases did not encourage him to hope that surgeons would obtain assistance in bladder-growth operations from preparatory treatment by radiation—rather the reverse. His experience of the post-operative treatment of growths of the bladder either by the gamma rays of radium or by hard x rays also was not encouraging. He had found a mild urinary infection converted into a severe cystitis, and in other cases delayed healing of the wound or tendency of the wound to break down after such post-operative radiation. His opinion was, therefore, that radiation in the immediate post-operative stage was not a suitable method for use in bladder growths. With regard to growths in the bladder which were unsuitable for operation or which had recurred after operation, the result with hard x rays had been sufficiently good to encourage a more extended trial. The only objection to radiation in bladder growths of this kind was the local reaction, and this should not stand in the way if good was done.

Sir John Thomson-Walker next described the value of x -ray treatment in malignant growths of the prostate, where the common form of malignancy was scirrhous carcinoma. Radical treatment of such growths was a very severe operation, and radiology had here a promising field in competition with surgery. The number of cases of carcinoma of the prostate under his care which had been treated with hard x rays was 48; the treatment had been carried out by twelve radiologists, seven of whom were in London, and one case was treated at Erlangen. A general reaction was noted in 18 of these cases, and was severe in 7. Local reaction was invariably present, though it differed considerably in cases which otherwise appeared similar. Of the 48 cases treated by radiotherapy, 24 were dead, 4 were very seriously ill, 9 were unchanged or slightly worse, 6 were improved, 4 were well, and of 1 there was no record. Of the cases which had died, the duration of life after the first exposure was: in 8 cases under six months, in 7 cases from six to twelve months, in 6 cases from twelve to eighteen months, in 2 cases from eighteen months to two years, and in 1 case two years and seven months. The condition at the time of radiation in the cases which died or which remained very seriously ill was: in 12, that of advanced growth with the patient failing; in 9, that of large growth but general condition good; in 7, that of early growth and general condition good. In 42 out of the whole series of 48 cases he had full notes of the changes in the prostate. In 22, following radiation, there was no decrease in size, hardness, or fixity of the growth; in 15 there was improvement, which was lost at a later date; and in 5 there was improvement which was maintained. The improvement in some of these cases was slight, but in others there was a pronounced change, the hard prostatic mass appearing to melt away, and leaving only hard nodules, though after a period varying from two to six months the induration appeared afresh. In 5 cases, however, the growth disappeared entirely after radiation. One of these patients—an old man—died six months after treatment from gradual failure of the circulation, but there was no recurrence of the growth. The other 4 were alive and without recurrence, and the period since treatment was eight, twenty-one, forty-one, and forty-five months respectively. One of these cases was a rapidly growing endothelioma, the others were of the ordinary scirrhous type. Sir John Thomson-Walker added that with regard to several of the cases which had to be written down as failures he could not help feeling that a very little thing might have changed failure into success. What that factor was—whether it related to the individual patient or to the technique of treatment—could not be definitely stated at the present time, but the advance;

in knowledge had been so rapid, thanks to the splendid work of the radiologists during the past few years, that he looked forward with confidence to a further step towards solution in the very near future.

ACUTE APPENDICITIS.

At a meeting of the Liverpool Medical Institution on March 18th Mr. G. C. E. SIMPSON read a paper on acute appendicitis.

Mr. Simpson stated that, from the Registrar-General's reports, checked by his own knowledge of a small town where he could trace most of the cases of acute appendicitis in the last five years, he had drawn the conclusion that the incidence of the disease was about 1 case per 1,000 of population per annum, with a mortality in cases treated surgically of about 6 per cent. Cases treated throughout on medical lines had a mortality of 14 per cent.; with modern surgery this would be reduced to less than half, if the general peritonitis and abscess cases were submitted to immediate operation and the rest treated medically. The present mortality of the surgical treatment was too high and the careful choice of the time of operation in later cases would give a reduction apart from the reduction to be effected by earlier diagnosis. He quoted recent writings of Sherren and Adams in favour of delay, and of Burgess and Grey Turner in favour of immediate operation, and professed himself a follower of the St. Thomas school. Operating at once on all patients seen in the first two days, on patients seen later in whom the disease was advancing, and as a rule in all children, he used the Ochsner method for doubtful or subsiding cases seen on the third day or later and operated when the condition was quiet. The patients, however, must be kept under close observation and surgical measures be undertaken at once if signs of progression were seen. On these lines his mortality in the Northern Hospital in the last five years was only 2.5 per cent.; adding the figures from the cottage hospital in the small town referred to, it was 3.5 per cent., and in that town the main mortality was in the first year. Of the 15 per cent. of his cases where delay was practised (45 in all) only 6 failed to respond; in 5 abscess required opening, and in 1 gangrene caused the advance. At the subsequent operation no drain was used in 33 cases, although in several there were signs of gangrene, perforation, or abscess, and, in a few, fistula into the intestine. No patient died, but in one of the cases of acute abscess a fistula required treatment. Four other patients operated on by Mr. Simpson had fistulae, and tuberculosis was present in all. Mesenteric or peritoneal tuberculosis was marked in 5 per cent. of the cases and caseating glands were removed in a number. One patient with a tuberculous appendicitis and glands died of tuberculous pneumonia. Typical specimens of appendicitis at various intervals after onset were shown, as were charts of delay cases. Mr. Simpson concluded that the mortality of acute appendicitis could be lowered by judicious choice of the time to operate in cases not seen before the third day, but emphasized the need for the patients to be kept under strict observation and regulation. He considered that this would lead to all suspect cases of appendicitis being kept in the Fowler position and on water only while waiting the advent of the surgeon, and that this, and the opportunities given to students to see more of the symptoms of appendicitis through these cases being detained in the wards, would more than neutralize the ill effects anticipated by Burgess and Grey Turner from applying the treatment to the wrong cases and under wrong conditions.

Immunization in Diphtheria and Scarlet Fever.

Dr. C. Rundle, medical superintendent of the City Fever Hospital, Fazakerley, gave an account of recent work on the use of indicating reactions in, and the prophylaxis and treatment of, diphtheria and scarlet fever. After describing the Schick test, he stated that at birth all infants gave negative reactions and were immune; at the age of 4 years 40 per cent. were still immune, probably for life. Of diphtheria cases 100 per cent. were Schick-positive at the onset of the disease, becoming negative during convalescence. The Schick test was applicable for diagnosis and was probably of more value for this purpose

than throat cultures. If the Schick test was negative the condition was not diphtheria. Active immunization could be effected by the injection subcutaneously of three doses of 1 c.cm. of a toxin-antitoxin mixture at seven-day intervals; immunity was established six months later, lasting certainly for many years and possibly for life. Such an injection produced little or no reaction, and did not interfere with attendance at school. The use of this mixture was of no value in the control of epidemics owing to the length of time which must elapse before full immunity was attained.

Passive immunization developed twenty-four hours after the injection of 1,000 units of antitoxic serum and lasted three weeks. The work on scarlet fever was more recent, but promised equally favourable results.

In the Schultz-Charlton test an intracutaneous injection of 0.2 c.cm. of serum should be made into an area where the rash was well marked—preferably on the trunk; a positive reaction—blanching of an area 1/2 to 1 in. in diameter in four to twenty-four hours—indicated that the case was one of scarlet fever.

In the Dick test 0.2 c.cm. of toxin was injected intracutaneously; the reaction was somewhat similar to the Schick, but developed more quickly and was less lasting. For active immunization three weekly subcutaneous injections of toxin—500, 1,500, and 3,000 minimum skin reacting doses respectively—were given. Immunity developed in two weeks' time and lasted for a considerable period, the limit of which was not at present ascertained. Excellent results had been reported from America, but in this country the reports were so far somewhat more cautious. The results at Fazakerley were interesting; between January and June, 1925, ten probationers had suffered from scarlet fever. In July, 1925, active immunization was adopted for all new probationers; since that date fifty probationers had been appointed, but no case of scarlet fever had occurred among them. Passive immunization of contacts was effected by the injection of 10 c.cm. of antitoxic serum. Therapeutically, 40 to 100 c.cm. of serum was given; this was valuable in early cases, but less valuable later, especially in bad throat cases, probably owing to the presence of a mixed infection in the latter.

ULTRA-VIOLET RADIATION IN MEDICINE AND SURGERY.

At a meeting of the Harveian Society on March 18th, at Paddington Town Hall, with the President, Mr. E. LAMING EVANS, in the chair, a discussion was held on ultra-violet radiation in relation to medicine and surgery. Professor LEONARD HILL, in opening, and Drs. ALBERT EIDINOW and HALLS DALRY, subsequent speakers, set forth in substance the arguments which they used in the similar discussion at the Royal Society of Medicine, reported in the *BRITISH MEDICAL JOURNAL* of April 3rd (p. 617).

Professor LEONARD HILL, after a description of the properties of ultra-violet radiation, enumerated the different kinds of artificial lamps in use. The quartz mercury vapour lamps, while powerful sources, were cold, and might require to be supplemented in treatment by ordinary incandescent lamps for their visible light and dark heat. The mercury vapour lamp could be used readily both for general and local treatment, and was easy of management in the consulting-room. With regard to the carbon arc, he dissented from the dogmatic statement which had been made that nothing but a short-flame arc should be used. With sufficient energy, a long-flame arc was an extremely powerful source of ultra-violet radiation, and enabled very short exposures to be made—a matter of ten minutes—in place of exposures measured by the hour; small doses so spaced as to keep the skin tender and responsive were the best method on which to proceed. The skin had a great power of immunizing itself against ultra-violet radiation. The first effect of such radiation was to thicken the skin. Desquamating skin was an impenetrable barrier, and when there was desquamation it was necessary to wait until this process had ceased and the young and responsive underlying skin could be reached. The more the dose was increased the more strongly would immunization of the skin be

brought into play; therefore, the long and frequent doses which were very customarily given—while not necessarily harmful, because the skin protected itself against excess—were a waste of time. The better way, in general radiation, was to depend on small doses, exposing the chest down to the waist one day, say Tuesday, and on Thursday exposing the back, on the following Tuesday the front of the legs, on the Thursday the back of the legs, and so coming round again after fourteen days to the front of the upper part of the body; that part, having had a mild erythema dose, would have peeled a little, and would present a tender skin ready for another dose. Not more than five or ten minutes' exposure was necessary. With regard to the suggestion that cancer might result from excessive use of ultra-violet radiation, the speaker had found no evidence to support this view among those who worked under arc lights continuously, as in welding and photography; Bernard of St. Moritz, a pioneer of heliotherapy, had found no evidence of epithelioma of the skin occurring among guides, postmen, and others exposed to this radiation in high Alpine regions. Another common fallacy concerned pigmentation; it had been claimed that pigment acted as a kind of sensitizer or transformer of the radiation; but it had yet to be proved that pigment had any function other than that of a screen. He concluded with the general observation that ultra-violet radiation was of importance as a help to general treatment, but, like everything else, it would fail in a number of cases; much clinical work was still needed to discover the cases for which it was suitable or unsuitable.

Dr. GORDON PUGH (Medical Superintendent, Queen Mary's Hospital for Children, Carshalton) considered that some of the claims for heliotherapy, and especially phototherapy, appeared to be rather extravagant. It was necessary to consider whether any new therapeutic principle was being introduced, or whether the old-established healing agents, such as fresh air, surface hyperaemia, and counter-irritation, were not appearing here in another and perhaps more convenient form. In his hospital at Carshalton three methods of treatment were in use. The first was open-air treatment, which he might call, on the authority of Sir Robert Jones, a method of British origin, the first hospital for the complete open-air treatment of surgical tuberculosis being the Baschurch hospital, founded in 1902. The second method was heliotherapy, which might be called the Swiss method, since it owed its popularity to the efforts of Dr. Rollier, who began using general sunlight baths in 1903. The third was phototherapy, which might be regarded as Danish, having been started in 1894 by Dr. Finsen; it was rendered more generally available by Kromayer in 1904, with the introduction of the mercury vapour quartz lamp, and by Reyn in 1913, who added to local treatment general irradiation by the carbon arc. After showing photographs illustrating the satisfactory results obtained at Carshalton in surgical tuberculosis, marasmus, and rickets, by the open-air method, he went on to speak of heliotherapy, which might be regarded as an improved form of open-air treatment, the presence of sunlight encouraging and rendering easier the application of the open-air method. Rollier believed that sunlight was the important factor rather than the open air, his main argument being that the deeper the pigmentation the better the prognosis. On this theory pigment appeared to be regarded as a transformer of light energy into the energy spent in some chemical reaction useful in defence. Dr. Pugh's observations at Carshalton did not confirm this theory. In 1922 a careful note was made of the pigmentation of 232 cases of tuberculosis of the spine, hip, and knee, many of them severe cases with sinuses. Three and a half years later, when all except a few convalescent cases were either cured or dead, the cases were classified according to the results, and the mortality among the "very good" pigmenters was found to have been 16 per cent., among the "good" pigmenters 15 per cent., among the "slight" pigmenters 10 per cent., and among the non-pigmenters 9 per cent. He regarded these observations as disproving Rollier's theory, and he was of opinion that Professor Hill had reached the solution when, in 1922, after an investigation conducted in collaboration

with Dr. Argyll Campbell,¹ he said that, while not disputing the value of heliotherapy as a factor in the arrest of the disease, the benefit of heliotherapy as applied at Alton was to be attributed to the great rise in metabolism due to the cooling power of the open air, while the rise due to sunlight *per se* was insignificant, but that sunshine promoted evaporation from and flow of lymph through ulcers and discharging sinuses, and also warmed the diseased parts exposed to it. Professor Hill had modified his views since then, but so far the speaker had not seen any clinical reason to do so. It seemed possible to explain all the benefits received from heliotherapy as being produced partly by suggestion, partly by the increased metabolism induced by very free exposure to the air which heliotherapy involved, partly by surface hyperaemia and the resulting lymphorrhoea, and partly, as in rickets, by vitamin D through the action of the sun's rays on cholesterol. The subjective effects of artificial light in treatment were more marked than the objective; but on the objective side three effects had to be considered. The first was hyperaemia of the surface, which conceivably might lead to a reduction of high blood pressure by vaso-dilatation, to lymphorrhoea, which would assist in the healing of ulcers and superficial sinuses, and to improvement in abnormal skin conditions, such as eczema and psoriasis; the second factor was the production of vitamin D by the action of rays on cholesterol; and the third the increase, short-lived, in haemo-bactericidal power. Dr. Pugh then showed a large number of photographs of patients before and after thirty to eighty sittings with the carbon arc. In one case of glandular abscess of the neck with reddened undermined skin over it and a small discharging sinus, the undermining had continued to extend; but in similar cases in which the undermined skin was cut away and the lesion scraped, and in other superficial sinuses and ulcers connected with tuberculous phalanges and tarsal bones, healing was definitely hastened by the light baths, especially when there had been previous scraping. Sinuses connected with deeper structures, such as the spine and hip-joint, in which help was specially desirable, showed no improvement, and an old empyema sinus remained unchanged. In some cases the Murray Leick red-ray lamp was used for superficial ulcers and appeared as efficacious as the carbon arc, if not more so. A severe case of acute general eczema, after two months' ineffective treatment by ointment, was given carbon arc irradiation; it was brought under control after twenty-nine baths in three months, and a month later was quite cured, but two other cases of eczema still under treatment showed little or no improvement. A patient with psoriasis had not improved after forty carbon arc baths; one of the larger patches was then blistered by the Kromayer lamp, and was found to have completely disappeared when the scab separated. Several cases of extensive lupus which had been given many carbon arc baths showed no benefit beyond a cleaning up of the surface. The speaker attached some value to Mr. Sampson Handley's suggestion that radium gamma rays should be used around the circumference of the area to excite an aseptic lymphangitis and obliterate the lymphatic vessels around the infected region, so providing a barrier against spread. Dr. Pugh had used gamma rays in the treatment of tuberculous adenitis during the past three years with very satisfactory results. It had been said that light treatment increased the haemo-bactericidal power, and that this might put up the general resistance of the body to disease. So far as infectious diseases were concerned, this had not been confirmed at Carshalton. Epidemic catarrh and chicken-pox, when introduced into wards, had affected patients indiscriminately, whether they were receiving light treatment or not, but open-air treatment limited the spread of infections. He had been informed by Dr. H. T. Woodfield, of the Park Fever Hospital, Hither Green, that his impression, after using ultra-violet light in twenty cases of whooping-cough, was that good was done in the early stages, but that, when the disease was well established it was not influenced by light treatment. His results had been inconclusive, in the case of diphtheria carriers. The speaker hoped that the introduction of phototherapy into city hospitals would not lead to delay in the transfer of cases of surgical tuberculosis to institutions in the country.

¹ BRITISH MEDICAL JOURNAL, February 25th, 1922, p. 301.

Dr. A. EDINOW gave particulars of experiments which showed the importance, whatever form of light treatment was adopted, of taking care as to the area of skin exposed to each dose. If a patient had been given a dose of light, and erythema was produced, immunity developed very quickly. When a small area of skin was exposed and an erythema produced, a similar erythema dose on the following day would produce no intensification, the maximum reaction having been reached. It was necessary to wait some time until the skin returned to its normal state and again became sensitive to ultra-violet radiation; it was futile to continue light treatment without observing the state of the skin.

Dr. GRAY HILL, referring to the fact that small exposures to the arc light produced a multiplication of cells, asked whether it was not possible that big doses of sun rays, as in the Alps, would bring about their own protection, and that small doses might possibly produce epithelioma in persons who had not thus become immune.

Dr. HUMBERT ODDY said that his own experience was that pigmentation in the majority of cases gave no criterion of the results of treatment. Light treatment had been overdone, and claims had been made for it which could not be substantiated. Moreover, many unqualified people were now practising the treatment, which would lead sooner or later to its undeserved disrepute. Nevertheless, he thought that Dr. Pugh was unnecessarily pessimistic.

Dr. HALLS DALLY said that he had had a good many cases under treatment at Mount Vernon with a view to seeing whether high arterial pressure could be lowered or low pressure raised, and on the whole he had had very gratifying results with ultra-violet radiation alone. He thought this was due to the effect of the carbon arc on metabolism.

Professor LEONARD HILL, replying on the discussion, said that he was at one time very much of Dr. Pugh's way of thinking. At first he was rather incredulous of all the statements concerning heliotherapy, but he had had to modify his views. He was now fully persuaded that light as well as the open air had a very powerful action and could be of great use. He related some remarkable cases which had come under his observation in the light ward at the New End Hospital, Hampstead. It was true that there were failures, but there had been many successes. With regard to metabolism, respiratory metabolism was increased remarkably by cooling wind, but not by ultra-violet radiation; this latter, however, might produce a slow effect on the general metabolism. Some cases of high blood pressure might be improved by arc light treatment of a source of chronic infection.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, ST. ANDREWS.

IRREGULARITY of the pulse in youth was the subject of a lantern lecture by Dr. J. H. P. PARON on March 23rd. Mackenzie had pointed out that it was a physiological phenomenon of youth, which became exaggerated in convalescence from febrile illness. It tended to disappear in some febrile complaints, and its return was evidence that the toxic process causing its disappearance had become quiescent. The irregularity was absent only in four instances in 500 consecutive girls whom the lecturer had examined on admission to school; each of the four in whom it was absent was found to be suffering from a febrile complaint. He concluded from these facts and a large number of observations spread over some years that the irregularity was never absent, except in disease in girls from 8 to 16 years of age. Its absence was a valuable sign of ill health, and its return in a marked form in convalescence had the same significance as the fall of temperature, indicating that active toxæmia had ceased. This fact was evidently not generally known, since it was common for young persons to have their activities restricted because of its presence. The terms "arrhythmia" and "irregularity" carried a significance of abnormality, which was doubtless the reason why Mackenzie's view had not received wider recognition, whereas absence of the irregularity was the symptom of disease.

Reviélus.

METHODS AND PROBLEMS OF MEDICAL EDUCATION.

AMONG the Rockefeller Foundation's numerous activities in connexion with its appropriate motto, "The well-being of mankind throughout the world," is the collection and circulation, by its Division of Medical Education, of knowledge concerning *Methods and Problems of Medical Education*.¹ The third series of this useful evangel has recently been published, and contains nineteen articles on nine branches of medical science. Each article is written by a professor or teacher in a department, and gives in detail, with a generous allowance of illustrations and plans (173 in all), the structural arrangements of the laboratory buildings, the working arrangements, and the composition of the staff—in fact, just the information necessary to assist a professor who is faced with the task of organizing a department and of advising the architect about the building of a laboratory. The problems of medical education are incidentally discussed in connexion with the descriptions of the methods of instruction, but the outstanding value of this collection of these reports from nineteen centres of medical instruction in seven countries (United States, Canada, England, France, Germany, Holland, and China) is the full account of the structure and equipment of modern laboratories and of the various methods of teaching employed. Of the nine branches of medical science represented by the departments described, two are clinical: Professor Louise McIlroy gives a full account of the Obstetrical and Gynaecological Unit of the Royal Free Hospital, and Professor Adrian S. Taylor of his department of surgery in the Peking Medical College. The other seven subjects are more extensively illustrated by two or more reports from the laboratories in each category, and so a wider vista of the methods and equipment is provided. Thus there are made known the physiological departments of the University of Cambridge (described by the late Professor J. N. Langley), of Harvard, of Groningen, and of the Western Reserve, Cleveland; in the last Professor Carl Wiggers attractively shows how the instruction in the physiological laboratory is correlated with the later clinical work; metabolism experiments, gas analyses, and electro-cardiography thus add a broader significance to the simpler signs and symptoms of disease. Professor L. B. Mendel, in describing his department of physiological chemistry, points out that physiology at Yale is divided into physical and chemical physiology, and that the latter has a somewhat broader content than the so-called biochemistry taught elsewhere as an adjunct to chemistry. In his account of the biochemical department of the Peking Union Medical College, Professor Hsien Wu finds that of the pre-clinical subjects the best adapted for teaching the scientific methods of inquiry, and for counteracting the Chinese student's tendency to learn results by heart, is biochemistry. The place of pharmacology in the medical curriculum and its focusing of the biological sciences and cementing them to clinical work are discussed by Professor Torald Sollmann of the Western Reserve University. The vast field of old-time *materia medica* in China offers a unique opportunity for research in order to sift their value, and this is being undertaken in the pharmacological department of the Peking Union Medical College. The methods of teaching human anatomy are described by Professor T. Wingate Todd of the Western Reserve University, by Professor J. A. J. Barge of Leyden, Professor Hans Bluntschli of Frankfurt-am-Main, and by Professor André Forster and Professor P. Bouin of Strasbourg, the latter dealing with histology. At the Western Reserve University neurology, as elsewhere in America, forms part of the second year's study, and serves as a co-ordinating course preparatory to physiology; the lecture course covers general animal behaviour and the elements of psychology. A very interesting feature of this department is the Hamann

¹ *Methods and Problems of Medical Education*. (Third Series.) New York: Division of Medical Education of the Rockefeller Foundation. 1925. (8 x 11, pp. 242; 173 illustrations.)

Museum of Comparative Anthropology and Anatomy, which contains about a thousand complete human skeletons, with anthropometric, photographic, clinical, and personal data, thus providing unique opportunities for teaching and research.

Professor W. G. MacCallum of the Johns Hopkins, Professor H. T. Karsner of the Western Reserve, and Professor Horst Oertel of the McGill Universities, give extremely interesting accounts of their pathological departments. At the Johns Hopkins a year was occupied in making plans for the new eight-storied laboratory, opened November 1st, 1923, which was designed to meet the needs and allow almost any changes necessary for those working there twenty years hence. Arrangements were made for the study of the morbid anatomy and the chemical and experimental pathology of plants as well as animals. Notable features are the careful indexing and preservation of material from the six hundred or so necropsies in the year, and the weekly conferences, especially those held for many years by Professors MacCallum and Thayer to correlate methods of clinical diagnosis with the conditions found after death. Material from four thousand necropsies is preserved in the laboratory for teaching purposes, and small groups of six or seven students are taken by instructors in an intensive and informal manner. At the Western Reserve University the clinical bearings rather than the purely scientific aspects of pathology are emphasized, and the physiological and experimental aspects of disease are fully demonstrated. At McGill University medical jurisprudence is, much to its advantage, closely associated with the Pathological Institute. The work is chiefly based on pathological morphology, for Professor H. Oertel considers this indispensable if a grasp of pathological function is to be obtained, and more important in this respect than normal anatomy and histology are to normal physiology, for he holds that pathology is far from being applied physiology.

These reports of the various departments of medical education may with advantage be read in conjunction with Mr. Abraham Flexner's *Medical Education: A Comparative Study* of medical education in Europe and America, published last year. From both these publications, and especially Mr. Flexner's, the important principle of correlation between the various constituents of the medical curriculum should be drawn.

PSYCHIATRY.

THE Morison Lectures for 1925 on *Mental Invalids*,² delivered before the Royal College of Physicians of Edinburgh by Dr. C. C. EASTERBROOK, contain a number of interesting discussions on practical psychiatric problems which have engaged his special attention during thirty years' experience in mental work. The subjects considered are the body-mind; the clinical examination of mental invalids; the causation of mental diseases, with some remarks on their prevention; the classification of mental disorders; and some aspects and methods of curative treatment. Many of the writer's observations might be made the subject of comment, but special reference may suitably be made to the account given of the sanatorium treatment of active psychosis by rest in bed in the open air, since Dr. Easterbrook is himself responsible for the introduction of this mode of therapy into mental hospitals. Though the value of "rest and open-air" treatment in the acute psychoses is now generally recognized, the arguments advanced in its favour were not altogether accepted by psychiatrists when Dr. Easterbrook read his original paper on the subject nearly twenty years ago, and at that time "active exercise" was the conventional method of treatment for many of these cases. It is particularly interesting to read this paper again, because the writer appears to have sensed the importance of air and sunlight in the treatment of illness generally, and stated that there was a pressing need for the further elucidation of this subject. Recent work has, of course, fully confirmed his views, and his

² *Mental Invalids: Being the Morison Lectures delivered before the Royal College of Physicians of Edinburgh in June, 1925.* By C. C. Easterbrook, (M.D., F.R.C.P.S., Edinburgh and London: Oliver and Boyd. 1926. (Med. Rev. no. 66. 5s. net.)

original remarks may perhaps be usefully repeated in reviewing these lectures. He wrote as follows:

"The *modus operandi* of rest is comparatively simple; that of the open air is more complicated, and herein lies a wide and worthy sphere for the investigator—the pharmacodynamics of the fresh air of the open as a remedy for the preservation of health and the cure of disease. The fresh air has an undoubted soothing and soporific influence on the nervous centres, and the cooler outdoor atmosphere stimulates general bodily metabolism and appetite, both of which effects render the open air of special value in the treatment of active insanity. But in the treatment of the insane, and, indeed, of the sick in general, by exposure to the fresh air of the open, we cannot overlook the concomitant operation of such beneficent influences as the soothing action of soft breezes playing over the features, the comforting effect of the pleasant sounds and prospects of Nature and her surroundings, as commonly associated with the life in the open, the cheerful influence of sunshine, the health-giving action of the ozone and oxygen and possibly other gases of the atmosphere, and the more obscure influences of light, sound, electricity, heat and cold or temperature, humidity, atmospheric pressure, and the like. Indeed, to arrive at the rationale of open air in the therapy of disease, we must take into consideration the entire gamut of its mechanical, chemical, and physical properties and conditions, as regards the influence of which on the human organism for good or the reverse there is now almost a pressing need for further elucidation." (*Journ. Ment. Sci.*, October, 1907.)

The lectures in the volume before us will naturally be read with interest by psychiatrists, but they are written simply and clearly and contain many observations which the general practitioner will find helpful and informing.

DR. T. WADDELOW SMITH, deputy medical superintendent of the City Mental Hospital, Nottingham, has written a volume entitled *An Introduction to the Mind in Health and Disease*,³ which is intended for students and general practitioners interested in mental work. Part I deals with the anatomy, physiology, and functions of the nervous system, and with normal psychology; Part II with psychopathology, classification, principles of treatment, and the various forms of mental disease. The book thus covers the ground of the ordinary textbook, but the subject-matter is greatly condensed, and the author only intends his work to act as a stimulus for further study. His aim is to present a biological conception of mentation, and for this reason he devotes much attention to the neurological basis of psychological phenomena. Dr. Smith might with advantage have expanded his theoretical views and have omitted the clinical section, which is scanty and inadequate. Thus the treatment of general paralysis is compressed into three lines, and no reference is made to the malarial treatment of this disease.

DRS. EDWARD A. STRECKER and FRANKLIN G. EBAUGH are conjointly responsible for a volume entitled *Practical Clinical Psychiatry for Students and Practitioners*.⁴ They have selected the method of actual case presentation as the most helpful and practical for the beginner. Concrete examples of the various psychoses and neuroses are given, and are followed by discussions in which the salient features of causation, symptomatology, modifiability, and treatment of the diseases under consideration are reviewed. The first three chapters deal with general etiology, diagnosis, prognosis, and treatment; classification of mental diseases; and methods of examination. References to the literature are given at the end of each chapter, and a glossary is provided at the end of the volume. The beginner in psychiatry will find this book a most useful guide in his clinical work; it is clearly and attractively written, and we can recommend it to clinical assistants or junior medical officers engaged in work in psychiatric clinics or mental hospitals.

DR. RENÉ CHARON has written *La Psychiatrie en Clientèle*⁵ with the intention of providing a simple, clear, and brief guide to psychiatry for the use of the general practitioner. In his preface he expresses regret that the medical profession generally takes so little interest in mental disorders. He asserts that mental patients are increasing in numbers

³ *An Introduction to the Mind in Health and Disease.* By T. Waddelow Smith, F.R.C.S. Eng. London: Baillière, Tindall and Cox. 1925. (Demy 8vo, pp. viii + 236; 6 plates. 10s. 6d. net.)

⁴ *Practical Clinical Psychiatry for Students and Practitioners.* By Edward A. Strecker, A.M., M.D., and Franklin G. Ebaugh, A.B., M.D. Philadelphia: P. Blakiston's Son and Co. 1925. (Demy 8vo, pp. xvi + 375; 24 figures.)

⁵ *La Psychiatrie en Clientèle.* By René Charon. Paris: A. Maloine et Fils. 1924. (Gr. 8vo, pp. xi + 152; 2 figures. 8 fr.)

and that their antisocial reactions are becoming more frequent and numerous. For these reasons he considers it essential that all practitioners, in matters of psychopathology, should be in a position to make a practical diagnosis, to establish a judicial prognosis, to formulate useful treatment, to uphold medico-legal conclusions, and to assist in the dissemination of the principles of mental hygiene. Dr. Charon has succeeded in writing in quite simple language a book which the French practitioner will no doubt find very useful in dealing with his mental patients.

DISEASES OF THE NERVOUS SYSTEM.

DR. CAMPBELL THOMSON's well known handbook on *Diseases of the Nervous System* has recently been revised* with the collaboration of Dr. Riddoch, and the joint authors may be congratulated on their success in bringing it up to date and providing at a reasonable cost a concise and easily read manual for the student.

The additions, in the shape of fresh chapters on methods of examination, compression paraplegia, acute traumatic lesions of the spinal cord, and subarachnoid haemorrhage, will enhance the value of this new edition. Some new illustrations and figures are also provided. In a work of this scope it is not easy to know what may be omitted, but we think that a more detailed account of the whole subject of the source and changes of the cerebro-spinal fluid in disease would have been of benefit to the student reader.

The earlier chapters on anatomy and physiology and methods of examination are brief but lucid, and form a well balanced introduction. No fault can be found with the presentation of the later material in the book, and the description of the various forms of neuro-syphilis is especially well given for a small textbook.

The fourth edition of this now well recognized manual may be safely recommended as a valuable and handy guide to the student.

NEUBURGER'S "HISTORY OF MEDICINE."

THE appearance of Dr. ERNEST PLAYFAIR's translation of Professor MAX NEUBURGER's *History of Medicine* has been much delayed. The first volume, which was fully reviewed in our columns (1912, ii, 445) fourteen years ago, dealt with the progress of medicine up to the Renaissance, and the first part of the second volume, which is much smaller, is now before us. It is devoted to the early and late Middle Ages. Barbarism and the stagnation of science in the early Middle Ages was relieved only by the attitude of the Church whereby monasticism prevented the complete annihilation of culture, and as a result medicine came more under clerical sway in the epoch which has been described as that of monastic medicine.

The chapter on medicine in the eleventh and twelfth centuries describes the Salernitan School as the starting-point, after five centuries of lethargy, of activity in medicine in the West, and as its connecting link with the medicine of antiquity and of the Orient. Though there have been several conjectures, there is no certainty about its origin except that it was not an ecclesiastical foundation. The famous "Regimen sanitatis Salernitanum," originally consisting of 362 leonine verses, eventually grew to tenfold the size, but probably everything in it other than the part on diet was an addition. At the end of the twelfth century the School of Salerno revived on a scientific basis the art of surgery, but the influence of Arabic on Western medicine was long resisted by that School. In the thirteenth century, however, Arabism became dominant in the universities, where medicine now for the first time attained a position of equality with other branches of knowledge. The section on the state of medicine in the later Middle Ages shows that medical scholasticism and Arabism, with

their attendant astrology and uroscopy, were carried to extremes and thereby cramped research. This instalment of the work ends with an historical survey of the literature of the fourteenth century.

Dr. Playfair has done his work so admirably that we look forward with pleasure to the completion of this valuable work, which was sadly interrupted by the great war.

A MEDICO-POLITICAL LITERARY ESSAYIST.

ACCORDING to his introducer, Mr. Arthur Ponsonby, M.P., Dr. W. C. RIVERS has an irrepressible critical faculty for literature, and while fully occupied with his professional work had to subordinate his desire for literary expression. Now, however, under the title *Through a Consulting Room Window*,¹ Dr. Rivers has gathered together literary and other essays which he has contributed to various journals, from the *Cambridge Magazine* to the *London Mercury*, from the *New Statesman* to *The Hospital*. Of the extent of Dr. Rivers's reading there can be no doubt; on the merits of authors he is very decided in his opinions. Mr. Ponsonby says "he is provocative, but he is never dull." Dr. Rivers thinks little of Mr. Rudyard Kipling as a writer or of Mr. Bernard Shaw as a dramatist. One has imagination without intellect, the other intellect without imagination. Poor Mr. Kipling is merely an articulate boy scout, comparable to Marie Corelli, the articulate servant girl; while Mr. Shaw's St. Joan is only the young lady Fabian in *Fanny's First Play*, talking common sense didactically. To Dr. Rivers the five great world novels are *Le Père Goriot*, *Madame Bovary*, *Vanity Fair*, *La Chartreuse de Parme*, and *Anna Karenina*. He has something to say on physiognomy, and the remarkable resemblances, as of types, which are occasionally met. He discourses on the kinship of the artist with the savage, contrasting with the former the man of science, "whose type is as a rule not primitive at all." The author describes a brief meeting with Henry James; and in an essay entitled "Smudged country" he deplores the squalor which follows the growth of industrialism in this country, and pleads for the merging of the Universities of Birmingham, Sheffield, and Leeds in a new University of Stamford. Two of Dr. Rivers's essays are on medical subjects. In "Medical women in the future" he gives reasons why, under the Socialist system he evidently regards as at hand, there may not be much opportunity for the practice of medicine by women. In "A medical portrait or two" we have a eulogy of a well known bacteriologist as a hero; a contemptuous portrait of "Sir Thomas Wilkins," a humbug; a criticism of some ideas about nurses; a description of the sad life of the present-day general practitioner, with a forecast of his glorious future as a salaried, pensionable, efficient medical man; and an exposition of the nature of the quack's friends. From all this something may be gathered about Dr. Rivers's views, political and otherwise.

NOTES ON BOOKS.

AN extensive knowledge of chemistry would be needed to guard against all chances of prescribing incompatibles. A handy book of reference may therefore be useful whenever the question of compatibility arises. One of the most useful we have seen is RUDDIMAN'S *Incompatibilities in Prescriptions*.² The author has anticipated almost every kind of question. He presents a table of the solubilities of more than 700 drugs in water, alcohol, ether, chloroform, and glycerin, with an additional note where needed on a special solvent. The information will be most useful to the prescriber, for the solubility of a drug must often be the first consideration in choosing the mode of exhibition. The table indicates, moreover, the cases where decomposition is suffered by dissolution in particular solvents. Incompatibilities are described both generally and particularly under the separate headings of the individual drugs. The scheme

* *Diseases of the Nervous System*. By H. Campbell Thomson, M.D., F.R.C.P. Lond., and George Riddoch, M.D. Aberd., F.R.C.P. Lond. Fourth edition, revised. London and New York: Cassell and Co., Ltd. 1925. (Cr. 8vo, pp. xvii + 541; 102 figures, 24 plates. 16s. net.)

¹ *History of Medicine*. By Dr. Max Neuburger, Professor of Medical History in the University of Vienna. Translated by Ernest Playfair, M.B., M.R.C.P. In two volumes: Vol. II, Part I. Oxford Medical Publications. London: Humphrey Milford, Oxford University Press. 1925. (Cr. 4to, pp. vii + 135. 7s. 6d.)

² *Through a Consulting Room Window*. By W. C. Rivers. With an Introduction by Arthur Ponsonby, M.P. London: Methuen and Co., Ltd. 1925. (Fcap. 8vo, pp. xv + 195. 6s. net.)

³ *Incompatibilities in Prescriptions*. By Edsel A. Ruddiman, Ph.M., M.D. Fifth edition, rewritten and reset. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1925. (Demy 8vo, pp. vii + 330. 12s. 6d. net.)

renders the context easy for reference, and the remarks are so well co-ordinated as to afford instructive reading. These articles would alone make an excellent treatise on the subject, but the value of the book is increased by copies of 480 selected prescriptions demonstrating as many cases of special incompatibility. Each case is discussed at length, the effects of varying methods of procedure being described and a solution of the difficulty indicated. These prescriptions, which should be particularly instructive to students, are arranged apart from the sections relating to them and can accordingly be used as a set of exercises. The explanatory notes are contained in subsequent pages under numbers corresponding with the number of the prescription. There is also a separate index for finding each of the combinations of drugs discussed. The treatment of the subject is sound all the way through. The book cannot fail to be helpful to the prescriber and should be accounted an imperative necessity to the dispenser; it is so replete with uncommon information that it must prove useful to all who are concerned with the chemical properties of drugs.

A new (seventh) edition of LUFF and CANDY'S *Manual of Chemistry for Medical Students*¹⁰ has made its appearance. As is very well known, it is a book for beginners. The authors have aimed at being instructive, and though there is no scarcity of facts every fact is clothed with interest. The first volume deals with inorganic chemistry; here it occurs to us to suggest, however, that instead of a theoretical discussion on atomic weight it might have been better to have given a statement of the law of constancy of proportion of combining equivalents as the first introduction to the concept of the chemical atom, not merely because that was the historical basis of the atomic theory, but because it presents the simplest considerations for its foundation. The characteristics of the atom as a unit would find a more obvious explanation after its purely chemical behaviour is understood. This is, however, a matter of opinion. The book is written expressly for medical students, and contains exactly the material they need, as well for the examination course as for education. The second volume is concerned with organic chemistry. We find this equally commendable and in the same general terms. Every attention has been given to rendering the treatise informative on those particular facts which connect organic chemistry with the study of medicine. This form of treatment is a pleasing contrast to that in which a formula, trimmed with melting and boiling points, is made to serve for the description of a substance. We do not say there is no room for improvement: the best of books contain many sentences that could have been better expressed, but the only room for improvement we could desire lies in directions already well begun. It is a compact and handy little treatise, well suited to its purpose.

A second part of Dr. MARY BLACKLOCK'S *Elementary Course in Tropical Hygiene*¹¹ has now been published, and more than maintains the interest awakened by the first part, which was noticed a few weeks ago (February 27th, 1925, p. 383). Part II aims at instructing school children somewhat older than those for whom Part I was written. It comprises a series of lessons on the value of hygiene and on the ways in which disease is brought about when sanitation is neglected. Appended to several of the chapters are suggestions for class work which teachers can readily amplify by the use of material which every tropical village can provide. Heads of the Departments of Education in the various colonies would do well to introduce this small work into their schools and prevail upon the teachers to make the subjects treated part of the regular curriculum. Inculcation of these simple health measures to the young would do much to remove the senseless opposition of the adult native to measures formulated for his own advantage and thereby assist greatly in easing the "white man's burden."

The British Social Hygiene Council, formerly the National Council for Combating Venereal Diseases, has started an official journal—*Health and Empire*.¹² The first number is

¹⁰ *A Manual of Chemistry for Medical Students*. By Arthur P. Luff, C.B.E., M.D., B.Sc. (Lond.), F.R.C.P., F.I.C., and Hugh C. H. Candy, B.A., B.Sc. (Lond.), F.I.C. In two volumes. Vol. I, Inorganic Chemistry; vol. II, Organic Chemistry. Seventh edition. London: Cassell and Co., Ltd., 1925 and 1926. Fcap. 8vo. Vol. I, pp. xii + 573; 57 figures. 11s. net. Vol. II, pp. vii + 267; 12 figures. 6s. net.

¹¹ *An Elementary Course in Tropical Hygiene. Part II*. By Mary G. Preface by Andrew Balfour, C.B., C.M.G., on: John Bale, Sons and Danielsson, Ltd. res. 2s. 6d. net.)

¹² *Health and Empire*. The Journal of the British Social Hygiene Council, Inc. Vol. I, No. 1, March, 1926. Published quarterly; price 2s. 6d., or 10s. per annum, postfree. London: Constable and Co., Ltd.

promising. It contains well written and interesting articles, and it is well produced. The editorial comments deal with the imperial aspect of social hygiene and illustrate the wider outlook of the Council under its new name. Notes are made on the Imperial Social Hygiene Congress held at Wembley last October; the action of the League of Nations regarding venereal disease in the African mandated territories; the prevention and treatment of venereal disease in British colonies and protectorates; and the employment of police-women in England. A valuable article on the "Contribution of psychology to social hygiene" comes from Professor Cyril Burt. After dealing with juvenile delinquency and vocational guidance, he considers sex delinquency and the psychological causes of prostitution. He concludes that prostitution, as such, will slowly vanish; and it will vanish as it has appeared—not for financial reasons, but for psychological. There is likely to arise, he thinks, at any rate temporarily, a more general tendency to promiscuity. But eventually civilization will succeed in sublimating the instincts of sex. Professor T. Percy Nunn contributes an article on the "Influence of education and tradition in social hygiene." He insists that we must seek through genuine, if simple, biological teaching in the elementary, and even more in the secondary, schools to correct the orientation of the national mind. Mr. C. J. Bond reinforces the argument from the medical standpoint in a paper entitled the "Attitude of the State and society to antisocial diseases." A report is given of the conference held in the County Hall, London, in February last on seamen and venereal disease. The issue concludes with reviews of a number of books and of official publications. This first number sets a high standard, which it may be hoped will be maintained.

The 1926 edition of the *Yearbook of the Universities of the Empire*¹³ has been slightly reduced in size, and certain alterations have been made in its contents. As in former years, details about the universities of the Empire are set out systematically. The brief notes about the principal foreign universities, which appeared in the previous issues, 1921-25 inclusive, have been discontinued in the present volume, with the exception of accounts of universities in the United States, which, it is stated, are retained owing to the recent increase in the number of scholarships for British students tenable in that country. The appendix contains a list of centres of research outside the universities and university colleges, with notes on the opportunities available at them for visitors from outlying parts of the Empire. Another section of the appendix indicates the respects in which certain universities and professional schools undertake individually special work not common to all—as, for example, veterinary and commercial science, journalism, and architecture. This section also gives an account of post-graduate courses provided in different subjects.

¹³ *Yearbook of the Universities of the Empire, 1926*. Edited by W. H. Dawson, and published for the Universities Bureau of the British Empire. London: G. Bell and Sons, Ltd. 1926. (Cr. 8vo, pp. xii + 792. 7s. 6d. net.)

PREPARATIONS AND APPLIANCES.

Apparatus for Light Treatment.

A CATALOGUE of about seventy pages, setting out the construction and uses of various lamps for heliotherapy and ultra-violet treatment, has been sent to us by John Bell and Croyden, Limited (incorporating Arnold and Sons), of 50, Wigmore Street, London, W. It gives a useful general description of the spectrum of solar energy, the character of ultra-violet radiation, and the terms in common use to indicate wave-length. Its aim is to describe a selection of lamps suitable for all the purposes for which artificial sunlight or ultra-violet radiation is now applied, without, of course, discussing the advantages of the different methods of treatment. Four lamps are specially mentioned: a single arc lamp, used generally with an electrically controlled pair of carbons; a quartz mercury arc, which may have to be supplemented by other lamps to make up for the absence of heat rays; a tungsten arc in the form of a hand-lamp for local treatment, with electrodes which may be of pure tungsten or of carbon in which tungsten is impregnated; and a quadruple arc sun-lamp, one model of which is designed so that fifteen patients may be treated at one time. For this lamp, which bears the name of "Arnold," the makers claim that the output of ultra-violet rays is in excess of that from any other form of lamp, and that, with the selection of suitable electrodes, the exposures, instead of being measurable by hours as in some forms of light treatment, may be reduced to ten minutes. A drawback to ultra-violet therapy at present is the absence of any satisfactory method of dosage, but the catalogue includes a pigmentation meter and other devices in the same connexion.

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THE ECONOMY BILL AND NATIONAL HEALTH INSURANCE.

Nor much enlightenment is to be found as a rule in an all-night debate in the House of Commons, and the discussion on the Economy Bill in Committee was no exception. The Government had declared its intention of securing the passage of the first two clauses of the bill during the sitting, but the tactics of the Opposition prevented the passage of more than Clause 1. These two clauses are the most important for the medical profession. The effect of the first clause had been explained on the second reading of the bill both by the Chancellor of the Exchequer and by the Minister of Health. The admirable speech of Mr. Chamberlain should have enabled the House to obtain a true perspective, but those members on both sides of the House who, for the time, constituted themselves the spokesmen of the Approved Societies do not seem to have got beyond denunciations of "robbery" and "breach of faith." It is important, but apparently not quite easy, to discover exactly how these two clauses affect national health insurance finance and the proposals of the Royal Commission for extensions of the benefits for insured persons.

The present State grant is two-ninths of the sums expended in benefits of all kinds and cost of administration. The financial basis of the system is to be varied, as indicated by the Government actuary, mainly on the grounds that interest is earned at a higher rate, and incapacitating sickness is at a lower rate, than that originally provided for. In addition there is the fact that from 1928 onwards there will be considerable relief to the fund, as insured persons will then be in receipt of old age pensions at the age of 65 years instead of 70 years. On this new basis the sums available from the contributions of insured persons, their employers, and the State will be about four and a half million pounds more than is necessary to meet the anticipated expenditure on current statutory benefits. Clause 1 of the Economy Bill proposes to reduce this excess by about one-half by making the proportion of State contribution, not two-ninths as now, but one-seventh in the case of men and one-fifth in the case of women. The State contribution to additional benefits will be reduced in like proportion, thereby relieving the Exchequer to the extent of about another half-million pounds each year. It will be seen that this reduction of State grant does not endanger any of the statutory benefits to which insured persons are entitled.

It will be remembered, however, that the Royal Commission recommends that there should be extensions of statutory benefits "as and when funds are available" in the following order of priority: (a) a consultant and specialist service and laboratory services, (b) the provision of allowances to the dependants of incapacitated insured persons, (c) improved provision for maternity, (d) dental treatment. These extensions were to be financed by means of a pooling of half the future surpluses of Approved Societies, but it was, of course, assumed that sums so expended on these extensions would be supplemented by a State grant in the present proportion. A natural inquiry, therefore, is whether the reduction in the proportion of

the State's quota will affect these extensions. The Royal Commission contemplated that the first two of the above extensions would become "immediately practicable," while the other two would have to be postponed for some indefinite period. It was estimated that the cost of the consultant and laboratory services for the whole of Great Britain would be some one and a half million pounds per annum. There does not seem to be any reason to suppose that the provision of the necessary sum will be affected by the proposed alteration in the proportion of the State grant; it may be assumed, therefore, that the extension of the scope of medical benefit to include such services is not endangered by this change. In the absence of more detailed information, however, it is doubtful whether this can be said also of the second of the proposed extensions, and it seems certain that, unless some further financial provision be made, the extension to include improved maternity services and dental treatment must be postponed to a period even more distant than that contemplated by the Commission.

This is to be regretted, and it emphasizes the regret somewhat widely felt that, in spite of what has become an almost hysterical outcry of "robbery," neither the report of the Royal Commission nor the Economy Bill proposes to utilize for these urgent purposes any portion of the existing enormous surpluses in the books of Approved Societies or a larger proportion of future surpluses. The money is there; it has been contributed by insured persons, their employers, and the State alike; and a modest proportion at least of it is available, and might well be used for these beneficent national health purposes. It is refreshing to find Sir Kingsley Wood, in his official capacity, pointing out that "Approved Societies were extraordinarily prosperous bodies—piling up huge surpluses which were of course partially built up by State contributions," and that "in all probability the amount of the surpluses, especially on the third valuation, would remain undiminished." This new note, from such a quarter, is encouraging to those who still believe that an early improvement in national health administration is possible.

Clause 2 of the Economy Bill, which has yet to be discussed by the House of Commons in Committee, is equally important. It proposes to use the remaining half of the margin of four and a half million pounds mentioned earlier in this article for the purpose of making the whole cost of medical benefit a normal statutory charge on insurance funds, up to a maximum, including administration, of 13s. per insured person entitled to that benefit. At present the permanent statutory charge for these purposes is 10s., and the balance is met by a temporary arrangement expiring at the end of the present calendar year. The Medical Benefit Fund bears the cost of (a) the practitioners' capitation charge, (b) the Drug Fund, including the capitation amount paid to dispensing practitioners, (c) the Mileage Fund, (d) part of the cost of medical referees and of the central index. There is in addition a sum of 6d. per insured person for the administration expenses. The increase proposed on the present statutory amount is therefore 3s. per insured person, and Clause 2 of the bill provides the total sum of 13s. as a whole and as a maximum. It is very important that this sum should be statutorily secured, if only to avoid unseemly wrangles between the Ministry of Health and Approved Societies, with the medical profession as very interested spectators, but it may be doubted whether the maximum amount is really sufficient. The present capitation fee for

practitioners is undoubtedly too low. The amount of work has demonstrably increased, even since the Court of Inquiry awarded the 9s. The call on the Drug Fund has increased considerably of late years, and does not yet appear to have reached its limit. There is a strong case for some additional payment to rural practitioners on account of dispensing costs and time spent in travelling. On present figures alone the margin available within 13s. seems to be very small. Even if the question of the normal capitation fee be not reopened now, it would appear unsafe to stabilize it at the present figure for any considerable period of years; and whether by reason of an expanding call for drugs and appliances, or by reason of a justly augmented payment to medical practitioners, no one can desire a repetition of the legislative situation which arose two years ago. These considerations make the exact form of Clause 2 of the Economy Bill a matter of great interest to the profession.

THE "JOURNAL OF PHYSIOLOGY."

THE number of the *Journal of Physiology* which has just made its appearance is the first issued under the new arrangements rendered necessary by the lamented death of Professor Langley.¹ It is now edited for the Physiological Society by a committee of four, consisting of Sir Charles Sherrington (Oxford, chairman), Dr. E. D. Adrian (Cambridge), Professor A. V. Hill (London), and Professor J. B. Leathes (Sheffield). The new number, which is the first of the sixty-first volume, opens with a memorial notice of Professor Langley by Sir Walter Fletcher, who embodies in his biography of Langley a history of the *Journal*; it is full of detail, yet it may fairly be termed eloquent, and can be read with instruction and pleasure.

The *Journal of Physiology* was founded in 1878 by the late Sir Michael Foster, five years after he went to Cambridge from University College, London. Foster was also the prime mover in the foundation of the Physiological Society, of which the *Journal* has ever since been the organ. Foster was a great and inspiring teacher—he inspired Langley, among others—but he does not seem to have been a very good man of business. Under his editorship the *Journal* was, in 1894, getting increasingly into debt, and was threatened with extinction. Langley in that year arranged to pay off the debt, and thenceforward, until his death last November, he owned and edited it. He took his duties as editor seriously, realizing that if he could make the *Journal* thoroughly good he would be rendering a great service to British physiology, and to physiology all over the world, by placing the work of British physiologists before those of other countries in a suitable manner. He did not limit himself to papers written in this country, but the great majority were British. As Sir Walter Fletcher says: "From the beginning Langley aimed at two ideals. The first was to admit nothing that was either not new or not making some definite advance in knowledge upon the strength of valid evidence adequately presented. The second was to economize space and to save the time of workers everywhere by insisting that each paper admitted should be pruned of every redundancy not needed to satisfy that first condition. . . . His methods were never arbitrary; his judgement of papers was most conscientious and deliberate, based on wide

knowledge of work already published, supplemented at need by that of his colleagues."

Unlike most editors (Sir Walter Fletcher rather unkindly says), for Langley the acceptance of a paper often meant, not the end, but the beginning of a task. "He thought it due to the *Journal* and to science that the paper should be cast in the most effective form and reduced, compatibly with that, to the least size. This meant correction, often heavy correction, commonly suggested in detail by himself, and it involved the exchange of views with sensitive and sometimes irascible authors. . . . With some authors he had difficulties, of course, though it is doubtful whether in any instance his judgement of their failings in this sphere or his proposed remedy for them was shown to be faulty." *Genus irritabile vatum* applies here also, but "if an occasional contributor was vexed the immense majority were well served and grateful, while Langley put the whole body of workers using the *Journal* into his lasting debt. He made, and he now leaves, the *Journal of Physiology* unsurpassed in the high standards maintained both as to the content and as to the form of the papers within it." This, we believe, is a perfectly just estimate, and though much of what appears in our contemporary is over the heads of the majority of us, each of us can turn to its pages with a confident feeling that anything found in it may be trusted to be thoroughly sound within the knowledge of the day. The last volume of the *Journal* contained 478 pages, consisting chiefly of original articles, but embodying brief reports of the proceedings of the Physiological Society. Living and teaching for the whole of his working life in Cambridge, Langley was the central figure of the centre of British physiologists, and his work for the *Journal* helped to make his name perhaps more widely known throughout the world than that of any other British physiologist. But this, of course, was only one side, for he was also recognized by everyone as a master investigator, and all his chief works keep, as they must keep, their place in the significant history of animal physiology.

Appended to the biography is a list of the titles of the published works written by himself or in collaboration with pupils and colleagues. It contains 171 entries; it begins in 1873 with a paper on the physiological action of jaborandi, and runs on to a short paper printed in the last fasciculus of the last volume published during his lifetime. This describes a research into the course of the blood of the renal artery, in which he made use of a method with which he was already familiar—that of injecting the artery with a suspension of rice starch grains and staining sections and slices with iodine. The subject of his first paper is perhaps significant, for though Langley never graduated in medicine, in some of his most important work he used a drug as a key to fit some of the wards of his lock. Langley's contribution to physiology fell into two main parts—those dealing with the mechanism of secretion and those establishing the main anatomical and functional lines of the autonomic nervous system. In the first jaborandi served him well. In the second he found in nicotine as Sir Walter Fletcher says, "a novel and potent instrument, used as he used it, for unravelling the structure and functions of the sympathetic and of the other two parts of the 'visceral' or 'autonomic' system," a problem with which the researches of the last thirty years of his life was largely concerned.

In a contribution which he made to the obituary notice of Langley published in our columns at the time of his death last November Sir Charles Sherrington said: "To work under him or with him was to see

¹ It is published by the Cambridge University Press and can be obtained through any bookseller. The price of the current number is 2s. 6d. The price of recent numbers has varied from 9s. to 13s. The *Journal* is supplied free to members of the Physiological Society.

exemplified a fidelity of observation, a detachment from preconception, and an untiring search for new facts which formed at once a lesson in character and an inspiration for method. . . . He will be remembered as one of the makers of that renaissance of British physiology which was one of the features of the scientific progress of his time."

THE COLONIAL MEDICAL SERVICE.

SOME three months ago certain occurrences in East Africa led the Council of the British Medical Association to take the very grave step of warning members of the profession against accepting appointment to any branch of the Colonial Medical Service recruited in this country. The reasons for this action were detailed in a statement published in the SUPPLEMENT for January 9th (p. 9), and an "Important Notice" covering all such appointments has appeared in the advertisement columns of the BRITISH MEDICAL JOURNAL since that date. The circumstances which necessitated the issue of such a warning may be very briefly recapitulated. A new code of Regulations for the East African Medical Service, dated March, 1925, had been published. These Regulations were welcomed by the Association, both locally and centrally, as marking in many respects the adoption of a progressive and enlightened public health policy in the East African dependencies. They appeared, however, to be open to the grave objection that, without the consent of the officers concerned, and without compensation, they imposed on the existing personnel of the Service certain liabilities quite outside those undertaken on appointment. These liabilities were—first, a general service liability to transfer from one dependency to another in the East African group; secondly, a liability to the prohibition of private practice in any area where the services of independent medical practitioners might be available for the European population; and lastly, a liability to abolition of the allowance in lieu of private practice enjoyed by the holders of certain appointments who were debarred from private practice under existing regulations. The new code in no way safeguarded the rights of existing members of the Service against infringements of the nature indicated. In Zanzibar it was immediately applied in such a manner as summarily to deprive medical officers of a source of income they were actually enjoying at the date of promulgation.

On March 5th the Secretary of State for Dominion Affairs and the Colonies received a deputation from the British Medical Association which made representations on this and other subjects, and after certain supplementary correspondence the Council of the Association is now satisfied that action has been taken by the Colonial Office to safeguard the rights of the officers concerned at every point where they have been threatened under the new regulations. The attitude of the Council in this matter was determined at the outset by its bearing upon the vital issue of the sanctity of service agreements. The action taken by Mr. Amery is, in the view of the Council, a striking vindication of that principle, and accordingly the Important Notice which appeared for the first time in the JOURNAL of January 9th is now removed. It is the more unfortunate that other issues of grave importance to the Services concerned, as indeed to the profession and to the public, should have been raised in the course of conversations between the Colonial Office and the Association, and are still outstanding. Until they are disposed of we cannot

recommend this field of medical practice as offering the prospect of a satisfactory career. The Colonial Medical Service is, in the fullest sense of the word, a key service of the Empire, and we hope to announce the removal of all remaining obstacles to its recruitment before its general efficiency has in any way suffered from the present unsatisfactory state of affairs.

A PRIZE FOR RESEARCH IN DISORDERS INCIDENT TO MATERNITY.

At its meeting this week the Council of the British Medical Association heard from its Chairman, Sir Robert Bolam, of a generous gift of £1,000 to establish a prize for research into the problem of dangers incidental to child-bearing. The donor is Dr. Katherine Harman, wife of the Treasurer of the Association, and it is her wish that the sum should be placed in the hands of the Council, with the suggestion that a prize be awarded once every two years—first, and as a general rule, for the best essay or work on any subject chosen by the Council coming within the definition of "disorders incident to maternity," or secondly, in recognition and encouragement of important work already done or of researches instituted and promising good results. The purpose of this endowment is one in which Mrs. Harman has long taken a deep interest. She has, indeed, a hereditary association with it, for her father, Mr. Arthur Chamberlain, was a founder of the Birmingham Hospital for Women. After graduating in medicine at the University of London, her work as resident medical officer at the Belgrave Hospital for Children, and as inspector under the London County Council, brought her into close touch with the poor mothers of London and the risks to life and health to which they are liable in childbirth. Since her marriage to Mr. Bishop Harman and relinquishment of active medical work, she has kept up her warm interest in the subject of maternity welfare. We need scarcely add that her munificent and practical gift towards an admirable object was gratefully accepted by the Council.

LYING-IN HOSPITALS FOR TUBERCULOUS WOMEN.

THERE are many loopholes in the present system of caring for patients with pulmonary tuberculosis. At one stage or another of their lives, through no fault of their own, they are removed—often with disastrous results—from the supervision of the dispensary or clinic they have been attending. The aim of the tuberculosis officer is to establish a sort of ring—an intimate liaison of dispensary, sanatorium, pre-natal clinic, infant welfare centre, and other institutions—that may facilitate the continuous supervision and treatment of his patients in all circumstances. In no other country is this aim pursued more actively than in France. Recently Dr. Couvelaire¹ has given an account of the method he has employed during the last few years in dealing with pregnant women suffering from open tuberculosis. At the Baudelocque lying-in hospital in Paris a special pavilion has been set aside for these patients, who are transferred there on the recommendation of the officer in charge of the tuberculosis clinic. During the whole of their lying-in period they continue to be under treatment, special arrangements being made for patients who have an artificial pneumothorax. At some time during pregnancy they are given to understand that their children must be taken from them at birth and brought up by other hands, lest they too should be infected. These children are first cared for in a special block of the hospital, well separated from the tuberculosis pavilion, and later are sent to the country so that their childhood may be spent in non-tuberculous surroundings. During the four years following November, 1921, when this scheme was inaugurated, 231

¹ Bull. de l'Acad. de Méd., March 2nd, 1926, p. 196.

patients were admitted to the hospital. Dealing only with the first 101 patients, about whom accurate information is available, we find that 15 died within the three months following delivery, and 23 more within the first year, bringing the mortality during this period to 37.6 per cent. As regards the babies, of the first 213 that were born 46 died within the first four months. How many died later is not recorded, but even if we assume that no further deaths occurred the mortality rate for the first year was 216 per 1,000 births. Only one or two of these appear to have been due to accidental contamination with tuberculosis; most were the result of unsuccessful feeding. These figures are not calculated to inspire confidence in the scheme as it is now worked. While admitting that a high mortality amongst the tuberculous mothers is inevitable even under the best conditions, we are disposed to think that the infantile mortality rate is greater than it need be. The main trouble has been in their feeding; too many died—almost wilfully, as one is impatiently inclined to exclaim—of simple malnutrition. But there is evidence now to suggest that this trouble will be surmounted. In any case it is clear that the scheme is based on the right lines; its success will probably be a matter of time and experience.

CARDIAC ARRHYTHMIA IN CHILDHOOD.

At a recent meeting of the James Mackenzie Institute for Clinical Research, St. Andrews, Dr. Paton gave an address on the mechanism responsible for the irregularity of the youthful heart. He began by referring to the guarded nature of the views expressed by Mackenzie on the matter in the fourth edition of his *Diseases of the Heart*. However simple an explanation of the phenomena may seem to some people, it was obvious that to Mackenzie's mind no satisfactory hypothesis had been formulated. He believed that both sympathetic and vagus impulses played a part in producing the arrhythmia, and concluded that the source of the impulses is probably to be found in the activity of the respiratory muscles or some other peripheral source. He believed that the disappearance of the irregularity in febrile conditions was due to the action of toxins of microbic origin on the sino-auricular node, resulting in such an increase of rate that the irregularity is abolished. Dr. Paton referred to impulses from within the heart itself and to the variations in carbonic acid content of the blood during respiration as possible causes of sinus arrhythmia, but stated that the clinical evidence he had been able to collect indicated that the irregularity had its origin in the activity of extracardiac reflex arcs, of which the cardiac fibres of the vagus and sympathetic cause the effector response. The problem then could be stated simply: Where in health do the impulses determining the activity of these nerves originate, and at what points are the reflex arcs interfered with in disease? Tracings were shown illustrating the irregularity and its experimental modification by deep breathing, holding the breath, etc. While admitting that no certain conclusion could be reached, Dr. Paton advanced evidence which suggested that the impulses hastening the rate in inspiration were probably circulatory in origin, the variations of the pulmonary capillaries in response to variation in intrathoracic pressure being a probable source of these. The vagal stimuli which induced slowing in expiration probably originated in the variations of pressure or circulation in the abdomen. No pulmonary condition is known which induces slowing of the heart. He looked upon the variation in rate as an attempt at adjustment to the changes in distribution of blood as between the pulmonary and systemic circulations, resulting from the variations in the capacity of the chest. Charts were exhibited which proved that disappearance of the irregularity in disease could be independent of a rise of temperature or of pulse rate, and that the irregularity

may persist in spite of a high pulse rate. The subject was difficult because the opposing action of the two cardiac nerves made it impossible to differentiate the effect due to each.

CRYSTALLINE INSULIN.

PROFESSOR J. J. ABEL, the veteran professor of pharmacology in Johns Hopkins University, publishes in the *Proceedings of the National Academy of Sciences* (vol. 12, No. 2, February, 1926) a preliminary account of the preparation of crystalline insulin. Professor Abel had already published last year¹ a simple method for the preparation of highly concentrated insulin with a rabbit unitage of 40 to the milligram. The present paper takes us a step further; the fraction IV of the previous paper is dissolved in acetic acid and precipitated by a solution of brucine. The clear centrifugate contains the bulk of the insulin, which is precipitated by pyridine, and insulin crystallizes out. The crystals are crystin-like in shape, and, like crystin, contain sulphur; 1/100 milligram of the crystals per kilogram administered to rabbits lowers blood sugar to about the convulsant level—0.045 per cent. In this substance we have a type of catalyst which, in these very dilute solutions, influences carbohydrate metabolism in this remarkable manner. We desire to offer our congratulations to Professor Abel and his colleagues on the completion of this brilliant investigation, which promises to open up a new insight into carbohydrate metabolism.

THE RELATION OF TRAUMA TO CANCER.

THE question of the relationship between malignant disease and trauma has been changed from an academic into a practical problem owing to the fact that so many employees claim compensation for some variety of malignant disease whose origin they trace to an antecedent trauma received whilst at work. In the future surgeons and pathologists are likely to be called upon for evidence on this question more and more when these cases come to litigation or arbitration. Hospital patients are often anxious to trace their disease to some remembered event, and perhaps the medical profession is at fault for having accepted, or allowed to pass uncontradicted, the opinion that a sarcoma has, for instance, been etiologically related to a fracture. In a recent paper on this subject² Drs. H. Mock and J. Ellis² report the results of an inquiry into the histories of 300 cases of cancer; their conclusion is that a traumatic origin was too often assumed on inadequate evidence. For application to cases that have a definitely legal aspect and appear before courts and compensation boards for adjustment, arbitration, or litigation, they suggest the following postulates: (1) Reasonable proof of a trauma of sufficient seriousness to cause definite tissue changes. (2) The developing neoplasm must be at the same site as the original injury, and must involve some of the tissue which, without reasonable doubt, could have been involved in the original trauma. (3) Definite evidence must be produced to prove that no neoplasm existed at the site of injury prior to the accident. (4) In addition to the history of trauma there must be a history of definite bridging signs, such as a persistent swelling, an unhealed wound, or anatomical and functional disturbances which connect the trauma with the malignant growth. (5) The time that has elapsed between a given trauma and the development of the malignant tumour need not be considered if the foregoing conditions have been present. The authors think it is safe to say that a malignant tumour that develops within two weeks after the trauma existed prior to the injury; on this point, how-

¹ *Journal of Pharmacology*, 25, 423, 1925; and *Science*, 67, 169, 1925.

² *Journ. Amer. Med. Assoc.*, January 23rd, 1926, p. 257.

ever, some pathologists would disagree with them, for there have been a considerable number of cases in which a tumour appeared almost immediately after the application of a carcinogenic agent. (6) Where a pre-existent malignant tumour has been aggravated or accelerated in its growth by a trauma the employer or his insurance company should be held responsible provided aggravation could be shown, and be required to pay for the permanent disability that might follow, but he should not be held responsible for the subsequent death of the patient due to malignancy, for the trauma could not aggravate to the point of fatality a pre-existent condition which had already doomed the patient; nor should he be held responsible for hastening the death, for this could only be speculation on the part of the medical advisers. (7) In the case of a metastatic or secondary tumour developing at the site of a trauma the first four postulates should be met before the employer is held responsible, and such responsibility should be limited to the treatment of the local condition; it should not be extended to include responsibility for the death that is bound to occur shortly, as the trauma could not have aggravated the primary growth. At the close of their paper the authors give the histories of nine cases which seemed to fulfil their postulates, thereby placing them in the class of malignancy related to trauma, and hence entitled to compensation.

PREVENTION OF TUBERCULOSIS IN NEW YORK.

WHEN Trudeau laid the foundation of antituberculosis work in America by demonstrating the curative value of the open-air life, attention was at first entirely directed to treatment, and prevention followed only as an afterthought. Mr. G. J. Drolet, a statistician in the research service of the New York Tuberculosis Association, published last year in the *American Review of Tuberculosis* a careful survey of the mortality from tuberculosis in the city of New York during the previous quarter of a century. Whereas in 1898 in rather over one million children 1,370 deaths were registered as due to various forms of tuberculosis, in 1923 they numbered only 547, though the population had increased by more than 675,000. Tuberculous meningitis had been correspondingly reduced in the same period, the death rate dropping from 78 to 17 per 100,000 children. The abdominal type of tuberculosis in children under 15, though apparently of a less fatal character in New York than in Great Britain, has also shown a very marked decline. Until lately the death rate from tuberculous peritonitis often reached 7 or 8 per 100,000, whereas in the last two years it dropped to 1, a decrease ascribed to the active work of the health authorities of the city, particularly in the complete pasteurization of all milk except the certified, and in establishing the annual examination of about 100,000 persons concerned in the handling of food. The decline in tuberculosis is shown statistically to have been much greater in children than in adults. Whereas in 1898 the death rate for children under 15 was 15 per cent. of the total tuberculosis death rate, in 1923 the percentage dropped to 9.6. During the quarter of a century the adult death rate decreased by 35 per cent., but the rate for children under 15 by 60 per cent., although the population of the city doubled itself during that time. Comparing New York with the total united rural and urban areas of the United States it was found that, whereas in 1900 the death rate from tuberculosis among children under 15 in the registration area was 64 per 100,000, in New York City it was 130, or more than twice as high. In 1921 the death rate in that age group in the United States area had been reduced to 28, and in New York City to 35. This great decline in tuberculosis in children occurred in three main periods. Between 1898

and 1905 the first great drop occurred, when the rate fell from 136 to 91 per 100,000; between 1905 and 1911 an almost stationary period followed, but from 1911 to 1916 the rate fell again from 95 to 66. After another stationary period, which included the influenza epidemics of 1917 and 1918, a third decline occurred, and between 1919 and 1923 the rate fell from 71 to 33. The prime factor in this fall is believed to be the segregation of advanced cases. During the level period between 1906 and 1913 no new tuberculosis institution was added to the resources of New York City. In 1913, however, a large municipal hospital for 765 beds was opened, and this was immediately followed by a sharp drop in the meningitis death rate. In 1914 another hospital with 200 beds was established, and in the same year pasteurization of milk became the rule in the city; the tuberculosis death rate from other than pulmonary forms of the disease was halved very soon afterwards. Clear evidence is thus given of the value of protecting children from infection with tuberculosis at a time when their bodies are not fully developed. In consequence of propaganda work and the improved educational surroundings the children are, moreover, enabled to build up their resistance to disease, and have now a much greater opportunity of reaching adult life without being endangered by tuberculosis.

HELIO THERAPY IN RICKETS.

DR. H. STANLEY BANKS, medical officer of health for the burgh of Motherwell and Wishaw, has made a preliminary report of a survey of cases of rickets detected at the child welfare consultations since the beginning of 1924. He found that the age period in which the disease could be most unhesitatingly diagnosed on clinical grounds was from 6 months to 3 years, and that 60 per cent. of the children of this age brought to a child welfare centre in his industrial district during two years were clinically recognizable as suffering from rickets. Making allowance for the special process of selection involved, he estimates that not less than 30 to 40 per cent. of the children of this burgh pass through a stage of active rickets. Before the artificial sunlight clinic was started in the borough, treatment by cod-liver oil was employed, with poor results on the whole as regards rapidity of calcification of the bones and the improvement of general health. Dr. Banks records a series of 75 cases in which not fewer than twenty exposures to artificial sunlight were given, and another series of 43 which have completed a shorter course. In addition 100 other patients are at present under treatment. He found that after only three or four exposures marked improvement occurred in the general condition, and that the increased muscle tone enabled children to walk who had previously been unable to do so. Two 25-ampere carbon arc lights were used, together with two mercury vapour lamps; the initial exposures were fifteen minutes of the carbon arc, together with one to three minutes of the mercury vapour lamp. The exposures were rapidly increased up to about thirty minutes of the carbon arc lamp and ten minutes of the mercury vapour lamp, the children moving about so as to secure this proportion of the two sources of ultra-violet light. Baths were given after the exposures, and were found to have a tonic as well as a cleansing value. Three exposures were given each week for the first month, after which two exposures a week were often found sufficient. Dr. Banks states that if the course of treatment ends in winter or early spring, and especially if the home conditions are very bad, the improvement in the child's health may not be maintained, and that after a month or two a further but shorter course of treatment is required. This relapse in general health has not, however, been found associated with any clear evidence of decalcification of the growing ends of the bones, though

the muscles became toneless and flabby again. In the vast majority of cases, however, the improvement in general health was well maintained. Radiograms of the radius and ulna, or of the tibia and fibula, were made in most cases at the beginning and at the end of the course, and in special cases at intervals during it. The x rays were found especially useful in determining whether the rickets was in an active or a healed condition. In gauging the results of treatment attention was paid to the radiographical evidence of calcification in bone; improvements in bony deformities, general health, and muscular tone; increase or decrease of weight; and rise in the haemoglobin content of the blood. The radiographical evidence included healing of the typical rachitic lesions at the ends of the long bones, the formation of a dense and regular provisional zone of calcification; an increase of calcification under the periosteum; dense calcification around greenstick fractures; and straightening of curvatures by new lines of calcification laid down in the lines of greatest stress according to Wolff's law. Up to the age of $2\frac{1}{2}$ years bony curvatures became appreciably more straight, and the child was able to walk and run actively; after the age of $2\frac{1}{2}$ curvatures of the lower limbs did not completely disappear. The improvement in muscular tone was very marked in most cases. The average monthly gain in weight of thirty-three cases between the ages of 1 and 2 years was 12.8 ounces, as compared with the average normal gain of between 6 and 7. Dr. Banks points out that this is the more remarkable since children with relaxed abdominal walls and flabby musculature lose weight in the first few weeks of the course, as the muscles begin to gain tone. In eleven completed cases in which monthly examinations of the haemoglobin in the blood were made, an average increase during the course was reported of 6.3 per cent.

THE BRITISH ASSOCIATION.

THE PRINCE OF WALES, who is to preside over the meeting of the British Association at Oxford next August, will deliver his address on the evening of Wednesday, August 4th. In it he is expected to deal *inter alia* with the relations between scientific research, the community, and the State, both at home and in the oversea Dominions. The address will be given in the Sheldonian Theatre at 8.30 p.m.; it will be relayed to the Town Hall and to the hall of the Oxford Union Society, and will probably be broadcasted generally. This is the ninety-sixth meeting of the association, and the fifth to be held in Oxford. The first took place in 1832, when Professor William Buckland (afterwards Dean of Westminster) was president. At the second meeting, which took place in 1847, the president was Sir Robert Inglis, then M.P. for the University. It was at this meeting that Joule first really impressed upon his colleagues the value of his theories as to the mechanical equivalent of heat. At the third meeting, in 1860, the president was Lord Wrottesley, who had already occupied the chair of the Royal Society and of the Royal Astronomical Society. Among the discussions at this meeting was that in which Huxley and Hooker became involved in the famous controversy with Wilberforce over the Darwinian theory. At the next meeting, in 1894, the president was the Marquess of Salisbury, whose address, with Huxley's reply, revealed that the same controversy, though in modified form, was still alive. Among the announcements made at this meeting was that of the discovery of a new system of hieroglyphics and a pre-Phoenician script from Crete and the Peloponnese, by Sir Arthur Evans, while Sir Oliver Lodge, in illustrating the reception of Morse signals by the deflections of a Thomson marine-signalling galvanometer over a distance of some hundred yards, gave the first public demonstration of "wireless" telegraphy. This year's

meeting will have thirteen sections, which will be at work in the mornings, and in some instances in the afternoons, on Thursday and Friday, August 5th and 6th, and on the first two days of the following week. The concluding general meeting will be held on Wednesday, August 11th. The president of the Section of Physiology is Professor J. B. Leathes, F.R.S., of Sheffield, whose presidential address on function and design will be delivered on the morning of Thursday, August 5th. At noon on Tuesday, August 10th, Dr. J. S. Haldane, F.R.S., will give a lecture on acclimatization to high altitudes. On Friday, August 6th, the section will hold a joint meeting with the Section of Zoology for the discussion on the value of tissue culture in biology. Receptions will be held on the evening of August 6th by the Vice-Chancellor of the University and the Mayor of Oxford, and a *conversazione* by the Local Executive Committee, with the co-operation of the Junior Scientific Club, will be held on August 10th in the Ashmolean and University Museums. On Saturday, August 7th, excursions have been arranged to Stratford-on-Avon, Warwick, and Kenilworth, to the Cotswolds, on the River Thames, and to Reading University. Special morning services will be held on Sunday, and the preachers will be the Bishop of Oxford, the Master of the Temple, the Bishop of Winchester, the Dean of St. Paul's, and the Rev. W. B. Selbie, D.D. (Principal of Mansfield College). Copies of the preliminary programme can be obtained from the secretary of the British Association, Burlington House, London, W.1.

ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

THE seventy-seventh annual meeting of the American Medical Association will be held in Dallas, Texas, from April 19th to 23rd; the House of Delegates, which is the ultimate governing body of the association, will meet at the same time. The delegates are elected annually by the State medical associations, the army, navy, and public health departments, and by the scientific sections of the American Medical Association—namely: general and abdominal surgery; ophthalmology; diseases of children; pharmacology and therapeutics; nervous and mental diseases; dermatology and syphilology; gastro-enterology and proctology; radiology; the practice of medicine; obstetrics, gynaecology, and abdominal surgery; laryngology, otology, and rhinology; pathology and physiology; urology; orthopaedic surgery; and preventive and industrial medicine and public health. In connexion with the annual meeting many scientific exhibits are being prepared. An immunology exhibit will illustrate the practical applications of this subject, and include the demonstration of the use of toxins, antitoxins, vaccines, allergins, and similar preparations. For the morbid anatomy exhibition fresh pathological material will be received daily from various hospitals in the larger cities of Texas, augmenting the local supply. A demonstration of fractures will include a series of Colles's fracture, the hyperextension of chauffeur's fracture of the radial styloid process, Pott's fracture, and fracture of the tibia and fibula above the joint. Dr. Aldo Castellani is preparing a demonstration of the technique of isolating and staining mycological preparations in the case of some tropical mycoses. A series of photographs and preparations will illustrate the varying clinical appearances of cancer, particularly of the skin, with special reference to differential diagnosis. In another section the results of cancer research will be illustrated. The demonstration arranged by the Mayo Clinic will include carcinoma of the stomach, foreign bodies removed from the air and food passages, and specimens to illustrate circulation in the liver in health and disease.

Nova et Vetera.

ANTIMONYALL CUPPS:

POCULA EMETICA, OR CALICES VOMITORII.*

BY

SIR ST. CLAIR THOMSON, M.D.,

PRESIDENT OF THE ROYAL SOCIETY OF MEDICINE.

"ANTIMONYALL CUPPS"—Pocula Emetica, or Calices Vomitorii—are rarely met with nowadays. There is one in the possession of the Royal College of Physicians. It was presented to the College in 1824 by a Mr. Gurney, who had married a Miss Palmer, who was a descendant of the Dr. Baldwin Hamsey to whom it originally belonged. The short story of it, compiled by Dr. Monk, states that it was bought in Gunpowder Alley, at the sign of the Magpie, in 1637, for 50 shillings, and that three cases of death were said to have been caused by the vomiting resulting from drinking wine which had stood in these cups. There is also such a cup in the Museum of Practical Geology in Jermyn Street. It bears on one side, on a shield surmounted by a coronet, the following inscription in German: "Du bist ein Wunder der Natur und aller Menschen sichere Cur."† The Pharmaceutical Society does not possess a specimen; nor is there one in the admirable Wellcome Museum in Wigmore Street, although it is the largest and most complete collection in the world of objects illustrating the history of medicine.

Two Examples.

Hence I considered myself very fortunate when the opportunity came my way to exhibit two perfect specimens before the Section of History of Medicine. The record of these two particular "Antimonyall Cupps" is brief and inadequate. For the loan of them I am indebted to my old friend Mr. A. de Navarro, a well known connoisseur in art.

Amongst other things he collects pewter, on which he has written an interesting book, and he is at present President of the Pewter Society. It was in this connexion that he secured, through a well known silversmith in Old Bond Street, as an addition to his collection of pewter, the two cups you see before you. Pewter is an alloy of tin and lead, but there are varieties. For instance, "plate pewter" consists of 89 per cent. tin and 7 per cent. antimony, fused with 2 per cent. bismuth and copper. It takes a fine polish. "Triple pewter" contains less tin and more antimony (15 per cent.). It is used in such minor articles as toys and syringes. "Lay pewter," used for inkstands, is composed of 80 per cent. tin and 20 per cent. lead. Hence some pewters contain no antimony, and none more than 15 per cent. Each of these cups is in an old leather case beautifully tooled, and when, inside each case, Mr. de Navarro noticed a label with the words "Antimonyall Cupp" he very kindly brought them to my notice and has lent them for your inspection. The spelling and calligraphy are of the seventeenth century, as is also the leather case—possibly of Italian workmanship (see figure).

You will notice that these cups must have had considerable use, if we may judge from the well worn mark on the case, made by the thumb in opening and closing it. Each cup holds between 3 and 4 ounces of liquid.

Emesis.

Emesis, or vomiting, is a therapeutic measure of wide and ancient use. Although nowadays chiefly employed by

dogs and cats to "cleanse the stuff'd bosom of that perilous stuff which weighs upon the heart," it was a relief which most of us had recourse to, involuntarily, in the days when we were mewling and puking in the nurse's arms. With increasing years we employ it more rarely, and chiefly during a cross-Channel journey as a preparative for, or a corrective after, a week-end in Paris.

It was not so in classical times. Seneca writes that, in the reign of Nero, many "vomited to eat and ate to vomit." Cæsar, who was a temperate man, took an emetic after a heavy meal with Cicero, who mentions it without disapproval. Vitellius the glutton and Claudius habitually used emetics. But, in spite of these records, there are some students of the Roman age who say that daily vomits were not common in wider circles. The ancient Egyptians, according to Herodotus, were the healthiest of mankind and three days in every month they used emetics and enemas. Hippocrates recommended regular vomitings and purgings. Asclepiades condemned them. Celsus disapproved of them as an aid to gluttony, but agreed that, as an occasional resource, they were conducive to health. Galen prescribed them before rather than after meals. Pliny and Plutarch only advised emetics in actual disease.

Antimony.

To turn now to the metal of which these cups are made, we might recall that antimony was known to the ancients as "stibium," "barbason," or "alabastrum."

As to its history, I wish time allowed me to make use of all the erudition and references so kindly placed at my disposal by our learned Fellow, Dr. Charles Singer. He tells me that the mediæval Latin word "Antimonium" was first used by Constantine, the African, who died in 1087. This Arab left North Africa for Salerno about 1070, became a monk, and translated medical works from Arabic into Latin. In one of these, the *Liber de Gradibus* (or Book of Degrees), the action of

drugs is classified into four degrees, and antimony comes in the fourth or highest degree.

Many virtues were claimed for it and its derivatives. Ladies will be interested to hear that it was used in ancient times to beautify the eyebrows and give a dilated look to the eyes. Omphale, the Lydian queen who captivated Hercules, used "stimmi" for the purposes of the toilet; and it was possibly with a preparation of antimony that Jezebel "painted her face and tired her head" (2 Kings ix, 30). Anyhow, the "kohl" still used by females in Egypt and Persia is prepared from antimony.

As a remedy antimony owes its chief advance in medicine to the recommendation of Paracelsus (1480-1541), but it attracted little attention until the early part of the seventeenth century, when it was made popular by the enthusiastic writing of Basil Valentine, a monk of the Order of St. Benedict, who published at Leipzig in 1604, and in German, a work entitled "Triumph Wagen Antimonii," translated into English in 1678 under the title of "The Triumphant Chariot of Antimony." The author included antimony amongst the seven wonders of the world and ascribed to it extraordinary virtues.

A vast literature has arisen round this Basil Valentine, but I have the authority of Dr. Singer to state that Basil Valentine the monk never existed, and that the book of which he is the reputed author was written by a certain Johann Thölde, of Hesse, a chemist and salt manufacturer. This astute chemist added to the interest and mystery by saying he had, with great labour, translated the monk's work from Latin into German. Anyhow, the work was translated into many languages, and the boom



Two seventeenth century "Antimonyall Cupps," one in its leather case.

* Read before the History of Medicine Section, Royal Society of Medicine, March 17th, 1926.

† A. C. Woolton: *Chronicle of Pharmacy*, London, 1910, vol. i, p. 365.

in antimony was launched and in full swing through the seventeenth century. Charles de Lorme appears to have made a huge practice and much renown by prescribing it to Henry IV, Louis XIII, Cardinal Mazarin, and Madame Sévigné. He claimed for it that "qui plus en boira, plus il vivra"! and it is true that amongst his patients were Guez de Balzac who died at 70, Boileau who died at 75, and Daniel Huet who reached the age of 91, while he himself nearly became a centenarian.

As a striking example of this fulsome laudation by an unqualified practitioner I can recommend the perusal of a pamphlet published in London in 1642 by "John Evans, Minister and Preacher of God's Word, dwelling near the Golden Lyon in Fetter Lane." Its title is:

"The Universal Medicine, or the Virtues of my Magnetical or Antimoniall Cup. Confirmed to be an health-procuring, health-preserving, and an health-restoring Effectuall Medicine.

By extant Monuments of Antiquity.

By testimonies of Honorable Personages.

By 100 admirable and rare experiments.

By 200 Persons of quality that have experienced the same."

I am sorry the Royal Society of Medicine does not possess a copy of this egregious pamphlet, but it can be seen in the Library of the Royal College of Physicians. Mr. Barlow, the Bedell, has kindly called my attention to it, pointing out how the testimonials from the "persons of quality" closely resemble those issued by quack-medicine vendors in our own day. The reverend author, who repeatedly protests that he is ready to "answer before God and Man" in regard to the "Mystical and Celestiall" qualities of his vinum antimonialis, was not free from personal interest in making "a Compendious declaration of the most admirable Virtues of the Magnetical or Antimoniall Cup," for he adds that it was "compounded and made of the Philosophical composition, which is of my own proper and peculiar Invention and Preparation."

The Rev. John Evans cited "ancient Philosophers and learned Physicians" who had "writton of the Medicinall vertues of this Magnetical or Antimoniall Cup," beginning with Theophrastus Paracelsus and including Basilius Valentinus. This did him no harm, as Paracelsus was dead and Basilius Valentinus had never existed. But, unfortunately, he added that "Sir Theodore Mayerne, Kt., and Dr. of Physick, and Physician in Ordinary to the King's most excellent Majesty, hath approved and experienced the same oftentimes with happy and good success."

Now Turquet de Mayerne was a French (or possibly a Swiss) physician who had been "struck of the register" by the Faculty of Medicine of Paris in 1603, simply because he was a supporter of antimony, and even although he was the favourite physician of Henry IV. He settled in London, was appointed Physician to James I, became a Fellow of the Royal College of Physicians, and it has been suggested that he is portrayed by Shakespeare as "Dr. Caius" in the *Merry Wives of Windsor*. If so, it must have been a caricature, for his behaviour in regard to this unauthorized use of his name, in an advertising pamphlet by the Reverend John Evans, was very different from what one would expect from such a figure of fun as the physician in the *Merry Wives of Windsor*. De Mayerne promptly took action. There is a book written by Dr. Charles Goodall in 1684, on "The Royal College of Physicians of London," with "an Historical Account of the College's proceedings against Empiricks and unlicensed Practisers in every Princes Reign from their first Incorporation to the Murther of the Royal Martyr, King Charles the First." Well, on page 442 of this book, and under the date of "24 Martii 1634," we read the following Minute:

"Mr. President desired that diligent search be made after the sellers of purging Diet-Ales and such Comfit-makers as sold purging confections. Dr. Mayerne wrote a Letter to Mr. President complaining of Mr. Evans a Minister who had abused his name about his Antimoniall Cup; upon which 4 Fellows of the College were sent to the Archbishop of Canterbury to acquaint his Grace therewith, and with the import of Sir Theodore Mayerne's Letter. After this Evans was brought before the High Commission, where the Archbishop asked him for his Orders, which he had not then present. He then caused him to be sworn to answer to such Articles as should be objected against him. His Grace was

highly displeased at the printing of his Book, of which all that could be found were taken away. The College Beadles was to help to find out more, that they might be destroyed. Sir Nathanael Kitch died of a Vomit made by this Antimoniall Cup. The Lady Amyc Blunt died by the Same Medicine in Charter-house yard. Another case of the same kind was reported by Dr. Harvey."

The precious pamphlet of Mr. John Evans must have been largely responsible for producing in 1651 (just nine years later) a counter-blast from "James Primrose, Doctor in Physick." This "learned physician" had the courage to attempt the Sisyphean task of exposing "Popular Errors, or the Errors of the People in Physick: Profitable and necessary to be read by all. To which is added by the same Author his verdict concerning the Antimoniall Cuppe."

This delightful little book can be read in our library. It gives some shrewd knocks to the Rev. John Evans in the last chapter, where Dr. Primrose writes:

"Not that I doe altogether dislike the use of Antimonie, for I have often used it with good successe, but better prepared. But especially the founder of the Cup is to be blamed, for selling such a cheap medecine at so deare a rate, the right use whereof hee doth neither teach the people, nor I think he himself knowes."

That Evans is here referred to is clear from the next paragraph, where Dr. Primrose ironically says:

"As for the Founder of the Cup, he professes himself a Minister, and Preacher of God's Word, that is, a man that will scorn to deceive anybody and will not meddle beyond his knowledge."

The courage of Dr. Primrose is to be admired. It must have helped to the undoing of that unctuous humbug the Rev. John Evans. We may also congratulate Sir Théodore Turquet de Mayerne and the Royal College of Physicians on their successful action. The leaders and guardian bodies of the profession in those days appear to have been more successful than we are in their suppression of self-seeking frauds.

The controversy about antimony raged in Paris for over a century, dividing the profession into two camps—the antimonialists and the anti-antimonialists—causing, according to the habits of the times, the bitterest personal animosities and recriminations. It is referred to by Molière in *Le médecin malgré lui*. The rogue in the drug—fostered by writings like Basil Valentine's "Triumphal Chariot of Antimony," and Evans's "The Universal Medicine"—led to such popular recklessness in its use that the Faculté was possibly justified in declaring it a poison and reprehending its administration. In 1609 another eminent physician, Paulmier, was expelled from the Faculté for having administered antimony. This prohibition, confirmed by a solemn Act of Parliament in 1666, brought forth calmer judgements, like those of Dr. Primrose, and, possibly, confidence in the merits of the remedy was partially restored by the alleged cure of Louis XIV by tartar emetic for a dangerous illness in 1657. Anyhow, in 1666—just a century after its prohibition—another equally solemn Act rehabilitated the reputation of the metal.

Possible Origin of these Cups.

I wonder if the prohibition of antimony during a whole century had anything to do with the origin of Pocola Emetica, Calices Vomitorii, or Antimoniall Cupps? The use and sale of the drug were interdicted by law, and knowing human nature as we do, and realizing how the banning of any man or his methods at once makes a hero of him and a panacea of his nostrum, it is possible that these cups came into being in that way. Wine being allowed to stand for some time in one of them became impregnated with tartrate of antimony, from the action of the tartar contained in the wine upon the metal of the film of oxide formed upon its surface. Now, as the prescribing and selling of antimony was forbidden, these cups effectually set legislation at defiance, added the spice of a forbidden drink to the virtues of the draught, saved the apothecary's bill, and must have appealed to imaginative patients as an agreeable—being alcoholic—mode of administration! The cup, too, could be handed down from generation to generation, gathering increased powers of suggestion with the years.

It is said that these cups were common in monasteries, and those monks who took too much wine were punished

next morning by having to drink some more which had been standing in a poculum emeticum.

An Ancient Recipe for Antimonial Wine.

I might explain that what in those ancient days was called "Regulus of antimony" is what we call metallic antimony, to distinguish it from crude antimony. Now, in Pomet's *Compleat History of Drugs*, of which the English translator says in the third edition of 1737 that it is "a work of great Use and Curiosity," we note, amongst much quaint lore, the following reference to *Pocula Emetica* on page 360:

"Of this *Regulus* is prepar'd the purging or rather the emetick wine: And here you ought to be caution'd to throw away the three or four first wines you make with the Cups, lest they should produce some ill Accident. Whereas most People who have Occasion for the Gobelets or Cups of the *Regulus* find difficulty to come by them, let them apply to a Founder, and they will have what Sorts and Sizes they will, at a cheap Rate, without troubling themselves with Moulds, as several have done to their Labour and Cost, who have at last been oblig'd to give over the Attempt, not being able to make one Cup without a Hole or some other Defect. You may also get these same Founders to make you the perpetual Pills, or you may easily make them yourself with a Musket Ball Mould."

Perpetual Pills.—"The Pills serve for those that have the Twisting of the Guts, or *Miscere me*, so call'd. When they are returned from out of the Body, 'tis but washing and cleansing of them again, and they'll serve as oft as you please; which gives them the Name of Perpetual. They may also be infus'd, as well as the *Regulus* in Wine, cold, for the Space of twelve Hours; which is said to be a good Medicine for strong Constitutions."

Origin of the Word "Antimony."

The original work of the German monk Basil Valentino was published in Latin under the title of "*Currus Antimonii Triumphalis*," and his name, of course, was Latinized into *Basilus Valentinus*. It is to his scientific investigations with this mineral and its products, carried out in a thoroughly scientific and Teutonic fashion, that we owe the ridiculous story as to the origin of the name of Antimoine or Antimony (against monks). The origin of this title is described in Pomet's work in the following words:

"It acquir'd the Name of Antimony, according to the Opinion of some, from a German monk, the aforesaid *Valentine*, who in Search after the Philosopher's stone, was wont to make much Use of it for the more ready fluxing his Metals, and throwing a Parcel of it to some Swine, he observ'd that they had eaten it, and were thereby purged very violently, but afterwards grew the fatter upon it; which made him harbour an Opinion, that the same sort of Cathartick, exhibited to those of his own Fraternity, might do them much Service: but his Experiment succeeded so ill, that everyone who took of it died. This therefore was the Reason of this Mineral being call'd *Antimony*, as being destructive of the Monks."

Chemical Composition of the Cup.

For the definite proof that these cups are actually made of antimony I am indebted to the kindness of Sir Herbert Jackson, K.B.E., formerly Professor of Chemistry in King's College and now Director of the British Scientific Instruments Research Association. A very small quantity of material, scraped from the bottom of one cup, was sufficient for him to apply tests which prove that the cup is made almost entirely of commercial antimony. There can only be, he reports, very small quantities of tin and lead. The cup is a good specimen of metallic antimony. The metal is fairly hard and brittle, just as antimony is.

Their Power of Producing Antimonial Wine.

Finally, to settle the question whether the antimony of which these two cups are made could be dissolved out into wine allowed to stand in them, I again had recourse to the learning and kindness of Sir Herbert Jackson; his report is as follows:

"The white wine which has stood in the antimonial cup for seventeen hours contains a notable amount of antimony. No quantitative determination of the amount has been made, but, looking at the antimony separated from the wine, a rough estimate would be that there is about half a grain of antimony, expressed as antimony oxide, to the ounce of wine. I lay no stress on the quantity, but what I know you were anxious to learn is whether a wine of such character standing in the antimonial cup would dissolve an appreciable amount of antimony; it clearly does."

As I have noted, each cup holds 3 to 4 ounces, so that the wine would contain a dose of $1\frac{1}{2}$ to 2 grains of antimony.

Conclusion.

In one of these cups I have had some white wine standing for exactly twenty-four hours. If anyone would like to quaff it he is very welcome to do so at his own peril. You will notice how it has removed the polish from the inside of the cup.

Having now proved the potency of these antimonyall porringers, we might refer the question to the Section of Therapeutics as to whether their use should not be revived in these days of intestinal stasis? If approved of, they might, particularly if combined with the "Perpetual Pills," become popular, especially nowadays when economy and thrift are so much called for. Only our pharmaceutical friends and the manufacturers of paraffin emulsion might deplore such a revival.

In conclusion, I apologize for butting into a Section so learned as this with a communication so trivial. My excuses are based on the kindness of my friends—Mr. de Navarro, who has entrusted me with these two unique specimens of *Pocula Emetica*; Dr. Singer, who has furnished me with so much lore on the matter; and Sir Herbert Jackson, whose modern scientific investigations have enabled us to verify the empiric practice of three hundred years ago.

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THE MAUDSLEY HOSPITAL.

SECOND ANNUAL REPORT.

THE two main purposes of the Maudsley Hospital are the early treatment of mental disorder and research into its causation. As remarked by Dr. Edward Mapother, the medical superintendent, in his first annual report, these aims are not coincident, but are not necessarily mutually exclusive. Cases are accepted often because of the unique opportunities they present for the study of their causation, quite apart from their chances of recovery. The methods adopted for the realization of the aims of the hospital were put to the test during the first year, and were fully discussed in the first annual report. Dr. Mapother tells us that no change of any material kind, and no reversal of any item of policy, has been found necessary as the result of further experience.

The steadily increasing pressure on the hospital furnishes the best proof of how great is the demand for a hospital of this type. The total number of patients treated during the second year was 1,304, and the number of in-patients 590; the corresponding figures for the first year were 1,012 and 452. A graphic record of the admissions showed a marked predominance of applications from districts near the hospital, from which it would appear that other hospitals of this type could cater for masses of the population even in London by whom the Maudsley is regarded as too distant for attendance.

Although generally speaking the admissions to the Maudsley Hospital are restricted to cases with a good hope of recovery, such cases may vary enormously in severity; and it has sometimes been said that the presence of severe cases would deter those suffering from minor psychological disorders (for example, neuroses) from seeking admission. In reply to this criticism, Dr. Mapother instances two sorts of comment frequently expressed—one that the patients in the quieter wards are not "mental" at all, the other that the more acute cases do not differ from those in ordinary mental hospitals. Although neither of these comments is true, yet taken together they refute the assertion that the reception of severe cases causes the mild cases to refrain from applying. Dr. Mapother considers that the treatment of mild and severe cases in one hospital is not only practicable, but advisable.

The out-patient department continues to be the main channel of admission for in-patients; about three-fourths of those treated in the wards have first been examined in the out-patient department. This department also serves a very useful purpose in the giving of advice in cases where no indoor treatment is undertaken. One of the features of the second year has been the extent to which continued out-patient treatment has developed. In the great majority of cases where the disorder is recent and is of hopeful form admission is arranged so that the patient may have the greater advantage of treatment in the wards. Continued out-patient treatment is therefore for the more chronic type of case, and, although mostly only palliative, it has proved to be of great value in very many instances.

Dr. Mapother draws attention to the danger of encouraging chronic neurotics to use hospitals as a refuge instead of facing difficulties outside. Consequently in very many of such cases out-patient treatment is to be preferred. "The problem of discriminating cases that require, on the one hand, physical and mental rest, or, on the other, active mental investigation and stimulation, is one of the most fundamental and difficult in regard to all types of mental disorder." With regard to the therapeutic measures adopted, it is noted that subcutaneous injections of hyoscine hydrobromide have appeared to arrest downward progress in cases resulting from encephalitis lethargica. Such cases are much more numerous than formerly. In many of them the initial attack had been overlooked: the majority were brought to hospital on account of the mental symptoms. In a number of such cases distinction from ordinary melancholia presented very real difficulty. Cases of neuro-syphilis have been treated by tryparsamide. Many cases showed distinct improvement either clinically or serologically. Serological improvement did not necessarily accompany clinical improvement. Anxiety cases with signs of hyperthyroidism showed real improvement as a result of administration of parathyroid, especially when combined with calcium.

Dr. Frederick Golla, director of the Central Pathological Laboratory, has been engaged in the standardization of various methods for the study of internal secretions. Investigation into the abnormalities of internal secretion promises to be of great value.

Sir Frederick Mott has continued to act as director of the course for the Diploma in Psychological Medicine.

The whole report makes most interesting reading. The work undertaken at the Maudsley Hospital is of the highest value; and that the unique opportunities it affords for treatment and research have been so skilfully utilized reflects great credit on Dr. Mapother, the medical superintendent, and on Dr. Golla, who directs the research work.

Scotland.

DR. JESSIE MACGREGOR PRIZE.

THE Dr. Jessie Macgregor Prize in Medical Science, of the value of 60 guineas, is open to medical women who are graduates in medicine of the University of Edinburgh, or who have taken the triple qualification, and who, before becoming qualified, have studied medicine for at least one year in Edinburgh. An award will be made in July next to the applicant who presents the best record of original work in the science of medicine. Such work may be published or unpublished, but must not have been published earlier than three years prior to July, 1926. It is a condition of the award that the successful applicant shall, within six months following the award, deliver a lecture to the medical profession in Edinburgh on the subject of the work for which the prize has been awarded, such lecture to be entitled "The Dr. Jessie Macgregor Lecture." Applications, marked "Dr. Jessie Macgregor Prize in Medical Science," must reach the Convenor of Trustees, Royal College of Physicians of Edinburgh, not later than June 30th, 1926.

THE ROYAL INFIRMARY OF EDINBURGH.

At a meeting of the board of managers of Edinburgh Royal Infirmary held on March 22nd it was announced that Dr. W. Hope Fowler and Dr. A. McKendrick had resigned

from the posts of senior medical electrician and junior medical electrician respectively. The board minuted its appreciation of the services of these two medical officers. The former had been associated with the medical electrical department for nearly twenty-five years and had succeeded Dr. Dawson Turner as senior medical electrician in 1911. Dr. McKendrick had held the post of junior medical electrician since 1911. It was also reported that the receipts of the Royal Infirmary during the past three weeks had amounted to £28,084. This included a donation (announced in our issue of March 20th) of £10,000 from Sir John R. Findlay, Bt., for the purpose of extending the site of the institution. It also included several important contributions from approved societies in recognition of treatment received by their members. It was also reported that the number of cases awaiting admission to the institution on March 1st was 2,227.

CHURCH OF SCOTLAND DEACONESS HOSPITAL.

At the annual meeting of the Church of Scotland Deaconess Hospital at Edinburgh, Professor G. M. Robertson, President of the Royal College of Physicians, Edinburgh, who moved adoption of the annual report, said that the beneficent work this hospital was doing was of the most varied character, and among its numerous activities one of the most appreciated was the out-patient department, at which in the preceding year there had been over 16,000 attendances. This number was increasing steadily and was of invaluable service to the crowded population of the neighbourhood. The speaker thought that the voluntary hospitals of this country formed the most perfect embodiment known to them of the combination of humanitarianism and medical science, and gave a tangible expression to the highest ideals of Christianity. While this could be applied to the voluntary hospitals in general, he wished to apply it in particular to the Deaconess Hospital of the Church of Scotland, which served one of the poorest districts of Edinburgh. A feature of this hospital was the large proportion of its nursing staff which aspired to follow a religious calling, and after they had received their training many became missionaries. They exercised over their patients an influence of a wise and reasonable kind, although they employed no ecclesiastical technique and made no special claims for the curative powers of the services they rendered. It seemed to him that this was one of the best and sanest forms of spiritual healing, which aimed definitely at strengthening the whole life, especially the spiritual life. On the other hand, he deprecated such practices as unction and the laying on of hands, which were misunderstood by the ignorant, but the Church of Scotland and the Deaconess Hospital were to be congratulated on having provided an opportunity of an unimpeachable character for those who cared at the same time for the soul and for the body and wished to exert a ministry of healing. In conclusion, Professor Robertson said the board had now a serious responsibility in providing an income of £6,000 a year for the services of the hospital, and it relied on the continuance of the generous support of the many friends of the hospital throughout the Church of Scotland. The chairman, Lord Sands, in referring to the annual report, said that the total number of patients who had received treatment in the various departments of the hospital's work during 1925 amounted to 6,274. The income during the past year had been £5,930 and the expenditure £5,623. They were, however, not content with the situation, and as the hospital had commenced from very small beginnings they should look forward to extending its work. A vote of thanks to the medical and surgical staff and the nursing staff was proposed by Miss Lamond and acknowledged by Dr. H. L. Watson Wemyss, assistant physician to the hospital. It has been suggested as a suitable expansion of this hospital's work that the institution should be divided into two parts. The present building might be retained as an out-patient clinic, serving the great needs of the district in which it is situated, with a certain number of beds for emergency cases and maternity work, while the hospital, as it deals with patients admitted from parishes of the Church of Scotland in outlying parts of the country, might be removed to a more salubrious locality in the suburbs of the city. This would require the donation of a large capital sum.

Ireland.

ROYAL VICTORIA HOSPITAL, BELFAST.

THE annual meeting of the Royal Victoria Hospital was held on March 26th in the King Edward VII Memorial Hall. The Lord Mayor (Sir William Turner) presided, and, in moving the adoption of the reports, congratulated the board of management on the completion of the new building, which provided three new wards, with eighty additional beds, three new operating theatres, two new clinical theatres in the extern department, a much enlarged dental section, a new and enlarged accommodation for the eye, ear, and throat departments, and a new nurses' home, to be called the Musgrave Memorial. The memory of the late honorary secretary, who had worked for the hospital for seventeen years, was to be perpetuated by a window, presented by his family. The financial statement showed receipts amounting to £55,625, and disbursements to £56,327, a favourable position equalled by few hospitals in the British Isles. Mr. J. H. Stirling, in seconding the motion, drew attention to the necessity of providing for the middle-classes hospital accommodation equipped with all the modern accessories of hospital work. Mr. Mitchell, chairman of the medical staff, proposed the adoption of the medical report, and referred to several matters of public medical interest. The motion was seconded by Mr. J. A. Craig, who referred to the much needed enlargement of the dental section, and the general excellence of the equipment.

ULSTER MEDICAL SOCIETY.

The President and Mrs. Craig received the Fellows and Members of the Ulster Medical Society and their friends on the evening of March 25th in the Medical Institute, Belfast. The rooms were gracefully decorated, and some excellent music was provided. Old friendships were renewed and the more lately joined members had an opportunity of enjoying the social relaxation which does so much to lighten life in the profession and to promote friendship and goodwill. All felt that they were under a deep debt of gratitude to Mr. and Mrs. Craig for their great trouble and kindness, and their very welcome hospitality.

England and Wales.

ST. ANDREW'S HOSPITAL, DOLLIS HILL.

THE St. Andrew's Hospital, Dollis Hill, London, was opened in 1913 for the reception of patients of the professional and middle classes, who, while unsuitable for free treatment in charitable institutions, are unable to meet the charges in private nursing homes. During 1913 the number of patients admitted was 540; in 1924 this had risen to 742, and in 1925 to 900. The thirteenth annual report of the hospital shows that the average number of patients resident daily was forty in 1924, and fifty-two in 1925; the number of operations performed in 1925—the year under review—had also increased by 27 per cent. Although there is no regular out-patient department at the hospital it has been necessary to treat 365 cases of accident and emergency. An additional lift has been installed to facilitate the transport of patients. The hospital has now been recognized as a certificated training school for nurses by affiliation with the Royal Free Hospital. It has not yet been possible to provide a nurses' home, which would enable the beds for patients to be increased from fifty-two to sixty-four or more; it is estimated that a sum of about £14,000 would be required, of which over £1,000 has been collected. The hospital was visited by Queen Alexandra in 1918, and was subsequently placed on her private list of grants in connexion with Alexandra Day. Further improvements contemplated include the extension of the present x-ray department and the establishment of an electrical department. The hospital is under the care of the Sisters of Mercy, and the trustees include Cardinal Bourne, Archbishop of Westminster.

LIVERPOOL ROYAL INFIRMARY.

The report presented by the chairman to the annual meeting of the Liverpool Royal Infirmary on March 30th set forth a considerable increase in the work of the various departments. The number of in-patients admitted in 1925 was 5,556, showing an increase of 487 over 1924. The out-patients numbered 32,475 in 1925, being 1,285 more than in 1924. The financial statement, like those of the four big voluntary hospitals in the city, revealed a deficit; it had accumulated to £29,142. The excess of total expenditure over income in 1925 amounted to £4,932. The only hope of these voluntary institutions paying their way seemed to be the launching of a systematic contributory scheme such as is at present engaging the attention of the Lord Mayor's Committee. Before the new nurses' home could be completed some £10,000 was required, and an earnest appeal for this object was made. Since 1919 every penny of free legacies had been expended on maintenance, and although the income for 1925 had gone up by £680 the expenditure steadily increased. All those who addressed the meeting emphasized the importance of a contributory scheme similar to that which is already in operation in other large towns. Mr. T. C. Litler Jones, who recently retired from the surgical staff after twenty-three years' service, was elected an honorary consulting surgeon. Sir James Barr, consulting physician to the Royal Infirmary, had the honour of being unanimously elected to the post of president for the ensuing year.

Correspondence.

THE "SPECIAL REPORT SERIES" OF THE MEDICAL RESEARCH COUNCIL.

SIR,—As noted in your issue of February 6th (p. 253), the Medical Research Council recently passed for publication a statistical study of the incidence of fatal cancer upon males in various occupations. This report was the work, and specifically stated to be the work, of Dr. Matthew Young and Mr. W. T. Russell, who had collaborated with Dr. Brownlee and Professor Collis. In your issue of March 6th Professor Blair Bell has criticized a passage in Dr. Young and Mr. Russell's report, termed by him a report of the Medical Research Council. Of the merits of the controversy I need say little. Dr. Young and Mr. Russell, like other experienced statisticians, are fully aware of the fact that, if a statistical group sufficiently large to afford arithmetically significant index figures be taken, it is probable that exposure to a specific risk is not equally distributed through it. What they tested was whether there were an inverse correlation between a group-measure of lead poisoning and a group-measure of cancer incidence. They found there was no such inverse correlation and, in my opinion rightly, stated that the connexion was not proven. The criticism passed upon this analysis might also be passed upon a comparison of, for instance, mortality rates from enteric fever in different cities. The "risk" is not equally distributed over the inhabitants and the comparison is only a rough one.

All statisticians would like better data than are provided, but they can only use the data that exist and express their conclusions, as Dr. Young and Mr. Russell did, with reserve. Anything less committal than the conclusion "that these data do not reveal the connexion suggested between cancer and lead poisoning" would be hard to imagine.

My reason for writing is, however, more important than this rather trivial point. Not only in your issue of March 6th, but still more pointedly in an address reported in your issue of March 27th, Professor Blair Bell has implied that Dr. Young and Mr. Russell's report is an official utterance of the Medical Research Council. "One would have expected," he writes, "better things from the Medical Research Council, with its strong statistical committee, than that it should take a group like potters, 80 per cent. of whom never went near lead at all." Professor Blair Bell has made these statements in spite of the facts (1) that the names of the authors appear on the report; (2) the

Council's preface explicitly stated that its Statistical Committee considered certain aspects of the report to be controversial.

If, in the face of the evidence, misstatements such as those of Professor Blair Bell become current, much of the value of the "Special Report Series" will be destroyed. An important, almost the most important, object of that series has been to give publicity to work of competent investigators which, often on account of cost of production, might not otherwise appear. The responsibility of the Council and its technical advisory committees is limited to a guarantee that the method of research employed is adequate, the guarantee being, when the condition is not wholly fulfilled, limited and defined in the preface. Cases must arise where there is doubt; and in these cases the benefit of a doubt is always given to the individual. If this system, which has been many times explained, is to be ignored, and everything printed under the sanction of the Council perversely described as an official pronouncement by the Council, the character of the reports will be wholly changed.

In my opinion, it is a grave offence that the Council's efforts to maintain freedom of research and publication in medical science should be endangered by misstatements. Of the discourtesy to the gentlemen who have carried out a laborious inquiry I need not speak.—I am, etc.,

MAJOR GREENWOOD,
Chairman of the Statistical Committee
appointed by the Medical
Research Council.

Loughton, March 30th.

VITAMIN DEFICIENCY.

SIR,—In a leading article on the above subject which appeared in the BRITISH MEDICAL JOURNAL of February 6th (p. 250) the following passage occurs:

"... the importance of vitamin supply in clinical medicine has been underrated. The idea has spread that so long as such diseases [polyneuritis, keratomalacia, scurvy, and fulminating rickets] do not occur people are receiving an adequate vitamin supply, and all is well. Professor Plimmer's experiments¹ shatter this comfortable belief."

The last part of this passage has surprised me; for I imagined that my own experimental and pathological researches had initiated the shattering process some years ago. Your leading article conveys the impression that the conception of partial vitamin deficiency as the cause of "a series of effects which are among the commonest complaints of civilized man" is a novel one; and that the scientific facts on which this conception is based are equally new. In point of fact both the conception itself and the facts in support of it date from the publication of my papers on the pathogenesis of deficiency disease (1919-20) and of my book *Studies in Deficiency Disease* (1921). The theme of this book was clear—namely, to show that it was not with complete vitamin deficiency that the physician had to deal, but with partial vitamin deficiency. Nor was its theme in doubt by reviewers. Thus one, a British pathologist, wrote:

"He [Colonel McCarrison] is less concerned with the demonstration of an end-result, such as scurvy, polyneuritis, etc., brought about by exhibition of a diet wholly deprived of the particular vitamin concerned, than with the sundry pathological effects on the various systems of the body produced by partially avitaminic or ill-balanced or deficient diets generally."

I was at pains to make it perfectly clear that it was because of my use of such "partially avitaminic" diets that the pathological results which I observed in my animals—pigeons, guinea-pigs, and monkeys—might be expected to approximate closely to those "in human beings suffering from partial avitaminosis" (p. 27). I am surprised, therefore, to find in the brief account of Professor Plimmer's paper (BRITISH MEDICAL JOURNAL, February 6th, p. 239), where reference is made to the intestinal stasis which he observed in his birds, that he is reported to have said: "McCarrison had noted this intestinal effect as a preliminary stage in the production of polyneuritis in Pigeons deprived completely of vitamin B" (the italics are mine); the inference apparently being that I had not noted

this intestinal effect in animals partially deprived of vitamin B. It was, on the contrary, precisely because my experimental diets were not devoid of this factor that my animals survived for comparatively long periods, thus enabling me to make the pathological observations I did, and to evolve the very conception—which your leading article now says "Professor Plimmer's experiments suggest"—that "a large proportion of the chronic disorders of the alimentary tract from which our urban population suffers can be attributed to the deficiency of vitamin B in our diet": a conception, I may add, which has not only been the subject of many of my writings and lectures within recent years, but has also been emphasized by Dr. Cramer, who in a recent paper (1925) observes that "it is difficult to overestimate the etiological importance of vitamin underfeeding on the intestinal tract."

Prior to the publication of my studies on the pathogenesis of deficiency disease (some of which appeared in this JOURNAL in 1919) no systematic *post-mortem* examination of animals fed on food deficient in vitamin B had ever been made; the histopathological effects of such food on the various systems of the body were wholly unknown; above all, its effects on the gastro-intestinal tract and the organs of digestion and assimilation, and the significance of these effects for clinical medicine, were wholly unsuspected. Vitamins were at that time still spoken of as "antineuritic," "anti-beri-beric," and "antiscorbutic"—terms accurate enough in their limited way, but adjectival encumbrances which served to obscure the true relation of vitamins to normal metabolism and to normal cellular function. It was these methods of attack which, as admitted by the reviewer above quoted, "opened up new ground"; and, as stated by McCollum in his book *The Newer Knowledge of Nutrition* (1923), "introduced a new conception of the pathology of deficiency diseases," and "represented an important advance in our understanding of the relation of faulty nutrition of a certain type and physical degeneration." The pathological facts I thus obtained enabled me to predict that faulty food deficient in vitamins was a common cause of such human ailments as diarrhoea, constipation, chronic gastro-intestinal dyspepsia, gastric and duodenal ulcer, mucous disease, colitis, and chronic gastro-intestinal stasis—maladies which are "among the commonest complaints of civilized man," since they account for about one-quarter of his total illnesses (Sixth Mellon Lecture, Pittsburgh, 1921). Others have followed me in this field, in particular Dr. Cramer, who has confirmed and amplified my observations on the gastro-intestinal tract, defined more specifically the effects of "vitamin (A and B) underfeeding" on this tract, and added much to our knowledge; and now Professor Plimmer, the results of whose experiments were the subject of your leading article.

The question of vitamin deficiency, in so far as it relates to vitamin B, and in so far as it concerns clinical medicine, is, and in truth has always been, one of partial and not one of complete vitamin deficiency. Clinical medicine has little or no concern with the latter, and for this reason: that outside the laboratory there is no such thing as a vitamin-free diet. Even beri-beri itself is never associated in India with the use of a diet which contains no vitamin B; although it is very commonly, if not constantly, associated with a diet which contains too little of it. Nor is there a rice in common use in India which is wholly lacking in vitamin B. Similarly, there is no such thing in nature as a diet wholly devoid of one vitamin while complete in every other way. Always when there is deficiency of one vitamin there are other food faults besides: deficiency of another vitamin, or of inorganic salts, or of suitable protein, or excess of carbohydrate, or ill balance of the diet in other respects. Consequently, those of man's ailments—especially his gastro-intestinal ailments—which are due to his faulty food are the result of the peculiar combinations of its faults, together, in many cases, with the superimposed effects of pathogenic agents. It is the faulty food deficient in vitamins which results in "depreciation of cellular function, and depreciation of cellular function is the foundation upon which disease is built" (*Studies in Deficiency Disease*, p. 211).—I am, etc.,

R. MCCARRISON.

Pasteur Institute, Coonoor, S. India.
March 6th.

¹ Royal Society of Medicine, January 27th, and BRITISH MEDICAL JOURNAL, February 6th, 1926.

LEAD IN THE TREATMENT OF MALIGNANT DISEASE.

SIR,—Since the meeting at the Medical Society of London on March 22nd hopes have been expressed by my friends that I would refute this or that statement after having had an opportunity of looking up the papers concerned, for, at the time, not having them with me, I had to be content with a general disavowal or an apology. I am, however, extremely loath to say anything more. Dr. Adami has already shown (*BRITISH MEDICAL JOURNAL*, March 27th, 1926, p. 594) how perverted certain criticism was, and how easily refuted. What he has said applies to nearly every adverse statement made in regard to our methods, and to the alleged "sloppiness" of our publications. Nor shall I be so ungracious as to ask for the correction of the one or two small verbal mistakes made in the excellent accounts of the meeting given by the medical reporters present. It was better that the accounts of such a meeting should be compiled by independent recorders rather than based on the usual abstracts sent in by the speakers.

There is, however, one matter to which, with Mr. Fitzwilliams's concurrence, I should like to refer. It will be remembered that Mr. Duncan Fitzwilliams made great play with a vivid description of a letter he said he had received from me—a letter which he thought illustrated bad faith on my part. In my reply I ventured, from memory, to deny ever having dictated such a letter, and I suggested what I had probably written. Mr. Fitzwilliams, it will be recalled, then rose in his place and contradicted me. Thirty-six hours later I received the following letter from him:

"I am so sorry and I apologise most humbly for having contradicted you in what you recollected of having written to me.

"Last night I asked my secretary to look up your letter, but left the house in a hurry and did not take it with me—it was lying on my desk when I came home and it is exactly as you said, you have put my name down for notification for some time perhaps in April. I visualized your letter as something quite different, and having got it in my head I have not the vaguest idea with what I have mixed it up—I am indeed sorry.

"Let me add my congratulations on the success of your meeting last night. I know perfectly well from what I had heard that you had met a not too friendly audience, and that you carried them completely with you must be a very great satisfaction to you.

"I shall look forward with great pleasure to seeing you in April."

This is the letter of a gentleman. Nevertheless, such mistakes should be avoided. Confident assertions and re-assertions may produce an impression on an audience which is not always removed by a declaration of the truth at a later date.

I feel sure that when Mr. Fitzwilliams comes to see us in a few weeks' time, so honourable a critic will realize and confess that we have neither magnified the dangers and difficulties, nor overestimated the results we have obtained. Be this as it may, he will receive a cordial welcome, as have all those who during the last few years have visited us.—I am, etc.,

Liverpool, March 28th.

W. BLAIR BELL.

SIR,—Many reading the *JOURNAL* of March 27th (p. 570) must find themselves deploring the character of some of the criticisms levelled against the sincere and scientific effort of Professor Blair Bell and his Liverpool colleagues to help us in our urgent daily problem of the treatment of the most terrible of all diseases. Their striking results with lead justify their plea that for serious cancer workers the question must now be raised from the level of ordinary laboratory polemics into a fact of great importance to science and to the community at large. Many must be glad that Professor Blair Bell and Dr. Adami have dealt so effectively with the criticism of Dr. Leitch. The animadversions of this observer are typical of an attitude of mind which within recent times has seriously lowered the value of many of the pronouncements on cancer questions which emanate from London, and which appear not only in the medical but also in the lay press. In this connexion I may cite my own experience at a recent meeting in London where I urged in support of my investigations into the nature of the cancer parasite the fact that eight workers in five different laboratories (in Berlin,

California, New York, Montana, and Toronto) had confirmed my discoveries. At that meeting Dr. Leitch's only reference to this multiple confirmation was an attack on the personal character of one of these foreign investigators. Moreover, he revealed his inadequacy as a scientific observer in his admissions regarding a test experiment which I had carried out at his laboratory on behalf of the Medical Research Council. At this experiment I undertook to produce the pseudo-leukaemic or lymphosarcomatous lesion, which I had previously obtained with the experimental inoculation of my micro-organism; a lesion the significance of which other well known cancer workers have acknowledged, and which has been reproduced under similar conditions in at least one other laboratory. Dr. Leitch had to admit that he had thrown away the dead mice without a microscopic examination of the organs in which the lesion is known to occur. Subsequently in my presence the eleven surviving animals of this experiment were killed and examined, and in two advanced lesions were found. When taxed with these facts Dr. Leitch made the remarkable statement that this leukaemic lesion was of no significance as it was "found in every laboratory mouse"! The error behind such a statement is revealed by the fact that Simonds in Maud Slye's laboratory in America found that the lesion, which I have described, and which these workers also regard as a malignant tumour, occurred spontaneously in only 229 out of 15,000 mice autopsies—that is, in 1.5 per cent. I made this refutation at the meeting referred to, but in view of the importance of the subject, and as Dr. Leitch has published a report of this test experiment likely to prejudice my research in the eyes of those unacquainted with all the facts, I ask the courtesy of your columns to make it more widely public.

Whilst we cannot always expect criticism to be broad-minded we can at least demand that it be informed and fair.—I am, etc.,

Edinburgh, March 27th.

JAMES YOUNG.

SIR,—Will you allow me to correct an error which appears in the report of the discussion on the treatment of cancer by lead preparations on page 571 of your issue of March 27th?

I am made to state that 100,000 deaths occurred from cancer in England and Wales in 1925; it should have been in 1924 and 1925, the figure for 1925 being based upon the fact that over 50,000 deaths occurred in 1924. No definite figures for 1925 are available.—I am, etc.,

London, W.I., March 28th.

CECIL A. JOLL.

LONDON UNIVERSITY SITE.

SIR,—In your issue of April 3rd your editorial upon this subject closes with the statement: "The Senate, therefore, appears to have come round completely to the opinion that the University ought to move to the Bloomsbury site. . . ." If by the term "the University" its ordinary acceptance is meant—namely, the central administration at present housed at South Kensington—the statement is incorrect. Moreover, the condition that King's College should remove to Bloomsbury, and hand over its existing site and buildings to the Government, was not a mere senatorial interpretation of Mr. Fisher's offer, as your editorial suggests; the condition was explicit in Mr. Fisher's letter of April 7th, 1920, elaborated in Mr. Fisher's letter of June, 1920, when he promised to seek parliamentary sanction for compensating King's College for its buildings "at a fair valuation" (a promise not fulfilled by Mr. Fisher), and categorically reaffirmed by the Chancellor of the Exchequer in March, 1924, when he plainly told the University that unless King's College and the University administration could agree by April 1st, 1926, to remove to the Bedford site that site would be handed back to the Duke. There was no possible ambiguity about this statement, and the decision now reached cannot be described as a "bombshell" to those acquainted with the facts.

There can be little doubt that the Treasury offer, conveyed in Mr. Fisher's letter of April, 1920, was chiefly actuated by the Treasury's desire to obtain possession of

the King's College premises; by that offer the Treasury would have secured the Strand site and buildings for an equivalent which was approximately only one-tenth of their value. Naturally, King's College was reluctant to accept this remarkable financial "bargain."

The Senate notified the Treasury in July last that it found itself obliged to decline the offer of accommodation of the central administration at Bloomsbury on the terms of Mr. Fisher's letter of April, 1920. The letter of October 27th, cited by you, embodied a resolution of the Senate which was itself a compromise, and was very carefully worded. The quotation in your editorial contains only a portion of the request then made, and is so far misleading. The request was for increase of accommodation for the central administration in the Imperial Institute (this is omitted from your quotation), and for utilization of such parts of the Bloomsbury site as might be still procurable, the Treasury letter having mentioned that "at least a part" of the site might be occupied for other university purposes "upon terms" to be arranged with the vendors. The Treasury further notified the Senate that if alternative plans for the increase of this accommodation of the central administration could be suggested, without involving undue cost, the Treasury would be prepared to consider them. In accordance with this invitation architects have been invited to prepare plans for increasing the space utilizable by the University at South Kensington, and plans have been actually submitted which show the possibility of an augmentation of 50 per cent. at least upon the present accommodation. These proposals must form part, and probably the only practical part, of the negotiations which the recently appointed deputation is to undertake with the Treasury. In reply to a question put by me last week in Parliament, the Chancellor of the Exchequer stated that "Notice has been served upon the solicitors of the Bedford Estate offering the resale of the Bloomsbury site to the Duke of Bedford in accordance with the terms of Clause 7 of the Conveyance of 1921." Inasmuch as it is certain that the site could be sold now for a much larger sum than was paid for it in 1921, it is improbable that the trustees of the Bedford Estate will forgo their present option of repurchase at the 1921 price; whether that be so or not, it is clear that the Treasury has no longer any say in the matter, and the discussion between the University and the Treasury must be limited to the sole alternative at present practicable—namely, the expansion of the existing accommodation for the central administration at South Kensington.—I am, etc.,

Worthing, April 5th.

E. GRAHAM LITTLE.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

SIR,—As one who has practised in the West Indies, and in West and Central Africa, I suggest that for the elucidation of the above problem (as in others of tropical medicine) the West Indies and British Guiana provide the necessary and informing control.

For three hundred years numerous white families, still of unmixed European blood, have been born, bred, worked, and died in the West Indies. Fair and dark, brown, red, and freckles are found in almost equal proportion among them. These families have survived through generations of tropical life to provide not a meagre quota of scholars and men of more than average ability. A considerable number of them live in a poverty of material environment and resource far below that enjoyed by all but a very few Europeans in tropical Africa or the East. Only superficial observers find in these white West Indians any sign of racial deterioration. The regret of these families to-day is the difficulty of finding for all their sons satisfactory careers at home, in the West Indies. Their numbers are added to by newcomers from Britain. Mental breakdown, or "nervous" trouble, is so little a feature of medical practice among these whites, West Indian and newcomers alike, as so far to have escaped any record. White native-born West Indians often serve in tropical Africa or the East; they may be invalidated from those countries for "neurasthenia"; and make complete recovery on returning, to work, in the West Indies. Three such cases have come under my medical care since the end of the war.

In the West Indies and British Guiana may be found almost every variety of sun and tropical atmospheric conditions—glare, dust, wind or no wind, eye disease, parasitic disease, and insect pests. The whites live in the midst of a coloured population, with whom they go to school, and with whom they join in games, and in all religious, professional, economic, and legislative affairs.

The "irritability" of the whites is perhaps now confined to the elders, and is not more than that recorded in literature as a mark of a privileged aristocratic class in its dealings with its social inferiors. (It is, in fact, not unknown among the upper classes of the coloured folk.)

The whites in the West Indies do not suffer from mental breakdown, because they are *at home*. Their coloured compatriots do not speak a different language, practise a different religion, wear different clothes, nor entertain different social, economic, or ethical ideals. The standard aimed at by the whole community, coloured and white, is European and British. There is keen local patriotism ("provincialism" it may be) shared equally by all colours. The white newcomer does not find himself in a foreign community. The white man in the West Indies, whether newcomer or native, is socially integrated with the whole parti-coloured community in which he lives. It is not so in the East. In tropical Africa it may become so, for it is to be noted that the white man, after serving his time, has begun to go back to live, and die, "at home," in West Africa. Mental irritability and breakdown of the white man in the tropics is not directly a medical problem, but rather the psychological one of citizenship and the herd. It is a matter on which the Bishop of Singapore might, with profit, compare notes with his brother of Barbados, or Jamaica, as well as consult the medical profession.—I am, etc.,

London, W.I, March 30th.

H. M. HANSCHALL.

SIR,—The causes of breakdown in the tropics have been very fully given by your correspondents. I only add a few points of treatment I have found useful during a long residence in North Indian plains, East and South Africa.

1. Avoid entire isolation from congenial associates. If a man must live alone, let him visit his equals monthly or at least quarterly.

2. Avoid food deficiency—African chickens and Indian flour (as bought) have not the nutritional properties of their English namesakes. If one eats debris and adulterations one must eat more to get the same nutrition. The ship's captain who dined off an apple probably had really good food at his other meals. My experience is when English go native they adopt rice as their mainstay, and the result is disastrous.

3. A proper holiday is indicated at least once a year, either in health resort or capital, according to temperament. I am not struck by the results of the frequent home leave given in the African colonies. Doubtless they are at present the best that can be done in these unsatisfactory countries, but the health of their English community compares badly with that of the English in India, and I fancy the English missionaries in Madagascar, who go out for long periods have much less invaliding than those in Tanganyika, where the maximum stay is three years.—I am, etc.,

London, E.17, March 27th.

M. ILES.

SIR,—During the winter of 1918-19 I was in North Russia, my headquarters being at Archangel. As consulting physician to the Allied Forces I had the opportunity of observing the effect on our troops of climatic conditions diametrically opposed to those described by your correspondents.

During the greater part of the winter this part of North Russia is a vast, silent, featureless, snow-clad pine forest. In midwinter there are only a few hours of daylight in the twenty-four, and little direct sunlight. Locomotion is very largely by sleigh and consequently almost noiseless. Train services are infrequent and very slow. The Russians are extremely unpunctual and are never in a hurry. Taken singly, these points may seem to be trivial, but collectively the summation of stimuli have a curiously depressing effect on the mind of the average Englishman, accustomed as he is

to the ceaseless bustling activity of modern English life, with warmth, noise, and constantly varying conditions of climate, scenery, and surroundings. Isolation from home, impossibility of leave, lack of opportunity for recreation, infrequent and imperfect mails, added to this depression in 1918-19.

The usual cases of early organic nervous diseases occurred, but the outstanding feature of the nervous class of diseases was the frequent occurrence of various forms of neurasthenia.

The depressing conditions of life in North Russia were particularly unsuitable for neurasthenics, and the danger of suicide had to be constantly borne in mind. Waves of suicide are frequent in Russia, and I was forced to regard all cases showing indications of grave depressions, obsessions, marked and abnormal irritability, or change of disposition, as potential suicides, and to recommend evacuation of such cases to England as soon as possible. Insomnia was common and was an additional factor in the causation of this condition.

These observations, which I have quoted almost verbatim from the report I made at the termination of my tenure of office as consulting physician, would tend to show that environment rather than climate is the main factor in the causation of such cases of neurasthenia, whether in tropical or arctic regions.—I am, etc.,

E. RIVAZ HUNT, M.D., M.R.C.P.

Brighton, March 29th.

COMMON SENSE IN RELATION TO DOUBTFUL TUBERCULOSIS.

SIR,—Most tuberculosis officers will confirm the really disastrous social consequences resulting from loose diagnoses of tuberculosis. As to the possible lethal effects, Dr. E. Weatherhead agrees "on general principles" that "suspects under observation at a sanatorium should preferably be accommodated in separate 'observation sections.'" I cannot agree with him that there is no appreciable risk of infection of non-tuberculous persons at a well ordered sanatorium, and the latter must be classed as "well ordered" if "approved" by the Ministry of Health.

I know of a series of cases of tuberculosis occurring in the staff of a Devon sanatorium in which there was good reason to suspect it was contracted in the institution. The latter was structurally imperfect as a sanatorium, but was "approved" by the Ministry and thus "well ordered." The risk in sanatoriums of infection from person to person is one of dosage or degree of exposure to infection, and this may be less than in the outside world, or, again, it may be more.

Thus, in a sanatorium without separate sections, a non-tuberculous person may sleep in a double cubicle or ward with an early open (positive) case, and spend ten to twelve hours out of twenty-four in close proximity for three to six months, and thus be potentially exposed to aerial spray from sputum—for example, if they play draughts, etc., together—or to dust from infected bedclothes, however "well ordered" the place may be. Would a good tuberculosis physician advise or allow a non-tuberculous relation or patient to cohabit with positive tuberculous ones knowingly? Would we willingly do it ourselves?

My conclusion is that, justly as we pride ourselves on our control of infection and over our patients' mode of life at sanatoriums, such can be relative only, and not absolute, and I believe that a tuberculosis sanatorium is very definitely one of the places to which we should never send debilitated non-tuberculous persons, unless it has an observation section.—I am, etc.,

Plymouth, March 23rd.

F. G. BUSHNELL, M.D.

SIR,—I welcome the contribution of Dr. Vere Pearson (March 27th, p. 596) to the correspondence on this subject.

The infectivity of tuberculosis has become grossly exaggerated in the public mind, and the medical profession and—notably—American antituberculosis propaganda methods are largely to blame for this. I frequently find myself, in response to the inquiries of patients or their friends, explaining that tuberculosis is not infectious

in the same sense as measles, scarlet fever, or small-pox. Granting Dr. Pearson's postulate—"If these things are realized"—I, too, would be with instead of against Dr. Mackey. But it is precisely because these things are not realized that I was led to write my protest. As soon as—to quote Dr. Pearson—"the half-knowledge leading to this wrong grouping" has been "turned into full acquaintance with the facts," I will join hands with him and Dr. Mackey. But I fear it will prove very difficult now to disabuse the public.

Only with one sentence of Dr. Pearson's letter am I unable to agree. He says, "Massive doses in unhygienic surroundings to susceptible individuals (who are generally either infants or adults from countries where the tubercle bacillus has not become implanted ubiquitously) are necessary conditions for the production of disease." The italics are mine. Surely we do not need to look to countries where the tubercle bacillus is not ubiquitous to find vast numbers of adults (and still more adolescents) who are susceptible to tuberculosis.—I am, etc.,

Alderley Edge, Cheshire, March 27th.

E. WEATHERHEAD.

Medico-Legal.

A SENTENCE UNDER THE DANGEROUS DRUGS ACT.

AT Marlborough Street Police Court, London, on March 29th, the stipendiary magistrate (Mr. Cancellor) sentenced Dr. Samuel Grahame Connor of Dryden Chambers, Oxford Street, to six months' imprisonment in the second division, and imposed fines amounting to £200, on charges made under the Dangerous Drugs Act, 1920, of failing on three occasions to enter in a register kept for the purpose a certain quantity—50 grains—of morphine purchased by him, and of failing in a prescription for morphine to specify the address of the person for whom the prescription was given.

Mr. Vincent Evans appeared for the Director of Public Prosecutions, at whose instance the summonses were issued, and Mr. Cyril Asquith appeared for the defendant.

Mr. Asquith entered a plea of guilty, and said that the defendant wished to be dealt with by that court.

Mr. Evans stated that a Miss Young, a drug addict, was early in 1921 convicted of forging a prescription in Glasgow, and Inspector Burnby discovered that she was being supplied with morphine by Dr. Connor. Dr. Connor, on being informed that she was being treated by another doctor, said he would discontinue treating her. In December, 1925, Miss Young was again interviewed in Glasgow by a representative of the Home Office, and, as a result, Inspector Burnby again saw Dr. Connor, and asked to inspect his register. Dr. Connor said he did not keep a register, or any stock of drugs, nor did he do any dispensing, and if patients wanted any morphine he prescribed for them. That was not true. Dr. Connor produced a day-book, which showed that between January 25th and December 27th, 1925, he had prescribed 575 grains of morphine on thirteen occasions, and had only seen Miss Young six times. Dr. Connor also said he paid his chemists' bills and never kept accounts, but his patients paid him what they liked. Recently he had a money order from Miss Young for £3, which represented about a guinea a visit. Inspector Burnby inspected the register kept by Bensons, chemists, which showed only one prescription made out in the name of Miss Young, but there were a number of "orders" signed by Dr. Connor and headed "for surgery use only," amounting to 850 grains. These orders, Mr. Evans submitted, were not prescriptions, but constituted "supplying" within the meaning of the Act. On December 14th, 1925, Dr. Connor himself obtained on one of these orders 50 grains of morphine and supplied it to Miss Young. Dr. Connor, when summoned, said he knew nothing about the regulations, and that he kept all he thought was necessary in his day-book, but that was not correct, as Inspector Burnby had warned Dr. Connor earlier.

The magistrate asked whether the persons alleged to have been supplied were drug addicts, and whether they had come to any disaster as a result. Mr. Evans replied "Yes," so far as one person was concerned.

Mr. Asquith said Dr. Connor pleaded guilty to the charges for which he was summoned but not to charges which he understood Mr. Vincent was now raising. It was true that Dr. Connor did not keep the full records in a register as the Act required, but he kept his day-book and there was never any attempt at any time to conceal or mislead. It had not been disputed that Dr. Connor had recorded every material transaction in his day-book, which was open as a register to public inspection. Precisely the same machinery was available for compelling scrutiny of a day-book as of a register. Dr. Connor, on being informed that his patient was receiving supplies from another source, merely assured the inspector that he would bring pressure to bear on the lady to have her supplies from one source only. Dr. Connor had merely committed a nominal breach of the regulations and a nominal fine would meet the case.

Inspector Burnby said Dr. Connor had been in practice in London for about twenty years, and witness first saw him in 1922 when there was a suspicion that he was treating patients who

were being treated by other doctors. Dr. Connor then gave him a list of drug addicts who were well known to be treated by Dr. Connor and other doctors. Dr. Connor was a specialist in drug cases and a large number of addicts known to the police were treated by him.

The magistrate, giving judgement, said it was absolutely necessary in the interests of the public that when a medical man broke regulations governing the supply of dangerous drugs he should be severely dealt with. Dr. Connor was a man who was not merely prescribing small quantities of drugs to people suffering from nervous diseases, but was making a practice of treating people who were addicted to drugs. So far as he could make out, the defendant had had ample warnings and had flagrantly disregarded them and had been carrying on a practice most deleterious to his patients. He therefore sentenced the defendant to two months' imprisonment in the second division on each of the first three summonses, fined him £50 on each of those summonses, and imposed a further fine of £50 on the fourth summons.

Notice of appeal was given on behalf of Dr. Connor.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons stands adjourned till April 13th, when, on the Committee stage of the Economy Bill, debate will be resumed on the Government's proposals to alter the finance of the National Health Insurance scheme. The House of Lords reassembles on April 19th. The Coroners Bill has come down from the Lords, and is formally set down for second reading on April 13th, as is the Bethlehem Hospital Bill.

Economy Bill.

In a statement made during the Easter Recess to answer contentions advanced during the all-night sitting of March 31st on the Economy Bill, Sir Kingsley Wood declared that the Government would make every effort to secure the passage of the bill at an early date. So far from robbing the health services, the Ministry of Health Estimates for 1926-27 showed an increase of £600,000 in housing grants to £8,440,000, of £70,000 in the provision for maternity and child welfare to nearly £1,000,000, and of £125,000 in grants for tuberculosis to £1,500,000. All this expenditure was to the direct benefit of the community. The Government anticipated a saving of £1,000,000 by the abolition of the existing health insurance system. Not a penny of the surplus would be available for the first and second valuations would be touched by the Economy Bill. As a result of these valuations the Ministry of Health had already passed 3,500 schemes for additional benefits which had been submitted by approved societies or by branches. Practically all these schemes included dental benefit with a free choice of dentist to every approved person. Many of them also included optical treatment, the provision of medical and surgical appliances, convalescent homes, and hospital treatment. On the average the benefits provided by these schemes were more than double those obtainable under the schemes of 1921, which they replaced. The large reserves and increasing income of the approved societies and the high rate of interest now obtained justified the hope that at the third valuation in 1931 large sums would again be available above the normal benefits. The Royal Commission on National Health Insurance had recently recommended a service of medical specialists and consultants, and shown that this could be secured by a partial pooling of surpluses and other financial adjustments. This would prove a great advance, and one which the proposals of the Economy Bill would not hinder. He looked forward to an early day when, with the concurrence of the approved societies, the Ministry of Health would secure parliamentary sanction for these proposals. The Government did not further pledge itself on the recommendations of the Royal Commission. Sir Kingsley Wood emphatically denied that the Economy Bill would force the approved societies to reduce their grants to voluntary hospitals. In July approved societies would be able to increase their subscriptions to hospitals if they desired.

During the sitting of March 31st, which lasted till 9.30 a.m. on April 1st, the House of Commons only considered Clause 1 of the Economy Bill in committee. This clause proposed to reduce the State contributions to National Health Insurance to one-seventh in the case of men contributors and one-fifth in the case of women contributors. Mr. Harney moved the postponement of the clause, but after a long debate this motion was defeated. Mr. Lloyd George drew attention to the fact that the Advisory Committee representing the approved societies had declared against the proposal by 23 to 6. Mr. Lloyd George also contended that the clause broke a pledge given to the approved societies when the original National Health Insurance Bill was introduced in 1911. Mr. Chamberlain said he was unable to find any evidence of such a pledge. Since 1911 successive Governments had taken upon themselves the burden of the extra cost of diseases, estimated at £19,000,000 and £5,000,000 for minor charges.

On a subsequent amendment Dr. Drummond Shiels said that extended benefits were obviously in great danger under the bill. Officials of approved societies believed that the further extension of medical benefit would be prevented by this bill, and that in many cases they would be unable to pay the present extended benefit and to give extended medical treatment till 1931. The increased charge for medical benefit did not mean improved

payment for the doctors. He thought the bill would prevent the extension of dental benefit where it was already given, and in other cases would prevent its introduction. The same applied to optical benefit. A dental service was of tremendous value to public health, and optical benefit was also of great importance. The bill postponed the time when an increased maternity benefit of £4 or £5, which was the least that was useful or desirable, could be given generally, as it was now given by some societies. One of the worst features of the bill was that it postponed indefinitely the provision of specialist medical treatment. The Royal Commission put this as the first benefit to be given when funds were available. When a doctor attending an insured person desired a second opinion before advising a surgical operation the relatives now said it could not be afforded, and the doctor had to say, "We will have to try the hospital." In the six principal Scottish hospitals there was a list of 5,800 people waiting for beds, and he believed the same congestion prevailed in England. The committee which had been considering the Scottish hospitals question had reported that many of these people suffered as a result of their waiting, and that some even died. A new arrangement with the doctors must be made at the end of the year, and he was afraid that the inclusive specialist service which they would normally have had next year must now be put off. Many approved societies had themselves made arrangements with hospitals, nursing associations, dispensaries, and other organizations so that specialist service and institutional treatment might be secured for their members. This would now probably be cut off at once, because it was paid, not out of the surplus, but out of the ordinary benefit fund.

Sir John Simon said the Government might as well come to the House and announce to the medical profession that it had decided to alter to the doctors' disadvantage the arrangement made with them as to confront the approved societies with the proposals in the bill.

Mr. Chamberlain said dental benefit was now available as an additional benefit to something like 11,000,000 insured persons.

Clause 1 was eventually added to the bill by 169 to 104. The Committee stage of the bill is to be resumed on April 13th to 15th.

Coroners Bill.—The Coroners (Amendment) Bill was received in the House of Commons from the Lords on March 29th. It was read the first time and referred to the examiners of petitions for private bills.

Sexual Offences against the Young.—Sir W. Joynson-Hicks informed Viscountess Astor, on March 30th, that he would give special consideration to those recommendations in the report of the Departmental Committee on Sexual Offences against Young Persons which could be carried into effect by administrative action, pending the introduction of legislation regarding the remaining recommendations contained in the report.

Cost of Health Services.—On March 30th Sir Kingsley Wood stated that the total amounts provided by the Exchequer for national health insurance and for all other health services administered by the Ministry of Health or its predecessors (excluding grants out of the assigned revenues and the cost of central administration) in the financial year 1913-14 and in the estimates for 1926-27 were:

	Expenditure 1913-14.	Estimates 1926-27.
£	£	£
For other health services, included in 1926-27 grant in lieu of sanatorium benefit	183,434	3,076,190
Total	3,633,489	8,503,190

Mr. Chamberlain, in a written reply to Colonel Horlick on April 1st, said the total amount paid by the Ministry of Health or its predecessors from January 1st, 1919, to March 31st, 1926, by grants to local authorities or to voluntary associations for public health services, was £17,516,000. Sums amounting to £767,000 were also paid under the provisions of the Finance Act, 1911, and Section 64 of the National Insurance Act, 1911. The total amount paid as Exchequer contributions to National Health Insurance funds during the same period was £44,879,000. In addition, sums estimated to amount to £2,500,000 were paid during the same period to the councils of administrative counties and county boroughs in England and Wales, and applied towards the salaries of medical officers of health and inspectors of nuisances (or sanitary inspectors) and in fees to public vaccinators.

The Rum Ration.—The Secretary for War states that a free ration of rum may be issued under the authority of the general officer commanding when certified by the senior medical officer to be absolutely necessary for safeguarding the health of troops under canvas for musketry courses.

Social Hygiene in East Africa.—In a meeting of the Parliamentary Committee of the British Social Hygiene Council on March 30th, at the House of Commons, Mr. Greaves-Lord presiding, Major Keane, of the Uganda Venereal Diseases Service, spoke on the position in Uganda, the needs of the population there, and the improvement already effected in social hygiene during the past

fifteen years. Major Church, formerly a Labour member of Parliament and a member of the Commission of Inquiry in East Africa, gave an account of his impressions on social hygiene in East Africa and on the general medical and sanitary position in those territories. He declared that education was essential, and emphasized the importance of the medical service. Mr. Amery, the Colonial Secretary, was unable to attend the meeting, but his parliamentary private secretary said that the views expressed had the Minister's sympathy. It is understood that a discussion may be arranged in the House on the Colonial Office Vote after the Easter Recess.

Deaths from Small-pox.—In a reply to Mr. Groves, Mr. Chamberlain stated that in England and Wales from 1889 to 1906 inclusive 8,321 deaths from small-pox were registered, and in the years 1908 to 1925 inclusive 253 deaths.

Occupational Diseases.—Answering Mr. C. Edwards, Captain Hacking explained that miner's nystagmus, bent-knee, bent-elbow, and bent-hand were not included in the schedule of the Workmen's Compensation Act of 1925 because they were not specified in the corresponding schedule of the Act of 1906. The right to compensation in respect of these diseases remained unaffected. There was no need for special action in the matter.

Encephalitis Lethargica.—In replying, on April 1st, to Mr. Ammon, Mr. Chamberlain said the treatment of encephalitis lethargica which had been suggested by a Greek medical man and had been offered to the Ministry of Health had been considered by the experts of that department. Mr. Chamberlain said he was advised that the offer might most suitably be made to the managers of the institution at which arrangements had been made for the treatment of young persons suffering from the after-effects of this disease.

Universities and Colleges.

QUEEN'S UNIVERSITY, BELFAST.

The following degrees and diplomas were conferred on March 25th:

M.D.—J. A. Birkmyre, *A. E. Campbell, *B. R. Clark, H. M'E. Morris, J. F. O'Connor, W. W. Orr, D. K. Watterson.

M.Ch.—E. R. Frizelle.

M.B., B.Ch., B.A.O.—G. M. Frizelle, S. E. Bolton, F. C. Cassidy, R. Cocks, W. P. Colhoun, Margretta S. Earls, Rebecca E. Earls, Dorothy I. Enrican, Jane M. Ferguson, J. C. Gilbert, I. Hammel, Maureen P. P. Hamilton, S. Hanna, A. A. Hill, W. F. Lyle, T. B. Lyngagh, J. M. McClellan, T. McKee, T. Marques, J. K. Murphy, W. J. L. Neal, Grace K. Pollock, S. Rodgers, J. A. W. Sege.

D.Ph.—W. A. Kinlay.

* With commendation. † Gold medal. ‡ Second-class honours.

The Services.

AUXILIARY R.A.M.C. FUNDS.

The annual meeting of the members of the Auxiliary Royal Army Medical Corps Funds will be held at 2.30 p.m. on Friday, April 23rd, at 11, Chandos Street, Cavendish Square, W.1, when the annual report and financial statement for the year ended December 31st, 1925, will be presented, and the officers and committee for the current year elected.

NO. 55 GENERAL HOSPITAL DINNER.

The No. 55 General Hospital, B.E.F., reunion dinner will be held at the Trocadero Restaurant, Shaftesbury Avenue, on Saturday, May 15th, at 7 for 7.15 p.m. (dinner jackets). Old officers intending to be present are asked to communicate with Dr. H. B. Roderick, 17, Trumpington Street, Cambridge, as soon as convenient, in order that arrangements may be made.

DEATHS IN THE SERVICES.

Lieut.-Colonel Harold Samuel Peeke, R.A.M.C.(ret.), died at Beaumaris on March 21st, aged 61. He was born in London on December 17th, 1864, and was educated at St. George's, taking the M.R.C.S. and L.R.C.P.Lond. in 1887. Entering the R.A.M.C. as surgeon on July 27th, 1887, he became major after twelve years' service, went on half-pay on October 18th, 1908, and retired six days later. He served in the Nile campaign of 1898, receiving the British and Egyptian medals. After his retirement he was employed for some time at Derby, and on March 24th, 1915, was recalled to the active list for service in the recent great war. He was given the charge of the Liverpool Merchants' Mobile Hospital, with the rank of lieutenant-colonel, was mentioned in dispatches in the *London Gazette* of December 30th, 1918, and received a brevet lieutenant-colonelcy.

Lieut.-Colonel John Robert Yourdi, O.B.E., R.A.M.C.(ret.), of La Roque, Jersey, died in Jersey dispensary on March 23rd, aged 71. He was born at Hermopolis, in Syria, on February 6th, 1855, and was educated at Trinity College, Dublin, where he graduated as B.A., M.B., and Ch.B. in 1878. Entering the army as surgeon on July 30th, 1881, he became lieutenant-colonel after twenty years' service, and retired on February 6th, 1910. He served in the Egyptian war of 1882, receiving the medal and the Khedive's bronze star, and rejoined for service in the late war on November 19th, 1914, receiving the O.B.E. for his services.

Obituary.

SIR HARRY BROOKES ALLEN, M.D., LL.D.,

Professor of Pathology and Dean of the Faculty of Medicine, Melbourne University.

We regret to announce the death of Sir Harry Brookes Allen, in Melbourne, at the age of 71. He was born at Geelong, Victoria, in 1854, and received his medical education at Melbourne University, where he graduated M.B. in 1876, proceeding M.D. in 1878, and obtained the B.S. in 1879. After holding the posts of demonstrator of anatomy in Melbourne University and pathologist to Melbourne Hospital, he became lecturer in anatomy and pathology in 1881, and professor in 1882, which post he held until his death. He created the museum of pathology in Melbourne University. He was honorary secretary of the Medical Society of Victoria from 1879 to 1887, and editor of the *Australian Medical Journal* from 1879 to 1883.

Sir Harry Brookes Allen was a member of the Tuberculosis in Cattle Board from 1883 to 1884, and joint author of the report which was issued. In the same period he was a member of the Central Board of Health, and was responsible for the drafting of model by-laws for local boards. In 1883, as the result of his advice on meat preserving, the construction of the freezing chambers employed by the meat preserving companies of Australia was entirely altered, with very great benefit. He was the president of the Royal Commission on the sanitary state of Melbourne, and of the Intercolonial Rabbit Commission from 1888 to 1889, and general secretary of the Intercolonial Medical Congress in 1889. In 1890 he visited Europe, and obtained recognition for the Melbourne medical degrees. He drafted the deed of union of the medical societies of Victoria under the British Medical Association, was president of the Australasian Medical Congress in 1908, vice-president of the Section of Medicine of the British Medical Association in 1910, and a member of the executive committee of the International Medical Congress in 1913. He received the honour of knighthood in 1914. He was the author of *The Jubilee History of the Melbourne Medical School*, published in 1914, and of a series of lectures and demonstrations in pathology published in 1920. His numerous shorter publications include the reports of the Victoria Government on hospital construction, sewerage works, and other subjects, in 1891, and a report to the Commonwealth Government on health conditions in Panama, in 1913. Edinburgh University conferred the degree of LL.D. upon him in 1912, and he received the LL.D. of Adelaide in 1914. He married in 1891 the eldest daughter of the late Mr. Henry Mason of Liverpool, and had three daughters.

PROFESSOR THOMAS JONESCU,

Bucarest.

PROFESSOR THOMAS JONESCU, director of the first surgical clinic and the institute of experimental surgery at the University of Bucarest, died on March 27th, in his 75th year, after a long illness. He was well known to surgeons in this country and highly esteemed by them.

The relation of anatomy to surgery was always one of his chief interests, and in his earlier days, while residing in Paris, he devoted himself to the study of the gastrointestinal tract to such an extent that his name has come to be associated with the parieto-peritoneal fold and the duodeno-jejunal fossa. The wide range of his surgical interests is illustrated by the large number of his surgical publications, which include abdominal surgery, operations on the breast, and the surgery of the sympathetic system. He published a paper on general spinal analgesia in the *BRITISH MEDICAL JOURNAL* of November 13th, 1909 (p. 1396), in which he went far to establish the safety of intraspinal injections above the level of the lumbar region. He showed that puncture between the first and second dorsal vertebrae, or between the last dorsal and the first lumbar vertebrae, was easy, and could produce analgesia of all regions of the body. Although at that time considerable anxiety was felt as to the safety of the spinal method of producing anaesthesia, Jonescu was firmly

convinced that general spinal analgesia would become universally popular in the future. At a meeting of the Section of Surgery of the Royal Society of Medicine in 1909 he illustrated how this method was applicable to the surgical treatment of almost any part of the body. In November, 1909, he demonstrated his method at the Seamen's Hospital, Greenwich; three patients were treated, and it was shown that by the addition of a respiratory stimulant to the spinal analgesic the analgesia could be pushed far above the level of the respiratory centre without interfering with the respiratory tract.

In recent years his name has been particularly associated with the surgery of the sympathetic system in angina pectoris. The operation he recommended was cervico-thoracic sympathectomy, including removal of the entire cervical chain and of the first thoracic ganglion. This operation has, however, not gained universal approval, and Professor Daniélopou (JOURNAL, January 30th, 1926, p. 180) drew attention to its limitations. Professor Jonescu, in addition to his world-wide reputation for surgery, was for some time rector of the University of Bucharest.

The death is recorded of Dr. WILLIAM J. M. BARRY of Penarth on March 18th. He was born at Middleton, co. Cork, in 1865, and was educated at Cork, Dublin, Edinburgh, Brussels, and Paris. He took the triple qualifications of the Conjoint Board in Scotland in 1891, became F.R.C.P.Ed. in 1911, and graduated M.D.Durh. in 1912. Dr. Barry was a man of exceptional physique, and a fine all-round athlete; an expert in throwing the hammer, he created a "record" in 1895 with 138 ft. 7½ in. He was also well known as an amateur boxer, and at different times held the heavy-weight championships of the U.S.A. and of Australia. About twenty years ago he moved from Southport and joined Dr. A. Jackson of Barry in partnership. He was honorary consulting physician to the Royal Hamadryad Seamen's Hospital, Cardiff, medical examiner at Cardiff for the Shipping Federation, and medical officer of the National Maritime Board for Cardiff. Dr. Barry, who was a member of the Cardiff Division of the British Medical Association, is survived by his widow.

The sudden death on March 19th of Dr. HAROLD TURNER FINLAYSON, in his 37th year, has occasioned deep regret among the residents of Formby, Lancashire, where he had practised for more than ten years. He received his medical education at Aberdeen and St. Mary's Hospital, graduating M.B., Ch.B.Aberd. in 1912. At the outbreak of war he served with the Grand Fleet in the North Sea, and later held a commission in the R.A.M.C. He was clinical assistant in the Royal Southern Hospital, Liverpool, medical officer to Holmewood School and Children's Sanatorium, Freshfield, and to the Church of England Home for Waifs and Strays, Formby. His earlier appointments included those of house-surgeon to the Royal Infirmary, Dundee, casualty officer to St. Mary's Hospital, and surgeon to the Peninsular and Oriental Steam Navigation Company. A colleague writes: Dr. Finlayson was a man of high ideals, and his progressive ability rendered him a greatly trusted medical adviser in a large general practice, which extended far beyond the district in which he resided. His knowledge of some of the more special departments of medicine and surgery was considerable, and he kept himself abreast of everything that was modern in practice by reading and by his work at the Liverpool Royal Southern Hospital, where he had held the post of clinical assistant for over two years. Dr. Finlayson was a genial man, with an alert manner and progressive mind; a great reader, and a lover of music and the arts. His sympathy and kindness were associated with a spirit of self-sacrifice which led him to overtax his strength, and his early death was in some measure related to this fact.

Professor JAMES ISRAEL, formerly director of the surgical department of the Israelite Hospital in Berlin and a well known authority on renal surgery, has recently died at the age of 78. He was a pupil of von Langenbeck and Traube.

Medical News.

SIR THOMAS BARLOW, Bt., M.D., has been elected president of Bolton Infirmary for the ensuing year in succession to the late Lord Leverhulme, who had been president since 1916. Sir Thomas Barlow, who was born at Edgeworth, and spent his early life in the neighbourhood of Bolton, now becomes the first medical president of the Infirmary.

DR. ADAMI, Vice-chancellor of the University of Liverpool, who went to America at the end of last month, expects to return home early in May.

WE have received the first number of the *Malayan Medical Journal and Estate Sanitation*, which is a quarterly record of medicine and surgery, with special reference to tropical medicine and the hygienic management of estates. It is published at Kelantan, Malaya, under the editorship of Drs. T. S. Macaulay, G. B. McHutchison, J. J. Hickey, and W. Thudner. Sir David Galloway contributes the paper on inguinal lymphadenitis which he read at the annual meeting of the Malaya Branch of the British Medical Association, at Kuala Lumpur, in April, 1925, and the issue also includes an original article on the treatment of pneumonia, by Dr. T. S. Macaulay. The remainder of the issue is devoted to local news and general medical and sanitary subjects in Malaya.

THE Bureau of Hygiene and Tropical Diseases has begun the publication of a *Bulletin of Hygiene*, which is to contain summaries and reviews of publications on all branches of public health and preventive medicine. It is intended more particularly to meet the needs of Britain overseas. The section of hygiene in the tropics will deal with publications in various languages, as did the Sanitation Supplements formerly issued by the Bureau, but now discontinued. With this exception the *Bulletin* will for the present be mainly restricted to publications in the English language. Suitable papers and reprints in any language, if sent to the Bureau, will, however, be noticed as far as possible. The *Bulletin* will be published monthly and the annual subscription will be 21s. post free. Orders may be sent to the Bureau of Hygiene and Tropical Medicine, 23, Endsleigh Gardens, London, W.C.1. The contents are classified under various heads, and the last number (March, 1926) contains a review of the present position of public health propaganda and education in Great Britain. The publication of the *Tropical Diseases Bulletin* (21s. a year post free) and of the *Tropical Veterinary Bulletin* (10s. a year post free) will be continued as heretofore.

AT the meeting of the Medico-Legal Society to be held at 11, Chandos Street, Cavendish Square, W.1, on Tuesday, April 20th, at 8.30 p.m., a paper will be read by Mr. C. Ainsworth Mitchell on some aspects of the new regulations on preservatives, which will be followed by a discussion.

THE Home Secretary has appointed Lieut.-Colonel John Allan Anderson, M.B., Ch.B., D.F.H., late R.A.M.C., to be an inspector under the Cruelty to Animals Act, 1876, which relates to experiments on living animals.

THE University of Birmingham Clinical Board has arranged a course of post-graduate demonstrations to be given at the General Hospital on Tuesdays, commencing on April 13th, at 3 p.m., and at the Queen's Hospital on Fridays, commencing April 30th. The course will include demonstrations on medical, surgical, and gynaecological cases, nervous diseases, ophthalmic cases, children's diseases, etc. The fee for the course is £2 2s., which should be sent to the Clerk to the Clinical Board, University, Edmund Street, Birmingham.

THE annual spring dinner of the Queen's (Belfast) University Club, London, will be held at the Connaught Rooms, Great Queen Street, W.C., on Thursday, April 22nd, at 7.30 p.m., under the chairmanship of Dr. R. W. Livingstone, president of the club and vice-chancellor of the university. Further particulars can be obtained from Dr. J. P. Martin, 59, Queen Anne Street, W.1.

THE annual report presented to the meeting of the Mental After-Care Association, held under the presidency of Sir Charles Wakefield on March 16th, showed that during the year 1,431 cases had been dealt with, an increase of 255 over the previous year. Dr. R. Percy Smith, in presenting the report, said that the value of the work of the association to the community could not be too strongly emphasized, as it enabled medical superintendents to discharge recovered patients at an earlier date than would otherwise be possible. The tendency to relapse was thereby greatly diminished, inasmuch as patients were able to consolidate their recovery in the cottage homes provided by the association. It was announced that Sir Charles Wakefield had expressed his intention to wipe out the whole of the overdraft of the association, which amounted to £517.

THE People's League of Health, being engaged in an educational health and food campaign, recently asked the General Medical Council to express an opinion on the question whether medical officers of health who, at the request of their municipal authorities, compiled and published educational health and food leaflets ran any risk of infringing the warning notices of the General Medical Council. The Registrar has replied that publication in the press of articles on medical subjects by medical practitioners has not been condemned by the Council unless it has been proved that the articles come under the terms of the Warning Notice (published June, 1923) or are otherwise objectionable; and that medical officers of health publishing and circulating in their districts information about health and food at the request of the municipal authorities or local health councils need therefore have no fear that this action performed officially and in good faith will be censured by the General Medical Council. This is in accordance with the statement as to the procedure of the General Medical Council mentioned in the memorandum published in the SUPPLEMENT of March 20th (p. 96). The passage in the memorandum referred to will be found on page 99.

THE staff of the Brownlow Hill Infirmary, Liverpool, has presented Dr. Ernest Nevins with a Chippendale cabinet and other gifts on his retirement from the post of visiting physician after twenty-six years' service.

ON the occasion of his retirement from practice at Cromer Dr. Robert Grant has been presented by his friends and patients with a gift of £545.

THE London County Council recently decided to increase by one the number of positions of senior medical officer in its public health department. Sixty-seven applications were received in response to public advertisement. The Establishment Committee, after interviewing several of the applicants, recommended the appointment of Dr. Aubrey Middleton Hewat, medical officer of health and administrative tuberculosis officer for Fulham, and the Council agreed to Dr. Hewat's appointment. The salary attaching to the post is £1,000, rising by £50 annually to £1,300 a year. This, however, is based on pre-war conditions, and the temporary additions make the nominal salary of £1,000 actually £1,234 at the present time.

DURING 1925 the total number of patients under treatment at the London Fever Hospital was 899, of whom 682 were fever cases and 217 had pulmonary tuberculosis. There was a diminution of 103 in the number of fever patients under treatment during the year, as compared with the previous twelve months, owing to a fall in the number of cases of measles. At the annual general meeting of the governors of the hospital on February 24th it was pointed out that there had been no case of cross infection—a high testimony to the efficiency of the institution. The number of private patients received during the year was nearly 200. Lord Ebury, the president of the hospital, drew attention to the fact that the ordinary income had increased by £3,187, and the extraordinary income by £1,234, the latter being derived from legacies; the overdraft at the bank had been reduced by £1,500, and amounted to £3,500.

THE number of cremations at the sixteen British crematoriums last year was 2,701, showing an increase of 306 as compared with the previous year. Of these 1,553 were performed at the four Greater London crematoriums at Golders Green, Ilford, Norwood, and Hendon Park, and 271 at Woking. Additional accommodation is being provided at Golders Green, where the limit of working capacity under existing conditions was reached last year. It is pointed out in the annual report for 1925 of the council of the Crematorium Society of England that municipal crematoriums are in most cases self-supporting, even if they do not produce the substantial revenue obtained by the crematoriums owned by private companies; they do not involve any expense to the community, in contrast with earth burial under ordinary conditions.

THE well known psychiatrist, Professor Emil Kraepelin, has recently celebrated his seventieth birthday.

DR. JEAN CHARCOT, the explorer, and son of the neurologist, has been elected a member of the Académie des Sciences.

THE forty-first congress of the German Balneological Society is being held at Aix-la-Chapelle from April 6th to 11th. The principal subjects for discussion are the balneotherapy of diseases of the joints and muscles and the indications for sulphur baths.

MESSRS. J. AND A. CHURCHILL announce for early publication: *The Chemistry of the Proteins*, by Dr. Dorothy Jordan Lloyd; *Recent Advances in Biochemistry*, by Dr. John Pryde of the Physiology Department, University College, Cardiff; the fourth edition of Sir Maurice Craig's *Psychological Medicine*, in which Dr. T. Beaton has collaborated; and a new edition of Dr. M. Dobbie's translation of Arvedson's work on *Medical Gymnastics and Massage in General Practice*.

MR. HENRY KIMPTON announces for early publication: *The Principles and Practice of Endocrine Medicine*, by William Nathaniel Berkeley, M.D.; *A Descriptive Atlas of Visceral Radiograms*, by A. P. Bertwistle, M.B., F.R.C.S.E., and E. W. H. Shenton, M.R.C.S., L.R.C.P.; *A Handbook of Diseases of the Rectum*, by Professor Louis J. Hirschman, M.D.; and *Modern Methods of Amputation*, by Professor Thomas G. Orr, M.D.

THE March issue of *The Industrial Chemist* contains an account of the chemistry and applicability of microscopic stains. In addition to the chemical composition and indications for use of the more common dyes after tissues have been fixed, the process of *intra vitam* staining is considered. Free reprints of the article may be obtained from the editor at 33, Tothill Street, S.W.1.

WE have received a copy of *L'Oto-rhino-laryngologie Chirurgicale*, which is a special number issued by the *Strasbourg Médical*, a journal founded under the name of the *Gazette médicale de Strasbourg* in 1843. This number, which is edited by Professor G. Canyot, who holds the chair of oto-rhino-laryngology at Strasbourg University, contains, among others, original articles by Professor J. Moutet of Montpellier on the importance of anatomy in oto-rhino-laryngology, by Dr. L. Dufourneubel of Paris on methods of general anaesthesia in cervico-facial surgery, by Dr. Jean La Barre of Brussels on the causes of haemorrhage, and Professor Canyot's inaugural address.

A POST-GRADUATE vacation course dealing generally with tuberculosis and Alpine climate (the third of its kind) will be held at Davos from August 22nd to 27th. The programme will comprise lectures and demonstrations by the medical men of Davos on the climatology, pathology, diagnosis, and prognosis of tuberculosis. The lectures are given chiefly in the French and German languages, but arrangements are being made this year for certain lectures and demonstrations in English. It is hoped that many English medical men will avail themselves of this opportunity of seeing Davos and making themselves acquainted with the work done there. Information and assistance in regard to the course will be given by Dr. Bernard Hudson, Victoria Sanatorium, Davos-Platz.

MR. GEORGE BLUMENTHAL of New York has presented 60,000 dollars to the Assistance Publique of Paris for the construction of an oto-rhino-laryngological pavilion at the Hôpital des Enfants Malades.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 2861, 2862, 2863, and 2864** (internal exchange, four lines).

THE TELEGRAPHIC ADDRESSES are:

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FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscen Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4757 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

ALPINE "SNEAKERS."

DR. CLAUDE WILSON (Tunbridge Wells), a former vice-president of the Alpine Club, writes with reference to the inquiry of "A.R." on March 20th (p. 554) for information about the prevention of sunburns in the higher Alps. He states that the late Dr. Bowles of Folkestone and London was the first to notice that people who freckled became sunburnt between the freckles and not on them. He therefore painted the faces of blonde girls who ascended the Schilthorn from Mürren with a yellowish-brown pigment, and found that they did not burn. These experiments were

made in the eighties. In 1898 Dr. Sechehaye of Geneva, while experimenting with x rays, discovered a yellow substance which was particularly opaque, and with it he prepared a skin cream, which is stated to be an efficient prophylactic against Alpine sunburn and also sunstroke. It is dispensed in convenient collapsible tubes under the title of "Pomade du Dr. Sechehaye" by the Pharmacie Haussier, 10, Bourg-de-Four, Geneva, price 2.50 (Swiss) francs. With regard to treatment, Dr. Wilson says that hot-water sponging, followed by a bland powder ("psma" is said to be one of the best), and then by an application of vaseline, when the skin becomes dry, will relieve the pain and cure the dermatitis within two or three days.

"STATIC ALBUMINURIA."

"L.R.C.S.ED., X.Y.Z." writes: In the BRITISH MEDICAL JOURNAL of April 3rd "F.R.C.P." asks advice as to the cure of "static albuminuria." I hesitate to tackle the subject, as in the Editor's opinion it seems, so far, to have merited only four lines of small type. I think it is impossible even for an editor to deal with the matter in such brevity. I prefer the term "orthostatic," as the albuminuria chiefly occurs when the patient assumes the erect posture. Prolonged rest, which he says cures for a time, is most certainly not the best treatment. "F.R.C.P." says that he can find very little literature on the subject, but if he cares to overhaul the volumes of the BRITISH MEDICAL JOURNAL for the last forty years he will discover a good deal of writing, wise and otherwise—mostly otherwise—on this disturbance. It must be nearly forty years since I heard the late Dr. Pavy deal with this trouble at an Annual Meeting of the British Medical Association in, what then seemed to me, a rather perfunctory manner. It has been described under various titles, such as static, orthostatic, and, not infrequently, as the albuminuria of adolescence, which is about as sensible, or as stupid, whichever way you choose to look at it, as the so-called juvenile pulse. It is also frequently styled neurasthenia by those who do not trouble to examine the urine. This condition is associated with defective vasomotor tone in the splanchnic area, and comes within the late Albert Abrams's category of cardio-splanchnic paresis. When the patient is recumbent the blood pressure is low and there is an even distribution of blood throughout the body, but once the erect posture is assumed there is not sufficient response in the splanchnic area to raise the pressure; the patient looks pallid and may even feel faint for a short time, but quickly the reciprocal action of the vasomotor system in the peripheral vessels comes into play, the arterioles and arteries become firmly contracted, and the pressure is raised. The paresis of the parasympathetic in the splanchnic area remains and the abdominal organs are congested.

I would recommend "F.R.C.P." to read that excellent little book by Dr. Langdon Brown on the *Sympathetic Nervous Systems in Disease*, and he might peruse with advantage the best lecture which has appeared in the BRITISH MEDICAL JOURNAL this year—that by Professor John Fraser (February 27th) on disturbances of the involuntary nervous system met with in the alimentary tract. He will then be in a position to study the monumental work of Albert Abrams on spondylotherapy, which deals with all the spinal reflexes.

Having now put "F.R.C.P." in the way of acquiring all necessary information, I shall briefly summarize my own method of treatment. A long night's rest in the recumbent posture. During the day wear tightly an elastic abdominal belt, plenty of exercise, especially hill climbing, which induces deep breathing. A plain, liberal diet—beef, mutton, chicken, fish, vegetables, milk puddings, and milk in moderation; not much slops of any kind. Too free a use of decalcifying agents even in health may bring on temporary albuminuria; it is, therefore, well to avoid acids, acid fruits, sweets, and much starchy food. Lime is essential, but it should be prescribed in moderation, as too much is apt to depress the peristaltic action of the bowel. Moreover, it is only absorbed as an oleate, so I find it best to prescribe one large dose at bedtime, along with one or two tablespoonfuls of cod-liver oil or olive oil; pilocarpine, which has a synergic action to the parasympathetic, is useful in small doses. The best purgative, in my opinion, is the acid phosphate of sodium, which stimulates peristalsis, and the *Bacillus coli* does not seem to flourish in its presence, as the offensive odour of the faeces disappears. To those acquainted with the spinal reflexes I would recommend concussion of the eighth and second dorsal spines two or three times daily.

LETTERS, NOTES, ETC.

IMPREGNATIO MULIERIS ARTIFICIOSA.

WE have received from a general practitioner of great experience (who for obvious reasons prefers to be anonymous) the following note, which we agree with him in considering of general interest from more than one point of view:

In early childhood XY, now aged 35, had had an operation performed on him for extroversion of the bladder, the ureters and seminal ducts being turned into the rectum. The operation was very successful, and in time he was able to hold his water for about five hours. At the age of 30 he married, his wife being fully cognizant of his infirmity. After five years both she and he were intensely desirous of having a child, and inquired whether it was possible to attain this object artificially. On examination he was found to be a strong man of excellent physique and in perfect health. There is a firm triangular scar in the pubic region, the penis being grooved on its dorsal aspect, a deeper sulcus partially dividing the glans. The testicles are

well developed, firm, and healthy. The semen was found healthy, with a proper proportion of living spermatozoa. After discussion it was decided that in the circumstances it was justifiable to make the attempt, the difficulties being fully appreciated. He was directed thoroughly to wash out and cleanse the rectum with hot soap and water, and then to inject a small quantity of a solution of sodium bicarbonate (gr. v to the ounce), part of which might be retained with the object of neutralizing any very acid urine which might ooze into the bowel. Directly after intercourse the semen was voided into a warmed cup and with the least possible delay injected high up into the vagina but not actually into the os uteri. This was done a day before the onset of an expected period, and again on the sixth and seventh days from the commencement of the period. Three times there was no result, but the fourth time impregnation took place and a perfect and healthy child was born 276 days from the date of the premenstrual injection, or 270 days from the date of that done on the sixth day after the commencement of the period.

LIGHTNING AND FORKED LIGHTNING.

DR. G. C. SIMPSON, F.R.S., Director of the Meteorological Office, communicated to a recent meeting of the Royal Society his results of an investigation of the discharge of electricity through clouds. His conclusions drawn were: The conducting medium originates in the region of maximum humidity only in the direction of the seat of negative electricity. A negatively charged cloud can only be discharged by a discharge originating in a positively charged cloud, or in the induced positive charge on the earth's surface. A positively charged cloud may be discharged by discharges starting in the cloud and terminating either in the surrounding air or on the earth's surface. If a lightning flash is branched the branches are always directed towards the seat of negative electricity. The application of these conclusions to 442 photographs of lightning discharges reveals the fact that the majority of lower clouds from which discharges proceed are positively charged.

ACTINOMYCOSIS SUCCESSFULLY TREATED BY IODINE IN MILK.

MR. W. D. (a medical student), writes: I have read with some interest the article of March 6th (p. 418) by Mr. H. J. (a medical student) on the successful treatment of actinomycosis by iodine in milk. We have used iodine in milk as more or less of a specific in the treatment of actinomycosis. I have used it with liq. donovani or of hyd. iod. solution of potass. iod. content of the one and mercurial of the other has any contributory effect or not I am unable to say categorically, although the antiparasitic and penetrating action of both might well be of assistance. Generally speaking, the improvement is most usually met with—namely, in the tongue, with its invasions of the jaw and facial bones—is nothing short of marvellous, even if of long-standing and malignant degree. Given in fairly heroic doses, I administer either only in a little cold water, and being both odourless and tasteless the administration is easy. Their colloidal exhibition in milk might be an improvement, and at the first opportunity I will give the iodine as recommended by Mr. Chitty a trial, either in the form of tincture or Lugol's solution, and will compare the results.

ANOTHER UNUSUAL PRESENTATION.

DR. W. B. HUNTER (Londonderry) writes, with reference to Dr. D. J. Malan's report (March 13th, p. 476) of a case of unusual presentation, to describe a somewhat similar experience many years ago. Dr. Hunter on his first examination of the patient found that the membranes had ruptured previously and spontaneously and that a foot was lying in front of the head. He was able to trace the sole of the foot from the heel to the toes, and concluded that he had to deal with a twin pregnancy. On making an attempt to push the foot up and out of the way he discovered that the obstruction had been born soon afterwards. Examination of the child showed that such was present. Dr. Hunter then succeeded in placing the foot of the child on to its head in the position discovered at his first examination. He states that the baby was lively and the joints of the leg did not seem to be abnormal, except perhaps that they were rather more mobile than usual. He adds that Dr. Matthews Duncan, then living in Edinburgh, said that such a case was uncommon but not unknown.

CORRECTION.

DR. FREDERICK HEAF (King Edward VII Memorial Sanatorium, Hertford Hill, near Warwick) asks that an error in the last issue of the JOURNAL be corrected. In the paragraph under the heading "Sancrocylin" (p. 630) his remarks were attributed to "Dr. Heath." The mistake was due to a clerical error.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 45, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 120.

An Experimental Investigation INTO THE ETIOLOGY OF ACCIDENTAL HAEMORRHAGE AND PLACENTAL INFARCTION.*

(Preliminary Communication.)

BY

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(With Special Plate.)

In spite of much research work within recent years comparatively little has been discovered concerning the causation of accidental haemorrhage. Most writers, including Gordon Ley¹ and Whitridge Williams,² have agreed in ascribing it to toxæmia of pregnancy, while others, led by James Young of Edinburgh, have looked upon the toxæmia as secondary to and consequent upon the haemorrhage. According to Young³ the placenta separated by haemorrhage undergoes necrosis, and during the early stages of the necrosis autolytic products are absorbed into the circulation through the portion of placenta still attached to the uterine wall. These products, acting upon the maternal organs, especially kidneys and liver, set up the changes commonly associated with the toxæmias of pregnancy. The cause of the haemorrhage Young and his followers leave undetermined, but they suggest that it may be ascribed to a primary thrombosis of unknown origin in the veins of the broad ligament or uterus causing engorgement and rupture of the veins of the decidua and uterine wall. It is true that frequently, in cases of concealed haemorrhage, thrombi are found in the ovarian veins; but seeing how free is the anastomosis between the various veins that drain the uterus, it has always seemed to me difficult to believe that this thrombosis, unless it occurred suddenly and involved all the venous drainage of the uterus, could produce haemorrhage even in an organ so vascular as the pregnant uterus. Morse,⁴ for example, found that he could not produce haemorrhage in the uterus of the pregnant rabbit unless he ligatured all the veins—namely, the ovarian, mesometrial, and utero-vaginal—going off from one cornu. If all the veins were ligatured intense utero-placental apoplexy was produced, the uterine wall being ploughed up by the blood. Obviously nothing else can happen in such a vascular organ if all the veins are ligatured, and Morse himself attaches no clinical importance to this experiment. I hope to prove in this paper that the thrombosis is the result of the toxæmia, not its cause. Morse also produced haemorrhage by extreme rotation of the uterus on its long axis. From the latter experiment he argued that torsion of the uterus is a cause of accidental haemorrhage, and especially of utero-placental apoplexy. Whitridge Williams,² in a recent review of the subject, has expressed his scepticism regarding the importance of uterine torsion as a cause, and writes as follows:

"Since the appearance of his [Morse's] paper we have been careful to note the position of the uterus whenever the abdomen is opened, but in none of our patients treated by Caesarean section did the uterus present evidence of being markedly twisted upon its vertical axis. It is true that Polak has reported and pictured an instance in which such torsion had occurred that the Caesarean incision lay in the neighbourhood of the insertion of the left round ligament, but so far as I am aware it is the only evidence that has been adduced in support of Morse's contention."

From my own experience of Caesarean section I can say that I have more than once found a degree of rotation towards the right, almost as marked, without any evidence of haemorrhage. Trauma has also been invoked as a cause. Certainly a definite history of trauma can be obtained in some cases, but the association is probably coincidental.

ORIGIN OF THIS INVESTIGATION.

In September, 1923, while working in collaboration with Dr. W. R. Logan, clinical bacteriologist, Edinburgh Royal Infirmary, on the paths of intranatal infection in the newly born infant, we had injected a healthy rabbit, twenty days pregnant, with an emulsion of *Bacillus pyocyaneus* in saline. Six hours after injection we found the rabbit bleeding profusely from the vagina. On being removed from its cage to the experimental room the bleeding continued, about 3 drachms of blood being lost on the table in a few minutes. Under ether anaesthesia the abdomen was opened and the left pregnant horn exposed. On opening the lowest sac a recently dead foetus was found, and a retroplacental clot entirely or almost entirely separating the placenta (Fig. 1). The foetus with its placenta and adherent clot was removed and preserved. The other sacs (there were four in each horn) contained normal living foetuses and showed no evidence of haemorrhage. The empty sac from which bleeding had occurred was immediately placed in Pick's solution, together with pieces of the mother's liver and kidneys.

Microscopic examination of the sac wall (uterine wall) in relation to which the retroplacental haemorrhage had occurred showed well marked oedema throughout which widely separated the muscle bundles. In the mucosa of the placental site, adjacent to the zone of separation, there was well marked blood extravasation, and at one part the extravasated mass lay in relation to a ruptured maternal capillary, about one-third of the wall of which was more or less completely destroyed. No haemorrhage was observed in the muscular wall of the uterus. The kidney showed acute congestion of the glomerular and intertubular capillaries. The glomeruli were congested, but otherwise healthy. There was acute parenchymatous nephritis, shown by cloudy swelling of the epithelium of the convoluted tubules, so that the latter seemed in many places blocked by the epithelial swelling (Fig. 2). The epithelium of the straight tubules appeared fairly normal. No actual necrosis was observed, and no haemorrhage or thrombosis. There was also present in the kidney a certain amount of old interstitial change. The liver showed round-cell infiltration of the portal tracts and fatty change in the liver cells. The latter, however, is probably a fairly common finding in the normal liver of the rabbit, and we attached no significance to it. There was no thrombosis nor focal necrosis.

Realizing the importance of this result we made numerous attempts to repeat the result in pregnant rabbits, using various organisms and other substances by intravenous injection. In all, 34 experiments were carried out for this purpose subsequent to the success of September, 1923, the materials used being as follows: *B. pyocyaneus* (9 cases); *B. coli* (4); *streptococcus* (1); *B. mesentericus* (1); *B. typhosus* (2); *B. paratyphosus* (2); saline solution (4); *Staphylococcus aureus* (1); pneumococcus (3); histamine (4); ricin (2); toxins obtained by putrefying meat for three weeks and filtering through a Berkefeld filter—injected on three successive days (1). Many of the series died in twenty-four to forty-eight hours after injection, while a few aborted, but in none of the thirty-four did any haemorrhage occur except once, immediately after a histamine injection. Immediately after injection bleeding started, followed by abortion on the operating table. The three other histamine rabbits also aborted, two of them without any haemorrhage, while in the other a slight haemorrhage occurred. As slight haemorrhage at the time of littering is usual in the rabbit we discounted this.

These experiments were concluded in May, 1925, and had ended in almost complete failure to reproduce the first and only success (of September 8th, 1923). There was evidently some factor essential for success that we had so far failed to recognize. Up till this time I had looked on the nephritis not as a predisposing cause of the haemorrhage, but on the nephritis and the haemorrhage as both being due to the same cause—namely, toxæmia—and both as end-results of the toxæmia.

At this stage Dr. Logan withdrew from the investigation as the experimental portion (on the paths of intranatal infection) had been concluded, and the present work seemed to have little or no bacteriological bearing.

* Read at a meeting of the Edinburgh Obstetrical Society, March 10th, 1925.

During the time that the above negative experiments were going on, being interested in the subject of accidental haemorrhage, I had personally been taking very careful notes of all the cases seen in the Royal Maternity Hospital and in private practice, and began to be impressed by the frequency with which I could obtain a history of nephritis or of albuminuria in pregnancies preceding that in which accidental haemorrhage had occurred. But, with one exception, none of these cases had been followed up in the intervals between pregnancies, so it was impossible to say with certainty whether the nephritis accompanying the haemorrhage had preceded or followed the placental separation. In one case, however, the evidence was clear, for I had got the patient back in the interval between pregnancies for examination of kidney function.

The woman was an 11-para; first nine children alive and well; the ninth was born in 1921, the tenth (macerated) in 1922. On July 28th, 1924 (twelfth pregnancy), she was admitted with accidental haemorrhage and albuminuria. The same day she was delivered of a premature stillborn foetus. On leaving hospital her urine contained a trace of albumin; blood pressure normal. On November 10th the urine still contained 1 per cent. of albumin, and on February 15th, 1925, it contained 0.07 per cent.

During her stay in hospital her urea concentration was estimated twice, the highest concentration obtained being 1.8 per cent.; blood urea=43 mg. per cent., non-protein nitrogen 38 mg. per cent. At the visit on February 15th, 1925, she was again three months pregnant. In May she was admitted with concealed haemorrhage, albuminous urine, and a tense and ligneous uterus. She was treated conservatively by rupture of membranes and pituitary extract, and a 7 months dead foetus was delivered. On discharge from hospital there was still albuminuria.

These cases induced me to believe that nephritis was an important predisposing cause of accidental haemorrhage,

and I decided to make attempts to produce nephritis in animals, and then in those animals in which nephritis had been set up to introduce toxins. If my theory were correct I should then be able to cause accidental haemorrhage.

EXPERIMENTAL NEPHRITIS.

Prior to 1924 we had no even moderately certain method of producing nephritis, either acute or chronic, but in that year were published two important papers³ by Shaw Dunn, Haworth, and Jones of Manchester on oxalate nephritis, which showed that it was possible, by injecting oxalates into rabbits, to produce in them the lesions of acute parenchymatous nephritis. In November, 1925, I therefore stocked 34 female rabbits and began attempts to produce kidney lesions according to the method of Shaw Dunn, Haworth, and Jones, with some slight modifications.

Method.

Sodium oxalate was used throughout in 1 per cent. solution. The rabbits were weighed each morning before injection and drawing off blood, and 50 mg. per kilo of body weight, or a dose as nearly as possible approximating this, was injected into the ear vein. This was repeated at varying intervals, depending upon the effect produced. Blood was drawn off also at varying intervals and the blood urea estimated, using a modification of Marshall's urease method and 1 c.cm. of whole blood for each estimation, with frequent controls by standard urea solutions. The blood urea was taken as the clinical index of the onset and duration of the nephritis. The results obtained in three typical cases are shown in Table I.

TABLE I.—Results of Experiments in Three Typical Cases.

Rabbit B 8.				Rabbit B 11.				Rabbit B 30.			
Date.	Weight (Grams).	What Done.	Blood Urea (mg. %).	Date.	Weight (Grams).	What Done.	Blood Urea (mg. %).	Date.	Weight (Grams).	What Done.	Blood Urea (mg. %).
1925.				1925.				1925.			
Nov. 10	1595	Sod. oxalate (1 per cent.) 4 c.cm.		Nov. 10	1800	Sod. oxalate (1 per cent.) 4 c.cm.		Dec. 11	2210	Bled	43
Nov. 13	1510	Sod. oxalate 5 c.cm.		Nov. 13	1850	Sod. oxalate 7 c.cm.		Dec. 17	—	Oxalate (1 per cent.) 5 c.cm.	
Nov. 17	1400	Sod. oxalate 5 c.cm.		Nov. 17	1700	Sod. oxalate 5 c.cm.		Dec. 21	—	Bled	21
Dec. 23	—	Bled	36	Nov. 24	—	Bled	25	Dec. 23	2230	Oxalate 6 c.cm.	
Dec. 29	1750	Sod. oxalate— 10.30 a.m. 8 c.cm. 11.15 a.m. 2 c.cm.		Nov. 25	1775	11 a.m.: Sod. oxalate in 3 doses at half-hour intervals = 50 mg. per kilo		Dec. 24	—	Bled	47
Dec. 30	1800	Bled	86	Nov. 25	—	11 a.m.: Bled	60	Dec. 28	2330	Bled	56
1926.				Nov. 27	—	11 a.m.: Bled	94	Dec. 30	—	Oxalate 11 c.cm.	
Jan. 4	—	Bled	75	Nov. 30	—	12 noon: Bled	86	Dec. 31	2150	Bled	85
Jan. 6	1950	Oxalate— 10.15 a.m. 4 c.cm. 11.0 a.m. 2 c.cm. 11.30 a.m. 3 c.cm.		Dec. 2	—	Bled	85	1926.			
Jan. 7	1700	Bled	58	Dec. 8	—	Bled	47	Jan. 5	1850	Bled	128
Jan. 8	1930	Bled	45	Dec. 23	—	11 a.m.: Bled	38	Jan. 9	2030	Bled Oxalate 10 c.cm.	69
Jan. 12	2050	Oxalate 8 c.cm.		Dec. 29	1700	10.45 a.m.: Sod. oxalate 5 c.cm. 11.20 a.m.: Sod. oxalate 5.5 c.cm.		Jan. 12	1900	Bled	58
Jan. 14	2010	Bled	68	Dec. 30	1700	Bled	64	Jan. 23	2000	Bled	43
Jan. 16	1840	Oxalate 8 c.cm.		1926.				Jan. 25	2060	Oxalate 8 c.cm.	
Jan. 18	2030	Bled	60	Jan. 4	—	Bled	54	Jan. 27	—	Oxalate 8 c.cm. Bled (Partly lost power of legs immediately after injection; recovered in about one hour.)	77
Jan. 20	2250	Oxalate 7 c.cm. Streptococci 2 c.cm.		Jan. 6	1900	10.25 a.m.: Oxalate 5 c.cm. 11.5 a.m.: Oxalate 2 c.cm. 11.35 a.m.: Oxalate 2 c.cm.		Jan. 29	1975	Bled	90
Jan. 22	2225	Bled	43	Jan. 7	1700	Bled	218	Jan. 30	—	Bled	91
Jan. 26	2200	Oxalate 10 c.cm. Bled	56	Jan. 8	1755	Bled	227	Feb. 2	1900	Bled	47
Feb. 26	—	Oxalate (1 per cent.) 10 c.cm. Bled	64	Jan. 14	1780	Bled	25	Feb. 25	20 days pregnant	Oxalate 8 c.cm.	
Feb. 27	—	Bled Oxalate 4 c.cm. B. pyocyaneus 1.5 c.cm.	116	Jan. 16	17.5	Bled	34	Feb. 26	—	12.45 p.m.: Oxalate 3 c.cm. B. pyocyaneus 1.5 c.cm.	
Mar. 1	—	Oxalate 9 c.cm. Bled	73	Jan. 13	1735						
Mar. 3	—	11 a.m.: B. pyocyaneus 1.5 c.cm. Bled Killed at 5 p.m.	56	Jan. 26	1820	Sod. oxalate 8 c.cm.				Bled (Kept on dry food for two days prior to injection.)	77
				Jan. 27	—	Bled	81				
				Jan. 29	—	Bled	47				

Note.—Rabbit B 8 had full-time young on January 25th; they were dead when found; there was no haemorrhage. On February 25th it was twenty days pregnant again. On March 2nd it had several haemorrhages at 9 a.m. On March 3rd it had profuse haemorrhage at 12.15 p.m.; killed at 5 p.m.

Three of the rabbits were kept in urine cages and twenty-four hour specimens of urine collected, measured, and tested for albumin daily, and the urea concentration estimated.

TABLE II.—Urea Concentration (Rabbit B33).

b. Date.	Weight (Grams).	What Done.	Blood Urea. mg. % 73	Urine (24 hrs.). c.cm.	Urine Urea. grams %	Urea Con- centration.	Albu- min.
1925. Jan. 5	2450	Bled	58	120	2.3	40	—
Jan. 12	—	Bled	—	20	3.15++	—	—
Jan. 16	—	—	—	22	3.15++	—	—
Jan. 18	—	—	—	—	—	—	—
Jan. 20	2400	Bled. Oxalate 1% 10 c.cm.	30	230	2.0	66	—
Jan. 21	2130	—	34	130	1.4	41	—
Jan. 22	2130	Oxalate 10 c.cm.	—	80	1.5	—	—
Jan. 25	2153	Bled	128	190	2.25	17	—
Jan. 26	2230	Oxalate 5 c.cm.	—	320	1.8	14	—
Jan. 27	2230	Bled	34	160	1.6	47	—
Feb. 2	2220	Oxalate 10 c.cm.	—	80	1.9	—	—
Feb. 4	—	Bled	78	220	1.5	19	Trace.
Feb. 9	2270	Oxalate 9 c.cm.	—	—	—	—	—
Feb. 10	—	Bled	43	72	2.4	54	Trace.
Feb. 15	2200	Bled	73	23	2.2	30	Slight trace.
Feb. 16	—	—	—	52	3.15+	—	"
Feb. 17	—	—	—	110	2.3	—	"
Feb. 18	—	—	—	220	2.15	—	"
Feb. 18	—	—	—	400	1.35	—	"

Note (1) the fall in the urea concentration to 14 on January 25th; (2) the absence of albumin in the urine on that day, when the blood urea reached 128 mg. per cent., and at no time was more than a trace present.

As the ultimate object of the research was the production of accidental haemorrhage, and not the study of nephritis, I merely wanted to be sure that I had produced nephritis, and therefore paid less attention than I otherwise might to the many fascinating physiological and pathological questions involved in the experiments. Two points, however, deserve special notice:

(a) The very rapid rise in the blood urea. After injection with oxalate this not infrequently rose in a few hours to a very high figure (for example in rabbit B11 (see Table I) the blood urea rose in twenty-four hours after injection of 9 c.cm. of oxalate from 54 to 218 mg. per cent.), and would almost as rapidly drop from this high figure to normal.

(b) Even in cases in which the blood urea was at a high figure and in which, therefore, there was an acute nephritis present, albumin might be entirely absent (see rabbit B33 in Table II, in which on January 25th the blood urea was 128 mg. per cent. and yet the urine was albumin-free). This is a point of great clinical importance and will be referred to later.

The work on nephritis was continued throughout November, December, and January, and on February 1st it was stopped and the rabbits mated. At this time I was left with 26 rabbits, 8 having died from various causes connected with the experiments (overdosage, etc.), and in practically all of these 26 I had obtained evidence of the production of nephritis by a rise in the blood urea at some time or other during the course of the work. From histological examination of the kidneys of several of the series I now know that I had produced very well marked early interstitial nephritis as well.

General Account of the Kidney Lesions.

Generally speaking the kidneys appeared enlarged, congested, and oedematous, but in none of my cases so far examined have haemorrhagic lesions been produced. The

capsule stripped easily, even in those that had been killed most recently and which had therefore suffered from nephritis for about three months.

Rabbit B12 may be described as fairly typical of the kidneys so far examined. This animal had been under treatment from November 10th, 1925, till January 26th, 1926, when it died in a convulsion immediately after an injection of oxalate. Its blood urea on January 4th had reached 141 mg. per cent., but at the time of death had fallen to normal, the urea in the heart blood being 30 mg. per cent. The kidneys were congested, but there were no haemorrhages and the capsule stripped easily. Microscopically (Figs. 3 and 4) the glomeruli were swollen and congested, but there was no exudate in the capsular spaces. Cloudy swelling was present in many of the convoluted tubules, but this change was not universal, and was most marked in the first convoluted tubules. Some tubules were dilated and filled with secretion. There was well marked early interstitial change and oedema in the cortex, best marked among the small collecting tubules.

Rabbit B9 had been under treatment from November 10th till January 10th, when it was found dead in its cage. It had previously become much emaciated. Its blood urea had been, at the last estimation, two days before death, 227 mg. per cent., its normal being 26. The convoluted tubules showed marked cloudy swelling and necrosis so that the lumina were almost closed. Some highly refractile fatty granules were present in the cells and some in the lumina of the tubules (Figs. 5 and 6). Some nuclei were pyknotic, others undergoing karyorrhexis or karyolysis. Well marked early interstitial change was present throughout the cortex, and here and there in the newly formed interstitial tissue were deposits of lime salts, probably calcium oxalate. It may be assumed that these originally lay in the tubules that had undergone necrosis, and that they had, as it were, become stranded in the newly formed interstitial tissue.

PRODUCTION OF ACCIDENTAL HAEMORRHAGE.

I decided that on the twentieth day of pregnancy (the duration of pregnancy in the rabbit is thirty days) I would make attempts to produce accidental haemorrhage. Twenty days would correspond to the sixth month in the human subject, a time when accidental haemorrhage frequently occurs.

Rabbit B7 reached the twentieth day on February 23rd, 1925. It had been under treatment from November 10th, 1925, to January 30th, 1925. Its blood urea, however, had never reached a very high figure, the highest being 102 mg. per cent. on January 27th. By January 30th the blood urea had again fallen to normal—namely, 25 mg. per cent.

On February 23rd, at 12 noon, 8 c.cm. of sodium oxalate were administered intravenously. The animal was placed in a cage with clean cotton-wool in the bottom, and was watched constantly. The next day, at 9 a.m., a haemorrhage had occurred. Two parts of the cotton-wool were stained, and the total amount was estimated at about 2 drachms. The rabbit was still pregnant. Blood urea was estimated at 12 noon, and was 79 mg. per cent. At 12 noon 3 c.cm. of oxalate were given plus 1 c.cm. of emulsion of *B. pyocyaneus* in saline. At 1 p.m. two fresh haemorrhages occurred, at 7 p.m. a third, and at 7.30 p.m. it was killed by chloroform. Three foetuses were in the right horn and two in the left. The cornua were removed and placed in fixative. On sectioning the placentas *in situ* after fixation several were found to contain what looked like infarcted areas, but they have not been examined microscopically.

Rabbit B24. This animal had been under treatment by oxalates from November 11th, 1925, till February 2nd, 1926. Its blood urea had risen from a normal level of 25 to 120 mg. per cent. on December 30th. On February 2nd it was still 73.

On February 21st it was twenty days pregnant; 7 c.cm. of oxalate were given at 11 a.m. No haemorrhage occurred all that day. The following day the blood urea = 98 mg. per cent.; 2 c.cm. of oxalate plus 1 c.cm. of *B. pyocyaneus* emulsion were given at 12 noon. No haemorrhage occurred during the day.

The first haemorrhage occurred at 9.45 a.m. on February 25th. The cotton-wool on the floor of the cage was half an inch thick, and was soaked through; the stain measured 3/4 by 1 1/2 in., and the amount of blood lost was therefore estimated at half a drachm. At 12 noon she aborted two foetuses, which seemed to have been dead for one or two days. She was examined at 12.15 p.m. and found still pregnant. Another large haemorrhage had occurred in the last quarter of an hour, but no further abortion. At 1 p.m. a further large haemorrhage occurred. The animal was killed by chloroform. Just before killing it aborted two more foetuses and one placenta. At *post-mortem* examination the uterus was found to contain three foetuses still.

Rabbit B31 had been under treatment by oxalates from December 11th, 1925, till January 27th, 1926. Blood urea = 107 mg. per cent. on January 4th, but on February 2nd had fallen to normal again (30 mg. per cent.).

No bleeding had occurred before February 26th. At 12.45 p.m. on this day the blood urea estimation = 103 mg. per cent.; 3.5 c.cm. of sodium oxalate were given plus 1.5 c.cm. of *B. pyocyaneus* emulsion. At 2.30 about half a teaspoonful of blood passed. No further haemorrhage occurred, and on examination on March 1st it was found to have aborted without haemorrhage and eaten foetuses.

Rabbit B28 had been under treatment with oxalates from November 24th, 1925, till the end of January, 1926. The blood urea had never reached a high figure, the highest being 81 mg. per cent. on January 21st.

On March 1st the animal was twenty days pregnant. Sodium oxalate 7.5 c.cm. was given intravenously. The next day at 9.30 a.m. it discharged half a drachm of blood. At 11.45 a.m. 1.5 c.cm. of *B. pyocyaneus* emulsion was injected intravenously; the blood urea was now 124 mg. per cent. No further haemorrhage occurred all this day.

At 9 a.m. on March 3rd about 2 drachms of blood had just been passed. The rabbit was still pregnant. At 8 p.m. a fresh bleeding occurred—about 1 drachm. At 12 noon the next day another haemorrhage occurred; there was no abortion, but the foetuses were getting smaller during the last two days and were probably dead. On March 6th a fresh bright red haemorrhage occurred, about half a drachm.

The animal was killed by chloroform on March 8th at 4.30 p.m. The foetuses in the sacs were almost entirely absorbed, only a putty-like material remaining.

PLACENTAL INFARCTION.

Rabbit B30 (see Table I for details of preparatory treatment.)

On February 25th the animal was twenty days pregnant. At 11 a.m. 8 c.cm. of oxalate were injected. No haemorrhage occurred all this day. The next day, at 12.45 p.m., the blood urea=78 mg. per cent. Sodium oxalate 3 c.cm. plus 1.5 c.cm. of *B. pyocyaneus* emulsion was given intravenously. At 3.30 p.m. it was dull and not eating food, but no haemorrhage had occurred. At 4.45 p.m. a spot of fresh blood passed. At 5.45 p.m. it discharged about half a drachm of blood. There was no further haemorrhage that day.

At 9 a.m. on February 27th the animal aborted one fresh foetus. At 9.35 it discharged more fresh blood, and again at 10.4 a.m.—about half a drachm each time. It was killed by chloroform at 11.30 a.m. One foetus was expelled from the cornu by peristaltic contractions after excision of the uterus, and the foetus in the sac above was partly expelled. The cornua still contained several foetuses. They were fixed immediately in formalin solution. The kidneys seemed to be enlarged, congested, and oedematous.

On March 2nd all the sacs were examined by sectioning with a sharp scalpel, cutting through the foetus transversely and across the placenta and its attachment to the cornu. All the placentas were found to contain numerous thrombi and infarcted areas (three typical ones are shown in Figs. 7, 8, and 9). The foetuses still *in situ* were macerated, but not very markedly so, and had apparently been dead for about two days, the time probably varying somewhat in each individual case. Between the membranes and the uterine wall in one of the sacs there was a haematoma of exactly the size seen in the accompanying figure (Fig. 7). The placental tissue surrounding and between the thrombi was of a firm and liverish consistence, quite different from normal spongy placental tissue. In two cases the uterine wall underneath the placental site was seen to contain blood (Figs. 8 and 9).

Microscopically the infarcted placenta presented all the appearances familiar to us in recent infarcts of the human placenta (Figs. 10 and 11). The villi contained enormously dilated and engorged capillaries. So closely packed were the villi that the intervillous channels seemed to be almost entirely obliterated, and indeed were only visible here and there as slits between the villi. This appeared to be due to the great distension of the foetal capillaries, but was also probably due, as Eden² has shown in the case of the human placenta, to the fact that the thrombus had cut off the supply of maternal blood from the intervillous spaces and thus allowed the villi to fall together. Throughout the fibromuscular wall of the uterus there were several haemorrhages easily evident in most of the sacs to the naked eye. Microscopically these haemorrhages were found to lie amongst the muscle fibres (Figs. 12 and 13), and could in most cases be traced to capillaries the walls of which seemed to have given way. A plasma-like fluid also present amongst the muscle fibres gave the appearance of oedema (Fig. 12).

Rabbit B8—twenty days pregnant (see Table I)—received on February 26th 10 c.cm. of oxalate intravenously; the blood urea at time of injection=64 mg. per cent. No haemorrhage occurred all day. The next day 4 c.cm. of oxalate plus 1.5 c.cm. of *B. pyocyaneus* emulsion were injected. On March 1st 9 c.cm. of oxalate was given; the blood urea then was 73 mg. per cent. A few drops of blood were found at 9 a.m. on March 2nd. At 9.10 there was a discharge of about 1/2 c.cm. At 11.20 a.m. 1.5 c.cm. of *B. pyocyaneus* emulsion was injected. The blood urea was 56 mg. per cent. At 12.15 p.m. a further profuse haemorrhage occurred. The animal was killed by chloroform at 5 p.m. The heart blood urea=116 mg. per cent. Urine obtained from the bladder contained no trace of albumin (Heller's test). The kidneys were large, congested, and oedematous. Each uterine sac contained a mass of material resembling hydatidiform mole, which has not so far been examined microscopically. The urine obtained from the bladder at post-mortem examination contained no trace of albumin (Heller).

At this stage therefore I had attempted to produce accidental haemorrhage in six animals and in all the attempts had been successful. There had been produced external accidental haemorrhage, concealed haemorrhage, including haemorrhage in the uterine wall, and placental infarction. There seemed, therefore, to be no further object in continuing this particular experiment, especially as it was seriously depleting my stock of nephritic animals.

EVIDENCE UPON SPECIAL POINTS.

In the time that has elapsed since the experiments above described I have tried to obtain evidence upon certain matters arising in the course of the work.

1. Is a chronic nephritis necessary as a predisposing cause of the haemorrhage? It seems that it is not, and that an acute nephritis may be sufficient. The first successful experiment in 1923 is proof of this, although there was microscopic evidence of a slight interstitial change in the kidney. Again, in rabbit B35, a fresh non-nephritic animal, no bleeding occurred after injection of oxalates, but it did occur on injection of *B. pyocyaneus* + oxalates, causing a rise of the blood urea to 77 mg. per cent.

2. Is an acute nephritis necessary as a predisposing cause, or is a chronic nephritis sufficient without any acute exacerbation? So far as my experiments have gone an acute exacerbation would seem to be essential. In every case in which bleeding occurred in a chronic nephritis an acute or subacute exacerbation has been superimposed upon the chronic.

3. Organisms of the coliform group seem, so far as my experience goes, to be the most potent in causing haemorrhage. *B. pyocyaneus* and *B. coli* can both cause it, but the latter less than the former.

4. Provided a chronic oxalate nephritis has been previously produced, mere introduction of organisms without oxalate is sufficient to cause the necessary acute exacerbation, and to lead to haemorrhage. In rabbit B11 (see Table I) on March 8th the blood urea was 42 mg. per cent. *B. pyocyaneus* was injected alone, and the blood urea rose to 110 mg. per cent.; bleeding occurred on several occasions and macerated foetuses were aborted at term.

Interpretation of the Experimental Results.

I should like to put before you the thesis that external accidental haemorrhage, concealed haemorrhage, retroplacental haematoma, and placental infarction are an essential unity with a common underlying cause. Each is simply the effect of a toxæmia, the toxin being probably the product of organisms, which first of all produce an acute nephritis, this being predisposed to by an already damaged kidney. One of the functions of the healthy kidney is to excrete toxins of endogenous origin—hence the bacilluria that is found in most healthy pregnant women. If the kidney is severely damaged it can no longer fulfil its functions and the endogenous toxin is locked up in the circulation. It may still further damage the kidney, thus setting up a vicious circle. Acting on the endothelium of the vessels, it destroys it here and there and thus produces thrombosis—for example, in the veins of the broad ligament, or in the muscular wall of the uterus, as described by Whitridge Williams² in 1915, or in the kidney or liver. If it acts on the endothelium of a capillary, the endothelium forming the only coat, the capillary wall may be completely destroyed, giving rise to haemorrhage in the fibro-muscular wall of the uterus. The same occurs in the dilated and engorged capillaries of the decidua, and leads to retroplacental haematoma and to external accidental haemorrhage. The syncytium covering the villi may be looked on as a vascular endothelium, with which indeed it is continuous. Like the endothelium it prevents clotting. If it be damaged here and there by the syncytio-lysin thrombosis occurs in the intervillous space, leading to infarct formation; and, as would be expected, the latter may be associated with external haemorrhage or with retroplacental haematoma (Fig. 14), or with both, as in rabbit B30.

The negative experiments of 1923-4-5 seem to prove that the haemorrhage is not caused directly by the organisms or their toxins, for in most of these experiments the animal died one or two days after the organisms were injected, and yet no haemorrhage had occurred. The toxæmia was therefore exceedingly severe—severe enough to cause death of the animal—and yet produced no haemorrhage. I have lately repeated these experiments with *B. pyocyaneus* with estimations of blood urea. The latter has not increased as a result of the injections and no haemorrhage has occurred. It is probably the kidney acutely damaged by the organisms that fails to excrete endogenous toxins. The latter, accumulating in the circulation, give rise to haemorrhage and

infarction. This opinion is based entirely on these negative experiments and may require modification as a result of further work.

ACCIDENTAL HAEMORRHAGE WITHOUT ALBUMINURIA.

It is said that accidental haemorrhage may occur without nephritis. At present I doubt very much whether this is so; and more evidence is necessary of the absence of nephritis in any given case than is commonly adduced. The mere absence of albumin in the urine is not sufficient evidence of the absence of nephritis, for it is known that acute nephritis may exist without any albuminuria, and examination of the urine in acute oxalate nephritis showed that albumin might be entirely absent even when the blood urea had reached a very high figure. In rabbit B30 there was no albumin, though the blood urea had reached 128 mg. per cent. In addition to testing the urine for albumin use must in future be made of all the more modern methods of estimating kidney function, more especially the blood pressure, urea concentration test, and blood urea estimation, and where the kidney is available it must be examined histologically as far as possible throughout. Liver function tests, especially the phenol-tetrachlorophthalein excretion test, should also be carried out, for it is possible that a damaged liver may act in the same way as a damaged kidney.

It is also possible that many cases of so-called accidental haemorrhage may be really examples of low implantation of the placenta, and the greatest care must be taken in future to exclude these cases. A case which I treated about a year ago proves that well marked concealed haemorrhage may occur with placenta praevia, and even this possibility must be kept in mind. At least two other similar cases have been recorded—one by Eardley Holland⁸ and the other by Williamson.⁹

In future work an attempt must be made to ascertain the source and nature of the toxins at work, whether chemical or bacterial, and to trace the connexion which undoubtedly exists between accidental haemorrhage and eclampsia. This will involve a carefully co-ordinated and prolonged clinical and experimental study.

SUMMARY.

1. By setting up a chronic oxalate nephritis and then causing an acute exacerbation of the nephritis by introducing oxalates plus certain organisms it is possible to produce in pregnant rabbits accidental haemorrhage, both external and concealed, and placental infarction. This method is successful in 100 per cent. of cases.
2. Haemorrhage can be produced, though less easily, by setting up an acute oxalate nephritis and then introducing organisms.
3. A similar result can be obtained, also with less certainty, by producing an acute oxalate nephritis without subsequent introduction of organisms.
4. A similar result can be obtained by setting up a chronic nephritis and afterwards introducing organisms. The latter first set up an acute exacerbation, and haemorrhage occurs later. The result in this case is also less certain than by the first method.
5. In every case in which haemorrhage has so far been caused, an acute or subacute exacerbation of the nephritis, as indicated by a rise in the blood urea, has preceded the haemorrhage.
6. The coliform group of organisms seems to be the most potent in producing the acute nephritis that predisposes to haemorrhage and infarction.
7. An acute oxalate nephritis leads to marked retention of urea, but even when the urea concentration in the blood is at its highest point no albumin may be present in the urine. It is important to bear this in mind before excluding nephritis in accidental haemorrhage.
8. These experiments show that nephritis, acute or chronic, is an important predisposing factor in the production of accidental haemorrhage and placental infarction, and that toxæmia is the exciting cause. It is believed that organisms only act by setting up an acute exacerbation of the nephritis, and that they do not lead directly to

the haemorrhage, the latter being caused by endogenous poisons held up in the circulation by the acutely damaged kidney.

All the work in connexion with this research was carried out in the Research Laboratory of the Royal College of Physicians, Edinburgh, and to the Curator, Superintendent, and Laboratory Committee I am much indebted for the facilities placed at my disposal.

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- ⁹ p. 134.

An Address

ON

THEORY AND PRACTICE IN RELATION TO THE TREATMENT OF CANCER WITH LEAD.*

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(With Special Plac.)

In the investigation of so complex a question as the nature and control of malignant disease it cannot be denied that the conversion of a working hypothesis, with which the investigator must start, into a definite and substantial generalization by the putting together of existing scientific facts and the elucidation of further evidence, is of vastly greater ultimate importance than the initial attempts at control based on the generalization enunciated. By this I mean that, provided a generalization concerning the true nature of malignant neoplasia can be established beyond question, some control of this disease—limited perhaps, as I shall explain later—must assuredly follow, if not at the first attempt, at any rate as the result of subsequent modifications and developments.

It has, therefore, been our chief endeavour to substantiate our hypothesis from every point of view. First let me state what our working hypothesis has been; afterwards I will bring forward evidence as to its correctness—evidence that before long will, we hope, enable us to affirm the generalization beyond criticism.

THEORY.

To us malignant neoplasia appears to be a reversion of the somatic cell to the early embryonic type which forms the trophoblast. We regard the chorionic epithelium as being a normally malignant tissue that comes under somatic control, as we have described in previous communications. It is malignant in that it is dependent on its own efforts to obtain nourishment for itself and, indirectly, for the growing embryo.

We believe that if it be possible for a cell to pass through all the phases of undifferentiation to a differentiated state with increasing specialization, as seen in the human embryo, there should be no difficulty in realizing that a differentiated cell is capable in certain circumstances of retracing the phases back to undifferentiation. This process is known as dedifferentiation, and it has been definitely shown to occur in normal differentiated cells grown *in vitro*.

* This is the full text of the address given by Professor Blair Bell in introducing the discussion on the treatment of cancer by lead at the Medical Society of London on March 22nd. A report of the discussion, including an abstract of Professor Blair Bell's address, was published in our columns on March 27th (p. 568). A report of his reply appeared on page 572.

Pathologists have long spoken of the undifferentiated cells seen in malignant neoplasia; but, strictly speaking, we should speak rather of the dedifferentiated cells. This dedifferentiation we hold to occur as the result of the action of the innumerable causes—mechanical, bacteriological, radiological, thermic, and the rest—all of which lead to a common, precancerous, condition of impaired vitality with starvation—possibly oxygen deficiency—in the cell. Whatever the actual metabolic disturbance produced may be, it is evident that the damaged cell, thrown on its own resources, must either recover, die, or develop abnormally in order to provide itself with nutriment. The last condition can only effectually be ensured if the injured cell revert to a trophoblastic type. This is, I believe, a rational explanation, and is what actually occurs. However, as I have said, such a hypothesis must be founded on accepted facts before it can become a generalization on which we can base our methods of control. We have, therefore, sought and found evidence in support of our hypothesis along the following lines: (a) Morphological. (b) Constitutional—(1) chemical constitution; (2) physico-chemical state. (c) Physiological. (d) Toxicological.

A comparative study on these lines with regard to the similarity of, and differences in, the structure and function of various tissues may be considered reasonably comprehensive. It is, indeed, a study so important and so extensive that some time must elapse before we can obtain an unequivocal and final proof from every point of view. I shall here indicate only our efforts along these lines, and the results obtained.

Morphological Evidence.

The histological evidence of the structure and mode of progression of malignant cells very strongly supports the view that these cells are of a dedifferentiated type, and that this dedifferentiation of the cell is comparable with its degree of malignancy. Moreover, I must call attention to the fact that in malignant neoplasia there is a tendency to syncytial arrangement on the part of the cells. Pathologists must often have noticed how true this is, not only in carcinoma, but also in sarcoma. Figs. 1 and 2 illustrate this phenomenon. In the section of carcinoma (Fig. 1) it will be observed that the syncytial tissue surrounds blood channels preparatory to perforation of them—a process exactly represented in the development of the early placenta (Fig. 3).

Again, while it is evident, as already stated, that in malignant cells developed from somatic tissues there is some degree of development in the tissue concerned, but earlier stage of development in the tissue concerned, but also towards the totally undifferentiated chorionic epithelium, yet there is an exception to this dedifferentiation in the development of malignant neoplasia in the case of chorion-epithelioma, which reproduces normal chorionic epithelium. In short, whereas benign neoplasia is a result of hyperplasia in normal tissues, malignant neoplasia is a process of dedifferentiation except in the case of chorion-epithelioma which represents hyperplasia of a normally malignant tissue—the chorionic epithelium.

Constitutional Evidence.

Chemical Constitution.—Although there are related secondary chemical differences between malignant cells and normal resting tissues, it is the lipin content, especially that of the phosphatides, and the phosphatide-cholesterol ratio that are interesting, for these substances are of primary importance in the constitution of the cell. Professor W. C. McC. Lewis, Dr. J. W. Corran, and Dr. M. Jowett have found that the phosphatide content and the phosphatide-cholesterol ratio are much higher in malignant than in normal tissues and benign tumours, and that these figures reach a maximum in the constitution of the chorionic epithelium (Table I). Further work is being done on this important subject.

Physico-chemical State.—With regard to the physico-chemical state of the cell membrane, it is obvious that permeability is a matter of prime importance; for, if a cell be in urgent need of nutriment, permeability may be a deciding factor in the continuance of vitality, as indeed

TABLE I.

Human Tissues Examined.	Water (per cent.).	Phosphatides (per cent. of dry weight).	Phosphatide-cholesterol Ratio.
Normal tissues ...	75.3 (80.9)	2.1 (1.5)	2.5 % (2.8) "
Innocent neoplasms ...	81.5	4.1	3.9
Malignant neoplasms ...	89.9	6.8	4.7

This table brings the details of our work on this subject up to date. The figures of innocent neoplasms, so far obtained, have been placed in parentheses, for we consider the number of our experiments in this respect too small. There is no doubt, however, that innocent neoplasms will fall into their proper place in this table.

it is an absolute requisite for rapid growth. Now it is interesting that the degree of permeability of the cell membrane is dependent on the phosphatide-cholesterol ratio: a high cholesterol content favours impermeability, whereas a low cholesterol content and a high phosphatide favour permeability, for this ratio is consistent with an oil in water type of emulsion.³

Physiological Evidence.

Many attempts have been made to discover differences between the metabolism of the malignant and that of the normal resting cell; but until recently little of importance had been established. Two years ago, however, Professor Warburg of Berlin commenced to publish a series of most valuable papers on the glycolytic power of various tissues. The chief conclusion derived from his most ingenious experiments is that, whereas in normal resting tissues respiration is high and energy is produced exclusively by oxidation processes, malignant tissues have a lower respiration, and obtain a considerable proportion of their energy by glycolysis. Moreover, Warburg has shown that although a normal resting cell has a slight glycolytic power in the absence of oxygen, in aerobic tissue, however, exerts its perform glycolysis; malignant tissue, however, exerts its glycolytic power even in the presence of oxygen. So definite is Warburg's work on this main line that it is unlikely ever to be upset by subsequent researches; indeed, it has already been fully confirmed by Murphy and Hawkins of the Rockefeller Institute, New York,¹¹ and by others.⁸

Certain other investigations have naturally followed. Warburg has stated that benign tumours lie between malignant and resting tissues in regard to their glycolytic power. It is unfortunate, however, that this investigator should have chosen papilloma of the bladder as a representative of an innocent neoplasm, and there is little doubt that considerable difference would be found in the glycolytic power of this tumour and that of, say, a fibroma. This is a matter that is easily settled, and it in no way affects Warburg's general conclusion.

What has, however, interested us is the question of the position of the chorionic epithelium in respect of this glycolytic ability of this tissue is even greater than that of malignant tissues, but that it does not perform glycolysis aerobically. There is no doubt that his work in regard to the chorion and that of, say, a fibroma. This is a matter that is easily settled, and it in no way affects Warburg's general conclusion.

However, these workers commit themselves to the definite statement that, as regards the placenta, the type of metabolism is exactly the same in respect of glycolysis as that of frankly malignant tissue (Table II). I have little doubt

F. J. BROWNE: ACCIDENTAL HAEMORRHAGE AND PLACENTAL INFARCTION.

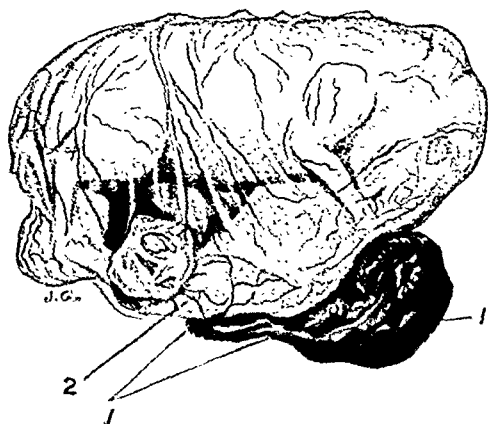


FIG. 1.—Experiment of September 18th, 1923. Foetal rabbit with retroplacental haematoma (1), and placenta (2). (Natural size.)

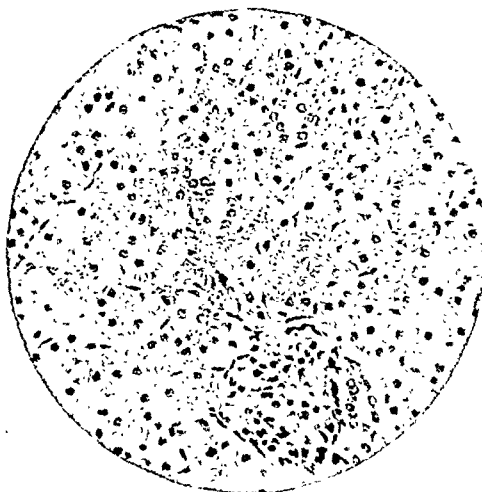


FIG. 2.—Experiment of September 18th, 1923. Kidney section showing acute nephritis. Note the swelling of the epithelium of the tubules and the swollen glomeruli. ($\times 180$.)



FIG. 3.—Kidney of rabbit B12. Shows cloudy swelling in convoluted tubules, swollen and congested glomeruli, and well marked early interstitial change. ($\times 80$.)



FIG. 4.—Same as Fig. 3. ($\times 200$.) The swollen epithelium of the convoluted tubules and the interstitial change are well seen.



FIG. 5.—Kidney of rabbit B9. Shows cloudy swelling of epithelium of convoluted tubes, and swollen and congested glomeruli. Early interstitial change is also present, though less evident than in B12.



FIG. 6.—Same as Fig. 5. ($\times 180$.)

F. J. BROWNE: ACCIDENTAL HAEMORRHAGE AND PLACENTAL INFARCTION.

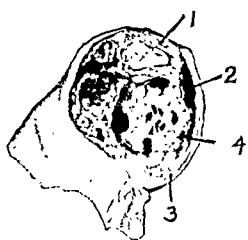


FIG. 7.—Infarcted rabbit's placenta (B30). The macerated foetal rabbit is shown *in situ*, and with the placenta has been cut transversely. (1) Foetus; (2) haematoma between membranes and uterine wall; (3) uterine wall; (4) infarcted placenta.

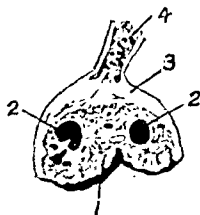


FIG. 8.—Another infarcted placenta from rabbit B30. Haemorrhages are seen in the wall of the uterus underneath the placental site. (1) Placenta; (2) thrombi; (3) uterine wall; (4) mesometrium. The macerated foetus has been removed.



FIG. 9.—Another infarcted placenta from rabbit B30. The placental tissue in all these cases, subtending the thrombi, is firm and of liverish consistence.



FIG. 10.—Section of infarcted area from placenta of rabbit B30. The closely packed villi, with dilated, engorged capillaries, are seen. The picture is taken from an area immediately overlying one of the thrombi in Fig. 7. ($\times 75$.)



FIG. 11.—Drawing of infarcted area. Shows villi with dilated and engorged capillaries. At the extreme right is seen the edge of the thrombus which caused the infarction. ($\times 80$.)

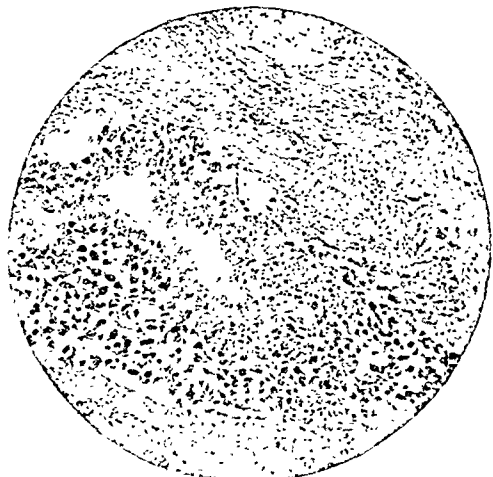


FIG. 12.—Haemorrhage and oedema amongst the muscle fibres of the uterine wall (B30). The large cells are decidua cells, which normally are present in large numbers in the uterine muscle of the pregnant rabbit. ($\times 68$.)

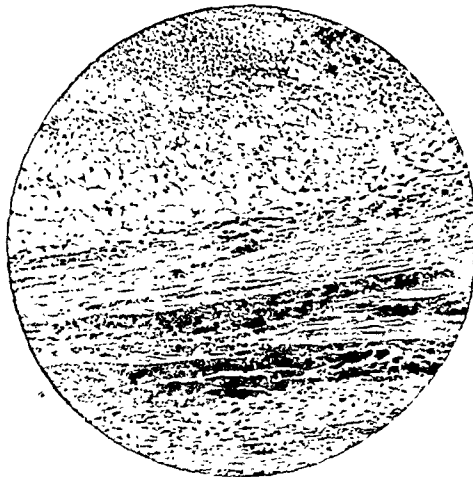


FIG. 13.—Haemorrhage in muscle wall of uterus of rabbit B30. The darkly staining areas are extravasated blood, while around are the muscle fibres of the uterus. ($\times 68$.)

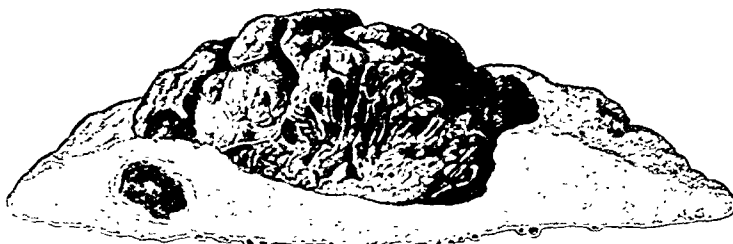


FIG. 14.—Human placenta, showing retroplacental haematoma, and placental infarction. The patient from whom this specimen was obtained had also external accidental haemorrhage. This association of infarction and accidental haemorrhage is not infrequent.

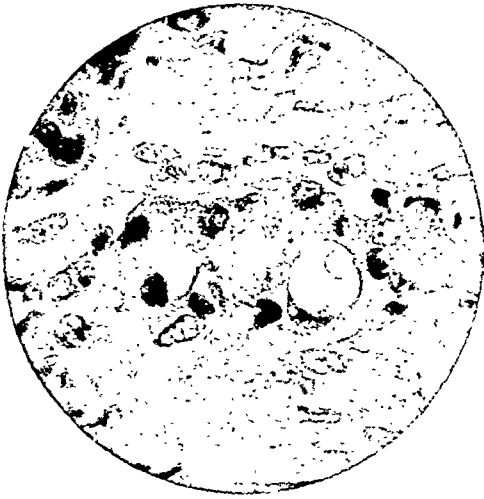


FIG. 1.—Section of carcinoma of breast, showing syncytial arrangement of cancer cells. ($\times 480$.)

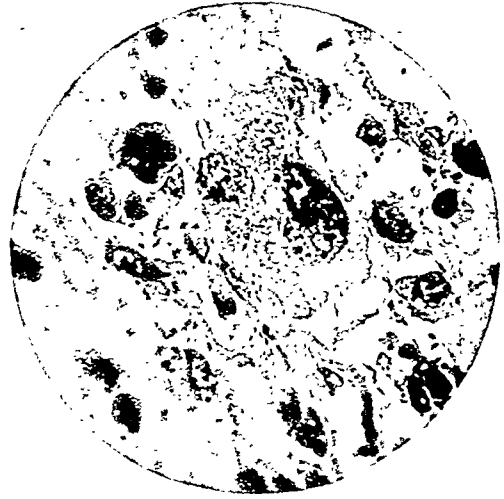


FIG. 2.—Section of sarcoma of ovary, showing syncytial arrangement of malignant cells. ($\times 550$.)

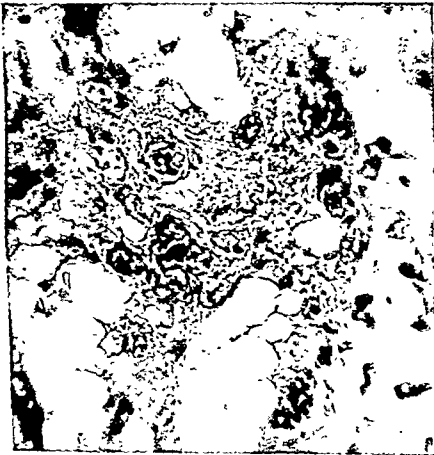


FIG. 3.—Section of early placenta showing foetal ectoderm surrounding blood spaces. ($\times 400$.)

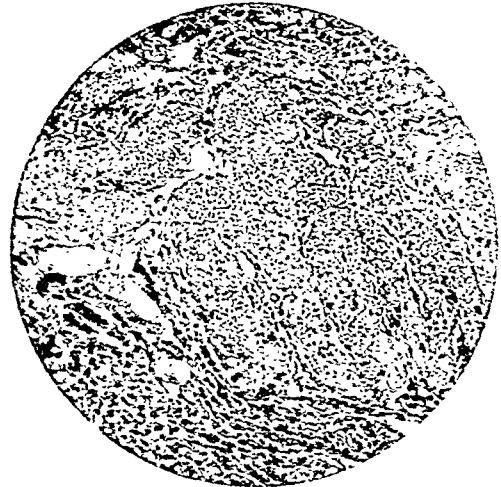


FIG. 4.—Coagulation necrosis, produced by lead, in the chorionic epithelium of the rabbit. It will be observed that the adjacent maternal tissues (above and below) are unaffected. ($\times 120$.)

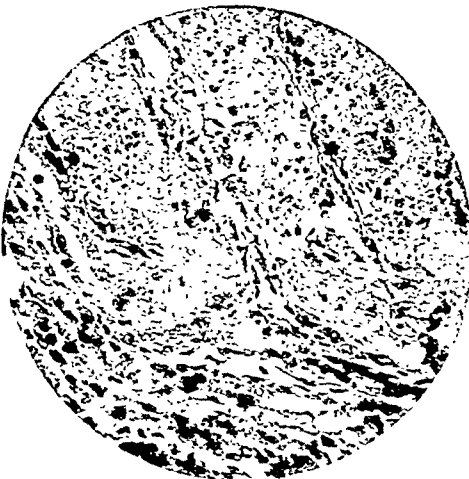


FIG. 5.—Coagulation necrosis, produced by lead, in the chorionic epithelium of the rabbit. The maternal tissues below and between the advancing columns of foetal ectoderm are unaffected. ($\times 225$.)



FIG. 6.—Section of post-cricoid carcinoma before treatment. ($\times 170$.)



FIG. 7.—Section of post-cricoid carcinoma shown in Fig. 6 after one massive dose. ($\times 170$.)

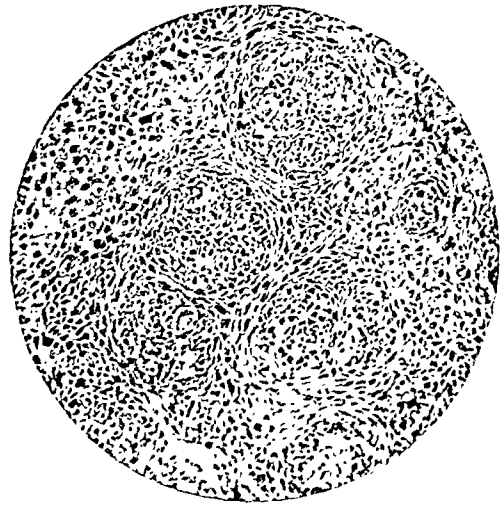


FIG. 8.—Section of carcinoma of oesophagus before treatment. ($\times 140$.)

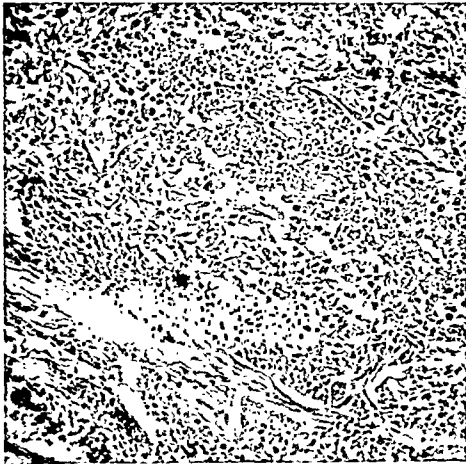


FIG. 9.—Section of cancer of oesophagus shown in Fig. 8 after a single dose of lead, showing almost complete necrosis. ($\times 140$.)



FIG. 10.—Section of gland in case of carcinoma of oesophagus shown in Fig. 8 after a single dose of lead. There is almost complete necrosis. ($\times 140$.)

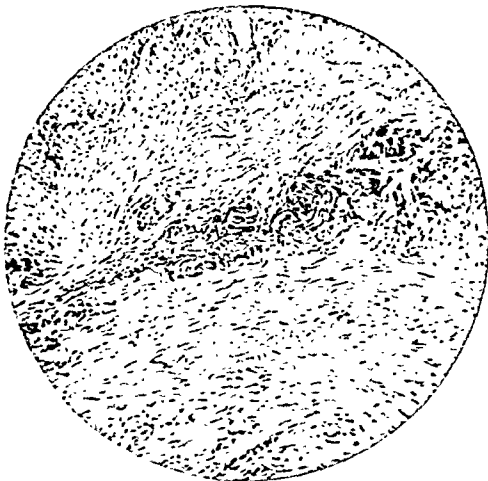


FIG. 11.—Section of carcinoma of pancreas after considerable treatment, showing fibrosis and atrophy of cancer cells. ($\times 80$.)

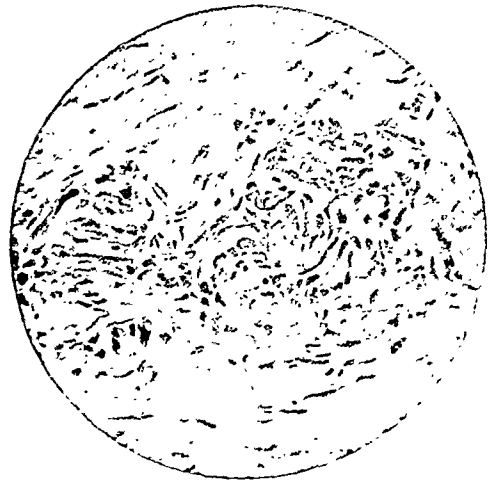


FIG. 12.—Section of carcinoma of pancreas shown in Fig. 11 under higher magnification. ($\times 240$.)

TABLE II.—*Glucolytic Power of Normal Resting Tissues, and of Innocent and Malignant Tissues.*

	Respira- tion.	Anaerobic Glucol- ysis.	Aerobic Glucol- ysis.	Ratio Aerobic Glucolysis- Respiration.
Normal resting tissues	...	+	—	—
Differentiating embryonic tissues	++	++	—	—
Benign neoplasms*	...	+	+	+
Malignant neoplasms...	...	+	++	++
Chorionic villi†	+++	++	++

* Papillomata of bladder and adenoids (Warburg).
† The type of metabolism was similar to that of frank malignant tissue." Murphy and Hawkins (1925).

that when even more careful experimental work is done on the subject this statement will be amply confirmed. Meanwhile, although so far the evidence obtained is confirmatory of our views concerning the essential similarity of the chorionic epithelium and malignant neoplasia, a final decision in regard to the glucolytic power of the different tissues awaits further experimental demonstration. Professor Lewis and his associates are now engaged on this work.

Toxicological Evidence.

Although it goes without saying that the toxicological affinities of a cell must be closely bound up with its chemistry and physical state, we feel that it is necessary, from a practical point of view, that the resemblance in this respect between malignant and chorionic tissues should be made manifest; for, obviously, this is the information on which we have based our methods in the medical treatment of cancer. We have shown,* then, that the chorionic epithelium is singularly sensitive to the action of lead, and that it is possible readily to produce coagulation necrosis of the epithelium of the chorion in the rabbit (Figs. 4 and 5). Lead appears to have the same action on the cells of a malignant neoplasm when it is able to reach them immediately and in sufficient quantity (Figs. 6, 7, 8, 9, and 10). When the effect is gradual fibrosis occurs around the atrophic inactive cancer cells, this being almost a natural form of cure (Figs. 11 and 12). I need hardly again refer to the obvious inference that the biological hormone that arrests the invasive powers of the chorionic epithelium in normal circumstances should also have a similar effect on malignant neoplasia; but we ourselves have, so far, been unable to identify this substance. If our hypothesis be correct, and have reached the stage of generalization, there is plenty of work for others along this line; and, indeed, it is not impossible that other inorganic and organic substances may be found that will exert the same effect as lead.

In concluding these remarks relating to the toxicology of lead I should like to reaffirm my belief in the fact that sufferers with lead poisoning—who if males may be infertile and if women may abort during pregnancy—do not suffer with cancer.† I do not say such a thing is impossible; for obvious reasons it is not; but there appears to be no doubt that carefully corrected statistics do suggest that the two diseases are not compatible.

TREATMENT OF PATIENTS.

Before discussing our work in regard to the treatment of malignant disease I wish to invite your attention to the impossible position that has developed in connexion with the estimation of the value of any form of treatment of this malady in the human subject.

The public and a large body of the medical profession are searching the heavens for what they call a "cure for cancer," and apparently they imagine that some day there will be a means of curing every case of cancer, no matter how advanced the disease may be or what organs may be involved. One moment's consideration should convince anyone familiar with cancer in the human subject of the futility of such an idea.

It goes without saying, of course, that whatever treatment is adopted this is most likely to be effectual when applied early. Nevertheless, many varieties of malignant

disease present so few or such trivial symptoms in their beginnings that they escape recognition by the patient, and it may even be impossible for the doctor to diagnose the condition. I am inclined to think that the difficulties of early recognition will not be completely overcome unless some day a specific reaction which will show the presence or absence of a few cancer cells in the body be discovered—pace the interferometer—and every person from the day of birth to that of death be compelled to undergo examination once a month. Even so, pregnancy will probably vitiate the test.

Meanwhile, although much may be done in the way of education and on preventive lines, such as I have suggested elsewhere,‡ it must definitely be understood that the public will often fail to apply for treatment early, and also that surgery will continue to fail in a large proportion of cases—estimated, I am told, by American authorities to be over 90 per cent.

If we add to these difficulties the situation often created by the involvement of important organs, in which the cure of the disease may mean the death of the patient from other causes, we may indeed express wonder that anyone can expect an infallible cure for all cases of cancer. Yet this attitude of mind appears to be universal in civilized communities, and every attempt to advance the treatment of malignant disease is judged by a false standard, which is based on hope and not on fact.

No method of treatment can be appraised by comparison with an ideal—always impossible of attainment— but rather by properly standardized comparison with other methods of treatment, and it is by this latter method that we wish our own work to be judged. By "standardized comparison" I mean especially that methods of treatment in exactly similar cases and circumstances must be compared. A new method is handicapped from the start: the successful treatment of hopeless cases, in which all other methods have failed, is demanded; and if this result be accomplished the method is not accorded the credit due to it. Still, a method of treatment should be given the chance of starting on the same mark as other methods that are in vogue, including surgery.

Moreover, as I have said, an initial attempt to treat patients by a method based on a generalization must not be too closely regarded as a test of that method. We have looked upon the results obtained so far with critical eyes, and have considered the beneficial effects of lead upon malignant growths as important chiefly because they afford confirmatory evidence of the correctness of our views. It would indeed be ridiculous to expect any method in the treatment of cancer to bridge over the enormous clinical difficulties at the first attempt.

It is, however, fortunate that our application of theory to practice has at one step given fairly satisfactory results; yet there is danger in this. I do not doubt that any preparation of lead may give certain results, and that eventually one preparation will be found to exhibit more definitely than others specific toxic effects in regard to malignant neoplasia, and less towards normal resting tissues. Still, neither I nor the other members of our clinical staff have any doubt concerning the possibility of further modification and improvement in the matter of treatment, for if our generalization is accepted a wide field of research is thrown open.

With regard to the treatment of malignant disease with lead, I have little to add to what has already been published. There are, however, some points I am glad to have the opportunity of emphasizing.

In the first place I would say that there can be little doubt that the use of colloidal lead in the prevention of recurrence after operation is a matter so important that every case subjected to operation for cancer, whether the disease be believed to be totally eradicated or not, should be treated as if the patient still had the disease. Owing to the pressure of work associated with the treatment of existing disease, mostly of a recurrent nature, we ourselves have not had the opportunity of making comparative studies in this matter. Nevertheless, the present is the time when this should be done, for if the method were to be further improved it might be considered unjustifiable for any surgeon to operate without subsequently treating

the patient with whatever preparation might then be in use. I hope, therefore, that some arrangement will be found possible whereby surgeons will be able to treat two series of cases of the same type of disease by operation, administering lead subsequently to every alternate case. Obviously this would not lead to conclusions that could be considered statistically accurate, because the character and malignancy of the cases would vary, and no one man would be likely to have a sufficient number of cases from which to make a true statistical survey. Still, I think any scientific surgeon would be able to come to a more or less satisfactory conclusion in his own mind from such a study.

Secondly, with regard to the treatment of existing disease, it must never be forgotten that the action of lead is probably quantitative, and that satisfactory results naturally depend on the lead reaching the malignant tumour in sufficient quantity without at the same time poisoning the patient. Consequently nothing that can be done to lessen the quantity of lead necessary should be omitted; all large accessible growths should be removed, and in suitable cases x rays may be employed in conjunction with intravenous injections of lead.

I must, too, refer to the extraordinary differences in the susceptibility to the toxic effects of lead observed in patients. It is, however, rare to find a patient with a large growth affected to any considerable extent; it appears that the lead is attracted to the tumour.

It may be thought by some that we have exaggerated the dangers connected with the treatment of cancer with lead. In answer to this we would point out that we have had a considerable experience, and have come to realize that to ensure good results it is absolutely necessary to give the patient as heavy doses and as much lead as can be tolerated.

Results.

I shall say nothing here about the bad effects that may be produced, for, I hope, my colleague Dr. Cunningham will refer to this matter.*

The fact that we have undoubtedly had disasters should be sufficient warning to those who intend to carry out this treatment, possibly with products of unknown toxicity. We hope in due course to be able to establish an organization for those who wish to learn our methods, and to carry out the treatment on proper lines. When, if ever, the history of our endeavours and arrangements comes to be unimpassionately considered, I think it will be found that in no direction could we have acted in any other way than we have done, if we were to protect the public from danger and, at the same time, bring our work to a position of comparative security.

In conclusion I wish to say a few words concerning the general results that we have obtained. I am glad to learn that those best qualified by actual experience of our clinical work to know regard the clinical paper recently published⁷ as being a cautious and moderate statement; for, if we look at our results, as shown in Table III, for the first five

TABLE III.—Fate of Patients: November 9th, 1920, to November 9th, 1925.

	Cases.
1. Admitted, but died before treatment could be commenced	20
2. Died before treatment could be completed... ..	50
3. Died of intercurrent affections	3
4. Died after treatment (including two deaths from acute nephritis, the result of lead poisoning)	106
5. Died as a result of extensive destruction of growth by lead	4
6. Too recent for results to be estimated	14
7. Complete treatment refused, but patients are living normal lives	9
8. Disease completely arrested	10
9. Believed cured, and treatment stopped	31
	227

years, and care to make an estimate of the percentage of successful cases after excluding groups 1, 2, 3, 5, and 6, or after allowing for a proper percentage of the probable failures that would have occurred in these groups, we find there is left an extraordinary percentage of successes in a class of case that has hitherto never been successfully

treated. When we were putting together this paper my collaborators agreed with me that we should make no attempt to work out this percentage, and I will not do so now, for we have never failed to realize the enormous difficulties still to be overcome, and we are exerting our best endeavours to deal with these before we can allow ourselves any peace of mind.

At present we feel there is sure to be great uncertainty and variation in the results that will be obtained by others. For ourselves I think I may truthfully say that we soon forget our successful cases, whereas every failure is a constant source of worry to us. In such circumstances it is not possible for any human being to form a true estimate of his own work, or to share the optimism which onlookers may justifiably have. Had the work been that of others, no doubt we ourselves should have all been extremely impressed with the results obtained; but the heavy responsibility that rests on us for raising a single hope over this age-long problem is sufficient to weigh down any personal satisfaction accruing from our efforts.

To-night, for the first time, I have suggested that the working hypothesis with which I started in the year 1908, or thereabouts, has now practically reached the position of a generalization concerning the true nature of malignant neoplasia, and that, if this be accepted, a real and substantial foundation has been established from which future researches in regard to treatment may proceed. So far we have explored one line only, but with success that has been, I think, beyond expectation.

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POSTURE AS A FACTOR IN HEALTH AND DISEASE.

BY

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THE subject of the function of the body from the standpoint of mechanics seems to have received from the medical profession in Britain less attention than it deserves. The mechanics of the heart have been the subject of much study, and so have those of the digestive tract; yet it is often forgotten that both the circulatory and alimentary systems can be most seriously interfered with by errors in the locomotory system, more particularly in the bones and muscles which support the body cavities.

This question of bodily mechanics has been made the subject of elaborate study from its anatomical, physiological, and surgical aspects by Dr. Goldthwait of Boston, and he has kindly placed his material at my disposal. I hope that the following sketch of the work already done may stimulate interest in the subject on this side of the Atlantic, and induce practitioners here to continue the study on the material at their disposal.

The examination of recruits during the war showed what a large proportion of the civilized population are using their bodies incorrectly, and the improved physique of men from sedentary occupations after military training showed how readily such errors can be corrected by fresh air, good food, and systematic exercise. Similarly a consideration of the vast proportion of cases of minor ailments which come under the care of the general practitioner will show how large a part faulty mechanics play in their causation, and how important it is that such errors should be treated at their first onset, or, better still, forestalled.

In the production of errors of posture and of bodily mechanics doubtless many factors play their part—such as malnutrition, lack of fresh air, hereditary instability of the nervous system—all of which contribute to depress muscle tone, while this in its turn interferes with the circulation of oxygen and the assimilation of foodstuffs, producing a vicious circle. While it is desirable to break this circle at several points, one of the most practicable and speedy methods is by restoring the mechanics of the skeleton to the normal.

ANATOMICAL CONSIDERATIONS.

It will be asked at once, What are the normal relations of the different parts of the skeleton, for the maintenance of health and the attainment of the maximum mechanical efficiency? This is a question about which there have been differences of opinion.

Drs. Lee and Lloyd Brown studied many hundreds of Harvard University students by means of silhouette photos and found that among these the successful athletes approximated to a type which they have called Class A, and which corresponds to the posture of figures in works of early Greek art, produced when Spartan influence was at its zenith (Fig. 1). Now, it is well known that Sparta paid extraordinary attention to physical fitness, so that this coincidence of types can hardly be due to chance. At the other end of the scale is a type classed by Dr. Goldthwait as D, many of whose members are found to have been subject to chronic ill health; while among hospital patients, the chronic neurasthenics, the visceroptotics, and the pre-tuberculous children nearly all fall into this group, suggesting that it either predisposes to or results from illness (Fig. 2). If the latter, surely it is most necessary that



FIG. 1.—Class A.



FIG. 2.—Class D.

bad mechanical conditions should not be allowed to impoverish still further the vitality of the body. Yet it is rare to find any attention paid by practitioners to this aspect of their cases.

The average individual represents a mean between two extreme types—the slender, loose-jointed individual, represented by the stage contortionist, and the heavy, thick-set John Bull type—but nearly every individual leans obviously to one or other type. The efficient members of each type are found to balance the body in a similar manner, maintaining the upright position with a minimum of muscle effort, while the limbs are ready for movement in any direction with the least possible inertia.

In the efficient posture the vertebrae are kept as vertical as possible, the cervical and lumbar curves, which are of secondary development for the maintenance of the upright position, being flattened as much as possible, so that the muscles in front and behind easily balance one another. Undue increase of these two curves gives a mechanical advantage to the posterior muscles, thus throwing disproportionate strain on the anterior set, most important among which are the muscles of the abdominal wall. Whenever the cervical spine is straightened, the deep fascia of the neck is made tense, and through its attachment to the pericardium, and thereby to the central tendon of the diaphragm, it acts as a suspensory ligament to that muscle and to the heart, enabling both to contract

at better advantage. With a moderate curve in the lumbar region, the body weight is transmitted through the promontory of the sacrum, as it lies in a vertical plane just behind the heads of the femora, and therefore the Y-shaped ligaments of the hip are kept tense, reducing the work of the hip muscles. Thence the weight is transmitted through the front of the knee-joint, keeping the hamstrings tense, and then just in front of the astragalus, making the calf muscle taut. As these include the tibialis posticus and long toe flexors, which are largely responsible for maintaining the arch of the foot, flat-foot is prevented from developing.

THERAPEUTICS.

In view of the important part which good posture plays in preserving the health of the individual, and that which bad posture plays in aggravating or prolonging disease, Dr. Goldthwait recommends certain measures as preventive and curative. The measures on which stress is laid are: Suitable clothing; adequate rest; suitable chairs; a series of simple exercises, with education in correct standing and correct sitting; and external supports for certain severe types of cases.

Suitable Clothing.

Although clothes whose weight is borne from the shoulders are better for the body than those which constrict the waist, yet many modern garments take their bearing from the outer mobile part of the shoulders and induce a hunching of the back and forward projection of the shoulders, in order to prevent them slipping off, which is bad for the posture. They should be cut so that the weight falls on the root of the neck at the back and the inner part of the shoulders.

Anything which constricts the lower ribs and prevents free expansion of the chest is injurious, and it is depressing to find many parents still putting a tight rigid bodice round their girls' chests "in order to give them a good figure." The old-fashioned corset, still in use by the working classes, with its "waist" about the level of the ninth costal cartilage, is equally pernicious, and it is incredible that hard manual work should be possible in such a garment. As soon as the prime of life is past these women begin to haunt the family doctor, complaining of various abdominal symptoms and of general debility.

Rest.

All living cells function by alternations of rest and activity, but it is often forgotten in connexion with muscle training that, while regular exercise is an essential part, exercise as such is not always beneficial; indeed, it may become most injurious, as when applied to an over-stretched, tired muscle—a point frequently neglected in dealing with cases of infantile paralysis.

Because healthy children are benefited by being allowed to play running games, it does not follow that a child with atonic muscles and faulty posture will improve with the same violent exercise, carried to the point of exhaustion in the same faulty attitude. Yet such is largely the principle of physical training carried out in schools. Many people are astonished to find that such a weakly child will get hypertrophy of the muscles and improvement of general nutrition and appetite after lying a large part of each day in the open-air in a correct position, with frequent short spells of exercises designed to give control of the trunk muscles. The same child with ordinary school exercises gets thin and irritable and has a poor appetite. The fact that many growing children are unfit to maintain the upright position continuously for long spells, or for the whole of an adult working day, is not taken into account sufficiently in the organization of schools. To ask them to do so is deliberately to weaken their trunk muscles and initiate the vicious circles previously described. The child of a certain vigour rests these muscles by the varied attitudes of active play; the weakly child, when school is over, slouches in a chair at home and continues the evil process.

It would be beneficial to all children, and is essential for the weaker ones, that they should have several spells each day, more especially after meals, lying on their backs on a hard surface with the spine straight. A small pillow under the lower ribs provides hyperextension of the dorsal

spine and helps weakly children to begin expansion of the chest. This, with the exercises to be described, is quite sufficient treatment for the milder cases of scoliosis, which begin as a postural deformity, easily correctable at first, but soon fixed if a slouch is allowed to persist.

The child who requires remedial exercises for faulty posture will be quite unable to do them correctly while balancing in the upright position, and therefore Dr. Goldthwait lays great stress on the use of *recumbency* for all exercises until a correct use of the trunk muscles has been attained; then the upright balance must be taught. One has only to see a number of children doing the arm movements of the old-fashioned breathing exercise with the spine crooked, the abdomen prominent, and the chin thrust out, their whole attention absorbed by the upper limbs, to realize that it is illogical to exercise the arms until the base of the machine has been put on a stable foundation. Now the upper limbs are the most easily controlled by the brain, while the trunk muscles are the most difficult to co-ordinate; therefore all preliminary exercises should concentrate on the latter. As Dr. Goldthwait points out, the development of force in a particular muscle or muscle group is of little value; what is important is to teach co-ordination; and, again, elaborate co-ordination of the limbs, as in dancing, is of little use if the trunk is still uncontrolled. Whereas, when the trunk is well balanced, all the machinery of the organism—circulation, digestion, etc.—is in good order and the limbs are in the most favourable condition to learn new movements.

Suitable Furniture.

Dr. Goldthwait has pointed out that the attitude of sitting common to weakly children and convalescents—that is, with the spine evenly flexed and the abdomen doubled up—aggravates their weakness by interfering with the organs of digestion and of respiration. Both upright chairs and the ordinary form of lounge-chair, with its simple concave back, conduce to this undesirable attitude. By the simple device of putting a very small cushion opposite the patient's lumbar hollow this can be corrected, and he is able to rest on a slope, of variable inclination, which opens out the lower part of the chest and upper part of the abdomen, while giving complete rest to the spinal muscles (Figs. 3 and 4).

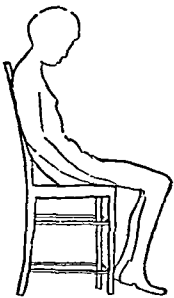


FIG. 3.—Faulty.

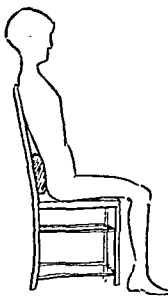


FIG. 4.—Correct.

With regard to school children writing and reading at desks: quite as important as the build of the seat and desk is the manner in which the child uses them. In other words, there are no foolproof desks, while even the evils of an unsuitable height can be reduced by correct sitting. The essential is that the spine shall not be flexed, but kept straight, except for its normal curves, while all the forward inclination is obtained by flexion at the hip-joints. This is a restful attitude which can be held for long periods. The best way to train a child to use it first is by making it sit square on its seat, place the hands behind the head, and stretch the body up tall with the chin in and the abdomen retracted; then flex at the hips until the front of the chest nearly touches the desk, when the forearms may be gently lowered on to it.

For cases who are to be kept long recumbent on the back, and for patients on the operating table, whose muscles are relaxed by the anaesthetic, it is most important to place a small cushion under the lumbar hollow, else the back may become unduly stretched; and it is as bad for the sacro-

iliac joints for the lumbar region to be too flat as for it to have a great lordosis.

Corrective Exercises.

Experience has shown the writer that the following half-dozen simple exercises, designed by Dr. Goldthwait, will rapidly develop the chest and promote a good posture, provided that they are carried out conscientiously at least twice a day. The average parent, if told that they must be done as often as the hair is brushed and the face washed, will be duly impressed with the need for regularity, and soon realizes that the spine is as important a factor in producing a good appearance as the head. Of course, the class exists to whom the value of even those elementary toilet procedures is not apparent, and with such it is difficult to make headway.

1. Diaphragmatic Respiration.

Position: Flat on the back on a firm table or couch.

First movement: Place the hands lightly on the sides of the chest and push them apart by expanding the lower ribs.

Second movement: Inspire slowly and deeply, allowing the epigastrium to expand (Fig. 5).



FIG. 5.—Inspiration.

Third movement: Expire slowly and steadily while contracting the abdominal muscles and leaving the ribs stationary, so as to force the diaphragm up into the thorax (Fig. 6).

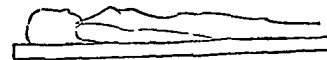


FIG. 6.—Expiration.

Faults.—These two latter movements of abdominal respiration are apt to be difficult for older children, especially girls; they tend at first to let the lower ribs fall and contract the chest before the diaphragm will have had time to relax upwards; and often they retract the abdomen during inspiration, so preventing its descent. Quite young children acquire the movement readily, especially if they are told to swell slowly like a balloon and shrink slowly like one.

2. Stretching Lateral Abdominal Muscles.

Position: Supine.

First movement: Slowly shrug up one shoulder, keeping the elbow straight and pushing from the arm until a strain is felt on the tissues between the lowest ribs and the iliac crest.

Second stage: Slowly relax, if possible leaving the ribs up, while the shoulder sinks down. This should be done three times with each limb and then three times with both together.

Faults.—There is a tendency to bring the ear down to meet the shoulder, or to bend over sideways, instead of stretching towards the head of the couch; also to project the shoulder forwards.

3. Single Leg Raising to Exercise the Abdominal Muscles.

Position: Supine.

First movement: Bend up one knee and rest the foot of that side flat on the table; this fixes the pelvis and prevents lordosis, which occurs where the abdominal muscles are too weak to antagonize successfully the erector spinae.

Second movement: Slowly raise the opposite leg with the knee straight and tense.

Third movement: Slowly lower the leg to the table again. Repeat three times each side. Never lift both legs at once, as this induces lordosis.

Faults.—Weakly patients are apt to twist sideways and wriggle as they raise the limb.

4. Exercising Lateral Abdominal Muscles.

Position: Supine.

First movement: Slowly draw up "hip"—that is, pelvis—one side towards the shoulder. This throws into action the lateral abdominal muscles, which were stretched by Exercise 2, and which are always weak in these cases, although usually shortened.

Second movement: Slowly relax.

Faults.—Tendency to draw the shoulder down by the scapulo-thoracic muscles, instead of localizing the contraction to the abdominal ones.

5. Back Flattening—Supine.

Position as before.

First movement: Attempt to press lumbar vertebrae against table, by lifting the region of the coccyx forward (by glutei) and contracting the abdominal muscles. The instructor should place a hand under the lumbar hollow and ask the patient to compress it. This reduces lordosis.

Second movement: Relax, so that the lumbar curve is restored by elastic recoil.

Faults.—At first patients usually lift the lumbar spine instead of the coccyx. When they have stretched it correctly they are apt to revert to spasm of the erector spinae, instead of mere recoil by relaxation.

6. Back Flattening against a Wall.

Position: Standing with feet four inches from the wall (nearer makes the exercise too difficult); thighs sloping backward till buttocks rest against the wall; trunk relaxed.

First movement: Slowly uncoil back from below upwards so that the spinous processes rest evenly against the wall.

Second movement: Increase the pressure of the lumbar spine against the wall by contracting the abdominal muscles.

Third movement: When the lumbar and thoracic spines are flat against the wall try to flatten out the cervical spine against it while pushing the occiput upwards on the wall. It is, of course, impossible for a normal individual to touch the wall with the whole spine at once; indeed, the cervical stretching should not be attempted until the lumbar region is mobile. This is an excellent exercise for mobilizing a rigid spine without violence.

When the patient is an adept at the above exercise he should first be taught to stand correctly by getting the back stretched against the wall as in Exercise 6, and then gently raising him forward to the upright position, while he keeps the back flat and the abdomen retracted. These weakly individuals cannot maintain the position long at first, and should not be asked to do so.

The next stage is to walk with the body balanced correctly, and at first it is difficult to teach them not to try to hold up the ribs by hunching up the shoulders, but to push the chest up from below by contraction of the abdominal muscles. The arms must be made to swing freely and loosely from the shoulders.

Finally, some rapid exercise should be given to induce deep respiration, such as skipping, but it is harmful to give this until the fundamentals of balance are acquired correctly, and even then it should be stopped short of fatigue. Indeed, with children, once correct control of the body has been acquired, their spontaneous play will provide enough forms of rapid exercise.

Supports.

For elderly people whose muscles are too atrophied to allow of more than a moderate recovery of tone it may be desirable to order some form of external support. These patients are very likely to show signs of strain in the sacro-iliac and lumbo-sacral joints, often associated with arthritis, but their symptoms are readily relieved by a support which corrects the lordosis and supports the pendulous abdomen.

To achieve this any support must bridge completely across the lumbar hollow—a requirement that is more often forgotten than remembered by belt-makers. In women, if they are not too heavy, a well fitting corset may suffice. Dr. Goldthwait has a useful method of reinforcing the corset in its pull round the pelvic bones by attaching 6-inch webbing to the side seams to form an outer belt, which fastens in front by small straps and buckles. Another useful device of his is to apply inside the back of the corset a leather shield carrying two upright steels of only moderate spring, so that the corset continually pulls the patient back against these, thus reducing the lumbar curve. For men a leather support with similar steels is useful; it should support the lower ribs at the back, but not reach above the umbilicus in front, so that respiration is free. Supports of this type do not interfere with development of the trunk muscles, while they prevent overstrain of the weak muscles when fatigue sets in, for in adults the amount of rest that should be practicable for children is rarely obtainable.

NOTE BY DR. GOLDTHWAIT, Boston, U.S.A.

A paper such as Dr. Forrester-Brown has presented is worthy of much greater consideration than is commonly given to scientific communications, since the principles underlying it are fundamental, dealing with structure or the anatomy, and function or the physiology, the two great basic subjects of medical education. That all persons are not made alike is obvious to all who really observe the human species, and that these variations, because of their varying activities, must be associated with variations in

physiology should hardly require argument. A racehorse must have a different physiology from the Shire or Clydesdale, and the same should be expected of the different types in the human family. The more our patients are studied from this point of view the more easily are the conditions understood.

The way the body is used is naturally important if the world's standards of high efficiency are to be obtained. The drooped relaxed figure is less good from every point of view than the erect alert figure, and with recent studies the practical appreciation of this fact (this was shown most strikingly by the war experience) has found scientific confirmation.

Suggestions such as Dr. Forrester-Brown has made are not only of value from the point of view of general health, but of the greatest value in understanding and controlling the chronic patients as they present themselves for treatment. It is with these that the results of the two features mentioned by Dr. Forrester-Brown—that is, structure and peculiarity of use—are most easily seen, and once such appreciation is had, relief is hopefully to be expected.

After thirty-five years of practice dealing almost wholly with the chronic patient, the belief has become increasingly more certain that, until these features are recognized, the chronic patients will continue to represent the great reproach to our profession that they are to-day.

THE SYMMETRICAL UREA COMPOUNDS AS CHEMOTHERAPEUTIC AGENTS.

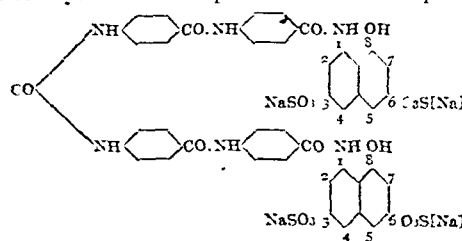
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It has been my aim for some years past to find a drug or drugs suitable for use in the acute stage of disease. The first preparations introduced were colloid manganese hydroxide (1917) and manganese butyrate (1920), the latter being still the best preparation in use for furunculosis. But, to combat widespread infections caused by the staphylococcus and other Gram-positive and Gram-negative micro-organisms, it has been necessary to search for compounds capable of conducting more electricity to the host's protective substance (protein particles in the plasma) than can manganese butyrate. I should, perhaps, mention here that, according to my view of morbid processes, disease occurs when the protein particles in the plasma generally, and those constituting the protoplasm of the leucocytes locally, have to part with some of their electrons at the bidding of an invader, be it a micro-organism or a chemical intoxicant. In the search for more efficient conductors two paths lay open: (1) the preparation of an organic compound of manganese possessing a vehicle with a larger nucleus than butyric acid; (2) the preparation of an organic compound made up of an enormous vehicle and depending for the conductor action upon the liberation therefrom of one or more positively charged sodium or hydrogen atoms. Search along the first path proved fruitless, but along the second path fruitful. With the assistance of Dr. F. H. Fairbrother of the British Dyestuffs Corporation, and Dr. J. Thomas of the Scottish Dyes, Ltd., the chemotherapeutic armamentarium has been enriched by four compounds, whose uses form the substance of this article.

Sup. 36.

"Sup. 36" is the symmetrical urea of para-benzoyl-para-amino-benzoyl-1-amino-8-naphthol-3-6-sodium sulphonate.



The action of this compound depends, I believe, upon the liberation of positively charged and conductor functioning

sodium atoms from the 6-positions. The drug can be injected intravenously or intramuscularly in 0.005 to 0.02 gram doses. In the former method the solution must be freshly prepared, but stock solutions will do for the latter, provided the powder has been dissolved in doubly distilled water. Never more than three injections are

In cases of pneumonia, pulmonary thrombosis, and oedema following influenza or prolonged anaesthesia, and occurring in pregnancy, should the patient be in great pain or badly asphyxiated, the action of Sup. 36 should be enhanced by daily subcutaneous injections of oxygen (300 c.cm.). Inhalations of oxygen are of little value, and

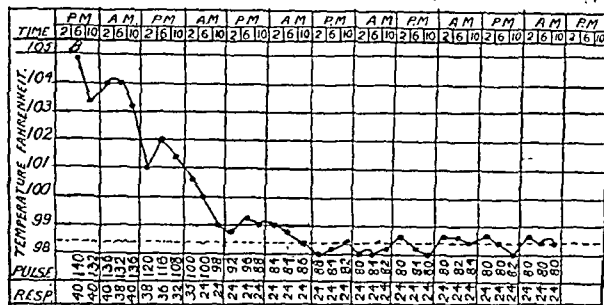


CHART 1.—B=Sup. 36 0.01 gram.

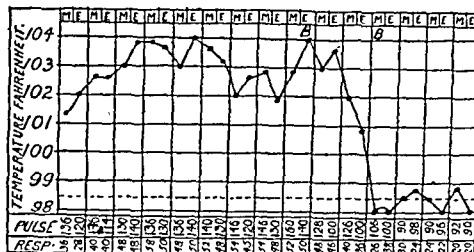


CHART 2.—B=Sup. 36 0.01 gram.

required in any one course, and often two or even one suffice. In particularly acute conditions the first two injections should be prescribed on successive days, and the third injection four, five, or six days later.

Sup. 36 is indicated in acute staphylococcal infections, in non-metallic intoxications, and in such conditions as pulmonary thrombosis and oedema, venous thrombosis, and the pernicious vomiting of pregnancy.³ Almost any

the drug is best injected by means of a Bayeux apparatus—a method brought to my notice by Dr. H. L. C. Noel.

Owing to the high mortality of pneumonia and to the fact that no previous chemotherapeutic preparation has proved of value in this infection, I will describe in brief three severe cases which (it seems fair to suppose) owe their life to Sup. 36. In the first case, represented by Chart 3, the patient was delirious at the time the Sup. 36

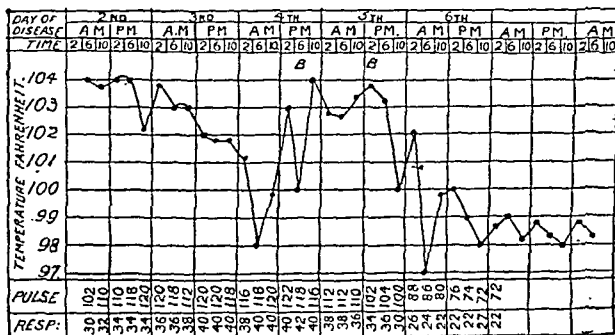


CHART 3.—B=Sup. 36 0.01 gram.

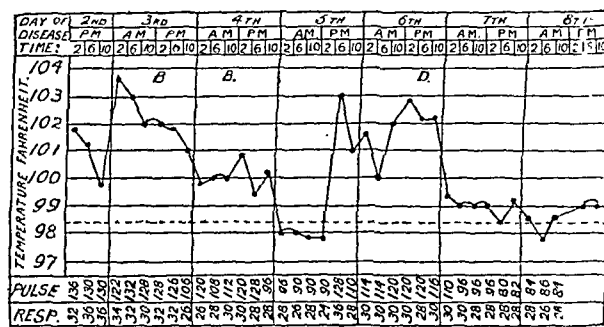


CHART 4.—B=Sup. 36 0.01 gram. D=Sup. 36 0.01 gram and subcutaneous oxygen 400 c.cm.

sapraemic condition may be combated by Sup. 36. In purulent conditions I have found it abort the lesions if pus has not formed already, and to cause pointing if pus was present beforehand. The moment pus has formed it should be liberated through a tiny incision, and the local application of strong antiseptics and fomentations should be avoided. Oedema, due to the collecting of lymph, may

form around the lesion, and this is apt to cause severe pain and to call for the use of leeches if the lesion is connected with bone—for example, in an acute mastoid, where the timely use of Sup. 36 may render an operation unnecessary. Septic throats, acute and chronic rhinitis, influenza, bronchopneumonia and pneumonia, provided the lesion is not caused by the streptococcus, tend to vanish at once under Sup. 36. In bronchopneumonia the temperature falls to normal one or two days after a single injection, and the objective signs vanish a few days later. Should the temperature rise about one degree at nighttime after the initial fall, the inference may be drawn that there is some hidden focal infection in another part of the body and not necessarily in the lungs. Charts 1 and 2 depict the course of events which have occurred in thirty-nine cases.

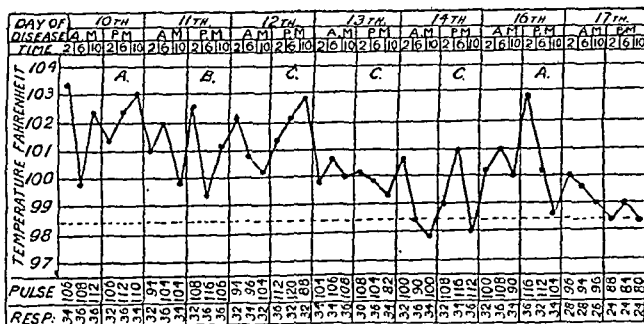


CHART 5.—A=Sup. 36 0.01 gram and oxygen 300 c.cm. B=Sup. 36 0.01 gram. C=Oxygen 300 c.cm.

was injected. The patient was under the care of Dr. S. L. McBean.

In the second case, represented by Chart 4, the patient developed a patch in the second lung when the lung first involved was beginning to regress under treatment with Sup. 36. The patch referred to was more of the nature of a reactionary inflammation and subsided at once with a third injection. The patient was under the care of Dr. E. Hogan.

In the third case, represented by Chart 5, the patient did not receive the first injection until the tenth day. The two injections failed to have a dramatic effect, but the patient was old and the heart was beginning to fail. For the next few days the heart was stimulated with digitalis, strychnine, and camphor, and the third injection was made when the heart

was considered to be sufficiently recovered. The day following the third injection the patient registered a distinct improvement, and this was followed by an uneventful recovery. The patient was under the care of Dr. W. H. Harwood-Yarred.

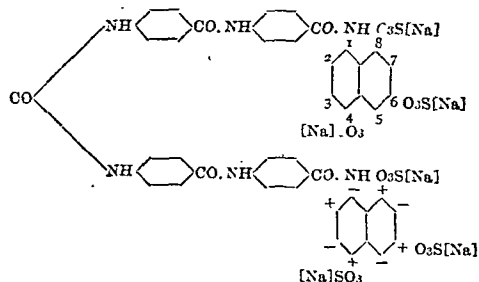
Although this drug appears to be invaluable in the pulmonary complications following prolonged general anaesthesia in elderly people it will not prevent these

if given beforehand. Indeed, if it is injected before the patient leaves the operating table there is a grave risk of pulmonary shock ensuing, owing to the large size of the molecule precipitating the protein particles in the pulmonary capillaries. I have found glycosuria, albuminuria, and acetonuria occurring after an operation vanish under Sup. 36, also similar conditions in pregnancy, provided the protein particles have not been precipitated in the renal or cerebral capillaries. Vomiting in pregnancy is quickly relieved, and acute venous thrombosis and puerperal fever (provided the trouble is not caused by the streptococcus) respond to treatment at once. Acute attacks of asthma may rapidly subside after a single injection, and I have found the drug invaluable in urticaria, angio-neurotic oedema, and in certain mild cases of hay fever. It is indicated in such septic conditions as whitlow, lymphangitis, adenitis, periostitis, and osteomyelitis, and a timely injection may render an operation unnecessary. It has proved of value in clearing up the dermatitis occasioned by organic preparations of sulphur and by such compounds as para-phenylene-diamine (fur dermatitis), and tri-nitro-methyl-nitramine (tetryl), and in intoxications caused by certain amino compounds—guanidine, for example. It may be used also as an antidote in cases of insulin intoxication.

Sup. 36 has been used with great success in canine distemper, foot-and-mouth disease, and equine influenza (the coughing of horses). I have injected couring dogs unable to travel by train because of train-sickness with success.

SUP. 468.

"Sup. 468" is the symmetrical urea of para-benzoyl-para-amino-benzoyl-1-amino-4-6-8-sodium sulphonate.



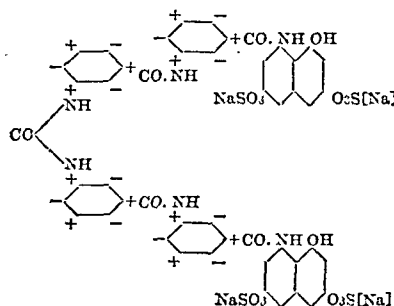
The action of this compound appears to depend upon the liberation of positively charged and conductor functioning sodium atoms from the 4-6-8-positions. According to my observations, a positively charged conductor metallic atom is liberated from a sulphonic group only when the group is positively charged. The conductor action of Sup. 468 is much greater than that of Sup. 36, and this renders it useful in streptococcal infections. The drug is best injected intramuscularly in 0.001 to 0.003 gram doses. In acute streptococcal infections, such as erysipelas, rheumatic fever, puerperal septicaemia, etc., I inject 0.001 gram on the first day, 0.002 gram on the second day, and then 0.003 gram every other day until the lesion vanishes. In septicaemic cases I inject in addition 0.1 gram doses of auramine intravenously on the first two days, and 30 c.cm of antistreptococcal serum subcutaneously on the first three days. Auramine is a di-phenyl-methane dyestuff, introduced by Fairbrother and Renshaw.⁴ Although Sup. 468 gives excellent results in streptococcal infections, provided it is prescribed before the patient's resistance has got beyond stimulation, the effect is not so dramatic as follows the use of Sup. 36 in staphylococcal, influenzal, and pneumococcal infections. Often, when the temperature has come down to normal, it rises again for a few hours, but seldom more than once.

Sup. 468 is useful in chronic streptococcal rhinitis, so-called "vasomotor rhinorrhoea," and asthma, and certain forms of chronic asthma and streptococcal arthritis after the enlarged and clumped protein particles have been broken up by subcutaneous injections of oxygen. In cases seemingly not being benefited by Sup. 468, owing to the large size of the nucleus of the compound in-

creasing the hydration of the protein particles, its action may be turned to good account by injections of the patient's own blood, a manoeuvre which causes dispersion of hydrated protein particles, or the injections may be followed by two injections of Sup. 36.

SUM. 36.

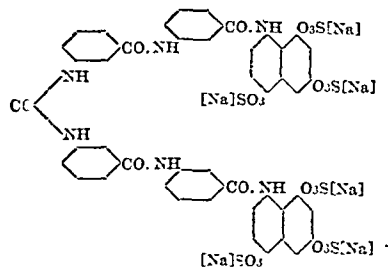
"Sum. 36" is the symmetrical urea of meta-benzoyl-meta-amino-benzoyl-1-amino-8-naphthol-3-6-sodium sulphonate.



Its action appears to depend upon the liberation of conductor sodium atoms in the 6-positions from a compound having the amino-benzene groups positively charged, instead of negatively charged as they are in the para-compounds. Such an arrangement enables the vehicle of the compound to cause a marked lowering of the surface tension of the protein particles, with the result that the conductor groups when liberated are freed in closer contact with the medium upon which they are going to act than is possible when the amino-benzene groups are negatively charged. In virtue of this ability to lower surface tension Sum. 36 has a more powerful conductor action than Sup. 468; this may explain why the drug is useful in infections occasioned by Gram-negative micro-organisms, which happen to be on a higher plane of evolution, so to speak, than the Gram-positive. Sum. 36 is best injected intramuscularly in 0.002 to 0.01 gram doses every fifth day on two or three occasions. It is indicated in pure gonococcal infections, such as urethritis, vulvitis, and ophthalmia. In urethritis and vulvitis I have found two or three injections every fifth day to cause the discharge to stop and the subjective symptoms to disappear, but the treatment should be augmented by a course of vaccines. If a urethritis is on the point of involving the posterior part of the urethra, and a vulvitis the cervix, an injection of Sum. 36 may precipitate an epididymitis in the former case and a salpingitis in the latter, owing to the initial effect the drug has in increasing the size of the protein particles (hydration). If this complication occurs two injections of Sup. 36 should be prescribed. In ophthalmia two injections of 0.005 to 0.01 gram, according to the age of the patient, should be made at three days' interval. Only very acute cases of gonococcal arthritis associated with a copious urethral discharge should be treated with Sum. 36, because in all other cases the carbon disulphide product of diethylamine (contramine) is more useful.

SUM. 468.

"Sum. 468" is the symmetrical urea of meta-benzoyl-meta-amino-benzoyl-1-naphthylamine-4-6-8-sodium sulphonate.

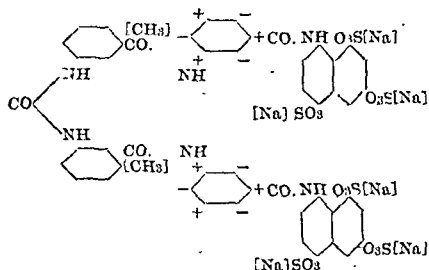


This drug has been used with success in malaria, in the piroplasmiasis of horses, and in trypanosomiasis in dogs.

I have not used the drug in human beings on a scale large enough to form an opinion as to the conditions and the doses in which it should be employed.

FOURNEAU "309."

Fourneau "309" is the symmetrical urea of meta-benzoyl-meta-amino-methyl-benzoyl-1-naphthylamine-4-6-8-sodium sulphate.



Fourneau "309" possesses a greater conductor action than Sum. 468 because it contains in addition two negatively charged methyl groups, from which are liberated two positively charged conductor functioning hydrogen atoms. In trypanosomiasis Fourneau "309" has a greater lethal effect than Sum. 468. Sum. 36 temporarily paralyses a few trypanosomes, and Sup. 468 and Sup. 36 have no action at all upon them. For help in elucidating these points I am indebted to Dr. J. G. Thomson and to Dr. A. Robertson. It is still a moot point as to whether Fourneau "309" is the same product as Bayer "205." All these symmetrical urea compounds are soluble in water, and, broadly speaking, are non-toxic in therapeutic doses. Occasionally an injection may produce a mild form of shock, but this is met with only in individuals who show an idiosyncrasy towards compounds of benzene. A severe form of shock can be readily overcome by injecting 500 c.cm. of a 10 per cent. solution of glucose intravenously and 500 c.cm. of oxygen subcutaneously. In rabbits particularly the administration of Sum. 36 makes the serum give a positive van den Bergh reaction without damage to the liver.

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- ¹ McDonagh: *The Nature of Disease*, 1924.
- ² McDonagh: *BRITISH MEDICAL JOURNAL*, April 4th, 1925. *Med. Press and Circular*, April 15th, 1925. *Medical World*, 1925.
- ³ McDonagh: *Brit. Journ. Obstet. and Gynaecol.*, October, 1925.
- ⁴ Fairbrother and Renshaw: *Journ. Soc. Chem. Industry*, 1922, xli, 134.

ACUTE SUFFOCATIVE PULMONARY OEDEMA.

THE note on acute suffocative pulmonary oedema by Dr. M. Cohen, published in the *JOURNAL* of March 20th (p. 528), has induced others who have had cases of this condition under their care to place them on record, with the treatment adopted. From the number of cases here reported the condition is apparently not extremely rare.

I.—MORPHINE; PITUITARY EXTRACT.

I HAVE treated three cases of acute suffocative pulmonary oedema in the last three years.

The first (in 1923) was a lady over 80 years of age who had a mitral systolic murmur and was subject to attacks of bronchitis. I found her sitting propped up in bed, cyanosed, and bringing up large quantities of frothy pink-stained fluid without effort. I gave her morphine sulphate $1/4$ grain with atropine sulphate $1/120$ grain, and the next morning she was sitting up in bed, fairly well, and able to eat a good breakfast. She died last year from bronchitis and failing heart.

The second case (in 1924) occurred in a lady aged about 60 years. She had walked home rather quickly after supper, and when she got to the gate of her house about 10.30 complained of feeling weak and faint. She was assisted to bed and I was sent for at 2 a.m. I found her in a practically unconscious condition, cyanosed, and bringing up the same slightly coloured fluid as the previous case, but not in such large quantities. Against my better judgement I gave the same hypodermic, but she did not respond and died an hour later. Possibly if she had received treatment earlier she might have lived.

My last case was a little girl aged 9 years. Her history is rather interesting. In 1925 she had an attack of rheumatic fever which was complicated by (1) left pleural effusion which

was aspirated, (2) pericardial effusion which I also had to aspirate, (3) endocarditis, which left her with a double mitral murmur. Last year she was sufficiently recovered to allow her to take a certain amount of gentle exercise and an occasional motor drive.

In July I got a telephone message to say she was dying. I found her deeply cyanosed, panting, very exhausted, and bringing up quantities of the same pink-stained, frothy fluid as the previous cases. I had an idea that morphine would make things worse, so I gave $1/4$ c.cm. of B. W. and Co's. original strength pituitary extract, and as within fifteen minutes her pulse and general condition had improved I gave her another $1/4$ c.cm. At the end of another half-hour she was so much better that I felt it safe to leave her. Next morning she was as well as before the attack and has had no attack since.

All three of these cases had no history of a previous attack, and all had valvular disease of the heart. If dissociation of the action of the two ventricles is the cause, why should morphine give relief? Would not pituitary extract appear to be the more rational line of treatment in these cases? It would stimulate the feebly contracting left ventricle and could hardly induce the forcibly contracting right ventricle to further efforts. I recognize, of course, the danger of "flogging a tired horse," but does not the converse—"doping a sleeping horse"—hold good in the case of morphine? I have seen three or four other cases in which the patient was apparently drowning in his own sputum in which pituitary extract gave relief. They could not, however, be called cases of acute suffocative pulmonary oedema.

Kingstown, co. Dublin.

ALFRED MERRIN, F.R.C.S.I.

II.—ATROPINE; DIGITALIN; STRYCHNINE; AMYL NITRITE.

THE following five cases show that acute suffocative pulmonary oedema occurs in a variety of chronic diseases. The attacks may be single or recurrent; they are of sudden onset, and occur particularly at night. The treatment varies with the underlying conditions.

Case 1.—A man, aged 65, was treated by my late partner, Dr. A. Greenwood, for five years; it was a typical case of chronic parenchymatous nephritis, complicated by mitral and aortic regurgitation. Early in May, 1925, fine crepitations were heard in the lungs, creeping up from the bases, and on May 24th the patient had an acute attack of pulmonary oedema. I injected subcutaneously atropine sulphate $1/50$ grain and digitalin $1/100$ grain; the attack lasted about an hour. The next day the patient had another attack, and, in spite of the same treatment and an injection of strychnine $1/60$ grain, died a few hours later.

Case 2.—A man, aged 47, had had asthma for more than twenty years. On April 4th, 1925, at 9 a.m., he had an attack of acute pulmonary oedema, and was treated with subcutaneous injections of atropine and strychnine and inhalation of amyl nitrite; the expectoration subsided, but the lungs filled up again rapidly, and he died two days later.

Case 3.—I was called to see a man, aged about 60 years, at 2 a.m. on July 14th, 1925, because "he was gurgling in the throat and thought to be dying." He was a tall, well built man of ruddy complexion, and had come to Bournemouth on a holiday. He felt perfectly fit all day, but awoke suddenly with intense dyspnoea and a feeling of impending death. During the attack he was deeply cyanosed, orthopnoic, speechless, with an occasional shallow cough which brought up much froth. A very hasty examination of the chest showed the presence of varying dullness and coarse moist sounds. As he was almost pulseless I injected digitalin $1/100$ grain subcutaneously. There was immediate improvement in the pulse, but he complained of pressure in the head and giddiness. I therefore gave him an inhalation of amyl nitrite. The effect was wonderful; his colour became ruddy, his breathing improved, and the gurgling and expectoration almost disappeared. I re-examined the chest, and found that most of the moist sounds had gone. At 3 a.m. he felt choking again, and leaving him another amyl nitrite capsule I hurried back to my surgery for some instruments, and on my return venesected him, drawing off only 8 oz. The improvement was instantaneous, and when I left at 4 a.m. the patient was asleep. The next day I found his systolic blood pressure was 240 mm. of mercury. Within the next four weeks I reduced his blood pressure to 180 mm.; he had no more attacks and returned home to London.

The next two cases are interesting as the underlying disease is mediastinal neoplasm, which is not a common condition.

Case 4.—A man, aged 65, was under my care on and after February 18. He had increasing dyspnoea and acute pulmonary oedema. He had mitral regurgitation and x rays showed retrosternal neoplasm. The attacks were treated with atropine sulphate, and in the interval large doses of potassium iodide and stimulating expectorants. He died suddenly on May 20th, 1925.

Case 5.—I first saw this patient, a man aged 47, on February 9th, 1926; he complained of intermittent loss of voice and dyspnoea. There were patches of varying degrees of dullness in the chest and moist sounds; the heart was slightly enlarged, but there were no murmurs; the liver was enlarged three inches below the costal margin, and the urine contained albumin and pus. He was choked up with secretion, which I attributed partly to the patent cough medicines he had been taking for some months. With stimulating expectorants he got rid of much frothy phlegm, and improved so much that by February 22nd he was able to get about. On further examination a diagnosis of retrosternal tumour was made by my partner, Dr. F. D. Walker. However, at 4 a.m. on March 5th, I was called to see him, and found him very cyanosed, greatly distressed, speechless, and struggling for breath, with mucus dribbling from his mouth. Pulse 160, temperature 101.4°, chest full of râles. I injected 1 c.cm. of Curschmann's solution and 1/100 grain of atropine. Within thirty minutes he felt comfortable again. I then put him on a mixture containing tincture of belladonna 3 minims and atropine sulphate 1/400 grain in each dose thrice daily. On March 6th and 8th he had similar attacks, and recovery was longer after the same treatment. On March 9th recovery was so slow that I gave 3/100 grain of atropine sulphate and also 1 c.cm. of adrenaline. That day Dr. Hyla Greves was called into consultation; he confirmed the diagnosis, and suggested morphine 1/6 grain twice daily and potassium iodide 20 grains thrice daily. I also put the patient on atropine sulphate 1/100 grain daily. On March 23rd the patient had another and the worst attack so far. The following day he was quite comfortable except for the stridor, which is now well marked.

F. STUART COLEMAN, B.Sc.Lond.,
M.R.C.S., L.R.C.P.

Bournemouth.

III.—ANTIMONY TARTRATE.

DR. COHEN's memorandum has reminded me of an exactly similar case to which I was summoned three years ago, and should have published had I not thought the condition to be fairly commonly observed.

The patient, a man aged 72, suffered from specific aortitis, his Wassermann reaction being fairly strongly positive, hypertrophy of the heart (confirmed by *x* rays), and a prolonged *p-r* interval shown by electro-cardiograph. His lungs ordinarily were clear, except for impaired resonance, increased breath sounds and vocal resonance at the left base behind.

The attack of acute oedema was exactly like that so graphically described by Dr. Cohen in the account of his case, except that my patient was too dyspnoic to speak, and he was bathed in cold sweat.

Guided by the principle of similars I administered a preparation of antimony tartrate, and had the satisfaction of seeing the patient, after five minutes, sink back contentedly on his pillows with the remark, "That's better, doctor." In twenty minutes the chest, which had been full of coarse moist râles, became clear, the extremities warm, the breathing easy, and pulse steady.

The rapidity with which the antimony tartrate acted was so satisfactory that I should certainly use the same drug again were I faced with the same condition.

I am not satisfied that the explanation of the condition to which Dr. Cohen refers is the correct one, though Osler refers to it as one possible explanation. The other explanation—namely, a disturbance of the vasomotor mechanism of the lungs—appears to me more rational.

Liverpool.

F. B. JULIAN, M.B., Ch.B., R.U.I.

IV.—RECURRENT ATTACKS TREATED BY BLEEDING.

An elderly widow had aortic disease; the apex beat was in the mid-axillary line and the heart greatly enlarged. Her first attack was in April, 1922, about 7 p.m., when out walking; she was carried in unconscious to the nearest house. She had white froth coming freely from nose and mouth and an ashen complexion, and seemed to be on the point of death. I bled her 10 oz., and her condition improved, and she recovered consciousness in half an hour. She had an attack again in October, 1923, also in the evening; it was rather more severe, but she was well enough to get about a little at the end of a month.

Her next attack was in May, 1925; it commenced at midnight, and was more alarming still. I bled her freely, and she recovered consciousness in about five hours. Her fourth attack, in December, 1925, was much the worst, and came on at 2 a.m.; her mouth and nose poured forth white foam, and she looked quite moribund, but I again bled her; she was unconscious for forty-eight hours, and paralysed down the left side and incontinent, but gradually recovered. The paralysis cleared up, and she now gets about in a bath-chair.

Her blood pressure has been rising from 220/130 in 1923 to 250/150 in 1925, and albumin has sometimes been present in the urine, but not always. The most striking feature of these cases is the quite moribund appearance of the patient in the attacks, but evidently there is no necessity to abandon hope.

Wolverhampton.

C. L. SPACKMAN.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DISLOCATION OF THE ACROMIO-CLAVICULAR JOINT.

DISLOCATIONS of the acromio-clavicular joint treated on conservative lines, with strapping and rest, usually yield disappointing results with regard to restoration of function and form. The following case serves to illustrate the result that can be obtained by operation.

A woman, aged 20, employed as a domestic servant, sustained a dislocation of the right acromio-clavicular joint in a bicycle accident.

She was admitted to hospital. Deformity and loss of function were considerable. Such was the projection of the outer end of the clavicle in the posterior triangle of the neck that there was no doubt that the coraco-clavicular ligaments had been ruptured as well as the capsule of the joint. Abduction of the arm was limited to 30 degrees. It was not possible to keep the outer end of the clavicle in alignment with the acromion by means of strapping and sling.

Operation was advised on account of the loss of function, the interference with the natural configuration of the neck, and the improbability of conservative measures being likely to restore either to the normal.

The method employed was that described by Moffat¹ and designed to secure fibrous union between the articular surfaces with full functional recovery of abduction of the arm. Access to the joint was obtained through a semilunar incision posterior to it. The articular surfaces were defined and curetted. A hole was bored in the outer end of the clavicle through which strong catgut was passed. By means of it the clavicle was secured in line with the acromion, to the periosteum around which the catgut was sutured.

For three weeks the arm was kept in a plaster case abducted to 90 degrees. At the end of that time the plaster was removed and active mov

The patient after operation with full functional arm to a right angle and to continue the movement until the arm was raised straight above the head with the elbow extended. The alignment of the clavicle with the acromion was correct.

JAMES RIDDEL, M.C., M.D.Ed.,
F.R.C.S.E.

Honorary Assistant Surgeon, South Devon and
East Cornwall Hospital, Plymouth.

RELATIONSHIP OF HERPES ZOSTER AND CHICKEN-POX.

SINCE the relationship of herpes zoster and chicken-pox is still a matter of some speculation, the following report of two sisters under our care may prove of interest. M. developed chicken-pox during January last, was attended by us, and completely recovered. On February 15th the same child was brought with a well developed eruption of intercostal herpes. On March 13th she was again brought to visit us, this time accompanied by her sister P. The herpetic eruption was still visible on M., but P. was covered with a fairly profuse chicken-pox rash.

It seems to us that here in the same two cases are both a strong refutation and a strong support of any theory connecting the two conditions. In the first place we have M. within six weeks taking chicken-pox, recovering, and coming out in the herpetic eruption. Even discounting the comparative infrequency of second attacks of chicken-pox, can we credit that an otherwise healthy child is to succumb twice to the same infection within that period? On the other hand, P. develops chicken-pox exactly three weeks after the period at which M.'s herpes was at its height, and at a date too late for the infection to have been remotely possible from her sister's earlier attack of chicken-pox.

We grant that the second child's attack of chicken-pox may be pure coincidence, but there can be no question of M. having exhibited both the chicken-pox and herpes eruptions within a period of six weeks. The former, however, seems to us, in view of the incubation time, to be sufficiently interesting to be worthy of notice.

C. ROBERTSON WILSON, M.B., D.P.H.
J. H. MITCHENER-LITTLE, M.B.

Liverpool.

¹ Barclay W. Moffat: *Surgery, Gynecology and Obstetrics*, July, 1925, p. 75.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

GLOUCESTERSHIRE BRANCH.

Urology in General Practice.

At a special meeting of the Gloucestershire Branch held on March 25th, Mr. FRANK KIDD gave an address on urology in general practice and demonstrated instruments and x-ray photographs.

Mr. Kidd began by showing an irrigating apparatus, with a nickel urethral nozzle and shield. A six-ounce bottle for potassium permanganate solution accompanied it, enclosed in a metal case. For the treatment of gonorrhoea in the male Mr. Kidd regarded this simple portable apparatus as fulfilling the essentials of treatment. In the female, a glass nozzle was substituted and, in addition, the cervix was painted with 2 per cent. flavine. The preponderating majority of cases so treated were cured in six to eight weeks. In the prophylaxis of venereal disease, it was stated that if the urethra was washed out with 1 in 2,000 permanganate solution the morning after exposure to infection gonorrhoea did not develop, while, for syphilis, the use of 33 per cent. calomel cream was practically a certain preventive. Gum elastic catheters were recommended; they should be sterilized by being placed in boiling water for one minute, removed by forceps, and placed on a sterile towel. No oily lubricant should ever be used; "lubafax" was strongly recommended. It was important to desensitize the urethra, but cocaine, on account of its danger, should never be employed. Borocaine (2 per cent.) Mr. Kidd found best, but novocain or stovaine was good. The urethra should be filled with this fluid, a special clip applied to retain it, and four to five minutes allowed for it to act. Permanganate solution was condemned for catheter work, and the lecturer recommended a stock solution of mercury oxycyanide 1 in 30; one drachm of this to one pint of water made a good irrigating solution. The worst cases of cystitis the lecturer had seen were in women on whom a catheter had been passed for retention, following operation, and stress was laid on the inadvisability of leaving catheterization to a nurse. A glass catheter should be used with the urethra in full view. After the bladder was emptied two ounces of oxycyanide solution should be left in. A method Mr. Kidd had found very satisfactory in preventing the persistence of hysterical retention was to inject through the catheter, after washing out the bladder, one ounce of 2 per cent. boroglyceride, and to leave it in; this very frequently induced natural micturition. In acute gonorrhoeal retention the fear was often expressed that the passage of a catheter in this condition might carry the infection to the posterior urethra; there was nothing in this. Infection of the posterior urethra had already taken place; indeed the condition was invariably due to a prostatic abscess. A catheter should be passed at once, and vigorous massage of the prostate would burst the abscess and cure the condition. If sufficient force could not be tolerated at the first attempt it would be successful later. Subsequently Mr. Kidd pointed out that in an ordinary case prostatic massage was frequently overdone; every fifth day was enough, the massage being performed with great gentleness for one to two minutes. An exception was found in gonorrhoeal joint cases, when massage of the prostate every day for ten days would cure the trouble. Stricture was certainly becoming rarer, due to the more efficient treatment of gonorrhoea, but it was a most difficult problem for the general practitioner. The best instrument to try was a whip catheter; if none was available, the next best to try was a fine gum elastic bougie. If one entered successfully, another should be passed alongside it; sometimes three might be inserted together. Urine then trickled past the bougies. As an emergency measure resort might be necessary to suprapubic cystotomy by a hydrocele trocar and cannula, though this was a more dangerous procedure than was generally realized. If facilities were available much the best treatment was immediate internal urethrotomy. Enlarged prostate was probably one of the commonest causes of retention; it occurred after the age of 50, and there were two distinct types. In the ordinary

type—a youngish man who had had symptoms of enlarged prostate—his retention caused him acute pain; that man had good bladder muscle and there was no danger to the kidneys. A gum elastic catheter should be passed (a Marshall's No. 7 was recommended), but it should not be pulled out. It should be tied in and left for two to three days, fitted with a lung, and the bladder washed out once or twice daily with mercury oxycyanide. The dangerous type occurred in older men, who had not complained of difficulty in passing water but had been doing so quite readily every hour or two for some time. The bladder might have reached the umbilicus, but without pain; it had lost all tone. Inquiry would probably elicit a history of "lumbago," and of loss of weight. Such men died like flies if a catheter was passed; the mortality was simply appalling—probably 75 per cent. The bladder should be opened above the pubis, but if all the water was let out the patient would get haematuria and die. Under local, general, or spinal anaesthesia an incision one inch long should be made above the pubis; on separating the muscles the bladder would be seen standing out like a football. A tube should be inserted through a tiny incision for drainage; it should be arranged at such a height that the outflow was really balanced against the kidneys. In this way a gradual emptying, extending over days, would be safely accomplished. *B. coli* infection was common and was invariably a blood infection. It frequently started with rigor, headache, vomiting, a temperature of 104° or 105°, with increased frequency and strangury after four or five days. In men there was often associated infection of the prostate and vesicles. It was common to administer hexamine; this drug irritated and should be avoided at the outset. The treatment consisted in giving potassium citrate in large doses till the urine was alkaline—one drachm every two hours, even in children. If a patient really could not tolerate the citrate alone, then a good combination was potassium citrate, potassium bicarbonate, and magnesium carbonate, of each 20 gr. The patient should be kept in bed and the above treatment continued for ten to fourteen days. When the time came for urinary antiseptics Mr. Kidd recommended hexamine and methylene blue, as being more efficient and more easily tolerated than the former drug alone. The patient should be warned that the urine became blue. Messrs. Burroughs Wellcome and Co. put this combination up in tablets; two of these, four times daily, was recommended. Most cases were cured without vaccines, but these should be tried in cases obstinate to other treatment. In small doses vaccine might be an immunizing agent, but in large doses it was a poison; 5 to 10 or 15 million was an adequate dose, and certainly 20 million should never be exceeded. Mr. Kidd next referred to bladder cases, with an open wound, in which it was necessary to keep the urine acid, to prevent serious infection, and he strongly recommended in preference to acid sodium phosphate boric acid, 5 gr. in a tumbler of water (it dissolved slowly) four times a day. The bladder should be washed out frequently, and hexamine and methylene blue be given, six to eight a day for six to eight weeks.

Reports of Societies.

OVARIAN NEOPLASMS.

A MEETING of the Section of Pathology of the Royal Academy of Medicine in Ireland was held on March 18th, with Professor WIGHAM in the chair.

Dr. DOROTHY H. DOUGLAS showed two specimens of ovarian fibroids. So far as she had been able to gather from the literature ovarian fibroids were infrequent. They were usually unilateral, pedunculated, and torsion of the pedicle was liable to occur owing to their weight, with ensuing oedema and necrosis, but this had not occurred in either of her cases. The etiology of these tumours was uncertain. Among some 960 gynaecological structures removed by operation at the Coombe Hospital since January, 1923, there had been only two ovarian fibroids. The histories were as follows:

A woman, aged 54, had been married thirty-one years, and had had ten children and one abortion. The last pregnancy was a full-term one twelve years previously. She had a normal menstrual

history and the menopause had occurred at the age of 46. She was admitted to hospital complaining of a "swelling in the stomach." At the operation a large hard tumour was removed from one ovary; there was no history of any other abnormality. The tumour, a solid fibroid, weighed 3 lb. There was no sign of any remaining normal ovarian tissue, and the tumour was attached by a broad untwisted pedicle. Microscopically it showed typical oedematous fibroid structure, with myxomatous degeneration in places.

The second patient, aged 63, had been married thirty-eight years and had had one child thirty-seven years previously; no abortions. Her menstrual history was normal and the menopause had occurred at the age of 43. She was admitted to hospital complaining of a "swelling in the stomach" which had lasted for four months; on vaginal examination the tumour could be felt as a hard mobile mass filling up the pelvis. Laparotomy was performed and the tumour removed with the ovary of the opposite side, which was cystic. The tumour had the size of a large Jaffa orange and was attached by a very short pedicle; microscopically it showed the typical fibroid structure, it was very oedematous, and the cell nuclei had almost entirely disappeared. The ovary of the opposite side was small and showed cystic degeneration with commencing papillomatous formation.

Both patients made uneventful recoveries.

Dr. BETHEL SOLOMONS thought that "fibroid" was a bad term, and that evidently these tumours were fibromas, which comprised 2 per cent. of all ovarian tumours. Bearing in mind the fact that there were three classes of this type of tumour described—where the ovary was wholly replaced by the growth, where the growth was confined to a part of the stroma, and where the fibroma was pedunculated—he inquired to which class the present specimens belonged, and if there was any hydroperitoneum or hydrothorax. Usually there were no symptoms, but the diagnosis was easy, except from a pedunculated uterine myoma in the neighbourhood of the ovary.

Dr. J. LAIT showed several specimens of ovarian tumours.

The first was an ovarian fibroma in which torsion of the pedicle had occurred. He then exhibited three specimens of ovarian teratomata. The first was a large ovarian teratomatous cyst, which, when fresh, had weighed 2½ lb. and had measured 11 in. in diameter. It had been removed from a woman, aged 46, and the history recorded that the tumour had been palpable at her last confinement thirteen years previously. During the operation for removal the liver was found to contain numerous apparently secondary cancerous nodules, and there was a large mass adherent to the transverse colon, a portion of which was removed. The cyst was a typical teratomatous ovarian cyst, but contained several nodular projections in its wall. On section these showed the same tumour formation—apparently a glandular carcinoma—as the mass removed from the region of the transverse colon. The second of the three specimens was a small cystic teratoma of typical structure; on one side of the cyst, and quite distinct from it, was a small solid mass. Microscopical sections of this revealed the typical picture of a primary alveolar carcinoma of the ovary. Dr. Lait considered that the two tumours were coexistent. The third specimen was a solid ovarian teratoma removed from a girl, aged 11. Sections showed the heterogeneous grouping of tissues common to such tumours. He believed all solid teratomata of the ovary were malignant.

The next exhibit was a large solid ovarian tumour removed from a girl aged 15. It was a solid smooth tumour, and on section had a greyish-white, homogeneous appearance, with patches of haemorrhage and necrosis. Microscopical examination showed it to be sarcomatous. Lastly he showed a large somewhat lobulated ovarian tumour, removed from a woman aged 40. On section it was solid, but apparently was undergoing cystic degeneration. Microscopical examination revealed that it was a solid carcinoma.

Professor WIGHAM said that Dr. Lait had shown three very different teratomata, two being cystic and one solid. In the first specimen it was difficult to say whether the nodules present were those of a primary cancer or not. As regards the second specimen it was unusual to find two entirely different tumours present in one organ.

Dr. BETHEL SOLOMONS said that one of the difficulties in dealing with this class of tumour was the classification. He had to a large extent adopted that of Frankl, who divided true ovarian tumours into epithelioid, stromatoid, and organoid, subdividing the organoid into benign dermoids and teratoids, and malignant dermoids and teratoids. The correct treatment for malignant ovarian tumours had not been decided. It was his practice in the case of a young woman, where the tumour was localized, to remove the whole ovary and to examine the other; if the latter showed any suspicious macroscopic sign of tumour formation he removed it also. In the case of an elderly woman the uterus was removed with the adnexa. He dwelt on the difficulty experienced in giving a prognosis in some cases of ovarian tumour, for occasionally, when

tumours clinically and microscopically benign were removed, malignant metastases followed. This error could only be obviated by cutting sections of every minute portion of the tumour, a procedure practically impossible in some cases.

Dr. R. J. ROWLETTE discussed the classification of ovarian tumours. When a cystic teratoma became malignant it was generally in the nature of a squamous carcinoma.

X-RAY TREATMENT OF EXOPHTHALMIC GOITRE.

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on March 26th, the President, Mr. R. C. B. MAUNSELL, in the chair, Dr. MAURICE HAYES read a paper on the x-ray treatment of 100 cases of exophthalmic goitre.

Dr. Hayes reviewed the results of radiotherapy in 90 females and 10 males treated by him between 1911 and 1926. Of these, 62 who completed the course of treatment were cured and able to follow their usual occupations; 14 were improved, comprising 8 who left off treatment before they were finally discharged and 6 still under treatment. For various occupational reasons 16 patients abandoned treatment, and the ultimate results of 8 were unknown. There was recurrence in two cases—in one following encephalitis lethargica, and in the other after influenza. Four patients had had previous surgical treatment; three underwent operation shortly after the commencement of x-ray treatment; one died and another had a toxic adenoma. X-ray treatment was given daily or on alternate days for three weeks; after a month's interval this was repeated. Two or three series of applications were usually sufficient. While statistics of the surgical treatment of the disease were copious and reliable, in the case of radiation treatment they were as yet incomplete, but a comparison of the results obtained indicated that x-ray treatment would probably furnish about the same percentage of permanent cures as surgical treatment in the best hands. The advantages of radiotherapy were that there was no mortality resulting from the treatment; patients would submit to it more readily than to operation; and it was applicable also to inoperable and post-operative cases. Its disadvantages were that the treatment was prolonged and that there was some risk of atrophic changes and telangiectases in the irradiated skin. There was ample clinical evidence from the amelioration which followed radiotherapy to justify its employment on rational grounds as a most useful adjunct in the treatment of Graves's disease.

Dr. T. G. HARDMAN said he was an enthusiastic advocate of this treatment. In June, 1925, he read a paper on the subject; he had been able to collect about sixty cases, and follow up their course for several years. On the whole he thought the results were very satisfactory; he had no mortality rate. Some of his patients he had been unable to trace, but he had since learned that two had been successfully treated by operation. Radiologists only advocated the use of x rays as part of medical treatment, and not as the sole method; in fact, the success of the treatment depended very largely on the strictness of the medical régime. The patients who did best were those treated in private, where it was possible for them to have the absolute rest and follow the strict regime which were so essential. In x-ray treatment there was no immediate mortality, the treatment was easy to carry out, and there was no scarring such as followed operation. If x rays were not successful this did not prevent patients from being operated on afterwards, although some surgeons said that operation after such treatment was rendered more difficult owing to the formation of fibrous tissue. In his opinion every patient should be given a chance of x-ray treatment before being submitted to the risk (however small it might be) of operation.

Professor J. M. O'CONNOR said that undoubtedly the thyroid gland had its use and significance in the body, but what this use was it was very hard to say. It was thought at one time that exophthalmic goitre was due to excessive adrenaline in the blood, but this had been proved to be wrong. The estimation of basal metabolism seemed to him to be a very heavy weapon to use for investigating a disease

which, as far as he could see, could be investigated by much more simple methods.

Mr. H. STOKES did not think statistics were really of much value in exophthalmic goitre, because it had only recently been recognized that there were two varieties—toxic adenoma and Graves's disease. The mortality in toxic adenoma was just as high as ever; but with the use of iodine in Graves's disease the mortality had come down to 2 per cent. From reading accounts of these cases treated at the American clinics it might be imagined that the patients came in in a very grave condition, were given iodine for three or four days, were then operated on, were up within a week, and within a fortnight were able to leave the clinics, go back to work, and lead a normal life. He had operated on three cases of Graves's disease recently, and in one case, after three months, the patient had been able to go home to England and return to work, and was now perfectly well. There were undoubtedly cases of well marked Graves's disease which recovered in a remarkably short time; but these were apparently a mixture of toxic adenoma and Graves's disease.

Dr. T. G. MOORHEAD said that before one could estimate the value of any treatment in any disease it was necessary to know what the natural course of that disease was when uninfluenced by treatment, or, in the present case at any rate, only treated by the simplest medical methods, such as rest and sedatives. Information on this point was very scanty. As regards actual mortality from the disease, no reliable figures existed showing the mortality incidence. Campbell had studied the death rate throughout Great Britain and Ireland, and concluded that roughly ten persons per million living died of exophthalmic goitre annually, though there was considerable variation in different districts. In 1922, in the Free State, 22 deaths were recorded, and in the following year 18. It was worth noting that of these, 24 deaths occurred above 40 years of age, from which it might be deduced that death usually resulted after many years of illness, inasmuch as most cases of Graves's disease were encountered in the earlier years of life. The Free State figures worked out at roughly seven deaths per million living. It was obvious, however, that none of these figures gave any information regarding the number of deaths in proportion to the number of people who suffered from the disease. Marion Read, who observed 100 cases over a period of about six years, had reported altogether six deaths, and of these four immediately followed surgical treatment. From these scanty figures it might be concluded that the medical death rate was, at any rate, not high. As regards recovery from the disease, it was equally difficult to get reliable figures. It was common knowledge that many patients recovered completely without any treatment, and that, on the other hand, many drifted on as chronic invalids. The general opinion was that about 50 per cent. of recoveries might be expected, and so any treatment that did not improve on that figure might be regarded as of no value. Kessell of New York, indeed, stated that in 82 per cent. of cases that he had observed economic recovery occurred within from four to six months, without any special treatment. He admitted that many of his recovered patients still suffered from considerable disability, and few would agree with his statement that practically all cases tended to recover if left alone. A distinction must be made between the immediate and remote results of surgical treatment. The immediate mortality in some clinics was very low. For example, in the Mayo Clinic, and in Cleveland, the mortality was only about 1 per cent.; but, on the other hand, Kessell and Hyman, in a group of cases collected from various clinics, reported an operative mortality of 9.3 per cent.; and Marion Read, in a small number of cases, had found a mortality as high as 31 per cent. From this it might be concluded that, while surgery under special conditions was comparatively safe, it was by no means safe as a treatment to be universally adopted. The ultimate results following operation were very difficult to determine. Some surgeons would lead one to believe that their cases were completely cured in a month or so after operation; but, on the other hand, in 25 cases, followed for from three to five years after operation,

Marion Read had only reported 2 cases as cured and 9 as improved. The number of cases was, of course, very small to base any statements on, but some importance must be attached to the fact that they were definitely followed up and their condition reported some years after the operation had been performed. Regarding x-ray treatment, the speaker felt most enthusiastic. In a series of 51 private cases reported by him in June, 1925, he had been able to follow up 44. Of these, 2 did badly, showing no response to treatment, and one patient died of influenzal pneumonia. There were 32 complete cures, and 7 very much improved. These figures showed, therefore, 77 per cent. of cures and 15 per cent. improved, or a total of 92 per cent. good results. These results supported those given by Dr. Hayes, and pointed strongly to a combination of medical and x-ray treatment as being the best, and unattended with any danger. Treating cases in this way, he (Dr. Moorhead) had found that acute cases did much better than the milder and more chronic. Private patients, on the whole, did better than hospital patients, presumably because the former were able to obtain more rest and to follow out the details of treatment more thoroughly. The patient should remain, in bed, on a restricted protein diet for the first month, and sedatives should be given as required, quinine bromide being particularly useful. He felt strongly that a double course of x rays was all-important. He recommended two periods of treatment, each of about three weeks' duration, with an interval of a month, and he always advised that the thymic region should be radiated as well as the thyroid gland. Of late he had been using Lugol's solution as an addendum to his treatment. It was customary to say that iodine was of particular value in preparing patients for operation. That was doubtless true, but his experience led him to think that it was also of value in hastening recovery by means of x rays. Under iodine the pulse rate came down more rapidly and the thyroid gland became harder. As regards the time required for recovery, he found that in most cases the patients were practically well within six months after commencement of treatment; by well he meant that they had gained weight, had a normal pulse rate, no tremor, no sweating, and were free from nervousness. Traces of goitre often persisted, and often some exophthalmos, but in the absence of other symptoms these were unimportant. All his patients claimed as cures were able to live normal lives and were without disability.

Dr. H. F. MOORE remarked how little was known of the physiology of the thyroid gland, and hoped that the discovery of thyroxin would prove a stimulus to renewed physiological research. The pathology of the gland was in an even worse state of confusion: as a classification of types of enlargement he thought Aschroff's the most suitable. He summarized recent advances in the knowledge of thyroid function, with particular reference to Kendall's work on the thyroxin molecule and its physiological properties. The effect of iodine in hyperthyroidism was of great interest, and any evaluation of treatment should be controlled by clinical observation and estimation of the basal metabolic rate. His patients were all treated under such control by general treatment, iodine, and x rays, but he did not hesitate to have recourse to surgical measures where he thought them necessary.

Sir WILLIAM WHEELER said that the literature on exophthalmic goitre had become quite unwieldy. He traced the progress of surgical treatment of the disease. Of the cases treated between the years 1883 and 1889, Albert Kocher stated that 76 per cent. were cured, and that the mortality was 6.7 per cent. In 1910 the mortality in Kocher's clinic had been reduced to 4.5 per cent. During the last fifteen years immense strides had been made in the surgical treatment, which had brought the mortality in the clinics of Mayo and Crile down to about 1 per cent. Mortality following operation from toxic adenoma was much higher—about 3.48 per cent. The results following surgical operations could be accurately estimated, but figures indicating the ultimate mortality from failure of medical treatment were difficult to ascertain. Sir William Wheeler said he had referred to the

records of seventy-six thyroid cases operated upon since 1910, but his statistics were not accurate owing to the fact that there was confusion between some of the cases of toxic and non-toxic goitre in the hospital records. He had had two deaths from true Graves's disease during this period, one from acute hyperthyroidism in the days before iodine was administered as part of the pre-operative preparation. In this case there was marked exophthalmos, cardiac murmurs, and an irregular pulse. The second case was lost through mechanical difficulties in breathing following an extensive operation; recent technique had eliminated that danger. Nearly all of the cases operated upon by him were those in which medical treatment and radiotherapy had been tried in the first instance, but it was quite possible that a number of these cases had not submitted faithfully to the directions of the physicians. Operations were not shirked in any instance because the disease was advanced and the patients were grave surgical risks, but in such cases the operative procedures were very carefully graded. Graves's disease was a disease of cycles; the stage of development was followed by one of maximum intensity—and then there was retrogression and remission. In the quiescent period an operation was comparatively safe, but during a crisis it should never be performed. He had been impressed by the dramatic improvement which followed a few days after operation in a number of cases. The statistics mentioned in the literature were often faulty owing to the comparison between inefficient surgery and efficient medicine, and efficient surgery and inefficient medicine. To obtain anything like accurate information the statistics of the best authorities—surgical, medical, and radiotherapeutic—should be balanced; if this were done it would be found that the honours were easy. In most cases a combination of methods was desirable. A number of patients were mentioned who had been cured by operation. One, a case of well marked Graves's disease, was operated upon in May, 1911; she was hard at work in a Dublin hotel and had been in perfect health for the last fifteen years. Lugol's solution was an immense help in preparing patients for operation, and would control post-operative remissions; about 5 per cent. of patients did not react to the administration of iodine.

Dr. R. STUMPF said that his experience of treating cases by x rays was that patients considered to be most suitable for operation received a preliminary x-ray treatment about a fortnight beforehand, because it was found that this diminished the operative risk. The majority of cases of exophthalmic goitre were treated by x rays alone, and in 90 per cent. there was either cure or great improvement; if after several radiations there was no improvement then an operation was performed. Ill effects were more likely to occur after radiation by superficial rays than after radiation by deep rays. Cases had been known in which adhesions were present at operation, in spite of the fact that the patients had never been x-rayed; he felt that their presence should not be considered an absolute contra-indication of operation. He always radiated the thymic region, even when the gland was not perceptible. Referring to the frequency of exophthalmic goitre, he said that he treated on an average about five or six cases a month, out of about thirty cases which received ordinary treatment. In simple goitre he always preferred x-ray treatment rather than operation, even in juvenile cases; he had seen several simple goitres in which the tumour had entirely disappeared.

Mr. A. CHANCE referred to the special conditions obtaining in the hospital class of patient which, the discussion had shown, frequently prevented adequate medical or x-ray treatment. In these cases operative treatment showed to advantage. The object of x-ray or surgical treatment was to destroy a portion of the thyroid gland, and if this could be effected safely by surgery it certainly could be so obtained more speedily than by any other method. In certain clinics where these cases were handled by one team, as in the Mayo and Crile clinics, the mortality was in the region of 1 per cent. Given such a mortality, operation was not infrequently indicated in patients who did not respond to x-ray or medical treatment, or in whom, for one reason or another, this could not be carried out.

Dr. O'HEA had treated a large number of cases of exophthalmic goitre by x rays, and thought that his results were roughly about 75 per cent. of cures. Referring to the condition of patients after treatment, he thought that after the first treatment symptoms were exacerbated, but that this was due in the main to fright.

Dr. W. C. STEVENSON said that for a long time now he had not used superficial rays in cases of exophthalmic goitre, because these rays did not affect the pathological cells found in exophthalmic goitre. If deep x rays were given it was impossible for the cells to escape altogether, and these rays tended either to destroy the cells or to stimulate them to return to a more normal condition. The fibrous tissue produced by x rays was not the cause but the result of the cure. Deep x-ray treatment was much more efficient in treating this disease than superficial x-ray treatment, as the former rays penetrated deeper. In some cases he thought that radium had an advantage over x rays, as in cases where very slight but very continued stimulation was required this could be given better by radium than by x rays.

Mr. W. PEARSON said that his experience was that the x-ray treatment in exophthalmic goitre did not make operation any more difficult. Fibrosis was produced, but it was in the stroma of the gland itself, and made no difference so far as operation was concerned. He had never found any difficulty in getting the thyroid gland out cleanly and bloodlessly in cases in which there had been fairly extensive x-ray treatment.

Dr. HAYES, replying, referred to the possible part which thyroxin played in exophthalmic goitre. Referring to antecedent x-ray treatment causing adhesions, and rendering operation more difficult, he said that if this were true it was a thing which radiologists should definitely try to remedy. He did not think that x-ray treatment alone would cure exophthalmic goitre, and the more he saw of the condition the more convinced he was that a radiologist could not cure a case unless he was a good physician. The most essential part of the treatment was the medical regime.

ABDOMINAL ACTINOMYCOSIS.

At a meeting of the Devon and Exeter Medico-Chirurgical Society on March 25th, the President, Mr. R. WORTHINGTON, in the chair, Dr. S. C. SHAW showed a case of abdominal actinomycosis.

Dr. Shaw said that the patient, a man aged 23, had been operated upon two and a half years previously for what appeared at the time to be an ordinary acute attack of appendicitis. The appendix was found to be thick and oedematous, and there was free fluid in the peritoneal cavity. After appendicectomy the man seemed to make a normal recovery, but some two months later a small focus of suppuration showed itself in the scar, and was thought to be a stitch abscess. This did not, however, heal, and subsequently a hard mass was found to be developing beneath the site of the operation incision. Exploration revealed small loculi and matted oedematous tissue, more within than outside the peritoneal cavity. Streptococci only were isolated at first, although actinomycosis was suspected from the nature of the tumour. Eventually a selected nodule was removed under an anaesthetic, and the diagnosis of actinomycosis was confirmed. The mass was now subsiding under large doses of potassium iodide, and the man's general condition was good in spite of the persisting sinus. Vaccine treatment had been of doubtful value in this case.

Dr. R. V. SOLLY gave an account of the infection, and showed the various culture phenomena on the screen. Dr. P. H. SZIRK mentioned a similar case admitted to the Royal Devon and Exeter Hospital many years ago. In this instance there was unfortunately a general infection in addition to that of the appendix, and treatment was of no avail. Dr. W. GONNOR said he believed in pushing the iodide up to extreme doses of even 100 grains three times a day. He also advised that the teeth should receive careful attention. In addition to the use of a specific vaccine, he had often found it of value to give injections

prepared from the complicating organism. For instance, in a case of dysentery with liver abscess, emetine treatment had not been found to clear up the case beyond a certain limit, whereas the pyrexia rapidly subsided after the employment of streptococcal and staphylococcal vaccines. Dr. SHAW mentioned the value of such preparations as thiohistamine and contramine in those conditions which responded as a rule to potassium iodide. Mr. R. WAYLAND SMITH had found contramine of great value in osteo-arthritis, and Dr. W. A. DATE had met with a most promising result after trying manganese butyrate in a case of carbuncle of the face.

Clinical Cases.

Dr. SOLLY gave a pathological demonstration on the following cases, illustrated by microscopic specimens and slides, some of which were projected on the screen. He gave also a short account of the various malignant tumours of the kidney and of 'he hypernephromata.

1. *Carcinoma of Kidney*.—A man, aged 55, admitted to the Royal Devon and Exeter Hospital in June, 1925, under the care of Dr. F. A. Roper. The man gave a history suggesting that symptoms dated back to 1921, and on admission was practically in *extremis* with cyanosis and dropsy. The liver was much enlarged and there was an extensive tumour in the left loin, distinguishable from the enlarged spleen. At the necropsy in August the primary growth was found to be carcinoma of the kidney arising from the uriniferous tubules, as described by Bland-Sutton; secondary growths were noted in the liver and lungs. The primary growth occupied the greater part of the abdomen and involved both the aorta and vena cava.

2. *Adenoma of Kidney*.—A man, aged 54, was admitted to the Royal Devon and Exeter Hospital, under Dr. Gordon, with a history of under twelve months' illness; he first complained of "swellings in the neck." On admission the symptoms resembled those of the previous case. The necropsy showed an enormously enlarged right kidney with secondary growths in the neck, omentum, and abdominal lymphatics. The growth proved to be a malignant papillary adenoma of the kidney, and to consist of large and small sized cysts, loosely filled with papillary ingrowth of the lining cells. In microscopical section there appeared to be almost an attempt at the formation of tubules.

3. *Hypernephroma*.—From a man aged 40 a large right kidney was removed by lumbar incision (under the care of Mr. Dyball). The tumour showed the well marked capsule of condensed renal tissue characteristic of these growths.

4. *Tuberculosis of the Liver*.—A man, aged 61, was admitted to hospital, under the care of Dr. F. A. Roper, with long-standing tuberculosis of the lungs with ascites, oedema of the legs, and enlargement of the liver. The necropsy revealed a much enlarged liver, with many small white nodules and spaces containing green semiliquid material. Nodules were also found in the left loin and in the enlarged glands within the abdomen. This was a tuberculous hepatitis secondary to a primary invasion of the lung.

5. *Endocarditis*.—A man, aged 46, was admitted to hospital under Dr. Gordon. *B. diphtheriae*, or at least a micro-organism closely resembling it, was recovered from the throat. The organism was subsequently considered to be avirulent, and therefore the cause of the progressive cardiac lesion had remained in doubt. The necropsy showed vegetations, probably of recent origin, on the mitral valves only.

The PRESIDENT commented on the doubtful value of vaccines cultivated from the mouth and throat in cases of obscure toxæmia.

Dr. W. GORDON, referring to the cases of renal tumour, said that, as a rule, diagnosis was the only possibility left in these cases, as by the time symptoms showed themselves it was too late to effect a cure. In his own case, quoted by Dr. Solly, the diagnosis of renal tumour was made from a portion of a gland removed from the neck, and in a suspected case of pancreatic tumour the diagnosis had been likewise clinched from the section of a secondary nodule in the skin. Dr. Gordon also reminded the meeting of the reduction in the area of superficial cardiac dullness (Gordon's sign) which was found in carcinoma, but not in sarcoma. In tumours of the bladder it was always well to search carefully for large round vacuolated cells in unstained preparations.

Dr. F. A. ROPER commented on the high figure of the blood urea—537 mg. per c.cm.—in one of the cases of renal tumour, and suggested that the local congestive condition in or near death might have coloured the reading. In the first case quoted by Dr. Solly the man had lived for at least three years and maintained a good general condition, which Dr. Roper attributed to injection of intensive doses of colloidal selenium and copper, continued up to the last few months of the illness.

Reviews.

MOYNIHAN'S "ABDOMINAL OPERATIONS."

THE surgery of the abdomen is of such recent growth that there are still many members of the consulting staffs of London and provincial hospitals who were taught how improper a thing it was to open the sac of a strangulated hernia. Forty years has changed the whole outlook, and Sir BERKELEY MOYNIHAN has been in the advance guard of those who have conquered so much additional surgical territory. He reminds us in the well expressed preface with which he introduces the fourth edition of his great work on *Abdominal Operations*¹ that the book was first published in 1905, and was so immediately successful that a second edition was issued in 1906, and a third in 1915. Rather more than twenty years have thus passed since it first appeared, and in the interval the whole work has been subjected to a very complete revision, but without reducing its size. There is, indeed, only one way to reduce the size of successive revisions of a book on a rapidly progressive science, and that is by rewriting it, not by excising and interpolating. This was the secret of the writers of the time when there were no typists, stenographers, and secretarial assistants. The manuscripts were holographs, and the style was very personal to the writer. Hence the lasting pleasure of Latham's *Clinical Medicine* or Watson's lectures—truly *opera aurea*. But there was perhaps more leisure in those days, and we are thankful that a busy surgeon in the height of his practice should have found time to revise a noble contribution to his own branch of knowledge.

The work deals with the surgery of the stomach, intestines, liver, spleen, and pancreas. Sir Berkeley has deliberately excluded the surgery of such organs as the kidney and bladder, which are partly intraperitoneal and partly extraperitoneal, and he intentionally refrains from discussing the subject of hernia and its operative treatment.

The book is written by a master surgeon, partly for the use and advancement in knowledge of those who, like himself, are engaged actively in the practice of a difficult branch of the art of a general surgeon, and partly for the surgeon who is less experienced and needs guidance in the treatment of conditions which he meets with in the everyday practice of his profession. It is, in fact, an epitome of what is known at the present time of the surgical treatment of abdominal disease. It has the advantage of proceeding from the pen of a single writer—a man of such ripe experience that he has repeatedly performed most of the operations which he describes, and of such sound judgement that he criticizes without bias the various methods which have been proposed, giving satisfactory reasons for the operation he prefers. The work, therefore, will remain as a classic when it has served its immediate purpose. Future generations will read it as an exposition of abdominal surgery in the twentieth century with the same feelings that we now read Paré and Heister, and will perhaps wonder at the variety of methods, the multiplicity of sutures, and the marvellous instruments which were in use in these early days before everything had become standardized.

The first volume opens with a section of "General considerations." These should be read and carefully studied by every operating surgeon, whether he be operating all day and every day in a large general hospital, or only now and again in a small cottage hospital or in the privacy of a nursing home. The section tells of the care to be taken before, during, and after operation, to give the patient the best chance of life and to reduce to a minimum the anxiety, pain, and uncomfortable sequelae which attend all surgical procedures. Everyone is not able to do everything recommended by Sir Berkeley. He counsels perfection, and to carry out all his suggestions would require highly trained assistants, well educated nurses, and the resources of a large and liberally provided institution. It is very useful to have such an ideal presented. It can be striven after even

¹ *Abdominal Operations*. By Sir Berkeley Moynihan. Fourth edition, revised. W. B. Saunders Company, 1926. 239 figures; Vol. II. pp. xvi + 642. (Roy. 8s. 231 figure)

if it cannot be attained, and when it can be followed out even in part much will have been gained by patients whose lot it is to be operated upon in more humble surroundings.

Amongst other "general considerations" is a short chapter on gunshot wounds of the abdomen, in which the experience gained in the war is crystallized in the advice that "the attitude of the surgeon towards a patient who has sustained a severe abdominal crush or blow should be 'look and see' rather than 'wait and see,' unless there is convincing evidence that the lesion is a slight one."

The treatment of tuberculous peritonitis has again become the subject of discussion owing to the claims made by the advocates of the various methods of heliotherapy. Sir Berkeley Moynihan teaches that the disease is usually secondary, and that unless the primary cause be removed in the ascitic forms, which are alone amenable to operation, a permanent cure will not be obtained. He recommends that in these cases the Fallopian tubes and the appendix be carefully examined, though he speaks figuratively when he says that unless it be removed "no doubt the appendix may continue to pour out its supply of active bacilli into the peritoneal cavity."

"The surgery of intestinal stasis is very carefully considered. Lane's disease is described, and Moynihan concludes his chapter on it with the pregnant words:

"I have thought many hours, read much and worked not a little on this subject of intestinal stasis, and have tried to clear my eyes for the new vision opened to us by Sir Arbuthnot Lane. My experience has been full of surprises; old beliefs so slow to perish have been undermined, and new faiths, so slowly fashioned, have been painfully accepted. And now I do not hesitate to say that the whole question is one which will have to be considered by all of us and to be put to the proof. It cannot be dismissed with a shrug or a sneer, for there is truth in the matter. Amongst much that is dross there lies a nugget of pure gold."

The surgical treatment of gastric and duodenal ulceration and the operation of gastro-enterostomy are considered with great thoroughness and, as might be expected, most lucidly. Sir Berkeley is not content with relying upon his own experience, which is unusually wide, but he takes into consideration the work done by other surgeons in Great Britain, Ireland, the United States, France, and Germany. His account of Finney's operation is made especially clear by the help of some excellent diagrams. Following this are chapters upon the treatment of hour-glass stomach and cancer of the stomach. The first volume ends with a chapter on colotomy and on resection of the small intestine.

The second volume deals with the surgery of the large intestine and intestinal obstruction, as well as operations upon the liver, pancreas, and spleen. Sir Berkeley Moynihan is an acknowledged authority on each of these subjects, but he makes the book more valuable by supplementing his personal knowledge with the literature of the condition about which he is writing. There is no formal bibliography, but the references are scattered throughout the text and are made accessible by a good index of names. The index is accurate, and the references appear to have been verified.

Many of the articles can be read usefully by those who do not profess to be experts in operative surgery; others, like those on the surgery of the liver with its wonderful nomenclature, are only to be read with admiration except by those who are themselves engaged in advancing the confines of surgery. Indeed, Sir Berkeley writes:

"If I might presume to offer any advice to the surgeon who has not great and continued opportunities for practical work, I would suggest to him never to do gastro-enterostomy in the absence of a demonstrable lesion which requires it, and to leave the surgery of the gall bladder alone. The fact that in my own work nearly one-quarter of the patients suffering from cholelithiasis have been operated on before is an argument not against the surgical treatment of the disease, but against an attempt by the inexpert or untrained operator to deal with conditions which may tax all the energies and call out all the reserves of even the most proficient."

The chapter upon rupture of the intestine is perhaps the most useful, for the surgeon who is not a specialist, in these days when there is an ever-increasing number of accidents from trams and motor cars. The injury is not easy to diagnose. It is apt to be overlooked, and operation is either delayed or is never performed. The result is disastrous, and the figures given by Moynihan are

appalling. Expectant treatment ended, fatally in every instance, and in cases collected by Berry and Paul Giuseppe 17 recovered and 67 died out of 84 patients who had undergone operation. Early operation, therefore, is recommended even when there is considerable doubt as to the exact nature of the injury, and we need not hesitate to conclude that many lives will be saved by following this advice. The chapter on intestinal obstruction is equally valuable, though it shows incidentally a difference between the North Country folk and the people of London. Sir Berkeley says:

"It is still, unfortunately, true that in the very great majority of cases the surgeon is called upon to act in too late a stage of the disease. It is not too much to say that in a consecutive series of 20 cases of average intensity, the condition disclosed at the operation will show that in at least 15 operation has been too long deferred."

This does not happen to a similar degree in London; either the Londoner is more sensitive or nervous about his inside or the North countryman is more long-suffering and of tougher fibre. Possibly it is a relic of the time when Thomas of Liverpool used to treat his cases of intestinal obstruction by an absolute fast of a month. At any rate, Sir Berkeley speaks wisely when he says:

"It is not altogether unsafe to say that an acute abdominal pain which a small dose of morphine does not wholly remove is not rarely due to a lesion within the abdomen that only an operation can relieve. If the condition of the patient is such that a second or larger dose of morphine is speedily called for, the suspicion of the surgeon should be on the alert, and the probability (for it is no less) of the condition being one of mechanical block of the intestine or other grave surgical catastrophe should be borne in mind. It is in no small degree the administration of morphine which is responsible for the disastrous results in cases of acute obstruction."

The last two sections of the book deal with the surgery of the pancreas and the spleen. There is so excellent a word-picture of fulminating pancreatitis that it should be possible for anyone who has read it not only to diagnose this terrible condition, but to distinguish it from acute gastric and duodenal perforation, for which it is so frequently mistaken.

In his prologue to the surgery of the spleen, Sir Berkeley gives a short historical account of early operations. He attributes the first experiments upon the spleen to Malpighi in 1669. Dick Lower at Oxford certainly in 1665, and probably several years earlier, was working at the anatomy, physiology, and surgery of the spleen. It is on record that in 1665 a dirty trick was played upon him, for "a dog's spleen was taken out by Mr. Day and afterwards the same spleen and the dog were stolen by Mr. Hartford and brought up to London and there dissected."

The two volumes are well illustrated with 470 figures, many of them original and drawn by Miss Ethel M. Wright, others copied from various monographs on the subjects of which they treat. The drawings are so clear and helpful as to make the reader forgive the heavy paper on which the book is printed to enable them to be seen to the best advantage. Each volume has two indexes—the one of subjects, the other of persons.

A few points occur for the consideration of the author in any future edition. In volume i (p. 233), is the fluid escaping from a perforated duodenal ulcer mucus, as is stated, or is it the secretion of Brunner's glands, which is not mucus? The French in the reference on page 233 seems to call for revision. Is hedonal (p. 243) still being used at Leeds as an anaesthetic, even "in exceptional circumstances"? It is perhaps hardly necessary to devote nearly a page to the virtues of "isoform" and then to add: "Unfortunately isoform is no longer procurable." Of course, as students are so frequently told, it is unusual for a "patient to complain of no pain," yet the expression is employed on page 79. In the second volume there seems to be no good reason for leaving page 530 blank; if it were necessary to have a blank page at all it should have been 540. Perhaps on the whole it would be better to replace Fig. 356 by Fig. 357, and put 357 where 356 now stands. These are all hypercritical remarks, and such minute blemishes detract nothing from the pleasure and advantage of reading a work which is truly monumental and of the greatest value.

HIP DISEASE.

THE first Robert Jones Prize Monograph augurs well for the success of the scheme which the donor had in mind when he established and endowed the prize. Mr. GEORGE PERKINS's essay on *Tuberculous Disease of the Hip Joint*² forms a valuable contribution to the literature of joint tuberculosis, and should be of practical value to all those who have to treat it. Despite the great improvement which has followed the more general adoption of orthopaedic and gradual methods as opposed to attempts at short cuts to cure by operations, and despite the widespread use of open-air heliotherapeutic treatment, our treatment has not yet reached final perfection.

Since early diagnosis of disease is the first essential of successful cure—which last word we use in its earlier sense—a good many pages are devoted to this branch of the subject and to the distinctions between tuberculous disease and other lesions. Koch's old tuberculin is recommended as a test in doubtful cases, and nearly all cases are doubtful in their early stages, for the transient synovitis or arthritis due to trauma may present all the symptoms of early tuberculosis.

To obtain a movable joint as an end-result it is generally necessary that efficient traction should be maintained during the acute stage, and Mr. Perkins brings forward cogent reasons for preferring fixed traction with body-weight counter-traction to extension with counter-extension against the ischial tuberosity. The benefits of sunshine and fresh air are fully recognized and the precautions necessary in their use are adequately stated.

Mr. Perkins considers carefully the different parts of the articulation to which disease may be limited and the necessary modifications of it that are desirable. Sinuses are not to him such a bugbear as they have been to many surgeons. He has found that there is no great difficulty in preventing secondary infection, and he holds that a sinus only remains open as long as it discharges the useful function of allowing the escape of caseous material and that it will close as soon as no more of this is formed at the focus of the disease.

The slow development of adduction deformity, often taking place long after the patient has been discharged from hospital as an excellent result of treatment, is only possible when the resulting ankylosis is fibrous. Movable joints and those with bony ankylosis in a favourable position are not subject to this late distortion. Hence it is important that the surgeon should be able to diagnose the conditions which allow of fibrous ankylosis. Mr. Perkins shows that it is in cases in which the head of the femur, and not the acetabulum, is affected that fibrous union occurs, and he therefore advocates primary arthrodesis when the diagnosis of this condition is made. Excision of the joint for tuberculous disease may be considered an obsolete method of treatment.

The Puyfroid splint, a modification of Pugh's modification of Bradford's frame, is preferred to all others by the author, who, however, recommends the plaster spica for certain cases, with the much-needed caution that if it is to fix the hip-joint no padding other than a close-fitting stockinette combination should intervene between the gypsum and the skin of the patient.

A table of end-results in 52 cases will well repay study. From this it appears that in over four-fifths of the cases the head of the femur was affected, and that it was in just these cases that much shortening and adduction were present. The book is illuminated with many excellent radiographic reproductions.

ARTIFICIAL LIGHT TREATMENT.

THE success that has attended the systematic use of sunlight treatment at Leysin, Alton, and Hayling Island, among other places, has turned attention towards the prospect of securing similar advantages from artificial sunlight by means of various forms of electrical radiation. Much use has been made of these artificial means to make up for

² *The Diagnosis, Treatment, and End Results of Tuberculous Disease of the Hip Joint*. By George Perkins, M.Ch.Oxon., F.R.C.S. Eng. Oxford Medical Publications. London: H. Milford, Oxford University Press. (Demy 8vo, pp. x + 118; 49 figures. 6s. net.)

the lack of natural sunshine which we lament, and which we perversely reduce by the smoky pollution of the atmosphere. The use of these artificial means of securing the remedial influences of sunlight has been attended with unmistakable signs of success, as witness the many papers giving accounts of treatment which have appeared recently in the *BRITISH MEDICAL JOURNAL* and other medical publications. We have recently received three books which deal with artificial sunlight and its therapeutic uses. The first of these which we shall notice is one by two general practitioners, Dr. ELEANOR H. RUSSELL and Dr. W. KERR RUSSELL, both of Newcastle-on-Tyne. The book, entitled *Ultra-Violet Radiation and Actinotherapy*,³ is well and clearly written, giving a good survey of the subject. Until quite recently this class of work has been done for the most part in large institutions, some specially provided for the purpose, or in general hospitals which have extended existing electrical departments to meet the need. The authors of this book describe the treatment as followed in their own practice, and state their conviction that there is a large field for this work in general practice, and that there is no necessity to relegate it to the specialist. There are chapters on the development of the treatment; on the characters of radiant energy; on the nature and differences of natural and artificial ultra-violet radiation; and on the chemical, physical, and biological properties of these rays. There is an excellent chapter on technique, in which the several types of lamps most commonly used are described and the difficulties that may be met with explained. The descriptions are clear, and can quite well be followed if the reader will take the trouble to examine the actual lamps for himself. Then follow several chapters dealing with the different types of disease which have been treated by the means, including various skin diseases, tuberculosis, nutritional disorders, and so forth. There is a good bibliography. The authors add the warning that "No single therapeutic agent can be a cure-all. Each has its place in medicine, and a new method of treatment is brought into disrepute only when extravagant and unsubstantiated claims are made for it."

The second book is a second edition of *Artificial Sunlight and its Therapeutic Uses*,⁴ by Dr. FRANCIS HOWARD HUMPHRIS. The first addition was issued so recently as a year ago, and was then reviewed in our columns. An endeavour has been made in this new edition "to explain the extreme simplicity of the sources and working of ultra-violet radiations, to elucidate the apparent mystery of it, and to explain the details of the treatment so that any ordinary intelligent medical man shall be able to instal an equipment and treat patients with no further instruction than the book contains." The author appears to have well succeeded in his endeavour.

The last of the three books is a little volume of the popular order, written by Dr. EDWIN L. ASH—*Facts about Artificial Sunlight*.⁵ In simple language the character of the spectrum is explained, the nature of that part of it which is put to those special usages, the prospects the treatment holds out, and its limitations. This is followed by an appropriate warning against expecting the treatment to bring about those advantages of general health which can only be secured by all that we mean by good hygiene: light, fresh air, and exercise, which combine to provide that which natural health demands. So far there have been found few dangers in the treatment. Blistering should not occur, except in certain cases where this is designedly aimed at in the treatment of vascular skin lesions. In the hands of the laity there are risks through ignorance of the power of the radiations. Such a case as that published in the *BRITISH MEDICAL JOURNAL* (April 11th, 1925) by Drs. MacCormac and McCrae is much to the point.

³ *Ultra-Violet Radiation and Actinotherapy*. By Eleanor H. Russell, M.D., B.S. Dunelm, and W. Kerr Russell, M.D., B.S. Dunelm. With Forewords by Sir Oliver Lodge and Sydney Walton. Edinburgh: E. and S. Livingstone. 1925. (Demy 8vo, pp. 262; 77 figures. 10s. 6d. net.)

⁴ *Artificial Sunlight and its Therapeutic Uses*. By Francis Howard Humphris, M.D. Brux., F.R.C.P. Edin., D.M.R., and E. Cantab., etc. Oxford Medical Publications. Second edition. London: Humphrey Milford, Oxford University Press. 1925. (Demy 8vo, pp. xvi + 203; 15 figures. 8s. 6d. net.)

⁵ *Facts about Artificial Sunlight*. By Edwin L. Ash, M.D. London: Mills and Boon, Ltd. 1925. (Cr. 8vo, pp. 62. 2s. 6d. net.)

A patient treated himself, fell asleep during exposure to the radiations, and for a time his life was in danger. Such a case is a warning that these rays are of great power; properly used they are invaluable servants, improperly used they are dangerous. There should be at least medical supervision of the dosage and direction before applications are made.

PYORRHOEA.

Dr. B. GOTTLIEB of Vienna has, in a pamphlet recently published, presented a new outlook on pyorrhoea. A literal translation of its title is dirt pyorrhoea, paradental pyorrhoea, and alveolar atrophy.*

Dirt pyorrhoea connotes for him a chronic suppurative marginal gingivitis without pocketing which rapidly clears up under treatment; paradental pyorrhoea implies supuration from these pockets, and is to be diagnosed only when, in spite of appropriate treatment, supuration persists; alveolar atrophy occurs in two forms—atrophy of the alveolar edge, and a diffuse atrophy of the alveolar bone—the chief symptoms being loosening and migration of the teeth. Atrophy of the alveolar edge is generally an accompaniment of dirt pyorrhoea, while paradental pyorrhoea is bound up with diffuse atrophy. With the first of these combinations pocketing and discharge of pus are early symptoms; while in the second migration and loosening are the early symptoms, pocketing and pus appearing only late in the disease. As a general etiological groundwork the author puts forward a theory of progressive eruption of the teeth, according to which the attachment of gum to tooth is slowly but persistently moving towards the apex of the root, while at the same time the alveolar edge atrophies. Disharmony in this process leads to pocketing. He appears to hold that diffuse atrophy depends on an inherent or acquired inability of the bone to withstand the mechanical demands of mastication. Two kinds of mouths are to be distinguished—those capable and those incapable of reaction to use. In the first class cement hypoplasia leads to even firmer implantation, while in the second the periodontal space is widened and the teeth loosened. Treatment centres round the replacement of every lost tooth by bridge work and the establishment of a flat articulation, both measures being intended to secure a general distribution of the stresses of mastication. The internal administration of arsenic is recommended on the ground that arsenic excites the growth of bone. Local cleanliness is insisted on, and if this fails to cure the disease the inference is, not that the cleaning was insufficient, but that the disease was independent of local sepsis. Here, in fact, lies one of the weak points of the argument. Nor will the idea of continuous eruption meet with general acceptance. There are too many elderly people of whom it may be said, as Moses, *nec dentes illius motu sunt*.

But while we disagree with the author's main contentions, we recommend to all interested in "pyorrhoea" a careful study of his essay. The microphotographs of teeth *in situ* alone will repay the student.

HEREDITY AND CANCER.

DURING the year 1923-24 a series of six lectures were given under the auspices of the Mayo Foundation by authorities on various aspects of heredity and are now published, with a short introduction by Dr. L. B. Wilson, director of the Mayo Foundation for Medical Education and Research, in a book entitled *Our Present Knowledge of Heredity*.⁷ A series of lectures given at the Mayo Foundation and at the Universities of Wisconsin, Minnesota, Nebraska, Iowa, and Washington (St. Louis) is sure to repay study. The first lecture, on the general problem and history of heredity, is appropriately given by a biologist, Professor W. E. Castle of Harvard, and is followed by Professor C. E. McClung of the University of Pennsylvania on the difficult problems of

the heredity of sex. The much-debated question of the inheritance of acquired characters is clearly and impartially set out by Professor John A. Dettlensen of the Wistar Institute, University of Pennsylvania, who in conclusion pleads for an open mind in spite of the lack of convincing evidence for somatic induction.

There are two very interesting lectures on the heredity of cancer; Miss Maud Slye, out of the fullness of fifteen years' experience of breeding mice, maintains that inherited predisposition is essential in determining the appearance of cancer, not only in the individual, but in the organ attacked; she believes that if human cancer statistics, when correctly compiled, were biologically read, they would show, as certainly as do mice statistics, the inheritability of cancer. Professor H. Gideon Wells of Chicago makes it clear how inadequate human statistics are, as compared with the animal observations made by Miss Slye and others; he however, collects a number of examples of family cancer, especially of retinal glioma. With regard to the mechanism of heredity, he notes that Levin, on the basis of his statistical investigation of cancer in man, concluded that resistance to cancer is a dominant character, the absence of which creates the susceptibility to cancer, whereas Davenport, from an analysis of 243 cases, regards the liability to cancer as the dominant factor. This series of attractive lectures, which must appeal in a special way to medical readers, closes with one on eugenics by Professor M. F. Gayer of the University of Wisconsin.

NOTES ON BOOKS.

IN the preface to his book on *Insects and Disease of Man*⁸ Dr. CARROLL FOX states that it is designed "for a student taking up the study of medical entomology" or for the health officer. The latter will certainly find the work useful, for it is of convenient size, and the descriptions of insects in the first part and of preventive measures in the second are interestingly written and, though sufficiently detailed, are not too lengthy. The student, however, will not be able to reap much advantage unless he has previously taken a practical course in the subject. Part I, on *medical entomology*—a vague term—describes various orders, genera, and species of insects and gives elaborate keys to facilitate their recognition. Most of these descriptions are adequate, an exception being glossina, the account of which is very poor in comparison. We note with surprise that in the bibliography on the subject no mention is made of Professor Alcock's book, which has been for years and still is the constant guide and companion of hundreds of medical officers in the tropics. In Part II we find clearly expressed accounts of the chief species of anopheles, their life-histories and habitats, and anti-malarial measures are interestingly described. *Anopheles punctipennis* is said to be a "proch biter," a term which we have not before met with in scientific literature. Descriptions of the various diseases conveyed by insects are scrappy. In a work directed rather to prevention one must not, perhaps, expect much on this head, but to dispose of the three stages of sleeping sickness in fourteen lines errs on the side of brevity. Among the transmitters of trypanosomiasis *Rhodnius prolixus* receives no mention. Why, in a work on insects, a description of various species of rats finds place and "Diseases other than plague affecting domestic rats," including cirrhosis of the liver, hernia, vesicle (*sic*) calculi, and pericardial effusion, we fail to see. It detracts from the value of the book and savours of padding. The work is well produced and the misprints are remarkably few.

Our charwoman informed us with pride on one occasion that her daughter had "learnt all Latin in three weeks." Dr. HUGH C. MULDOON, dean of the school of pharmacy, Duquesne University, Pittsburgh, has now enabled the pharmacist to do the same with the "dog" variety.⁹ In twenty lessons the student may absorb all that is required for a knowledge of pharmaceutical Latin, prescription writing, and interpretation. The course is very thorough, and includes pronunciation, grammar, nomenclature, measures of volume and weight, the writing of prescriptions, and numerous exercises. There is also a Latin-English and an English-Latin vocabulary. The list of abbreviations is most complete: we were particularly fascinated by *ne tr. sin. num.*, which we hope the physician uses in appropriate cases. It means *Ne tradas sine nummo*—in other words, C.O.D.

⁷ *Insects and Disease of Man*. By Carroll Fox, M.D. London: H. K. Lewis and Co., Ltd. 1925. (Med. 8vo, pp. xii + 349; 92 figures, 19s. net.)

⁸ *Lessons in Pharmaceutical Latin and Prescription Writing and Interpretation*. By Hugh C. Muldoon, Ph.D., D.Sc. Second edition, revised. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1925. (Extra post 8vo, pp. xi + 187. 7s. 6d. net.)

* *Schutzpyorrhoe, Paradentalpyorrhoe und Alveolaratrophie*. Dr. med. et Dr. med. dent. h.c. B. Gottlieb. Berlin und Wien: Urban und Schwarzenberg, 1925. (Med. 8vo, pp. viii + 88; 40 figures, 1 plate. Paper cover, M.6; bound, M.7.20.)

⁹ *Our Present Knowledge of Heredity*. A Series of Lectures given at the Mayo Foundation and the Universities of Wisconsin, Minnesota, Nebraska, Iowa, and Washington (St. Louis). W. B. Saunders Company. 1925. (Po.)

The forty-fifth volume of the *Transactions of the Ophthalmological Society of the United Kingdom*¹⁰ is issued in two parts, which are almost entirely devoted to the proceedings of the Convention of English-speaking Ophthalmological Societies last July, of which an account appeared in our issue of July 25th, 1925 (p. 165). Besides information about the constitution of the Ophthalmological Society of the United Kingdom, the volume includes the annual reports of the Midland, North of England, and the Irish Ophthalmological Societies. The various papers are fully illustrated, and the volume provides in particular a valuable record of the important convention held last year.

There is room for a textbook of chemistry for students of pharmacy, and from the title we hoped to find it in BENTLEY and DRIVER'S *Text-Book of Pharmaceutical Chemistry*.¹¹ It proved on examination, however, to be less a treatise on chemistry than a treatise on the chemical technology of materia medica, a class of textbooks already sufficiently provided. It is avowedly prepared to meet the needs of those studying for the Pharmaceutical Society's diplomas, and it seems to have been designed to accomplish the purpose rather by appeal to the exercise of memory than by the development of a good understanding of the subject. Where practical instructions are given the book has the character of a companion to the *Pharmacopoeia* for those not well versed in chemistry. In this sense it may serve its purpose, but it would appear to be better that the student should approach his work on the *Pharmacopoeia* with a good foundation in pure chemistry.

¹⁰ *Transactions of the Ophthalmological Society of the United Kingdom*. Vol. xlv, in two parts. London: J. and A. Churchill. 1925. (Demy 8vo: Part I, pp. lxxvii + 441, illustrated; Part II, pp. xlv + 544, illustrated. £2 net the two parts.)

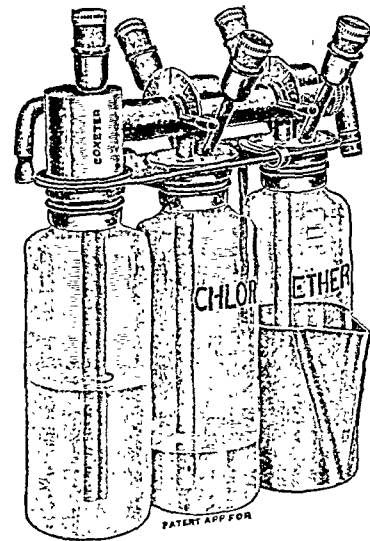
¹¹ *A Text-Book*. J. By Arthur Owen Bentley, Ph.C., and John A.I.C. London: R. Milford, Oxford University viii + 456; 3 figures. 18s. net.)

PREPARATIONS AND APPLIANCES.

Gas-Oxygen-Ether, etc., Apparatus.

MR. H. EDMUND G. BOYLE, O.B.E., M.R.C.S., L.R.C.P. (London, W.1), writes: The accompanying illustration depicts the latest improvements in the machine known by my name. The water sight feed for mixing the N₂O and O of the new set of triple bottles is substantially the same as it has always been, but the mounts for the ether and chloroform bottles are worked on a different, and I think an improved, principle. They are also made with twin bottles for those who do not want one for chloroform. In place of the two levers of the older type, one for "on" and "off" and the other for the degree of saturation required, I now have one lever only; this, when moved over a semicircular scale, causes the gases to go either through

a by-pass, or partly through the by-pass and partly into the anaesthetic, or entirely through the anaesthetic as required. By setting the lever to such a position that only a fraction of the gases bubbles out of a small hole drilled near the bottom of the long tube in the anaesthetic bottle, a very lean mixture is obtainable; and on the other hand, even with a full flow and a high pressure, leakage is negligible. This new arrangement of levers enables one to regulate the amount of ether or chloroform with far greater accuracy than was possible formerly. For those who want to use much ether, there is provided a hot-water cup to enclose the ether bottle as a precaution against freezing. The lamp to prevent the gas from freezing,



which was always a source of danger, has been done away with. This has been rendered possible because Messrs. Coxeter are now providing us with non-freezing gas; but in any case I find that a small hot-water bottle placed on the side of the reducing valve of the gas bottle prevents freezing and enables one to get a steady flow of N₂O. I have to acknowledge my great indebtedness to Mr. Wollesley of Coxeter and Son, Ltd., for producing such an effective method of controlling the small amount of ether or chloroform that is used.

Nova et Vetera.

ANCIENT EGYPTIAN PHYSICIANS.

BY

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THE ancient Egyptian medical writings have been amply put at the disposal of scholars, but very little has been written on the more personal aspect of the physicians of that age and their work. The sources of information are scanty, for all we can do is to gather stray hints from the tomb sculptures or the papyri. All the consecutive information available is that offered by the classical writers, whose date is some thousands of years later than our earliest Egyptian physicians, but even these are enough to show the world-wide respect in which Egyptian medicine was held. We read, for instance, in the *Odyssey*¹ of "the abundant herbs of Egypt, healing and beneficent, used by men more skilled in medicine than any of human kind." Herodotus² tells us that he found in Egypt that all places abounded with physicians, and that their art was divided into distinct parts, each applying himself to the care of one specialty only: some to the cure of the eyes, others to the head, teeth, or abdomen, and so forth. Pliny³ tells us that the physicians were paid from the public treasury, but that in return for this they were forced to study, and were punished if their treatment deviated from the canon. Should a patient die it was a capital offence, but was to be condoned if the physician had applied all the recognized remedies. They might also receive fees, except for patients on a foreign journey or a military expedition.⁴

The chief medical schools were at Sais and Heliopolis, and were in both cases attached to the great local temples. At Sais the ruler is called the Wr Swnw, a title meaning "Great One of the physicians," and found as early as the third dynasty (4991-4777 B.C.); he also bears the title Chief Priest of Neith, the goddess of Sais. During the troubled times that preceded the Persian conquest this institution must have fallen into decay, but such was its reputation that Darius sent his body physician to Egypt to re-establish at Sais "The House of Life," and so far as possible he replaced all the books and appliances of which it had formerly been possessed. The other great medical school was the temple of the Sun-God at Heliopolis, and its governor also bore a priestly title as well as the medical one, which in this case was "The Great Seer" (Wr Maa). This was the "On" at which Moses learnt his medical lore, and of which he became a priest. This school, too, dates back to the early dynasties, and even then had its roll of medical writings at command. One of its early priest-doctors was Hwv, whose tomb was found among those of other high priests at Matarije. He is called "the greatest of the Seers," and many hundreds of years later he is recorded in the Ebers medical papyrus as the maker of a famous eye-paint still in high favour.

To discuss what they learnt in the medical schools would be to review the whole subject of Egyptian medicine, which is not the purpose of this paper. They studied the medical papyri, which taught them both diagnosis and treatment, and they must have done some post-mortem work to fit them for their duties afterwards, for, as Pliny tells us,⁵ it was the custom for physicians to examine bodies after death to ascertain the disease of which the person had died. They studied gynaecology (though, judging by the extant prescriptions, this could not have been to much purpose) and midwifery, but the actual obstetrical work seems to have been done by women. They did little surgery and less dentistry, but they perhaps learnt to place themselves in a kindly relation to their patients such as no doubt helped to win them the high honour and esteem in which they were held. Thus we find depicted⁶ a circumcision operation in the Old Kingdom, in which the operator soothes his patient by murmuring "I will make it pleasant." It is worth noticing that he uses a very clumsy knife,

apparently of flint, indicating a ritual aspect of the act. Another wall-relief shows us an operation in progress which requires the holding down of the patient's arms.⁶ Clearly it is very painful, but the kindly surgeon remarks, "I will make it pleasant, my dear." Another patient to whose foot something is being done begs: "Do not let it hurt me"; to which the surgeon replies: "I will do it so that thou praisest it, O King." As he is not operating on a royal person, this epithet seems to be a very human touch—a little sarcasm, in fact, as who should say "Who are you to dictate to the doctor?" As might be inferred from their priestly titles, these physicians had priestly duties as well. An Wab-priest who is also Swnw is recorded in the Ramesseum⁷ as pronouncing on the purity of the sacrificial victims. The same duty was performed in the Middle Kingdom by a priest of the goddess Sekhmet.⁸ The priests of Sekhmet were regarded as specially skilled in medicine, perhaps on account of the connexion between the medical demigod Imhotep and Sekhmet, who is sometimes regarded as his mother. Embalming was not among their regular duties, but in a bilingual inscription of Ptolemaic time an embalmer is termed "syn," which is doubtless identical with "swnw."

Public health was not neglected. Herodotus notes with wonder that the Egyptians had latrines within the house, not outside like the rest of the world, and this must have involved some system of removing refuse. A study of titles occurring on the steles throws not a little light on this subject.⁹ A Middle Kingdom stele commemorates one Senebef, whose title is "Mer per n wda," which means "Superintendent of the House of Health." Another personage is "Palace Superintendent of the Fumigation." This last word is not quite certain, as it is represented by a sign otherwise unknown, but since this has the form of a pot resembling those associated with incense, but not quite identical, the translation "fumigation" seems obvious. Another official is "Rekht n senneter m alha resy"—that is, "he who understands incense in the palace of the South." This last is a very old title, dating from the time of the immediate successors of the builders of the great pyramids. There were also similar methods for keeping the temples healthy, for a stele of about the same date records a "Her seshta senbet m Per Dhwtj," or "Overseer of the Secrets of Health in the House of Thoth"; and yet another official is "Palace Overseer of the health fumigation in the House of Thoth." Some of these intendants or overseers carry a title "Sehed." This word means to make bright or clear, and we may perhaps render it "consultant"; it implies that they have a regular staff of health officials under them. We find, for instance, a Palace Consultant of fumigation, and a secretary or scribe of the same department. The Egyptians were indefatigable organizers, and had overseers, scribes, experts, and other officials in overflowing numbers in every department of the State. It is not surprising, therefore, to find that the medical profession was organized even apart from the public health service. In the time of the pyramid builders (fourth dynasty) we find a Mer Swnw, or Chief of the Physicians, and a Per Aa sehed Swnw, or Palace Consultant Physician. In the Middle Kingdom there was a Palace Great Physician (Per Aa Wr Swnw) and Palace Consultant Physician, titles which recur in the twenty-sixth dynasty, nearly two thousand years later.¹⁰ Indeed, they seem even to have gone so far as to organize a pharmacological department, for we find a Mer Shena, or "Superintendent of Medicine," and a "Superintendent of the office of the measures of medicine." Nay, we seem to find a foreshadowing of club or insurance practice in the title of one of the personages of the fourth dynasty, "Swnw shet se-w," which means "Physician of the lake men." Perhaps for the lake men an expert in malaria was needed, or the reference may be to a gang working near the lakes. In the Middle Kingdom we discover a "Swnw Sa-w," a "sa" being a gang or guard. One of the organized classes in ancient Egypt was that of the magicians, a highly reputable body, for there was a magician to the king. Egyptian medicine never quite shakes off the association with magic, and in the Middle Kingdom they must have been closely allied. Hence we

find two nobles whose titles run: "Great Physician," and "Chief of the Magicians."

In spite of what Herodotus said, there is little in the titles to indicate special branches of practice. In the third dynasty we read of an "Wr lw swnw," which means Great one of flesh doctoring, and may have reference to surgery; and the title occurs off and on up to the twenty-sixth dynasty, a range of over three thousand years. In spite of the obvious attention paid to the eyes and the large number of prescriptions for them in the medical papyri, there is only one definite mention of an oculist: it is one Ypy, who is called "Palace Consultant of making to see" (Per Aa sehed Maa), and he dates from the Old Kingdom. As we have already noted, the title Sehed suggests the presence of a body of practitioners under him.

Of the men themselves who carried out these numerous activities we know very little indeed. For the most part all we can gain is a hint from the funeral steles that bear their names or from some story handed down on papyri of a character little connected with medicine. But the very fact that they have such steles and bear the imposing array of titles that they do, proves clearly that their professional rewards were high, unless, indeed, we are to infer that the multiplication of offices borne by them excluded a whole-time devotion to their art. The latter alternative is suggested in the case of the very earliest named Swnw, who is none other than the great Ra-hesry, of the third dynasty, well known to us from his portrait on the exquisitely carved wooden panel found in his tomb. He held more than a dozen high offices of State, and was clearly a man of great wealth and importance.

In the fifth dynasty King Sahura had a chief physician called Sekhmet-n-ankh, whose stele is in the Cairo Museum.¹¹ His tomb was found at Saqqara, and from it we may infer that he did not find his profession very lucrative, for it is a poor tomb compared with those around it. It has, however, a very fine false door, which, as we learn from the inscription, was presented by the king. Almost we are tempted to regard it as a tardy reparation for that apparently age-long failing, a want of promptitude in the payment of the doctor's bills. The reign of Nefer-ar-ka-Ra (about 4452-4432 B.C.) presents a little more medical incident. In a tomb at Abusir¹² it is recorded that the king came to visit a certain building, when one Wsekh Ptah fell down apparently dead. "His Majesty saw him that he heard not." Then the solicitous king, determined to leave no stone unturned, sent for "the royal children, companions, kher-heb priests, and chief physicians," who came as commanded with "a case of writings." But it was too late: "They said to His Majesty that he was lost." The king provided an ebony coffin. The names of many other physicians have been found and recorded by Sir Flinders Petrie,¹³ but for the most part they are merely names so far as their professional aspect is concerned. Coming now to the eighteenth dynasty, we learn that Amenhotep III (1414-1379 B.C.) was accompanied on all his journeys by his physician. Again, very much later, we find Apries (589-570 B.C.), and Amasis (570-526 B.C.) with a physician, Pefnefdineith, who was evidently held in great honour, for his titulary runs: "Sole companion, Chief of the palace, Overseer of the Gold Treasury . . . Local Governor of Dep, Prophet of Horus of Pe." He ruled and restored Abydos, and was evidently quite a man of business, for he says, "I restored the house of the sacred writings. . . I recorded the offerings of Osiris. I put in order his contracts."¹⁴

But it was not on any of these that the fancy of Hellenistic Egypt fixed itself, to make of him an "Egyptian Aesculapius," but, oddly enough, on an individual whose claim to be either a demigod or a physician is both late and dubious. Their choice fell upon one Imhotep, whom they called Imouthes, a man whom the Egyptians of earlier time had apparently held in high honour for his learning and perhaps his magic, for this seems to be the bearing of the few references to Imhotep that occur in the Middle and New Kingdoms. In the "Song for the House of Intef," which was probably written in the era of the Middle Kingdom, though it

comes down to us in a New Kingdom MS.,¹⁵ the poet writes: "I have heard the words of Imhotep and Herdedef: men speak much of them still. But where are their places? The walls are fallen, they have no places more, they are as if they had never been." Now these are not the terms in which a god or a demigod would be spoken of, and this Herdedef with whom Imhotep is coupled was a son of Khufu, the builder of the Great Pyramid, and never had any claim to be regarded otherwise than as a man. In the New Kingdom it is clear that Imhotep was held in great reverence as a man of learning, for a funeral stele¹⁶ of one Amenhotep who lived in the time of Amenhotep III (1414-1379 B.C.) reads thus: "May the Wab-Priests stretch forth for thee their hand with water upon the ground, like that which is done for Imhotep, from the end of the water bowl." Again, Imhotep is regarded, not as a god, but rather as the scribes' spiritual ancestor, for ever to be had in remembrance by this ceremony.

Statuettes of Imhotep are many, but they carry no insignia of godhead before Græco-Roman times. He is generally represented as seated, with the garments and shaven head of the priest, and in his hand a papyrus roll. Not till Hellenistic times does he carry the ankh (the *crux ansata*), which is the sign of godhead, and even then there is no indication on any of these statuettes that he was a physician. In Ptolemaic times his cult as a demigod rose to its full height, and he was regarded as a personage of superhuman learning and as a great temple architect, the founder of the temple of Edfu. He had a temple near Memphis, and long inscriptions are written about him in the Ptolemaic temples of Edfu and Philæ, and are added to the walls of the older temple of Deir-el-Bahri. He is addressed as both god and man. His titles are those of a priest and of a learned man: "rekh khet," which means "knowing things." A manuscript of the period tells how King Zeser of the third dynasty appealed to Imhotep in a year of famine, begging him to reveal how the gods of the Nile could be propitiated and the famine stopped. The information was supplied and prosperity restored to the land. It is here that we find developed a new feature of his career as a god, for he is credited with a divine father, the god Ptah. Later he seems to have been regarded as the son of Sekhmet the goddess, and so takes his place in the divine triad of Memphis—Ptah, Sekhmet, and Imhotep. At an earlier stage he was given a human mother, one Kheredu-ankh, who, as the cult of Imhotep became more firmly established, was entitled a "Mother of the God," while his sister-wife became "Sister of the God," both retaining the human titles proper to the great ladies of the period. But as yet there was no word of his being a physician. In the time of Cleopatra and Caesarion he appears to be accumulating medical attributes, though still they are little more than magical. A dream of the High Priest P-sher-n-Ptah¹⁷ records that Imhotep appeared to him and spoke thus: "Let a great building be made in the holy place of Ankh Tawi (Memphis) at the place where my body is concealed. I will give thee for it the reward of a son."

Not before the Hermetic writings, which Professor Petrie believes date from the time of Darius, but most other scholars place in the first century or two of the Christian era, does Imhotep appear unmistakably as a physician. In the "Asklepios" Hermes is discussing demigods, and mentions, as an example, "Imouthes the first discoverer of the healing art," who "has his temple in the Libyan mountains in the neighbourhood of the banks of the Crocodile [that is, the Nile], in which his earthly part, that is, his body, lies, while the other better part of him . . . has gone back to heaven, where he yet lends all help to weak men, which he used to afford them through his medical art." By this time his temple near the Serapeum at Memphis is called an Asklepeion, and there is some slight evidence that cure by incubation was practised there. This, and his now complete assimilation to Aesculapius, are implied in one of the Oxyrhynchus papyri dating from the second century A.D.¹⁸ which is headed "Praise of Imouthes Asklepius." Here he is called both Imouthes, son of Ptah, and Asclepius, son of Hephaestus. The record states that a roll of his writings was found apparently in his temple at Memphis in the time of the Pharaoh

Nectanebo, who was so struck with its divine qualities and with the antiquity of his worship, which he traced back to Menkaure, the builder of the third pyramid of Gizeh, that he presented to the god 330 acres of cornland and made other gifts to his priests. We are unfortunately told nothing of the contents of the roll, for the writer of the record delayed translating it for three years because he thought it unfitting to write for men the mighty deeds of the gods. But then Imhotep appeared to him in a dream and cured him of fever, at the same time bidding him write the book, saying: "Every Greek tongue will tell thy story and every Greek man will worship the son of Ptah, Imouthes. Mencheres . . . presented to the tombs of Asclepius son of Hephaestus, Horus son of Hermes and Calcoibis son of Apollo, money in abundance . . . The manner in which the god Asclepius bade Mencheres busy himself with his tomb . . ." Here, unfortunately, the papyrus breaks off.

Amid this vague mass of evidence, can we discover who Imhotep really was? Late evidence regarding early persons and things is to be accepted with the greatest caution, but certain strains deserve credence from the fact that they run consistently through all. There can be no doubt that Imhotep was a man of great learning, whose wisdom impressed itself on all generations from the pyramid age to the Christian era. A late and corrupt manuscript seems to attribute to him great fame as a builder at the beginning of the epoch of mighty stone-working to which the pyramids belong. If this is to be so interpreted, Imhotep may well have been King Zeser's architect and the builder of the Step Pyramid of Saqqara. On the stele of the High Priest Khnum-ib-re, in the reign of Darius, he is entitled "Intendant of the workmen of King Zeser." This title "Intendant of the workmen" is one regularly applied to the great architects, such as Senmut, who built the temple of Deir-el-Bahri under Queen Hatshepsut, and it indicates a position analogous to that of a high official of our Board of Works. When Ptolemy, many centuries later, credited Imhotep with the foundation of the temple of Edfu, we know that he was wrong as to the fact, but he was right in echoing the fame of a great architect of long before.

There is a Middle Kingdom composition, called now the Westcar Papyrus, which tells some tales of the wonders that happened at the Court of Khufu, the builder of the Great Pyramid of Gizeh. Here are allusions to the deeds of magic performed by a certain Kher-heb-heri-da-da, as the priestly title runs, within the king's own lifetime. Now this is one of the titles of Imhotep as the steles tell us, and if he were truly a wise man of the time of King Zeser this magician may well have been none other than he. God, physician, man of learning, and magician, it was as the last that his fame lived longest, for we can trace him as an astrologer right through the Hermetic books and up into the third century A.D., when the alchemist Zosimus entitled one of his books "Imouth."

CHRONOLOGICAL NOTE.

The dating followed in this paper is that of the "Longer Chronology." Some scholars prefer a "Shorter Chronology" which places every date previous to the early eighteenth dynasty one Sothic Cycle—that is, 1,460 years—later. A summary of the principal epochs of Egyptian history is as follows:

OLD KINGDOM: Dynasties IV to VI, 5546-4077 B.C.
Dynasties VII to X, 4077-3733 B.C.

MIDDLE KINGDOM: Dynasties XI and XII, 3733-3368 B.C.
Dynasties XIII to XVII, 3368-1587 B.C.

NEW KINGDOM: Begins with the eighteenth dynasty, 1587 B.C. It is followed after about four hundred years by a period of confusion and decline, culminating in the conquest by Assyria in 670 B.C., by Persia in 525 B.C., by Alexander in 332 B.C., and by Rome in 30 B.C.

REFERENCES.

- ¹ Odyssey, IV, 227. ² Bk. II, 84. ³ XXIX, 1. ⁴ Diod. Sic., I, 82. ⁵ XXIX, 5.
- ⁶ Capart: Rue des Tombs, 66, 67. ⁷ Quibell: Ramesseum, Pl. XXXVI.
- ⁸ Blackman: Rock Tombs of Meir, iii, Pl. III. ⁹ See Sir Flinders Petrie: Ancient Egypt, 1924, iv, p. 121. ¹⁰ Annales du Service I, 163, v, 125.
- ¹¹ Sethe, Uikunden, I, 38, 40. Mariette Mastabas, 203, f. ¹² Sethe, Uikunden, I, 40-45. ¹³ Ancient Egypt, 1924, iv, p. 121. ¹⁴ Breasted: Ancient Records, iv, 1015 et seq. ¹⁵ P. Harris, 500, 14. ¹⁶ Peilhl: Insc. Hier., I, 106. ¹⁷ Brugsch: Thesaurus, V, 923. ¹⁸ Ox. Pap., 1381, Vol. XI, p. 221.

British Medical Journal.

SATURDAY, APRIL 17TH, 1926.

THE ETIOLOGY OF ACCIDENTAL HAEMORRHAGE.

THE progress of ante-natal supervision as a fruitful branch of preventive medicine is being slowly appreciated by the medical profession and the public. Any tardiness in its recognition and adoption in practice is probably due to the fact that, outside hospital reports, its triumphs are seen in individual cases rather than in the mass. Steadily, however, the number of the complications and accidents of pregnancy and labour that may be called preventable is increasing. Under adequate ante-natal care eclampsia, for example, can already be regarded as almost wholly preventable, and the great majority of the complications of labour can now be foreseen, and either averted or treated with every expectation of success. To be forewarned in regard to such matters is indeed to be forearmed. Recent experimental work upon "accidental haemorrhage" by Dr. F. J. Browne, of which we publish a preliminary account at page 683, suggests that this serious and baffling complication may also soon be brought within this hopeful category.

It has long been known that accident or injury was but rarely the cause of the premature separation of the normally situated placenta which results in "accidental haemorrhage." The terminology, which dates from the days of Rigby in 1776, is admittedly unfortunate, and is only to be read in the sense that there is no anatomical reason why separation and haemorrhage should occur. In other words, the term "accidental" is merely in contrast to the "inevitable" haemorrhage of placenta praevia. The only clue to the real nature of accidental haemorrhage which we have had is the curious and persistent frequency with which the more serious cases are associated with albuminuria, and sometimes, especially in concealed haemorrhages, with other and more profound symptoms of toxæmia, including even eclampsia itself. The generally accepted view, which was well summarized in one of the last papers by the late Dr. Gordon Ley, has been that the toxin, which produces the toxæmic symptoms and manifestations, acts injuriously upon the capillary walls in the uterine wall and decidua; and that the consequent retro-placental haemorrhage causes the placental separation. Young, on the other hand, has interpreted matters in the light of his placental theory of eclampsia, and regards the toxæmic symptoms and changes as secondary to the placental separation, and due to toxins produced by autolysis in the detached and dying portion of the placenta.

Dr. Browne's research was an attempt to produce accidental haemorrhage experimentally in rabbits by the introduction of toxins. Several most interesting points emerge from his observations. In the first place, he found that nephritis, either chronic or acute, is probably an important, possibly an essential, factor in the production of the haemorrhage. Secondly, the toxins most successfully employed were organismal in nature, the coliform organisms being found to be the most potent. But Browne found that the mere intro-

duction of the organisms failed to produce accidental haemorrhage unless a chronic or acute nephritis had previously been induced in the animal by the repeated injection of oxalates. In all of six animals so treated injection of the organisms on or about the twentieth day of pregnancy (a period corresponding to the end of the sixth month in human gestation) was followed by accidental haemorrhage, by the abortion of dead fetuses, and by the production in some instances of infarction of the placenta and haemorrhagic effusions into the muscular wall of the uterus. The research is not yet complete, but it is strikingly significant that almost the whole gamut of changes associated with serious accidental haemorrhage in a woman should thus have been produced experimentally.

Basing his views upon these experimental results and upon the known clinical phenomena, the author puts forward the thesis that external accidental haemorrhage, concealed haemorrhage, retroplacental haematoma, and placental infarction, are a pathological unity with a common underlying cause. The occurrence of accidental haemorrhage in the human being in the absence of albuminuria Browne endeavours to explain by the statement, also apparently borne out by his experiments, that a considerable degree of kidney damage, as evidenced by a high blood urea reading, may exist without albuminuria. If, for the sake of argument, we assume the correctness of the author's thesis, several interesting speculations present themselves. Is it possible, for example, that eclampsia, which is so frequently associated with the presence of placental infarction, may be due to the same cause as accidental haemorrhage? Eclampsia is predominantly a complication of primigravidity, accidental haemorrhage of multiparity. Is there some factor present in that difference which determines the different effects of a possibly single cause? Again, if the toxin is organismal, what is the source of the organisms? Is it the bowel or the mouth? These are only some of the profoundly interesting and important speculations which this brilliant piece of research work, even in its early phase, suggests to the mind. Obstetricians will watch with interest its further development.

THE ADMINISTRATION OF HEALTH SERVICES.

At its meeting last week the Council of the British Medical Association took action with regard to four matters of health administration which certainly ought to be related to one another, and the separation of which perhaps requires some explanation. It appointed a special committee to deal with questions of the extension of the scope of medical benefit arising out of the Report of the Royal Commission on National Health Insurance; it completed the personnel of a special committee on suggested Poor Law reforms; it approved a recommendation as to the central and local bodies which should administer a medical service of occupational hygiene, including the present factory medical service; and it adopted the Memorandum of Evidence to be given before the Royal Commission on Local Government Areas which was published in the SUPPLEMENT of January 30th, 1926 (p. 36). In support of this oral evidence will be given by Dr. Brackenbury at an early date. All these matters are, at any rate in some of their aspects, concerned with the complete unification of the administration, centrally and locally, of all health services, which is the declared aim of the Association's policy. They have to be

dealt with separately, nevertheless, because they have been referred by the Government to separate bodies or departments. Two Royal Commissions and two Ministries are concerned. Each of the Commissions has been embarrassed by the fact that part of the subject which it had to review has been included in the reference to the other, or does not specifically come within its reference at all; and the Royal Commission on Local Government has actually postponed the taking of certain evidence until it can be made further acquainted with the result of conversations and negotiations at present taking place with regard to Poor Law administration. The British Medical Association is one of the bodies which has been asked to represent its views on the health aspect of this last subject, and this will be the immediate task of the special committee set up.

The other special committee with regard to extensions of scope of medical benefit was considered necessary both by the Council and by the Insurance Acts Committee because, though the matter is technically within the powers of the Insurance Acts Committee, it was felt that there should be a substantial representation of consultants, laboratory workers, and others who would be vitally affected by any arrangement entered into to bring them within the ambit of the National Health Insurance scheme. As now constituted this special committee seems admirably fitted to advise the profession on this very important matter. There are a sufficient number of members common to both these special committees to keep them in touch with one another.

THE "JOURNAL OF NEUROLOGY AND PSYCHOPATHOLOGY."

THE Council of the British Medical Association, at its meeting last week, decided, on the advice of the Journal Committee, to publish the *Journal of Neurology and Psychopathology* as and from the issue of May, 1926. This journal has been in existence since 1920, and was started to take the place of the former *Review of Neurology and Psychiatry*, edited by the late Dr. Alexander Bruce of Edinburgh, which ran with success from 1903 to 1918. Its aim has been to supply, in the form of abstracts and critical reviews, up-to-date information in reference to the whole field of neurology and psychopathology. A major part of each issue, therefore, is entirely taken up with such abstracts from current literature. It is felt that there is a definite need for as complete a summary as possible of the extensive literature dealing with neurology and psychiatry, and it is hoped that by aiming to supply this need the *Journal of Neurology and Psychopathology* will occupy a supplementary position in relation to other publications in English dealing with these two subjects.

Each number includes also short original articles, and in this section an endeavour is made to extend its usefulness by including contributions from foreign as well as British neurologists and psychiatrists. Thus recent issues contain articles by Professors Brouwer and Zeeman of the University of Amsterdam, Professor Ksawery Lewkowicz of Cracow University, Dr. C. E. Reynolds of Los Angeles, Cal., and Drs. George Hall, Laurence H. Mayers, and J. A. Kerr of Chicago. The original articles during the last year have covered a wide range, and dealt with the following subjects: epilepsy as a symptom of disseminated sclerosis; multiple neurofibromata; syringomyelia in association with epilepsy; organic spinal hemianaesthesia; the

operative treatment of gastric crises; myotonia atrophica; diabetes insipidus as a sequel to epidemic encephalitis; the clinical features of scorbutic neuritis; psycho-analysis and psychotic patients; experimental investigations concerning the projection of the retina on the primary optic centres in apes; the psychopathology of lying; meningococcal meningitis; the colloidal benzoin curve in the cerebro-spinal fluid. In addition to the above a section is devoted to short notes on cases of clinical interest. At the inception of the journal it was decided to include in each issue an editorial article dealing with topics of general neurological or psychiatric interest. The following list of the titles of some of these editorial articles may serve to indicate their scope, purpose, and character: cerebral localization of function; social work in psychiatry; subjectivity and objectivity; neurological therapeutics; the value of human evidence; the nature of desire; philosophy and medicine; cortical functions in relation to neuroses.

The general aim of the journal was indicated in an editorial article in the first issue dealing with the present position of psychopathology. It was pointed out that there was a great need for co-ordination in the work of the different schools of psychopathology, which had not yet achieved a solid foundation of universally accepted principles, so that the common ground may be clearly marked out and the divergences accurately defined; and that a further need was for co-ordination between the findings of psychopathology and the facts which have been elicited by other branches of medicine, notably neurology and endocrinology. It was furthermore stated that one of the chief objects of the journal was to help in this co-ordination and correlation, and the hope was expressed that by presenting a review of the work which is being carried out by the various schools the linking together of the different lines of attack would be facilitated, and that it would be found possible to attain to that comprehensive and catholic view which is indispensable to progress.

The problems of nervous and mental disease with which this periodical deals are probably the most obscure and difficult to solve in the whole realm of medicine; they are of the greatest importance, however, and concern, not only the neurologist and psychiatrist, but also the general practitioner, who is called upon to deal with and diagnose morbid nervous and mental conditions in their earliest stages. For such reasons it is hoped that the journal will meet a real need, and find, under the auspices of the British Medical Association, an increasing sphere of usefulness. Dr. S. A. Kinnier Wilson is the chief editor, and he is assisted by a committee consisting of well known neurologists and psychiatrists. The *Journal of Neurology and Psychopathology* appears four times a year. The annual subscription is 30s. post free (single numbers 8s. 6d. net). Orders should be sent to the Financial Secretary, British Medical Association, Tavistock Square, London, W.C.1.

THE ASSOCIATION'S HOUSE IN THE STRAND.

THE Council of the British Medical Association, at its ordinary meeting last week, was informed of the preliminary steps taken in the sale of the Association's valuable freehold property at 429, Strand. The recently vacated house is proposed to be acquired by the New Zealand Government, and further particulars will be published on completion of the transaction. A brief note of the Chairman's statement is published in the report of the proceedings of Council (SUPPLEMENT, p. 124).

THE NATIONAL PHYSICAL LABORATORY.

THE report of the National Physical Laboratory for the year 1925¹ describes quite a bewildering number of investigations. In many of these researches a goal or even a resting point which permits definite conclusions to be stated may take years to reach, and the phrase "to be continued" has to be written as frequently as in a serial story, and, again as in a serial story, at an exciting stage. One gets an impression of hundreds of workers at Teddington occupied in a dozen different departments or divisions on investigations at first sight disconnected, often running off at tangents, and very generally ending for the time being in a confession of incompleteness; yet it cannot be doubted that to the next generation of scientific workers these labours will appear of extraordinary value, carried out, as they have been, during the most expansive years that science—or physics at all events—has ever passed through. The first function of the National Physical Laboratory, however, is not original research, but testing, measurement, and the determination of constants. It exists to apply the yard measure, so to speak, to the scientific work proceeding in Government departments, research associations, and industrial firms, to relate it with work in other countries, and to set up standards without which progress would be impossible. Hundreds of thousands of instruments of one kind or another, from photographic lenses to tuning-forks, and from sextants to vacuum pumps, are tested at the laboratory in the year. During 1925 the number of clinical thermometers tested was about 600,000. In thermometry, by the way, proposals are shaping for an international scale of temperature, and it is hoped to lay something definite with regard to such a scale before the International Commission on Weights and Measures in 1927. Another international matter which it is hoped shortly to resolve is the precise relation between the kilogram and the pound. In volumetric glassware the "millilitre" has now been very generally substituted as the unit of volume for the "cubic centimetre"; almost the whole of such ware submitted to the laboratory for testing in 1925 was graduated in terms of the millilitre. Among other instruments tested were sphygmomanometers, and it is remarked that those of the mercurial type are now more robust than those submitted in previous years, and they have the advantage of greater accuracy over the aneroid type of instrument, but lack its compactness and its convenience in reading. During the year under review sixty-one radium preparations were tested—a decrease on previous figures, possibly due to the facilities available for radium testing in Belgium, where the great bulk of the world's radium is now produced. Hitherto measurements of radium tubes at the laboratory have only been made after an interval sufficient to ensure that the tubes have reached equilibrium—that is to say, a period of about five weeks; but arrangements have now been made for using speedier methods, and radium preparations may be tested in a period of a few days, though the accuracy is only about half that of the standard test. A radium safe with lead walls two inches thick has been installed at the laboratory; the tables where the radium under test is manipulated also afford a protection of one inch of lead, and the observer when using the electroscope sits behind a lead screen about half an inch thick. Twenty-two x-ray installations have been examined during the year, and reports have now been made on the x-ray departments of some seventy hospitals and institutions. Although the conditions as to protection still leave much to be desired, a general improvement can be discerned as a result of the recommendations of the X-Ray and Radium Protection Committee (formed in 1920 under the chairman-

ship of Sir Humphry Rolleston), at whose instance the inspections have been carried out. A number of sections of floors, walls, and ceilings for proposed x-ray departments have been examined at the laboratory. It is pointed out that barium plaster, which is often used as a wall covering, diminishes in protective value when an installation of the higher potentials (200 kilovolts) is put in. The plaster is not always uniformly mixed, and the report urges that more care should be taken to eliminate lighter patches, and that a good margin of safety should be allowed in the thickness of walls so covered. Much other investigation is proceeding on x rays, especially from the point of view of their use in metallurgy. The programme of work for the present year includes the design of an apparatus for the practical realization of a unit of x-ray intensity, also a study of the relations between x-ray and cathode-ray energy. Some useful work has been done on the acoustics of buildings, and the effect of galleries, partitions, and simple obstacles in the transmission of sound in auditoriums is being studied. At the request of H.M. Office of Works some tests on illumination have been carried out to determine the minimum daylight factor which may be considered necessary for clerical work. Work has also been undertaken for the Food Investigation Board with the object of finding out the thermo-physical properties of various refrigerating liquids, and of constructing an apparatus for measuring the heat evolved in the respiration process of fruit. Optical glass has received attention, and an endeavour has been made to detect the changes, if any, which occur with ageing. Other work relates to dental alloys and amalgams; the study of the constitution of the binary alloys of silver and tin has been carried to completion, and a report has been submitted to the Dental Investigation Committee of the Department of Scientific and Industrial Research. Other subjects under investigation are the measurement and control of humidity, the brightness of diffusive glass illumination fittings, and the investigation of impurities in chemicals; this leaves out of account a whole realm of subjects of principal interest to the metallurgist and the mechanical and electrical engineer.

THE OPTICAL CONVENTION.

THE Prime Minister, in opening the Optical Convention at South Kensington on Monday morning, declared that the average man was a stranger to the whole apparatus of optical science except for such interest as he might have in playing with a hand camera. Yet optical science is a necessity of civilization, and Mr. Baldwin instanced particularly the essential part played by the microscope in the war against disease, and said that in this field, as in others, there remained large possibilities still untouched. The Convention will help to popularize optics, for though it is true that the hundred papers, arranged in two sections, are mostly on recondite subjects, such as the measurement of refractive indices or the expansion coefficients of optical glasses, the exhibition, which fills three halls and several smaller rooms in the Imperial College of Science and Technology, has many attractions. For one thing, there is an entertainment section, where all the old optical illusions are forthcoming in new guises—the distorting mirrors, the devices for magnification and minification, and so forth. Here the visitor can lose his head, and watch as an interested spectator his own decapitation. Then there is an historical section in which Newton's experiments are repeated, and an historical collection of optical, especially astronomical, apparatus, and of some ancient books and catalogues. Contrasted with all this is an exhibition of what is being done in the present day in the way of experiment and research in optics—a display to which the National Physical Laboratory and the technical optics

¹ Published by H.M. Stationery Office for the Department of Scientific and Industrial Research. 8s. 6d. net.

departments of certain colleges and polytechnics have made some valuable contributions. Again, the present position of the British optical industry is illustrated by the trade exhibits of nearly a hundred firms. One thing brought home to the visitor here is the energy with which optical glass production has been pursued in recent years in this country. Three firms now produce optical glass whereas only one produced it before the war, and whereas the catalogue of that one firm in 1914 listed only 26 types of optical glass its catalogue to-day has a range of 112 varieties. The latest models of the ophthalmoscope, the retinoscope, the keratometer, and the perimeter are on view. The optical lanterns, polariscopes, polarimeters, and microscopes, with all kinds of accessories, are on view in great numbers, and the microscopes include the complete ultra-violet apparatus made for Mr. Barnard and Dr. Gye for examining the filter-passing virus. Attention is drawn, in other exhibits, to the importance of industrial photometry, as in the measurement of the total light output of electric lamps, the design of efficient lighting systems from the point of view of proper illumination, and the usefulness of "artificial daylight" in a number of directions, including medicine and dentistry. Two new industrial applications of optics may be mentioned. One of these is the introduction of a third colour into railway signalling. The red light hitherto has served a double purpose—a "warning" on the distant signal and a "stop" on the home signal. Work has been proceeding on a moderately deep orange light to take the place of the distant signal, and this is now being tried on the London and North-Eastern Railway. The orange is distinguishable equally from red and green, and is not to be confused with any stray white or yellowish light which might be seen from the footplate. Moreover, in foggy weather the colour tends to approach the appearance of the red signal. The other development has to do with the problem of eliminating glare or dazzle from motor car headlights. Two recent solutions are offered. One of these is based on the plan of obscuring a part of the lamp bulb with a diffusing yellow coat. The other involves the use of two filaments which can be switched on at will, the one producing a powerful driving beam, and the other a dispersed beam for use at the moment when the oncoming car is close at hand. Ophthalmic optics, of course, is the subject of several of the papers, and sight-testing apparatus and eyeglasses of every kind are shown in the exhibition, including invisibly fused bifocals and trifocals. In the matter of spectacle-making the thing that may strike the visitor is the multiplicity of fashions in "eye-wear." A pair of old-fashioned steel spectacles is hard to find. So-called "tortoise-shell" (real turtle and mock turtle shell), gold, platinum, and rustless alloys are the materials of the modern fitting. Not only so, but if the lenses are to be varied for different uses, it seems to be of almost equal importance that the fittings should be varied also in harmony with the occasion. A certain form of frameless spectacle is recommended for business calls, the comfortable and dignified tortoise-shell for the office, and a pair of gold-rimmed pince-nez for the dinner-table; while ladies have lorgnettes for shopping and the theatre, another kind of eyeglass for evening wear, and still another for driving and sports. The Convention did not begin its general meetings until Tuesday, and we hope next week to give some account of the more noteworthy events in its programme.

THE FLOW OF BILE.

BILE is secreted continuously into the hepatic ducts and passes into the common duct under a pressure of 60 to 70 mm. of bile. But its further progress towards the duodenum is checked by the sphincter which guards the exit from the common duct, for this sphincter, Winkelstein

and Aschner¹ have shown, offers a resistance equivalent to 120 to 130 mm. of saline. Therefore the bile flows into the gall bladder, the current being favoured by the reduced intra-abdominal pressure during expiration. During inspiration the increased pressure in the abdominal cavity forbids the entrance of bile into the gall bladder, and during this phase bile can be expelled through the cystic duct into the common bile duct, and Winkelstein and Aschner think that a little may even be forced past the sphincter into the duodenum. They found that when the sphincter of Oddi was kept patent by means of a small glass cannula the gall bladder did not fill but remained collapsed, all the bile flowing directly into the duodenum. This sphincter then, like the pylorus, may be regarded as a "keeper of the gate." Its work is more onerous than we have been accustomed to think, for estimates show that almost a litre of bile is produced daily by the liver, and most of this, in concentrated form, must pass at regular intervals into the duodenum. In the fasting state the sphincter remains closed, but opens when the sensitive mucous membrane around its opening is bathed with gastric chyme. Thus, when the papilla of Vater is touched with dilute hydrochloric acid, peptone, dextrose, or fat, the tonus of the sphincter relaxes at once. Pilocarpine injected subcutaneously increases this sphincter's tone, and atropine diminishes it. It is probable that stimulation of the vagus nerve excites the gall-bladder musculature as well as the sphincter, and stimulation of the sympathetic inhibits both. As with other sphincters of the gastro-intestinal tract, it seems likely that here also tonus is never completely lost under normal conditions, and experiment suggests that a pressure of 90 mm. of saline at least is necessary to overcome the sphincter, even when its tonus is decreased by substances acting either locally or through the vegetative nervous system. When the sphincter is not relaxed the usual pressure prevailing in the gall bladder and common bile duct is insufficient to overcome it, though during coughing and vomiting some bile might be squeezed through. Reduced to a single sentence, the conception of Winkelstein and Aschner may be expressed as follows. The sphincter which guards the duodenal opening of the common bile duct holds back the passage of bile during the fasting state, but under the local relaxing influence of the gastric chyme, and probably also reflexly through the vegetative nervous system, the tonus of the sphincter is reduced sufficiently so that the rise of pressure in the gall bladder and common duct during inspiration opens the sphincter, and bile from the gall bladder and liver flows into the duodenum.

IMMUNIZATION AGAINST MEASLES.

THE gratifying results which have followed the introduction of the Schick and Dick tests for diphtheria and scarlet fever respectively, together with the discovery of methods of immunizing patients against these diseases, have given rise to strong hopes that similar success might soon be reported in the case of other infectious conditions. An intensive study of measles in this connexion has been in progress, particularly in the United States and Italy, and in both countries organisms have been isolated which seem to have some etiological significance, though absolute specificity could not be demonstrated. In the *Journal of the American Medical Association* for March 27th (p. 932) a preliminary report is published by Drs. N. S. Ferry and L. W. Fisher on the preparation of a measles toxin and its employment in diagnosis and treatment. The authors state that they have isolated a small Gram-positive aerobic streptococcus in pure culture from the blood of patients in the early stages of the disease. This organism is said by

¹ *Amer. Journ. Med. Sci.*, January, 1925, p. 104-111

the authors to differ from that previously described by Tunncliffe, in that it grows luxuriantly in the presence of oxygen, and produces a soluble toxin specific to measles. In an editorial comment in the same issue of the *Journal of the American Medical Association* (p. 955) it is pointed out, however, that the Tunncliffe organism is aerobic in cultures of the second generation, and that the two organisms are probably identical. Ferry and Fisher, who have distinguished their organism by the name of *Streptococcus morbilli*, state that it appears in pairs and chains. Experiments were made with its toxin on various patients, and it was found that those who had had measles previously did not react to intracutaneous injections. Thirty children were so tested without a single positive result; out of thirty adults with histories of measles, two did, however, react positively. Out of thirty-five tests on patients who had not had measles, fourteen gave positive reactions. Patients in the pre-eruptive and early stages of measles gave positive reactions, while those in the later stages, and especially convalescents, gave negative reactions. When the toxin was mixed with a pooled serum of patients convalescing from measles no positive skin reaction was produced in susceptible persons; this is held to prove that the convalescent serum neutralized the toxin; nor was a positive skin reaction obtained when the toxin was mixed with serum from an animal previously immunized with the toxin. It thus appears that this toxin is capable of stimulating the production of an antitoxin with neutralizing properties. The toxin was not neutralized by being mixed with scarlet fever antitoxin or normal horse serum. Two out of four persons with positive skin reactions were given an injection of convalescent serum, and two days later it was found that these two gave negative reactions, while the two controls were still positive. The serum of an animal immunized by the toxin had the same immunizing or neutralizing properties as the serum of a person naturally immune, indicating the etiological nature of the toxin and of the streptococcus with regard to the disease. Suspensions of the streptococcus were found to be agglutinated by the serum of convalescent patients from measles, and intracutaneous injections into rabbits of live cultures of the organism produced severe local infections surrounded by large areas of hyperaemia, which at times resembled a typical measles rash. Although it is not prudent to draw final conclusions from the relatively small number of experiments, yet there certainly appears to be promise of the establishment of a valuable prophylactic treatment of this widespread infection.

FERMENTED MILK.

NOMADIC tribes in nearly all parts of the world have discovered the trick of fermenting milk, and thereby changing it from an easily decomposable food to a refreshing and often mildly alcoholic beverage. This fermentation has, of course, proved a fruitful field for speculation; its initiation is sometimes attended with ritual; the energizing grains by which the fermentation is evoked are regarded, perhaps, as a special gift from Mohammed or a crumb from the festivities of the gods. Bacteriological analysis has torn aside the veil of mystery which for centuries has surrounded the origin and method of action of these particular fermentations. Nearly all the different types of soured milk are due to the activities of the aciduric group of milk-souring bacteria, sometimes aided by yeasts and coliform bacilli. When other methods of food preservation were discovered the custom of drinking fermented milk fell into abeyance, although, of course, butter and cheese have retained their hold on the affections of all civilized countries. But with a curious persistence and periodicity the fashion of drinking soured milk has

returned again and again, and now we are told that some special benefit can be derived from the soured milk which our progenitors consumed in abundance. It may be worth while to recall that some thirty years ago the fashion of drinking koumiss spread far and wide throughout Europe and, we believe, America, from the steppes of Russia. The milk used by the native tribes was mare's, sometimes camel's, and the fermentation was of a mixed character, so that the finished drink contained a small proportion of alcohol (1 to 2 per cent.) and lactic acid (0.5 to 1.5 per cent.). It had an acid flavour agreeable to some persons, and a slight stimulating action on digestion, which was supposed to be good for pyrexia, chronic pulmonary disease, and various cachectic conditions. In Western Europe it was made from cow's milk—a practice introduced from the Caucasus—and the resultant beverage was called kephir. A little later, if we remember correctly, Metchnikoff promised us the prolongation of life if only we ate enough of the Bulgarian bacillus, but this particular microbe did not long enjoy the confidence of sour-milk devotees. *B. acidophilus*, a first cousin of *B. bulgaricus* (and not easy to distinguish), has now stepped forward to take the leading place amongst the sour-milk microbes. Several books have been written about it; one, *Lactobacillus Acidophilus*,¹ by Nicholas Kopeloff, has started this chain of thoughts. The question which critically minded people are sure to ask after reading this book, or the advertisements respecting acidophilus therapy which the postman showers upon us, is whether it has any real value. That is a question which medical experience must decide, but it is well, perhaps, to recollect the two following facts before plunging into acidophilus therapy. First, *B. acidophilus* is a normal inhabitant of the human intestine. It is there, for good or ill, within every one of us, and the miracle of transforming the intestinal flora is actually nothing more than the making of this microbe sufficiently numerous for the bacteriologist to be able to distinguish it without too much effort. Secondly, all the laboratory experiments which inspire any confidence show that very large quantities of sour milk must be taken to ensure a transformation to a predominantly acidophilus type. At least a litre of sour milk daily, together with 300 grams of lactose (three quarters of a pound), is necessary for most people, and smaller quantities than this are of doubtful value. This point is emphasized by Dr. Kopeloff in his book. We should draw attention also to the fact that he brings forward evidence to show that nearly all the cultures of *B. acidophilus* sold by commercial firms are absolutely worthless.

STATISTICAL INVESTIGATION OF INDUSTRIAL ACCIDENTS.

THE elucidation of the causes of industrial accidents, with a view to accident prevention, is such an important problem that it has naturally attracted a good deal of attention at the hands of the Industrial Fatigue Research Board. The Board has already published two reports on the subject, and report No. 34, which is entitled "A contribution to the study of the human factor in the causation of accidents," represents a further instalment of its labours. It is due to Miss E. M. Newbold, who was advised in her work by the Statistical Committee of the Medical Research Council. This committee is composed of men who are eminent rather for their knowledge of statistics than for possessing a first-hand knowledge of factory life and conditions, and indeed the report in question is entirely statistical from start to finish. By means of a card system accident data relating to 9,000 men and women were collected for periods of three to twenty-four months at thirteen factories, the factories

¹ *Lactobacillus Acidophilus*. By Nicholas Kopeloff, Ph.D. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1925. (Roy. 8vo, pp. xii + 211; 4 plates. 22s. 6d. net.)

chosen being mostly those where machinery and other metal objects were made. This work involves numerous trivial accidents such as cuts to fingers, and altogether the number of accidents tabulated came to over 16,000. The data were subjected to a most laborious and skilful mathematical analysis by Miss Newbold, with a view to elucidating the conclusion—previously arrived at by Greenwood and Woods—that accident liability is due largely to a special personal susceptibility inherent in the individual. As is suggested by the Board itself in the preface to the report, it might be thought that the existence of differences in individual susceptibility is so obvious that it is superfluous to prove it by statistical reasoning. At the same time, it is useful to obtain exact information, for the special susceptibility may possibly prove such an important factor in accident causation as to make it desirable to weed out the susceptible workers, and transfer them to other and less risky jobs. Unfortunately, the nature of the statistical material worked upon by Miss Newbold rendered it impossible for her to obtain this exact information. None of the numerous groups of workers studied by her were homogeneous ones. Usually they represented all the workers in a particular department, such as a motor-car assembling shop or a textile machinery fitting shop. In two instances it is said that the workers were more homogeneous than those of the other groups, but no exact observations were made to prove the point. Hence the only conclusion concerning the excessive accident rate of certain individuals that Miss Newbold felt justified in advancing was to the effect that "there are many indications that some part, at any rate, is due to personal tendency." The investigation of the relationship of accident frequency to age and experience likewise proved rather unsatisfactory. It was found, in confirmation of previous investigators, that accidents decrease both with the age and the experience of the worker; but Miss Newbold found in addition that when an allowance was made for age there was no independent association between experience and accidents—that is, experience did not count at all in accident causation. Information obtained by previous investigators, no less than common sense, indicates that this conclusion is erroneous, and presumably it was due to the character of the statistical data used. These data showed only the length of time for which the workers had been employed at a particular factory or department, and gave nothing of their previous history or experience. One interesting point which was established related to minor sickness, for it was found that a definite positive correlation (+0.3) existed between the number of accidents experienced and the number of visits paid to the ambulance room for sickness. We must, however, agree with the opinion expressed by the Board that, so far as this report is an index, "the limits of knowledge that can be acquired solely by statistical methods have now been reached." For the future reliance must be placed partly on the application of psychological and physiological methods to the study of the individual, and partly on the study of accident data when these are accompanied by detailed observations on the conditions of work under which the accidents were incurred.

INSANITY AND THE LAW.

LORD HEWART, the Lord Chief Justice, was the guest of the Hunterian Society at an informal dinner at Simpson's Restaurant, Cheapside, on April 12th, and after dinner he made a few observations on the criminal law in its relation to insanity. As he was evidently under the impression that no reporters were present, and therefore that for once he did not need to measure his words with the precision which should belong to a published utterance, it would be improper to give any extended report. His observations, and those of Dr. T. B. Hyslop, who followed him, illus-

trated the dissonance between law and medicine in relation to this question. It may be, as Dr. Hyslop suggested, that the medical man has his mind directed to the patient—in this case the criminal—while the mind of the lawyer is occupied with the public safety. Lord Hewart quoted a famous predecessor of his, Sir Matthew Hale, who said, "When I am tempted to pity the criminal I remember also that there is a pity due to my country." One remark of the Lord Chief Justice, based on his thirty years' experience as counsel, law officer, and judge, we may be permitted to quote. He said that the defence of insanity in capital cases—cases in which, on a verdict of guilty, the punishment is death—tended to be put forward almost invariably, whereas in the case of other crimes, such as larceny, housebreaking, forgery, and embezzlement, it was rare to have the defence of insanity ever suggested. But it surely might be replied to the Lord Chief Justice, with all respect, that while one can conceive a "reasonable" motive for these lesser crimes—usually the motive of some immediate gain—few murders belong to this category, being mostly crimes of passion, and that in any case the act of murder is so revolting that it almost points of itself to a disordered mind. Lord Hewart, with his accustomed clearness, laid down what a defence of insanity involves, and we give it in our own words, not in his. In law every person is presumed to be innocent until he is proved to be guilty; but equally every person is presumed to be sane, reasonable, and responsible for his acts until the contrary is proved to the satisfaction of a jury. Therefore it is for the defence to prove insanity, not for the prosecution to prove soundness of mind. For a defence of insanity to be sustained in a criminal case it must be proved, first, that at the time of the act the accused person was labouring under a certain defect of reason; secondly, that that defect of reason was due to a disease of mind; and then a third thing must be proved—namely, that because of that disease of mind, manifesting itself in a defect of reason, the person did not know the nature and quality of his act, or (not "and") did not know that what he was doing was wrong. Lord Hewart appeared to think that the word "irresponsibility" begged the question, and to dissent strongly from the doctrine of "uncontrollable impulse," pointing out that, after all, one of the most important functions of the law is to make people control their impulses. He deprecated any relaxation of the stringency of the law which would make insanity an easier defence, though he paid a high tribute to the "delicate and exquisite inquiries" of the mental specialists. Dr. Hyslop took rather a different line. He wanted to know how the M'Naghten rules applied, for instance, to dream states in which crimes were committed. He had known a person commit a crime evidently in a state of post-epileptic automatism, and suffer the extreme penalty; which might be good law, said Dr. Hyslop, but was bad medicine. It must be recognized that there were conditions of irresponsibility not due to certifiable disease. Insanity and irresponsibility were totally different things. Very often in the courts evidence was heard on the question of insanity—evidence which might be relevant to the point at issue or not; but when the jury were charged a totally different problem, that of responsibility, was presented to them, and so judgement was given on a point never tried. Dr. Hyslop's view, that there was any permanent dissonance between medicine and law, was not accepted by the Lord Chief Justice, who said that he hoped to discuss this matter with Dr. Hyslop in the Elysian fields; but he felt bound to point out that truth, which comprehended both legal truth and medical truth, was one and entire. He added that in all his experience he had never known one case of a man who in the largest acceptance of the word was insane being punished as a criminal. That is certainly comforting, even though it must be ascribed to Providence rather than to the law.

COMPLIMENTARY DINNER TO SIR ROBERT BOLAM.

MEMBERS past and present of the Council of the British Medical Association gave a complimentary dinner, at the Hotel Victoria, London, on April 7th to their Chairman, Sir Robert Bolam, in order to offer him their congratulations on the honour recently conferred upon him by the King. The PRESIDENT OF THE ASSOCIATION (Dr. F. G. Thomson) was in the chair, and was supported by Dr. Brackenbury, Mr. Bishop Harman, Dr. J. A. Macdonald, Sir Jenner Verrall, and Sir Dawson Williams. Besides those attending the Council meeting, numbering between fifty and sixty, five former members of the Council were present—namely, Sir James Barr, Dr. E. R. Fothergill, Dr. John Goff, Dr. C. Sanders, and Dr. Johnson Smyth. The officials of the Association also joined in the occasion.

The PRESIDENT, in proposing Sir Robert Bolam's health, said that it was always a source of wonder and admiration to him that any man should be able to carry on the active work of his profession at home and at the same time preside over the affairs of the Association in London. This dual existence entailed innumerable nights on the London and North-Eastern Railway, and could only be sustained, whatever the capacity for physical endurance, by a high sense of public duty. Not only had Sir Robert presided over the Council for nearly six years—and they all hoped he would continue to hold the office—(applause)—but he had in some subtle way gained the affection of all the members and was looked upon as their wise and considerate friend.

Dr. BRACKENBURY testified to Sir Robert Bolam's personal kindness to himself on many occasions, both in connexion with the Association's work and with other matters. Of Sir Robert's services and sacrifices for the Association and the profession it was scarcely necessary to say anything in such a company. He would be inclined to describe them as unparalleled were it not that he recalled corresponding services given in years past by Dr. Macdonald and others, who also carried on their practices in some distant town and yet devoted many days in the course of many years to the Association. The Chairman of Council had great gifts of management and persuasiveness. He remembered occasions when Sir Robert and he had tried their persuasiveness upon one another; the process was interesting, and the result, no doubt, was to keep them both on the straight and narrow path. The Chairman was an extremely wise man, in the best sense, that he could be trusted to do the wise and the right thing. Not only had he wound himself into their intellectual concerns, but he had endeared himself to their hearts. The honour bestowed upon him had gladdened them all, and they hoped he would be spared many years to wear it. (Applause.)

Dr. J. A. MACDONALD asked what there was in the British Medical Association to induce men to sacrifice themselves on its behalf—men like the late Sir Victor Horsley, the late Sir Clifford Allbutt, Sir James Barr, Sir Jenner Verrall, Sir Dawson Williams. Whatever might be the make-up, the complex, the divine afflatus which caused such men to spend themselves for the Association, it was certainly most pronounced in the guest of the evening, *primus inter pares* of this very distinguished society. His expenditure of time and energy, his acute business ability, the distinguished success which had attended all that he had attempted to do, made his colleagues grateful. His Majesty had been wisely advised to confer the dignity of knighthood on Robert Bolam, and in so doing had honoured the Association and every member of it. (Applause.)

Sir JENNER VERRALL, the senior member of the Council in respect to length of service, said that when he thought of Sir Robert Bolam he recalled a phrase familiar in his youth, *Totus teres atque rotundus*. Could any epithets be more appropriate, especially *teres*? When they studied anatomy they were introduced to *teres major*, not knowing that they were ever to meet the superlative, but after all these years here it was in the person of their guest—*teres maximus*. Sir Robert Bolam's method of argument

was sound, suave, moderate, and convincing. Many kind thoughts and wise schemes were born in that busy brain, some had been realized, but some must have been put aside for future use. If the Association owed a debt to Sir Robert, he also owed a debt to the Association in that it had given him the chance of doing a labour of love.

Sir DAWSON WILLIAMS, who spoke as representing the staff of the Association, said that when Dr. Bolam (as he then was) took the chair of the Council in the year of the Cambridge meeting everybody anticipated that, coming as he did from canny Newcastle, he would prove a shrewd judge of men and policies. But they did not wholly anticipate—and they were not always quite pleased to discover (laughter)—how shrewd he was. It was a serious matter to the permanent staff when a new Chairman of Council took office—the more serious in this case because the staff had grown to know and love and rely upon his predecessor. But it was not long before they found that Dr. Bolam was determined, even though he lived at the other end of the country, to enter into all their troubles and difficulties, that he would always take care to understand a particular difficulty, and they came rather to think—at least the speaker did—that if the Chairman, after he had understood it, made little of it, he, the official, and perhaps some of his colleagues, had been making too much of it. They had all been astonished at the way in which he had given time to the Association's affairs. He had frequently attended committee and other meetings in London which lasted a few hours but had cost him two nights in the train. He wished, on behalf of his colleagues on the staff, to thank Sir Robert Bolam for the way in which he had treated the officials. They were sincerely glad when he was honoured by the Crown; they felt that no honour was ever better bestowed, and they were glad also to think that he had received from the Association, in addition to the responsibilities it had cast upon him, the honours which were within its power to confer. But he had something more—the sincere affection and esteem of all the members. (Applause.)

Dr. J. GIBBS, on behalf of the Irish members of Council, and Dr. HUGH MILLER, on behalf of the Scottish, associated themselves very heartily with the congratulations.

Sir ROBERT BOLAM, who was enthusiastically received, said that during the five and a half years of his chairmanship he had had the highest satisfaction that a man could have who set out to do a little work for the good of the profession and for the community generally—namely, the approbation of those best qualified to judge of that work. He was glad to see the President with them that evening; it was only now, after Dr. Thomson's long illness which had debarred him from active participation in the Association's affairs during his year of office, that they had the opportunity of appraising his powers and gifts. Dr. Brackenbury had said some things in the way in which only he could say them, and which he would always treasure. From Dr. Macdonald he had received most generous support; his own work on the Council was only possible in the earlier years of his office by the advice and help of his predecessor. Sir Jenner Verrall, if the oldest in years of service on the Council, was the youngest in spirit, and had been a tower of strength to him. He was grateful also for the kind words that Sir Dawson Williams had spoken. It was the happiest thing in the life of an honorary officer to feel that those who were part of the permanent machine could regard him as a fellow in the work which they really had the heavy burden of carrying through. Like others in medicine, he had gone to the Editor for advice on many subjects and had always received it ungrudgingly. It was a great regret that Alfred Cox was not present. It was from Cox—an old college mate and a dear friend—that he learned some of the things which had made his friends speak of him with such kindness that evening. One of those things was that there was something fine in the ideal of an Association like this; he had been led to understand that, as Kipling said about something very different, "the game is more than the player of the game, and the ship is more than the crew." He had striven after an ideal beyond his accomplishment, but of which he hoped to grasp the skirts, and to understand what measures were best conducive to the greatest

happiness of the greatest number, being careful to act in all things with a large toleration. He had doubtless many times troubled his fellow members of Council, and he knew that many times they had troubled him! But he had been sustained by a rhyme from the same author:

And when they bore me overmuch, I will not shake mine ears,
Recalling many thousand such whom I have bored to tears.
And when they labour to impress, I will not frown nor scoff;
Since I myself have done no less, and—sometimes pulled it off.

With regard to his recent honour, the greatest satisfaction had been the pleasure which it had given to others than himself. He had had to answer between seven and eight hundred letters from members of the Association far and wide, and in all of them the note of affection had touched him most deeply. He thanked them again for their kind expressions. The knowledge of their approval would help him during the rest of his work, and in the time of his retirement, which must fast approach, the kindly affection which had radiated through the speeches that evening, as well as through all the intercourse of these five and a half years, would be cherished very highly. (Loud applause.)

The proceedings closed with the toast of "The President," proposed by Sir RICHARD LUCE, and Dr. THOMSON, in reply, spoke of the disappointment he had felt in not being able to take part in the work of the Association during his official year.

THE INTERNATIONAL CONGRESS OF SURGERY.

THE seventh International Congress of Surgery was held at Rome from April 7th to 10th, under the patronage of the King of Italy and the presidency of Professor Giordano of Venico. It was attended by no fewer than 355 surgeons from every part of the world, and the total attendance reached 600, thus exceeding that of any previous meeting of the Congress. A meeting held in Rome must in any case be memorable, but certain circumstances have made this meeting unique, and have left upon those who attended it an impression not readily effaced.

We met in the Hall of the Conservators, a magnificent room in one of the great buildings standing on the site of the Capitol. The room itself spoke of the glories of the Renaissance, but its foundations were the cradle of ancient Rome and the very birthplace of our civilization. The room was packed to overflowing with surgeons from every quarter of the globe when the head of the Italian Government, the Governor of Rome, and the officers of the Congress took their seats. The setting was magnificent, the company was not unworthy of its meeting place, but it is no exaggeration to say that both were swept from our minds by the personality of one man—Mussolini. I have never before been conscious of so instant and general an impression. We felt that we were in the presence of one of the great forces which move the world. Quiet confidence, perfect self-control, unlimited power—these were written in every feature of the man before us. We waited for him to speak.

He spoke in Italian with all the easy fluency of a master. He spoke with pride of Italy as the first home of our art, dwelling particularly on Vesalius. He passed on to make a graceful reference to Ambroise Paré, and his work for soldiers in the mediaeval wars, and of all that surgery had done for wounded soldiers, himself included, in the great war. He welcomed us as the guests of the Italian people; and as we listened we began to understand a little, perhaps even to feel in some small degree, the affection of Italy for Il Duce.

The business was largely formal and the meeting short, and we crowded to the windows to see the high officials drive away. Mussolini had just appeared, when suddenly we heard the sharp crack of a revolver, and a moment later we saw his face covered with blood. A crazy woman with a revolver concealed beneath her scarf had fired point-blank from within three feet of his face. The scene that followed was indescribable. Mussolini disappeared into the entrance. None of us knew whether he had been killed, and no one knew what might follow. Happily he appeared a few minutes later, his face bandaged up, but apparently none

the worse, and Rome gave itself up to a day of demonstrations and thanksgiving. Everywhere his escape was the one topic of conversation, and we learnt many things. Perhaps Southern blood is emotional, but that will scarcely explain all that we saw and heard. Mussolini has gained a power over the hearts of his countrymen that can be for nothing for good. Such utter confidence, such implicit devotion, such deep and enduring affection, would be dangerous if they were offered to most men. It is well that we in England should realize that to Mussolini they are offered without measure. In his hands they are safe, and they are the sure foundations of the future of Italy. Without any doubt at all he is at this moment the strongest man in Europe.

The professional meetings of the Congress opened with a discussion on the treatment of cancer of the uterus by radium and x rays. Professor Regaud of Paris, opening the discussion, made a strong plea for the introduction of radium into the uterine canal, as opposed to the use of needles. External radiation may be used separately or as an adjunct, but the best results are obtained by the use of powerful tubes, well filtered, placed at such a distance that the rays pass through a large area of the skin. He stressed the importance of the removal, so far as possible, of microbic infection before the commencement of treatment. Beutner of Geneva was so impressed by the value of radium and x-ray treatment that he advised it even in operable cases. Forsdike of London held a more conservative view, but the immense value of these methods of treatment was universally maintained.

An interesting discussion on the treatment of cerebral tumours was opened by Brun of Lucerne. Basing his remarks on a personal experience of 458 craniotomies, he described his own technique in detail. He laid great stress on haemostasis, considering that collapse in the later stages of an operation was often due to carelessness in stopping bleeding in the very first incision. This he makes an inch at a time, picking up every bleeding point as he advances. He always operates under local anaesthesia, the patient sitting comfortably with his head resting on his folded arms. The bone he divides with Krause's forceps, plugging the slit in the bone with gelatin gauze to stop haemorrhage from this source.

In the discussion which followed the chief points brought out were the importance of early diagnosis, the superior value and the greater safety of a one-stage operation whenever it could be performed, and the great value to the surgeon of a personal training in neurology and of a knowledge which would enable him to diagnose for himself the finer points in the pathology of each case.

Several new instruments of interest were demonstrated, including a most ingenious trephine by Jentzen of Lausanne and a new type of craniotome by Souttar.

Discussions on the surgery of the spleen and of Jacksonian epilepsy, and a valuable paper by Adson of the Mayo Clinic on the treatment of trigeminal neuralgia, were included in a very busy meeting of the Congress. It will be memorable for one other circumstance—that at the general meeting it was decided by an overwhelming majority to admit Germany once more to the meetings of the Congress so soon as she shall have become a member of the League of Nations. The next meeting of the Congress will be in Warsaw in 1929. H. S. SOUTTAR.

THE UNITED STATES ARMY MEDICAL REPORT.

THE annual reports on the health of the United States Army are considerably more voluminous than the reports on the health of the British Army, and are prepared more expeditiously. Thus the annual report for 1925,¹ containing some five hundred pages, has already been published; but it should be noted that for statistical purposes it only relates to the year ending December 31st, 1924, and for administrative purposes to the fiscal year ending June 30th, 1925.

The Surgeon-General, Major-General Ireland, summarizes the report in an interesting letter of transmission, covering the first sixteen pages. This is followed by a detailed

¹ Annual Report of the Surgeon-General U.S. Army, 1925. Washington: Government Printing Office, 1925. (8vo, pp. xvi + 483; 185 tables in text, 9 appendix tables, and 50 figures.)

account of the health of the army, with the usual vital statistics and an account of the incidence of individual diseases, groups of diseases, and injuries. Half of the report is taken up with these details; the remainder contains an account of the administrative work of the medical services and of the dental, nursing, and veterinary corps, all of which come under the Surgeon-General's administration, the various schools of instruction, the work of the medical services in the different commands of the United States and overseas garrisons, and details of the medical services in the eight general hospitals of the United States Army. All these sections of the report are amplified by 185 tables, 50 charts, and, as an appendix, 9 elaborate tables of statistics.

The mean annual strength of the army for the calendar year 1924 was 135,640, exclusive of the Army Nurse Corps, which had a strength of 845. The number of officers was 11,219. The number of the enlisted men was 110,862 white Americans, 4,186 coloured, 7,056 Filipinos, and 2,317 Porto Ricans. They were distributed to garrisons in the Philippine Islands (11,821), Hawaii (12,493), Panama (8,561), China (919), and Porto Rico (1,308), in addition to the garrisons in the United States.

In estimating the ratio of admissions to hospital, the report distinguishes between the admissions for disease and admissions for injuries, and emphasizes the fact that the former, 535.45 per 1,000 of strength, shows a slight decrease over the previous year, whereas the latter shows a very considerable increase—from 107.75 per 1,000 to 120.75. The death rate from disease was the lowest recorded, 1.94 per 1,000, as was also the death rate from diseases and injuries combined, notwithstanding an increase in the actual number of fatal accidents. A remarkable fact, however, is brought out in the report—namely, that the leading cause of death was not infectious diseases, but suicide; as was also the case in the year 1923. Tuberculosis came next as a cause of death, followed by automobile accidents, which advanced from seventh place in the statistics of mortality in 1923 to the third place in 1924. Balloon and aeroplane accidents came next. The increase in deaths from injuries or external causes has resulted during the last three statistical years in a ratio exceeding or equal to the deaths from disease amongst the white enlisted men in the United States. The statistics of suicide and homicide are recorded for the past ten years, and of automobile and aeroplane accidents for the past eight years. During these periods there were 1,015 suicides, the highest rate being amongst officers; 254 homicides, chiefly amongst the coloured troops; 463 deaths from automobile accidents, causing a death rate in 1924 much above the average for the eight-year period and higher than in any previous year; and 874 deaths from aeroplane accidents, excluding battle casualties during the war.

There is little else of special interest in the report regarding the causes of admission and deaths from disease. Amongst the white troops bronchitis heads the list as the chief cause of admission, followed by tonsillitis and gonorrhoea. Amongst the coloured troops in the United States syphilis comes first, gonorrhoea next, and then bronchitis. Malaria and undetermined fevers were the chief cause of admission among the Filipino troops; and bronchitis, tonsillitis, and rhinitis amongst officers in all countries. Only four cases of typhoid fever were recorded, one fatal case having acquired the disease previous to prophylactic inoculation. Alcoholism and drug addiction continue to account for a considerable number of admissions, as many as 23.35 per 1,000 of the white troops in the Philippines being admitted for the former and 2.43 per 1,000 for the latter.

With regard to invaliding, the most frequent cause of discharge was nervous diseases, such as dementia praecox, psychopathic state, mental deficiency, and epilepsy, accounting for 41.3 per cent. of the total discharges.

There is much that is of interest and instruction in connexion with the administrative records of the medical services. There is the same difficulty as here in obtaining medical men for army service, owing, as Major-General Ireland states, to the great demand for young medical men in civil life. The number of medical officers on June 30th, 1925, was 924, or 59 below the authorized strength. The authorized strength of other ranks of the medical department was 6,850 Americans, including 640 for veterinary

service, and 385 Philippine scouts. The actual number on June 30th, 1925, was 6,465. But, in addition to these, 1,307 civilians were employed in hospital service, and 299 in depots and administrative service. Amongst preventive measures that appear to be new are annual physical examinations of commissioned personnel for the early detection of physical defects and the correction of such as are remediable by personal hygiene and medical or surgical treatment; 11,789 officers were so examined during the year and 3,812 found in need of some form of treatment or professional advice.

In the review of the report for the year 1924, which appeared in the *BRITISH MEDICAL JOURNAL* of May 16th last, reference was made to the new "Army Medical Center" near Washington, and to the various courses of instruction for the medical personnel of the United States Army. In the report for 1925 these are again described in detail, and offer much instructive reading to all interested in the training of medical and nursing services and their reserves for military medical duties. It would appear from the report that the whole of the civil medical resources and medical supplies in the United States are being systematically organized for mobilization purposes in the event of war—a somewhat curious comment on the loud-spoken demand for disarmament.

THE HOSPITALS OF NEW ZEALAND.

The report of the Director-General of Health of the Dominion of New Zealand for 1925 contains a section dealing with hospitals. It is of much interest. The Director-General would appear to correspond with the combined offices known in our English Ministry of Health as that of chief medical officer and that of chief secretary. The report is a complex document and corresponds to nothing with which we are familiar in this country, for it covers all the hospitals in the Dominion, and includes the work that is done there in voluntary hospitals; Poor Law institutions; the hospitals of sanitary authorities; central Government institutions, including prison hospitals; homes for aged persons; and "charitable aid, indoor and outdoor," which seems to be much what we know as Poor Law relief; district nurses; and subsidies to doctors in outlying districts. It is therefore difficult to make any just comparison between the hospital system of the Dominion and our own, yet there are some points of contact.

Though in New Zealand the returns of the local hospital boards are prepared on a uniform system, it is pointed out that this gives no basis of comparison between the hospitals. The costs of hospitals for acute surgical or medical cases, for chronic cases, consumptives, homes for old people, maternity and fever wards, cannot be compared. Further, some hospitals are almost self-contained, employing their own staffs for repairs, baking, laundry, and the like; others put these out to contract. The proper basis for comparison would be through a businesslike system of departmental costing. "There is nothing to distinguish the financial administration of a hospital from any other business concern. From the standpoint of financial administration a hospital is an hotel for the sick, and should be subject to the same or even greater business management as would an hotel catering for the same number of guests." The knowledge of this method of costing is stated to be highly beneficial to the staffs of hospitals. "There is, moreover, nothing more stimulating to the staff of an institution than to be furnished with a clear return of the cost of its particular departments, and this especially applies in the case of quantity consumption of certain articles or services in individual wards. Part of every probationer's training should be the encouragement of an intelligent interest in the cost of hospital treatment for which she, together with others of the staff, is responsible." Reference is made in the report to the work of Mr. Stone, the accountant of St. Thomas's Hospital, London, where a complete costing system has been worked out with much success. The revenue of the hospital system is derived from several sources. The rates are drawn upon to the extent of 34 per cent. of the total costs; voluntary contributions furnish 2.9; patients' payments 14.7; charitable

aids 2.7; Government subsidies 40.3; and endowments 5.2. The total cost of the hospitals for maintenance and extensions for the year was £1,940,049, which may be compared with the figure given for the total ratable capital value of the Dominion of over £500,000,000. The hospital provision has increased of recent years. Ten years ago the number of beds per 1,000 of the population was 3.2, of which an average of 2.1 were occupied; now the total is 5.5 per 1,000 of population and the average number occupied 3.7. The Government subsidy is "pound for pound" of the other receipts of the hospitals—rates, patients' payments, and voluntary contributions. Patients' payments are increasing, and special methods of personal interview are adopted to bring home to the patients their individual responsibility. Voluntary contributions are received both for maintenance and for capital purposes. There is a statement that suggests these are diminishing, owing to the diversion of charitable contributions to objects whose finances are not so assured. A table gives the names of the hospitals and their medical and administrative staffs; the former are described under the titles "medical superintendent and stipendiary medical staff," and from the number of these it would appear that this covers the full staff of the hospital, and that these receive remuneration for their services.

Scotland.

BALLANTYNE ANNEXE TO THE EDINBURGH MATERNITY HOSPITAL.

THE J. W. Ballantyne ante-natal annexe to the Edinburgh Royal Maternity and Simpson Memorial Hospital was opened by Viscountess Novar on April 12th during the annual meeting of the institution. This annexe was described in the *BRITISH MEDICAL JOURNAL* for March 20th. Lady Novar said that it would be well that the public should be made to understand what a fine work they were helping to finance in that institution. Hospitals of this type could always count upon support because they represented in a very special way the maternal instinct of the community. At the same time it must be remembered that this instinct expressed itself more easily in personal service than in writing cheques, and therefore it was well that they should help subscribers to visualize how their money was transformed into practical service, bringing safety to thousands of mothers and preserving generations of infants from physical calamities. Very often only small groups of supporters clustered round each institution knew what magnificent results came from voluntary effort. These great voluntary institutions never stood still, but were always reaching forward to cover more ground, to improve upon the past, and on that occasion a new ante-natal department was being opened in which the modern policy of supervising expectant mothers so as to ward off possible trouble was to be carried out under the best conditions and with the most up-to-date equipment. In conclusion, Lady Novar referred to the fact that the births attended in or from the Maternity Hospital in Edinburgh represented 35.5 per cent. of the total births in the city, and declared that these were wonderful figures, sufficient alone to substantiate the claim of the hospital on the subscribing public.

Dr. A. Logan Turner, President of the Royal College of Surgeons of Edinburgh, referred to the research work done in the hospital and mentioned the question of a site for the proposed new Maternity Hospital. Two requirements were necessary in the selection of a site. The first was the proximity of the hospital to parts of the town from which the patients were drawn. There must, at the same time, be close contact between the hospital and the scientific department of the medical school. One of the attractions of the Edinburgh medical school had been the centralization within a limited area of the various units which went to make up the school. If it were possible to obtain a site for this hospital on the ground obtained by the managers of the Royal Infirmary from George Watson's College, that site would be ideal. Councillor Dr. Nasmyth, chairman of directors of the Maternity Hospital, said that

Dr. J. W. Ballantyne, to whom the new ante-natal clinic was dedicated as a memorial, had been a great pioneer whose name would go down to posterity as one of the outstanding medical men of Edinburgh. The hospital had begun the ante-natal department on the suggestion of Dr. Ballantyne in 1901 with one bed, and it now had fifteen beds for this purpose, while the new annexe would be of great benefit for patients for consultation and advice.

The report for the year 1925 showed that the number of cases treated in the hospital had been 1,854, the highest yet reached in the history of the institution. The total number of cases treated, both as in-patients and out-patients, was 2,934. In addition to this, there had been 5,418 attendances at the ante-natal clinics, of which 1,297 were new cases. An urgent appeal is made that the subscription income should be augmented, because the accounts show a debit balance of £1,161 on the year's working, as compared with a debit of £1,094 in the previous year.

CANCER RESEARCH.

The annual meeting of subscribers to the Glasgow Royal Cancer Hospital was held on March 26th. Sir John M. MacLeod, Bt., LL.D., who presided, moved the adoption of the report, which showed that 300 cases had been treated in hospital during the year 1925, and 26 had attended the outdoor department, while the district nurse had made 935 visits. On the ordinary account there had been a deficit of £1,294, but deducting sums expended on the new x-ray department there had been a surplus of £567. Professor Muir, in seconding the adoption of the report, expressed the opinion that a much wider view ought to be taken of cancer research. If regard was had merely to the enormous amount of work which had been done during the last twenty-five years, and the number of men in various countries who were devoting themselves to this work, the apparently small results of a practical nature were apt to be discouraging. Research, however, was directed towards two ends—one to find the cause of the disease and the other to find the cure. In some diseases the cure had been found before the real nature and cause of the disease were known. On the other hand, there were many diseases in which the exact cause was known, but for which no direct cure was yet available. Still, looking at infective diseases he thought it might be said that in practically every case the discovery of the cause of the disease had brought with it the means, to a certain extent, of controlling the disease and diminishing its ravages. Much had been done in recent years to bring medicine nearer to an understanding of the nature and therefore of the cause of cancer. Sir George Beaton, in acknowledging the vote of thanks to the medical staff, said that the directors were taking steps to obtain a larger supply of radium. The cost of a gram of radium, which was the amount they desired, would be over £11,000, and towards that figure a legacy of £2,000 and some other contributions had already been received.

PRINCESS LOUISE HOSPITAL FOR LIMBLESS MEN.

The ninth annual meeting of the Princess Louise Scottish Hospital for Limbless Sailors and Soldiers at Erskine, near Glasgow, was held on March 29th in the City Chambers. Lord Provost Sir Matthew W. Montgomery presided. The report stated that the committee was at present considering steps to place the hospital on a permanent footing among the philanthropic institutions dedicated to those who had suffered during the great war. It was hoped in the course of the coming year to formulate a permanent scheme which would attract a sufficient number of deserving cases. The report indicated that at the end of the preceding year 121 men had been working, comprising thirty-eight persons in training under the industrial training scheme and fifty-two men working under the new scheme for the employment of severely disabled men, together with thirty-one journeymen. Fourteen men who had completed training and remained in the boot-making department produced during the year 1,250 pairs of orthopaedic boots and fifty pairs of private orders, together with 5,278 repairs. The hospital was in a satisfactory financial position, as legacies and subscriptions amounting to £5,935 had been received during the year, and the income had exceeded the expenditure by £299.

INFLUENZA AND ENCEPHALITIS LETHARGICA IN GLASGOW.

In the report for March the public health department for Glasgow states that the average death rate for the month was 16.9, as compared with 15.2 in the corresponding month of last year. The increase was due to deaths from respiratory diseases, the result of the widespread prevalence of acute influenza and pneumonia. In one week 116 persons had died from pneumonia, 87 in the preceding week, and 39 in the week before that. A rather disquieting feature was that in a number of cases attacks of influenza had been followed by encephalitis lethargica. The Scottish Board of Health had requested the Glasgow Parish Council to consider the question of providing accommodation for the treatment of forty or fifty patients in the later stages of encephalitis lethargica, and the hospital committee had agreed to give effect to this suggestion.

ANNUAL CONFERENCE OF THE NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

The twelfth annual conference of the National Association for the Prevention of Tuberculosis will be held in Glasgow from July 1st to 3rd. The subjects to be considered include provision for the care of non-pulmonary forms of tuberculosis; this discussion will be opened by Dr. A. S. M. Macgregor, medical officer of health for Glasgow, and Mr. James Taylor, consulting surgeon to the Glasgow Corporation hospitals and sanatoriums. Sir Robert Philip and Dr. Lissant Cox (central tuberculosis officer of the Lancashire County Council) will open a discussion on the actual place and function of the tuberculosis dispensary in the tuberculosis scheme. Communications dealing with the recent advances in tuberculosis will be made, and visits have been arranged to representative housing schemes, hospitals, sanatoriums, and to the new laboratories of the Glasgow Corporation. The conference is open to all persons interested in tuberculosis on payment of the fee of one guinea, either as delegates or as private members. It is stated that the Ministry of Health will be prepared to sanction the payment of the reasonable expenses of attendance at the conference of not more than three delegates from a local authority, among whom should be included the medical officer of health, or the chief clinical tuberculosis officer, or both. Further information may be obtained from the Secretary, National Association for the Prevention of Tuberculosis, 20, Hanover Square, W.1.

Ireland.**MEDICAL ORGANIZATION IN NORTHERN IRELAND.**

In our issue of April 3rd (p. 632) a paragraph was published in the course of which it was stated that at a meeting of medical men in co. Tyrone a resolution had been passed to the effect that the Belfast Medico-Political Committee did not represent the medical profession throughout the Six Counties. The reply of the Medical Committee of Northern Ireland was published also. Since then Dr. W. Lyle has written a letter on behalf of the co. Tyrone doctors, in the course of which he states that on the Medical Committee of Northern Ireland there were four delegates from co. Tyrone, and this committee was, he understood, formed for the sole purpose of preparing evidence to place before the Poor Law Commission, and, having done so, he, in common with the other members of the Tyrone Local Medical Committee, presumed that it ceased to function. There was, however, previous to its formation in October, 1924, some sort of committee, which was formed in Belfast, which purported to represent the profession throughout Northern Ireland, and which made representations to the Government in the name of the profession; this is the committee to which the resolution of the Tyrone Local Medical Committee referred under the title of the "Belfast Medico-Political Committee." As a matter of fact, at one of the meetings of the Medical Committee of Northern Ireland held either late in 1914, or early in 1915, very great dissatisfaction was expressed by many of the delegates with the inadequate representation of the pro-

fession, outside Belfast, with the result that a list of provincial doctors was chosen, and the secretary to that meeting promised to have these names added to its membership; down to the present time, however, no intimation had been received that this had been done. Further, whilst the president and secretaries of the Medical Committee of Northern Ireland stated in their first letter that the membership of their committee included two representatives from each of the Six Counties, there were four representatives from co. Tyrone duly appointed according to instructions from headquarters and actually present at meetings of the committee held subsequent to October 31st, 1924, and in their letter they gave the names of three representatives of this county, so that the Tyrone doctors might be excused for feeling uncertain as to how, if at all, they were represented on the committee, by whatever name it was called, which spoke to the Government and to the public in the name of the entire medical profession of Northern Ireland. If, however, the president and secretaries of the Medical Committee of Northern Ireland, on which co. Tyrone had three representatives, could assure them that this was the only committee now representing the medical profession in Northern Ireland, he (Dr. Lyle) believed the co. Tyrone doctors would be satisfied.

WOMEN'S NATIONAL HEALTH ASSOCIATION.

At the annual general meeting of the Women's National Health Association, Dr. Barry, in her report on the work of the babies' clubs, said that their aim was to get into touch with the very poor and miserable people. The membership of the clubs was now 3,451, and the attendances at the clubs for the year 27,166 mothers, 17,998 infants, and 20,082 children. There had been 10,946 consultations with doctors, 447 had received medical treatment, and 237 had been sent to fresh-air convalescent homes. Cash for drugs and food distributed at reduced rates by the clubs amounted to £1,818 6s. 0½d., and £348 15s. 7½d. worth of drugs and foods had been issued free. An ultra-violet light lamp for the treatment of children suffering from rickets and malnutrition had been set up during the year, and was working very successfully. The women were taking a great interest in the health lectures. Professor Bigger spoke of the need of a pure milk supply in Ireland. It could not be said that the milk supply of Dublin was very satisfactory, but the demand for bottled milk showed that the people wanted better milk; yet it frequently happened that milk out of a bottle was no cleaner than that out of a can. No producer in Ireland, so far as he knew, could supply milk which would satisfy the grade demanded in England. The public should pay no attention to the claims made by any trader in Ireland who stated that his milk was grade A. The methods used for dealing with food, fruit, and milk all required attention. This was particularly true of bread. Milk was only one of the foods that had to be protected. The following resolution was adopted:

That we strongly urge the public health authorities to make provision for the protection of milk, and to ensure a free supply for children from 1 to 5 years; and also to educate the public as to the value of milk as a food, and the importance of having it hygienically handled.

England and Wales.**PRESENTATION TO DR. JOHN RUSSELL.**

DR. JOHN RUSSELL, after forty years' medical practice in North Staffordshire, is about to return to his original home in Scotland, and has recently received various tributes of esteem. On March 31st, at a meeting of officers and members of the Voluntary Aid Detachments, under the presidency of Dr. Charles Reid, county controller for Staffordshire, an inscribed gold cigarette case was presented to Dr. Russell. The chairman described the valuable services rendered by Dr. Russell to the British Red Cross Society, of which he was the vice-president of the Stafford division. During the war Dr. Russell served as assistant county controller of Voluntary Aid Detachments, and was one of the most active and reliable members of the executive committee. His calm judgement and untiring

energy had been associated with a valuable capacity for raising large sums of money for charitable purposes. On April 8th a complimentary dinner was given by the members of the Stoke-on-Trent Insurance Committee to Dr. Russell, its vice-chairman, and Alderman Brookhouse, its chairman, both of whom had been members of the committee since its inception in 1912.

CENTRAL MIDWIVES BOARD.

The Central Midwives Board for England and Wales met on March 31st for a penal session and on April 1st for the ordinary meeting; Sir Francis Champneys, Bt., M.D., presided at both meetings. At the ordinary meeting Sir Francis Champneys was re-elected chairman, and the following re-elections were announced: Dr. Marguerite Douglas-Drummond, Miss Edith Greaves, Miss Olive Haydon, Dr. F. N. Kay Menzies, by the Ministry of Health; Dr. W. S. A. Griffith by the Royal College of Surgeons; and Dr. C. Sangster by the Society of Apothecaries of London. The Board approved the suggestion of the Minister of Health that since the revised regulations for the notification of ophthalmia neonatorum would not come into force before July 1st, the alterations in the rules which had been submitted should be also deferred till that date. The Board approved for the year ending March 31st, 1927, the revised lists submitted by the secretary of examiners, lecturers, and institutions where lectures are delivered, and the institutions, homes, and midwives at which and under whom midwives may be trained.

Correspondence.

HERBERT JONES TESTIMONIAL.

SIR,—In your issue of March 20th (p. 540) you commended the proposal to present a testimonial to Dr. Herbert Jones. All members of the profession should subscribe to this acknowledgement of the good work of Dr. Jones in raising the status of the profession in the public estimation. Those who belong to the public health services should welcome the opportunity, especially the younger members who now enjoy good salaries owing to the efforts of Dr. Jones and others who in but few instances reaped any benefit for themselves. Subscriptions may be sent to Dr. John Steed, Staunton-on-Wye, Hereford.—I am, etc.,

Chesterfield, April 3rd.

HERBERT PECK.

* A few days after the receipt of Dr. Peck's letter the preliminary list of subscribers to the testimonial was forwarded by Dr. Steed, who expresses the hope that it may serve as a reminder to others desirous of supporting the testimonial. The names of subscribers and amounts promised are as follows:

43 7s.—The Editor of The Medical Officer.
22 2s.—Messrs. Ainslie and Hepper (Hereford), Drs. L. J. Blandford (Ruddington), John C. McVail, J. E. O'Connor (Leicester), J. J. Paterson (Maidenhead), Herbert Peck (Chesterfield).
11 1s.—Dr. E. H. Baldock, Dr. A. Middleton Brown, Mr. W. B. Butler, Professor J. T. Cash, Mr. E. W. Du Buisson, Drs. S. L. Corry, Hugh Penton, Cyril Francis, J. Oswald Lane, J. H. Lilley, and Peter Lowe (M.D.I.), Mr. F. S. Machin, Mr. E. Wood Power, Mr. J. A. Prichard, Dr. B. W. Stallard, Dr. F. H. Thompson, Lieut.-Colonel Wanhull (the foregoing are all of Hereford). Drs. Basil Adams (Nieuport Sanatorium), J. Ridley Bailey (Bilston), G. F. Buchan (President, Society of Medical Officers of Health), W. H. Cam (Ross), H. C. Clark (Wellington), W. Allen Daley (Hull), Q. R. Darling (intwardine), W. S. Davies (Bristol), G. W. Urd (Kington), H. R. R. Fowler (Ledbury), J. All (Dilwyn), Richard Harding (Kington), Wells), Drs. F. C. H. Home (Tarrington), T. A. Jones (Ledbury), H. V. Lamb (Ledbury), A. W. McMichael (Vowchurch), A. Milner (Kington), W. H. Morgan (Ewyas Harold), Sir Arthur Newsholme, K.C.B., Drs. Norman H. Pike (Cheltenham), R. G. Salmon (Finsbury Park), J. Grimmond Smith (Burghill), E. H. Snell (Coventry), John Steed (Staunton-on-Wye), Gerard Steel (Leominster), A. S. Underhill (Barnes), E. Walford (Walmers), James Wheatley (Shrewsbury), E. G. H. Williams (Colwall), Mary Williams (Colwall).
11.—Professor A. E. Boycott, F.R.S. (London).
10s. 6d.—Dr. A. M. Humphry (Pontilas), Dr. W. Lucas Johnstone.

MURDER AND THE DEFENCE OF INSANITY.

SIR,—In the course of the last few months there have been appearing in the BRITISH MEDICAL JOURNAL certain very interesting contributions on the question of murder and the defence of insanity, and it so happens that in the

course of my service I have had from time to time the duty of performing the work of superintendent of sundry jails. In this way the following cases came to my notice, and I submit them to you as it seems to me not unlikely that they have some bearing on the point at issue.

1. In the year 1919 a man was convicted of the murder of a woman who was six months pregnant, and was sentenced to death. In this case it came to light that this man had been for many years suspected, with good reason, of having been the cause of more than one case of criminal assault on young women of his village tract; it also came out in evidence that he had killed the woman and had thereafter "outraged" her. On the prisoner being committed to jail for execution, and on reading over the judgement of the court and the evidence in the case, I referred it to the chief of the executive, and the prisoner was relieved.

No sexually sane Burman will rape a pregnant woman, still less will he kill her and then outrage her. The executive had obviously failed for many a year to have sent this man to a lunatic asylum.

2. In the year 1920 B. S. was convicted of the offence of the murder of his superior officer and was sentenced to death. In this case the following facts came to light. (i) A man (B. S.) had served in Mesopotamia and there he had been rather tyrannized over by a certain non-commissioned officer. (ii) There was a good deal of ill feeling between this man and the non-commissioned officer. (iii) On one occasion B. S. went to answer a call of nature while in the line at Sanna-i-yat, and on coming back had a drink out of his water-bottle; the water seemed to taste a little worse than usual and B. S. remarked on this, whereupon he was informed amid the jeers of his comrades that the non-commissioned officer in question had urinated into his water-bottle. (Those medical men who served in Mesopotamia will realize that the actuality of this occurrence may be open to question when they remember the chlorinated filth we had to drink there.) B. S. admits frankly that from this time he did try many times to shoot this non-commissioned officer. (iv) He returned from service without being able to carry out his intention, and went to an up-country battalion of the military police. There he found this non-commissioned officer promoted to commissioned rank, and there the tyranny became worse; in the end he shot this commissioned officer stone dead. (v) On the prisoner being committed to jail for execution and on reading over the judgement of the court I referred the case to the chief of the executive and the prisoner was relieved.

This B. S. was a fairly high caste Hindu; whether the defilement of his water-bottle had or had not actually taken place, there is no shadow of doubt but that this man knew himself to have been defiled for all eternity by the fact of his having drunk this pollution. I have not the slightest doubt in my own mind but that B. S. knew that he was doing a thing which was illegal, but I am equally certain that it was impossible for B. S. to refrain from carrying out the suggestion that he should kill the man who had done him this irreparable injury.

3. In 1920 M. T. N. was convicted of the offence of the murder of his sister-in-law and of her aunt, and of the attempted murder of his aunt. This happened on a boiling hot August afternoon, and I reached the hospital practically synchronously with M. T. N., followed by the dead body of his sister-in-law, by her aunt, and by his aunt. The second died at the entrance to the hospital. The third received immediate attention and lived in the face of all probability. M. T. N. himself was in a condition such as I have never seen before. The man appeared to be shivering with cold; but on noticing him carefully I found that it was not the case—that he was showing rapid contractions of whole muscles but fibrillary contraction of individual groups of fibres in many different muscles in a very irregular manner. He had made a futile kind of attempt to kill himself, apparently by cutting across the back of his neck with the "dah" (something like a meat chopper) which he had used to kill the two women. Otherwise he was quiet—much too quiet.

The simplest way that I can put it is that the man was a rational automaton. He did what he was told to do; he answered questions rationally; he sat down to have his wounds dressed; he helped to hold a dressing tray; but it seemed to me that he did not realize what he was doing. On reading over the judgement of the court when M. T. N. was committed to jail for execution I referred the case to the chief of the executive and the prisoner was relieved.

The facts in this case were as follows: (i) M. T. N. used to make a thatch material for roofing indigenous people's houses. His wife used to sell odds and ends in the bazaar. His sister-in-law used to do the cooking for the household and used to help in the thatch work. She was one of those women who take a delight in driving a man to the point where she all but hands herself over to him and then refuses him. That this had been happening over and over was proved by a remark of the headman of the quarter, the significance of which was missed absolutely by the court; it was further a matter of common knowledge in the quarter; but wife had been advised repeatedly to get rid of her sister, but would not do so. In the end, between sheer ungovernable sexual excitement and utter hatred of a woman who could persist in acting in this way after he had asked her repeatedly to end the matter either by completing it or else by leaving him alone, M. T. N. killed this woman; unfortunately her aunt rushed up

while he was "seeing red," followed by his own aunt; the former he killed, the latter he very nearly succeeded in killing. I am quite certain in my own mind that M. T. N. knew that he was doing an illegal thing; I am equally certain that he could not refrain from following the suggestion that he should kill this "woman." (ii) The killing of the woman's aunt and the attempted killing of his own aunt were but additional evidence of a state in which the man was unable to control his impulses; they are the acts of a person who is absolutely irrational.

I admit freely that in all of these cases the guilty person appears to be legally responsible for the acts which he committed, but in each case it has appeared obvious from the medical point of view that the guilty person was acting under an impulse which he could not control. The fact that there was considerable justification for this point of view lies in the event that in each case the prisoner was relieved.

I admit likewise that I am dealing with more or less primitive peoples who are not necessarily fit to be submitted to the legal penalties of the common law of Great Britain; but it seems to me that there is a good deal more to be said about this matter than the merely legal aspect of the question, and that there is wisdom elsewhere than in the *McNaghten obiter dicta*. There are even times when it has seemed to me that many a thing which is illegal is right, and that many a thing which is legal is wrong.—I am, etc.,

HODGKINSON LACK.

University College, Rangoon, March 6th.

DR. YOUNG'S CANCER PARASITE.

SIR,—Recently Dr. James Young brought his "cancer parasite" to the Pathological Section of the Royal Society of Medicine, and it met with such a hostile reception at the hands of several members that we almost hoped to have heard the last of it. Why of all the speakers I should be singled out for a second reply (*BRITISH MEDICAL JOURNAL*, April 10th, p. 675), and why this particular occasion should be chosen, I do not know, unless it be that he wishes to show what a ferocious bully I am, and also to seize the opportunity of hitching his wagonette on to the elusive star of his fellow obstetrician. My contribution to the discussion was an account of a test of his parasite at the Cancer Hospital Research Institute, to which he had referred. This test was conducted at the instigation of a certain committee, who were well aware of the adverse opinions of numerous distinguished pathologists regarding Dr. Young's work, but who considered it desirable, for reasons I may not mention, to let him have a final try-out on as large a scale as he might wish under controlled laboratory conditions. I consented with considerable misgiving, knowing full well that no litigious person ever has a good word to say of a judge who may be compelled by the evidence to decide against him. I doubt if anyone was particularly interested in his views regarding the relationship between leukaemia, pseudo-leukaemia, and cancer; the only point was, would the organism produce anything that we could recognize as a malignant tumour?

Dr. Young therefore cultivated his parasite from material supplied at his request. The parasite, which on this occasion was a mould, one of the common contaminations with which all those with experience in the cultivation of tumours are only too distressingly familiar, was injected intraperitoneally into fifty mice in perfect conformity with Dr. Young's technique. We insisted on controls, which Dr. Young regarded as quite unnecessary, for we knew of the liability there is in some strains of mice to glandular hyperplasias that are not tumours and certainly not cancers, and we wished, further, to exclude the chance of spontaneous tumours, which are not uncommon in mice. Both sets of animals were examined from time to time for evidence of superficial cancer. None appeared in the mice injected with the parasite, but, as luck would have it, a spontaneous mammary carcinoma developed in one of the control animals. As the mice died, *post-mortem* examinations were made on them, but nothing in the least suspicious of neoplasia in any of the organs was visible to the eye of one who has had many years of experience in these examinations.

Dr. Young was, I believe, informed that the results of the test had not been in his favour, and on indirect inquiry

he ascertained that I had made no microscopic examination of all the organs, believing this to be useless. At the end of nine months he visited our laboratory, and he was good enough to express his sad sympathy with me at having so thoughtlessly destroyed the whole value of the experiment. Then I learned, for the first time, that it was "leukaemia" rather than cancer which his parasite had taken a fancy to produce. Recovering from the cruel blow I made haste to assure him that all was not lost, for eleven of his mice still remained alive and we could examine them for his lesion. But hope died when he told me that his experience had shown him that one never got the manifestations after the lapse of seven months. However, to please me, he would have a look at the organs of these mice. Greatly to his joy, two of them showed a certain amount of glandular hyperplasia in the region of the thymus gland, and still more to his surprise and satisfaction the livers of all of them exhibited microscopically his "leukaemic patches," on which he now set such store. He was not interested in, nor did he wish to see, the control animals. Had he been of an inquisitive nature he would have discovered that they also had the "leukaemic patches" in their liver. These appearances are indeed exceedingly common in laboratory mice. They consist of multiple small foci of lymphocytes, and bear no relation to tumours—or even to leukaemia.

That is the whole story, and it is only now disclosed since Dr. Young has so publicly appealed to Caesar against my narrow-minded and unfair prejudice. It only remains for me to say that the authorities whom he cites as having corroborated his work are not regarded as such by anybody I know.

I do not grumble at Dr. Young's poor opinion of me, nor at his controversial methods, but I am genuinely sorry that a man of his abilities should waste his time on his so-called "cancer parasite"—what my old teacher, Professor George Buchanan, would have described as "just a wee lump of dirt."—I am, etc.,

London, S.W.3, April 10th.

ARCHIBALD LEITCH.

THE KASTLE-MEYER TEST FOR BLOOD.

SIR,—I was much interested to read the article on the above subject in your issue of April 10th (p. 650). The test is better known under the designation of the "phenolphthalein test," and it is under this heading that it appears in textbooks of forensic medicine and chemistry. Peterson and Haines, in their textbook of legal medicine, consider the preparations of the reagents in great detail, and show that the zinc converts the phenolphthalein into phenolphthalin. Deléarde and Benoit¹ recognized blood in a dilution of 1 in 1,000,000 by this test, and later, Kastle² in a dilution of 80,000,000; the latter stated that in the event of a positive result being obtained oxidizing substances and salts of the heavy metals must be excluded by chemical means.

Von Czychlarz and Neustadt³ came to the conclusion that the test was unreliable, and found that healthy faeces gave a positive reaction after the oral administration of aspirin and other drugs—an important fallacy when one considers how common the use of aspirin is in this country, and that many of the garments sent for medico-legal examination may be contaminated in this manner.

It is a well known fact that when testing healthy faeces for occult blood by the benzidine test the faeces of a patient on a red meat diet will often give a positive result. Contrary to Dr. Glaister's findings, numerous observers have recorded a similar result with the phenolphthalein test. It is this extreme delicacy that prevents its use as a medico-legal proof of blood. As a means of selecting stains which may repay a more thorough examination it is a good test, ranking with the guaiac (Day's) and benzidine tests, but, as in the case of these latter, it cannot be accepted as a test for blood in a court of law.—I am, etc.,

DOUGLAS KERR,

Forensic Medicine Department, Edinburgh University.

April 10th.

¹ *Compt. rend. Soc. de Biol.*, 1903.

² *Bull. Hyg. Lab.*, 1903.

³ *Wien. med. Woch.*, September 5th, 1914.

MALARIA AND MULTIPLE NEURITIS.

SIR,—In the JOURNAL of September 12th, 1925 (p. 461), in a paper opening a discussion on the causation and symptomatology of multiple neuritis, by Dr. T. Grainger Stewart, as well as in a general review in a leading article on multiple neuritis, the word "malaria" does not once occur, and it might be suggested that the causation is included under the term "toxic" or "infective."

My experience of neuritis of malarial causation extends as far back as the later eighties of the last century—a period corresponding with that of M. de Lesseps's attempt to build the Panama Canal. At that time a considerable number of labourers from the West Indies working on the canal became victims of malaria, associated with multiple neuritis of so violent a type as to prevent moving about without help; among these were some Europeans, principally Frenchmen, who were advised by the physicians of those days on their arrival in France to consult Professor Charcot, and I was informed that they usually received a very courteous but humorous inquiry from him asking why these patients had been sent to him, as he could find nothing wrong with them; evidently a sea voyage (I will not add cuisine, as this might complicate matters) had effected the cure.

To say that this complaint is endemic here (Jamaica) might give too exalted an idea of its extent, but cases can always be found. The classic symptoms, as described by the patients themselves, are "pins and needles" and numbness and cramps in hands and feet, with dimness of vision.

Perhaps the most interesting point is the influence of climate on the treatment; cases arising on the sea coast rapidly improve on being transferred to the hills; on the other hand, should the victim acquire his trouble in the country, residence near the sea speedily gives relief.

It would be an unfortunate position for a newcomer to be called to a case of this and be ignorant of its origin.—I am, etc.,

Kingston, Jamaica.

G. F. D.

PHTHISIS A DISAPPEARING DISEASE?

SIR,—I should be glad to believe that we are on the right track, and I am grateful to Dr. Gibson for his pertinent criticism (March 20th, p. 547). But I fear that there is no fallacy if my argument be strictly adhered to.

I maintain that a statesman who would combat phthisis must concentrate on raising real wages—witness the amazing sequel to Peel's daring measures from 1842 to 1846, and the drop in mortality which followed the war wages. It is no refutation to say to me, urging that position after a prolonged rise in wages and consequent fall of mortality, that that fall proves me wrong. But that is what Dr. Gibson says when he quotes the figures of 1920-24. Those figures are part of my case: they reinforce my suggestion that the rise in mortality from 1914 onwards was due to lowered wages.

Real wages rose from the end of 1914, and continued generally high till 1921. British and foreign records abundantly show that 1917 was the last year in which the lowered pre-war wages would be operative, 1918 the first in which the enhanced wages would begin to act on the phthisis death rate. That this would fall in 1918 I foretold; that the rate would continue low till at least 1923 I said publicly at the British Medical Association meeting in 1920; 1917 is therefore the last year which Dr. Gibson ought to use against me; can he maintain his position on that condition? From the life-saving point of view his own figures show that from 1842 to 1895 there were 45.8, from 1896 to 1924, 20.5 lives saved per million each year. From the Registrar-General's reports I will add that from 1896 to 1911 the average rate was 22.1; from 1896 to 1917, 15 per million. The changes are too rapid not to have a basis in hard fact. I submit that in view of the emphasis which, by men like Koch and Newsholme, is laid on infection, and of the generous response in isolation facilities to obviate it, the only possible inference is that some factor is now at work to frustrate the increase of knowledge and communal care.

I am specially grateful to Dr. Gibson for the reference to "vital statistics," wherein I found that, like me though on somewhat differing grounds, Professor Karl Pearson had in 1911 read in the phthisis curve the threat of a rise in 1915. As against me, no curve which ends between 1918 and 1923 is a valid argument; and I respectfully submit that the very logarithmic curve with which Sir A. Newsholme combats Pearson's assertion that the rate of decline had slackened rather tends to show that Pearson was right. For before the war the male curve above diverges from, the female curve below tends towards, a straight line drawn to a record point after the war, conspicuously more in this century than the last. Only once—in 1913—does the male curve reach this line; repeatedly it passes under it in the last century. There are a hundred causes that may make an exceptional year for mortality, one among which is the considerable improvement in the age groups above that at which phthisis deaths are most frequent; and it is a startling reinforcement of my plea that at the end of the second decade of the century the only age groups that show an improved mortality are those of people born before 1900, except the group 0-1, for which everyone will readily admit special causes.—I am, etc.,

Bath, March 26th.

B. G. M. BASKETT.

NON-INFECTIONAL ARTHRITIS IN WOMEN.

SIR,—Dr. Cumberbatch and Dr. Robinson state that the object of their paper under the above heading in your issue of April 3rd (p. 612) is "to put forward the contention that there exist cases of arthritis occurring at either end of menstrual life which are not due to infection." They base this conclusion on the result of the empirical treatment of arthritis by diathermy. They tell us that when diathermy is applied to the pelvic organs arthritis due to gonorrhoea derives benefit, that arthritis due to other prostatic or uterine infections also receives benefit, and lastly, that benefit accrues if there is no infection at all in the pelvic organs. Clearly the curative action of diathermy is not due to its bactericidal effect. Yet the authors argue that because in their third class the pelvic organs are not infected the arthritis in these cases must also be non-infective. They have already shown that the presence of microbes is quite immaterial; therefore either their conclusion falls to the ground, or if it stands it would be equally valid to say that all arthritis cured by diathermy is non-infective, which, in the case of gonorrhoeal rheumatism, is a *reductio ad absurdum*.

As in certain cases there are no pelvic microbes to kill, another explanation of the diathermy effect has to be found. The authors suggest that the stimulation of the ovarian hormone must be the cause of the improvement, as that, they imply, is the only way in which the diathermy could act. The renewal of the menstrual flow supports their view. If, then, an increase of ovarian hormone results in cure, hormone deficiency must be the cause of the arthritis. So the argument runs. This, surely, is equally fallacious. To quote Sir James Berry in another discussion about iodine deficiency in goitre: "It would be just as fair to argue that quinine deficiency is the cause of malaria." Again, if the diathermy stimulates the hormone in one class of arthritis, it presumably does the same in every class. It is then quite as likely that stimulation of the gonadal secretion was the effective factor in the cure of the gonorrhoeal rheumatism. In point of fact, the beneficial effect of the diathermy has no more bearing on the microbial hypothesis than has the effect of any other non-specific cure, such as light treatment, or massage, or Epsom salts.—I am, etc.,

H. WARREN CROWE.

Harrogate, April 5th.

THE FACTS OF SEX.

SIR,—I observe in your issue for March 27th a review of M. Paul Bureau's book, *Towards Moral Bankruptcy*. The reviewer, while appreciative of the author's ethical earnestness, yet clearly does not agree with his diagnosis of the social disease, probably not with his prognosis either, and certainly not with his proposed remedies. In reference, for example, to the author's condemnation of sex teaching in schools, your reviewer says, "We do not accept his belief

that ignorance is the foundation of chastity." In other words, the reviewer, in consonance with what is certainly a growing body of public opinion, holds that "the facts of sex" should be taught in schools to the young generation.

Will you let me say that I believe a fallacy to underlie this contention? The contention is based on an assumption—namely, that the facts of sex are known; and, further, that these are essentially of an anatomical and physiological order. This assumption I—in common, I think, with M. Bureau, and perhaps with more others than your reviewer may wot of—would dispute. If it be answered that, while there may be other aspects of sex, these do not belong to the realm of "science," then I would suggest that the sooner science begins to realize its limitations the better; if it goes on much longer proclaiming that life is nothing more than anatomy and physiology (with, of course, a little chemistry and physics thrown in), M. Bureau's prognosis will quite likely prove correct.

I maintain, then, that it will be time enough to talk about teaching "the facts of sex" to children when we know them—in their essence—ourselves.—I am, etc.,

Edinburgh, March 27th.

A. J. BROCK.

TUBERCULOSIS AND PREGNANCY.

SIR,—May I amend your report of the joint tuberculosis meeting at Cambridge (April 3rd, p. 629) respecting the opinions attributed to me as to the effect of marriage and pregnancy on tuberculosis?

In 125 women I noted that marriage alone—that is, without child-bearing—left 60 per cent. of patients unaffected; 26 per cent. were better in health, 14 per cent. worse. Now 15 to 20 per cent. of patients may be expected to deteriorate in any period of one or two years, so we must conclude that marriage alone has, if anything, a beneficial effect on tuberculosis.

Pregnancy.—Out of 423 pregnancies in 237 women, 53 per cent. had no effect, 16 per cent. improved the patients' health, 31 per cent. made them worse.

Parturition.—442 labours in 240 patients showed 32 per cent. of patients unaffected, 19 per cent. better, and 49 per cent. worse.

The worst type of case was that in which the first clinical onset of disease occurred during pregnancy or after parturition; of these patients about half have died.

An observer may well be led astray by the consideration of a small number of cases; the figures just given suggest that although widely different effects may be noticed, parturition must, on the whole, be considered a danger to tuberculous women.

The evidence appears to be definitely against artificial interference with pregnancy, for 50 per cent. of cases with miscarriages were made worse—practically the same figures as for full-term labours; and to me such a measure as Caesarean section, advocated by Dr. Marshall, seems most undesirable.

It must be admitted that there are no inflexible rules in medicine, and I have no figures showing the effect on patients of artificial termination of pregnancy by Caesarean section or any other method.—I am, etc.,

Paignton, Devon, April 4th.

E. WARD.

INSURANCE AGAINST ERRORS OF LOCUMTENENTS.

SIR,—A letter from the Medical Defence Union which appeared in your issue of March 27th has led to inquiries as to the attitude adopted by the London and Counties Medical Protection Society where actions are brought against principals who are members of the society in respect of the professional work of locumtenents who are not members of the society. Several years ago a case of the kind came before the council of the London and Counties Medical Protection Society, and it was undertaken on behalf of the member, although the locumtenent from whose work the claim arose was not a member of the society. This did not involve any departure from the rule that one subscription should not be allowed to cover the work of two or an indefinite number of practitioners associated as principals and assistants. The society was advised

that a principal is not legally liable for the default of a locumtenent, provided he has used proper care to make sure that the locumtenent is properly qualified and competent. The case referred to never went into court, but the society has ever since undertaken any cases of the kind, and intends to do so.

The legal position is not as certain as could be wished, but the fact that cases in which the London and Counties Medical Protection Society has challenged legal proceedings have not resulted in proceedings being carried to trial by the other side seems to indicate that the view taken by the society of the legal position was well founded. When a case of the kind does go to trial it is more than probable that it will have to be taken to the House of Lords if a final decision is to be obtained, since the cases bearing on the question in the Court of Appeal are somewhat conflicting.—I am, etc.,

HUGH WOODS,

General Secretary, London and Counties Medical Protection Society, Ltd.

London, W.C.2, April 12th.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

The House of Commons resumed its sittings on April 13th. The House of Lords does not reassemble till April 19th. The principal business of the Commons this week has been further consideration of the Economy Bill. The Judicial Proceedings (Regulation of Reports) Bill came up for second reading on April 16th. April 15th was appointed as the day on which a Standing Committee would consider the Midwives and Maternity Homes Bill which Dr. Fremantle has introduced. The Select Committee on the Registration of Nursing Homes was summoned to meet later on April 15th, and will also sit on April 20th. The second reading of the Bethlem Hospital Bill was moved unsuccessfully on April 13th, and is now put down for May 10th, by which time the notices of objection now entered against it may be withdrawn. The Report stage of the Registration of Births and Deaths Bill is down for June 6th.

R.A.F.M.S.

On April 13th the Secretary for Air told Mr. Hayes that the total cost of the headquarters medical organization of the Royal Air Force was £13,026, including clerical staff. The fullest use was made wherever possible of naval and military hospitals for Air Force patients. There were only three separate Air Force hospitals in this country, and of these two were situated at stations at which large numbers of Air Force personnel were concentrated, but which were remote from any hospitals administered by the other services; the third was a small hospital, with only twenty-five beds, primarily intended for officers suffering from flying disabilities. Conversely, the existence of Air Force hospitals in Iraq and Palestine eliminated the need for maintaining British or Indian army hospitals for the imperial and local ground forces in those countries. During 1925 the admissions of personnel (including families) of the Royal Air Force to naval and military hospitals numbered 3,227, while during the same period there were upwards of 3,000 admissions of personnel of the navy, the British and Indian armies, and local forces in Iraq and Palestine to Air Force hospitals. The possibility of further co-ordination between the Air Force medical service and the medical services of the Navy and Army (as well as the Ministry of Pensions) was kept continually under review by a Joint Medical Services Committee, set up in accordance with the recommendations made by the committee presided over by Sir A. Mond. This joint committee advised on: (1) Important questions of medical policy, such as the construction of new hospitals. (2) Provision of facilities for common training. (3) Specifications for the supply of medical stores and appliances. (4) The use of Navy, Army, and Air Force hospitals for the accommodation of disabled pensioners. (5) All matters in respect of which economies might be effected by co-operation of the four departments. Regular meetings had been held and the committee had been successful in securing the closest co-operation and co-ordination of medical work in the three services.

Economy Bill.

Consideration of the Economy Bill was resumed in Committee. On Clause 2 of Part I (which deals with national health insurance and amends the Act of 1924) Mr. R. J. Davies moved an amendment to omit the provision that any expenses incurred by the Minister of Health in connexion with medical benefit should fall on the approved societies. He said the purpose of the amendment was to challenge the power of the Minister who made agreements on behalf of the insured population with general practitioners acting as panel doctors. The Opposition was not satisfied that the Minister had so far made, or would in future make, the best bargain possible with the doctors in favour of the insured persons. There was a great deal of criticism, not of the attitude of the

Minister of Health, but of the actions of the medical profession, in giving treatment to insured persons. For his own part, on the whole he thought that the panel doctors had done their work admirably under the State insurance scheme. He believed, however, that the doctors had been paid handsomely for their work and that the Minister had not been at all stingy with them. The Minister should pay more attention to the opinions of the approved societies, and his power to veto their proposals should be taken away. The cost of administration ought to fall on the Exchequer.

Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, said that the provisions of Clause 2 of the bill were designed to carry out the recommendations of the Royal Commission on National Health Insurance. The Commission came unanimously to the conclusion that medical benefit should be paid for out of the funds of the approved societies. The whole of the clause had received the support of the Consultative Council.

Mr. R. J. Davies asked whether the support of the Consultative Council in regard to Clause 2 of the bill was not contingent on the omission of Clause 1. Sir Kingsley Wood said that that was not so. The Treasury would save, by the proposal, 3d. per member per year in respect of the cost of regional medical officers and of the central index register.

The amendment was rejected, and further debate on the bill followed.

Registration of Nursing Homes.

The Select Committee on the Registration of Nursing Homes resumed at the House of Commons on March 30th. Sir Cyril Cobb in the chair. Dr. J. W. Bone, Dr. Lord, and Dr. Fothergill were examined together in respect of the evidence submitted by the British Medical Association. The Association, in a written memorandum, recalled that the Representative Body of the Association, at the Annual Meeting at Bath last July, considered the Nursing Homes Registration Bill then lately introduced into the House of Commons by Mr. Gerald Hurst, and had instructed the Council actively to oppose any such bill which did not comply with three conditions laid down by the Representative Body. The first condition was that the bill should provide for representation of the local medical profession on any local committee formed by the authority for supervising nursing homes. The Association held that delegation to such local committees should be compulsory, and that doctors and nurses should sit on all such committees. The second condition was that the bill should secure that all case sheets and medical records were strictly confidential, access being only permitted to the medical profession. The third condition was that the bill should not apply to premises under the control of a registered medical practitioner. The memorandum said that the object of receiving patients, often border-line patients, into a doctor's house was to provide for them the privacy and atmosphere of a home of a non-institutional character, whilst ensuring the care, supervision, and treatment of a doctor. There were doctors who took into their private residences several patients of a special class, such as drug addicts, border-line mental cases, or neurasthenics. These patients came purely of their own volition, were often difficult to deal with, and required almost daily to be tactfully handled. If doctors had to have notices outside their houses denoting they were nursing homes, and had to display regulations inside, they would probably discontinue this class of business. The Association held that this would be contrary to the interests of the public. It also felt that registration would be detrimental to hospitals conducted by groups of medical men and to the nursing homes for private patients which were increasingly provided in connexion with voluntary hospitals.

Dr. Bone, answering Sir Cyril Cobb, said that the records of patients were never open to inspection. A member of the Association who had a surgical home in the North of England had told him that if a locally prominent person were in his home and the records were open to inspection by a committee, it would be almost impossible to prevent that patient's medical record from becoming locally known.

Miss Wilkinson asked whether the demand for the exemption of any home run by a doctor was not a little wide.—It is a little wide, but these three points were insisted upon at our meeting at Bath, and we are instructed to oppose any bill which does not meet them.

Dr. Fothergill explained that the medical profession was under the discipline of the General Medical Council. "Our houses," he said, "are where we live with our families, and by inspection the family aspect, so valuable for patients, would be destroyed. We are also inspected in our houses by the Board of Control."

Sir Cyril Cobb remarked that the General Medical Council did not inspect save upon complaint. There might be cases of ill treatment of patients without complaint. Take the case of a sick person in a doctor's house who was, or thought he was, ill treated, and who was too ill to get away. Did the witnesses say that without inspection that sick person must be all right? Dr. Fothergill replied that the patient's friends or relatives would be in touch with the case. Dr. Bone remarked that where a nursing home was conducted by a group of medical men a committee of management would ensure good conduct. He instanced nursing homes thus maintained in association with the Bedford County Hospital and St. Thomas's Hospital. Mr. Gerald Hurst, a member of the Committee, suggested that such homes would have been excepted from the 1925 bill.

The Chairman then asked what was the Association's objection to the inspection of nursing homes by registered nurses. Dr. Fothergill said the homes would be under the control of registered nurses and that the matrons in regard to their conduct would be under the General Nursing Council. What required inspection was the structural condition of the homes, and also whether the home was

staffed by "cheap girls" in nurses' caps. A woman would have to live on the premises before she could say that the nursing given was adequate. If a woman inspector walked into a nursing home, buttonholed nurses on the stairs, and cross-examined everyone down to the kitchen-maid, they would have chaos within half an hour in the best conducted nursing home.

The witnesses agreed that some homes were poorly staffed with too many probationers and that fees might be too large. Dr. Bone gave reasons why the inspection of maternity homes could be regarded as a different question from that of nursing homes in general. Asked if there was any general opinion in the British Medical Association in support of registration, Dr. Bone said that the Association was in favour of registration, but had no evidence of any special need for it.

Dr. Shiels asked if the witnesses would favour the appointment of a special inspecting committee of the British Medical Association or General Medical Council, to undertake the supervision of nursing homes run by doctors, conducted in their own home or not.

Dr. Bone said that at present they were concerned with getting rid of the objections in the bill which came before Parliament during last year. Later they might very well take the suggestion of Dr. Shiels into consideration as doctors were always anxious to manage their own affairs.

Miss Rundle, secretary of the College of Nursing, said training nurses were in favour of registration, on the ground that the public was insufficiently protected; they believed the public was dissatisfied with things as they were. The registration and inspection of nursing homes would lead, she thought, to a higher standard of qualification in nurses. All homes should be subject to some form of registration.

The Committee adjourned till April 15th.

Sight-testing Opticians.—On April 13th Sir Kingsley Wood informed Mr. Kelly that for reasons explained by the Minister of Health to the recent deputation from the Joint Council of Qualified Opticians, which waited on him in regard to sight testing, the Government did not propose to take any action in the matter. The Government was not prepared to grant any facilities for the passage of the proposed bill for the registration of optical practitioners.

Obituary.

J. W. F. RAIT, M.B., B.S. LOND.,

Lieut.-Colonel I.M.S. (ret.).

We have to announce with much regret the death of Lieut.-Colonel John Walter Forbes Rait, Indian Medical Service (ret.), which took place at his home in Radlett Herts, on April 9th, a few days after his 53rd birthday. He was born in Dublin on April 5th, 1873, the son of Henry Rait, and was educated at University College, London, graduating as M.B. Lond. in 1896, and also taking the L.S.A. in 1897. Later on he took the B.S. degree in 1906, and obtained the diploma in tropical medicine and hygiene, with distinction, at the London School of Tropical Medicine in 1909. At the Army Medical School, Netley, he won a gold medal in surgery, and entered the Indian Medical Service as lieutenant on January 28th, 1898. He reached the rank of lieutenant-colonel on July 28th, 1917, and retired on January 24th, 1919. After a few years of military duty, during which he served in the China war of 1900, receiving the medal, he entered civil employ in Bengal, and put in the rest of his service in that province. His appointments included those of resident surgeon at the Calcutta Maternity Hospital, surgeon to the Presidency General Hospital, Calcutta, and surgeon superintendent of the Campbell Hospital and Medical School.

Since his retirement from the Indian Medical Service Colonel Rait had taken a warm and active interest in the central work of the British Medical Association, and was a regular attendant at Council and committee meetings. He had been a representative of the grouped Indian Branches on the Council since 1923, and at the time of his death was a member of the Dominions Committee, the Naval and Military Committee, and of the special committee set up in connexion with the Royal Commission on the Superior Civil Services in India. He was a member of the Journal Committee in 1924-25.

The claims of medical charity made a special appeal to his generous nature, and last year, in conjunction with Mrs. Rait, he made a gift to the Association of certain shares and investments with the object of creating a fund the income from which should be applied by the trustees to benefiting members of the medical profession in need of relief or assistance so that they might be able, if possible,

to continue exercising their profession. The trustees appointed under a trust deed, drawn up by the solicitor for the purpose of carrying out the wishes of Colonel and Mrs. Rait, are the Chairman of Council, the Chairman of the Representative Body, and the Medical Secretary. It was the desire of the donors that the fund should in no way run counter to existing medical charities, and the trustees were given unlimited powers to distribute it for the benefit of individual members of the profession or their dependants as they might think fit. The Chairman of Council, Sir Robert Bolam, in announcing this gift to the Council last June, said that he had suggested to Colonel Rait that it would be suitable to associate such a very excellent departure with his own name and that of his wife, who were the benefactors, but with characteristic modesty Colonel Rait had declined, and had asked that it should receive the name of the "Sir Charles Hastings Fund," after the founder of the Association. The donors expressed the hope that the fund might be augmented from other sources, thereby adding to the means of the Association for giving help in grave emergencies. This benefaction, gratefully accepted by the Council, is recorded on one of the panels in the Council Chamber in the Association's new House.

The funeral service was held on April 13th at Radlett. The Council of the British Medical Association was represented by Sir Richard Luce, K.C.M.G., M.P., and the headquarters staff by Dr. C. Courtenay Lord, Assistant Medical Secretary. The West Hertfordshire Division of the Association was represented by its honorary secretary, Dr. C. D. Hatrick of New Barnet.

MARION VAUGHAN, L.S.A., D.P.H.CAMB.

WE regret to have to record the death on March 29th of Dr. Marion Vaughan. She continued her work up to the last. Her death was in no way anticipated, except in the fears of a few intimates, who knew the state of her health and the necessity of an approaching operation.

Dr. Marion Vaughan (*née* Hunter) received her early education in America, and later studied medicine at the London (Royal Free Hospital) School of Medicine for Women and also at King's College. She qualified in 1894, and obtained the D.P.H.Camb. in the following year; after holding several appointments at the Royal Free Hospital she became a plague medical officer in India and Egypt, 1898-99. Later on she established herself in general practice in South Street, South Kensington, where her ability, industry, and attractive personality brought her a large practice. In 1909 she married Mr. Percy Cecil Vaughan, barrister-at-law, and enjoyed the happiness of a complete comradeship, which was only severed by the war, when her husband lost his life while on active service. Dr. Vaughan was medical officer to the Anglo-French Military Hospital in France. Last year she helped to start the artificial sunlight clinic in Hertford Street. But the work in which she was greatly interested, and by the continuation of which she would hope to be remembered, was the establishment of an infant welfare clinic in West Islington. In 1916 she herself collected a considerable sum of money, and started a scheme of visiting to prepare the way by interesting the parents. At the first consultation held by Dr. Vaughan fifteen mothers and babies were seen. The need for the work and its immediate success were shown by the fact that the number of attendances during the first year amounted to 2,500. The work grew very rapidly, and in spite of the claims of her private practice Dr. Vaughan devoted time and untiring zeal to its promotion. To such an extent were her efforts rewarded that in 1925 eight clinics a week were held, and the total attendances were 18,000. Not only was preventive work undertaken at this centre, but a ward for ailing babies was established. During her last illness the future of the centre was constantly in her thoughts, and it was her great wish that the work should continue.

Dr. ALEXANDER JOHN FINLAYSON, who died on March 4th, was the elder son of Mr. Alexander Finlayson of Loch Carron, in Ross-shire, and received his early education at

Dingwall Academy. In 1916 he left Dingwall, joining the 7th Gordons at Aberdeen. He served in France with the 51st Division, and was for a period with the Army of Occupation on the Rhine. After demobilization from the London Scottish in 1920 he entered Glasgow University as a medical student, where he was a prominent member of the athletic club; and in the shinty section, of which he was for some time secretary, he received a "blue" in 1922. He graduated M.B., Ch.B. in April, 1925, after which he practised for a short time in his native village, returning to Glasgow in July as assistant to Dr. Campbell MacLean, who writes: "With the energy and buoyancy so characteristic of him, he threw himself wholeheartedly into his work, and soon showed that his reputation for thoroughness was well earned. His patients found him more than a physician, and mourn him as a friend. The high esteem in which he was held was shown by the large attendance of college associates and patients at the funeral service. Deep sympathy is felt for his father, brother, and sisters."

We regret to record the death of Dr. GEORGE EDWARD D'ARCY ADAMS, at Bussage, Brimscombe, Glos., on March 20th, in his 80th year. He was the eldest son of the late Dr. George Adams, who practised for many years at Nailsea, Somerset. Dr. D'Arcy Adams received his medical education at King's College, London, and Aberdeen, and graduated M.B., C.M. in 1867. He proceeded M.D. in 1874, and obtained the D.P.H.Camb. in 1881. For several years he held the appointment of surgeon on the Estancia San Jorge, Montevideo, Uruguay, but owing to his father becoming ill he returned to England and practised with him until 1880, when he purchased a practice in Maida Vale, London, at the same time being appointed medical officer to the Paddington Provident Dispensary and Kilburn General Dispensary. Later he joined Drs. Webb and Walker, who were in practice in the same district. Dr. Webb died and Dr. Walker retired, and Dr. Harold Darwin Hey subsequently joined him in partnership. Dr. D'Arcy Adams retired in 1919, after thirty-nine years in arduous general practice. He was a very well read man, familiar with many European languages, including French, German, Norwegian, Spanish, Italian, and Portuguese; in his earlier days he translated articles in foreign medical magazines for English publications. His favourite hobby was sketching, in which he took great delight. He was greatly beloved by his patients and friends, alike for his courtesy, generosity, and unselfish devotion to his work. He leaves a widow, three sons (of whom two are members of the medical profession), and two daughters, with whom much sympathy is felt. He was a member of the British Medical Association.

Dr. FREDERICK WILLIAM AXHAM, who died on April 8th, at the age of 86, had been a central figure in the recent agitation fostered by certain newspapers against the General Medical Council. He took the diploma of M.R.C.S. Eng. in 1861 and that of L.R.C.P. Edin. in 1867; he had been at one time medical officer of the workhouse of the Westminster Union, and afterwards became associated with Mr. (now Sir) Herbert Barker, for whom he gave anaesthetics. The circumstances which led to his removal from the *Medical Register* were fully reported at the time in our columns, and were summarized in a letter from the Registrar of the General Medical Council published in the *Times* of December 30th, 1925. In the course of his letter the Registrar stated that during the hearing of an action for damages brought by a patient against Mr. Barker in 1911 it appeared that Dr. Axham was employed by him to assist him in the treatment of the patient by giving an anaesthetic. The report of the trial was brought to the notice of the Council by the statutory declaration of a competent complainant, and an inquiry was ordered; as a result Dr. Axham's name was erased from the *Medical Register* in May, 1911, and subsequently the Royal College of Surgeons of England removed him from membership and the Royal College of Physicians of Edinburgh suspended his licence. The Registrar of the General

Medical Council stated: "I am informed that his association with the unqualified practitioner continued for some ten years, but though this ceased some five years ago, only this autumn did he take steps to have his name restored." Dr. Axham was informed that the Council, until he was again in possession of a registrable qualification, had no power to take any action in his case. Subsequently the Royal College of Physicians of Edinburgh did restore his diploma (in January last), and it was understood that the Council would consider his case at its meeting in June. The Executive Committee of the Council, though pressed to do so, did not consider it expedient to call a special meeting of the Council to consider the case.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE following have been recognized as teachers of the University in the subjects and at the institutions indicated:

Guy's Hospital medicine),
Mr. Frank Cook women),
Mr. Oswald G. M'C. ry).
London (Royal) Dr. T. J.
Hoskins (medicine).

King's College Hospital Medical School.—Dr. H. B. Day (forensic medicine), Mr. H. A. Colwell (radiology).

National Institute for Medical Research.—Professor Leonard Hill (physiology), Captain S. R. Douglas (experimental pathology and bacteriology), Dr. H. H. Dale (physiology, pharmacology, and biochemistry).

It has been resolved to institute, in accordance with the regulations on University titles, Chairs of (1) Bacteriology and Immunology and (2) Epidemiology and Vital Statistics, both tenable at the London School of Hygiene and Tropical Medicine.

Sir Cuthbert S. Wallace, K.C.M.G., C.B., has been appointed one of the representatives of the Royal College of Surgeons of England on the Senate for the remainder of the period 1925-29, in succession to Mr. James Sherren, C.B.E., resigned.

The ceremony of Presentation Day, to be held in the Royal Albert Hall on May 12th at 3 p.m., will be followed by a service at Westminster Abbey at 5.30, when the Right Rev. F. T. Woods, Lord Bishop of Winchester, will preach. The graduation dinner will take place in the evening at 8, in the Merchant Taylors' Hall, Threadneedle Street.

A course of three lectures on the nature and functions of the fasciae of the human body will be given by Dr. J. Kay Jamieson, Professor of Anatomy, University of Leeds, at King's College on Fridays, April 30th, May 7th and 14th, at 5.30 p.m.

Applications for the Chair of Physiology, tenable at St. Bartholomew's Hospital, salary £1,000 a year, must be sent in to the Academic Registrar by May 20th.

A course of lectures on mental deficiency, supplemented by a course of clinical instruction, will be given at the central buildings of the University from May 31st to June 5th. Full particulars can be obtained from Miss Evelyn Fox, c/o the University Extension Department, University of London, S.W.7.

The election to Beit Fellowships will take place on or about July 15th. Forms of application must be sent in by April 19th; all information may be obtained by letter only from the Rector, Imperial College, South Kensington, London, S.W.7.

UNIVERSITY OF GLASGOW.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—W. Allan, J. Anderson, May Anderson, W. Anderson, R. D. Balfour, D. K. Ballingall, F. C. Bamford, A. F. Beaton, W. Beattie, A. Bernard, G. G. Blair, W. S. Boyle, J. Brown, J. S. Brown, Katherine R. Brown, Winifred Buchanan, H. Burn, Ada M. Cameron, J. Campbell, Rina B. Campbell, J. Chalmers, D. P. Cuthbertson, J. Denholm, Mary E. Devine, A. S. Dick, H. A. A. Doherty, J. Durie, T. C. Findlay, W. H. Fletcher, F. J. Ford, R. S. France, J. A. Fraser, R. Fryer, C. S. Garrett, N. C. Gellatley, Elizabeth H. Gemmell, R. G. Gemmell, Marion W. Gray, R. C. Grieve, Mary A. Griffin, E. W. Grabame, W. Haddow, R. Hall, L. E. Hamilton, Margaret C. P. Hamilton, A. Hanton, W. C. Harris, Constance E. M. Herberson, A. D. Hutchison, J. Innes, M.A., P. G. E. Jolley, R. S. Kerr, D. Kilpatrick, J. L. Kydd, *S. I. A. Laidlaw, J. S. Laurie, D. D. Lawson, R. G. Lendrum, W. H. Lindsay, W. A. Lochhead, Miriam E. M'Alpin, A. M'Cracken, J. N. M'Curdy, D. Macdonald, G. Macdonald, W. McEldowney, A. M'Gill, A. M'Gill, W. G. MacNaughton, I. H. H. McNeill, Olive C. H. C. MacRae, T. G. H. Martin, A. Mellick, Y. C. Meyer, R. B. Miller, Agnes Moncrieff, T. M. Montford, J. Morrison, W. A. Murray, Mary M. E. Mycroft, Agnes S. Nutt, T. S. O'Neill, E. G. Oastler, D. C. Orr, J. S. Orr, D. Prentice, M. S. Purvis, Florence Read, Anna M. Robertson, Catherine Ross, W. Scobie, J. Sharpe, W. Shirkey, A. F. Shirras, T. Sim, J. Stewart, J. H. Thomson, A. Walker, Janet B. C. Waugh, W. Whitley, Helen M. Wightman, W. Wilkie, E. A. Wilson.

* Distinction in surgery.

† Distinction in midwifery.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At the monthly business meeting of the College, held on April 9th, the following candidates, nominated on January 1st, were duly elected Fellows of the College: Robert Henry Micks, M.D., Andrew Hope Davidson, M.D.

The following candidates, who had passed the Final Conjoint Examination, were admitted Licentiates in Medicine and Midwifery of the College:

L. P. Burns, M. Cusack, C. E. Eccles, W. P. Fowler, M. Gallagher, R. J. Gubbins, Kathleen Keirans, J. Lenten, J. Maguire, J. M'Carren, M. M'Greal, T. O. B. O'Brien, M. Ryan.

The President of the College was nominated a delegate to be present at the celebration on June 10th and 11th of the bicentenary of the foundation of the Faculty of Medicine in the University of Edinburgh.

Medical News.

THE annual meeting of the British Science Guild will be held at the London Mansion House on Thursday, April 23rd, at 4.30 p.m. Lord Askwith, president, will be in the chair, and papers will be read by Sir Richard Redmayne on the coal industry, by Dr. E. F. Armstrong, F.R.S., on dyestuffs, and by Captain P. P. Eckersley on broadcasting and the electrical industry. Cards of invitation can be obtained from the Secretary of the Guild, 6, John Street, Adelphi, London, W.C.2.

THE annual meeting of the Royal Medical Benevolent Fund will be held at 11, Chandos Street, W.1, on Tuesday next, April 20th, at 5 p.m., and not April 22nd as previously announced.

At the meeting of the Society of Public Analysts on April 7th Dr. J. F. Tocher reported the results of his continued study of the total quantity of the constituents of milk given, on an average, by an individual cow at each milking, and of the relationship of the casein to other factors. He found that the percentage of butter-fat tended to decrease slightly with increasing yield per milking, but that the total amount of butter-fat (and also of solids not fat) increased proportionately with increased yield.

A CONGRESS of spas in the centre of France will be held at Clermont on June 6th under the presidency of Professor Castaigne.

At the next social evening of the Royal Society of Medicine (Monday, May 3rd) Sir Humphry Rolleston, Bt., M.D., will give an address, at 9.30 p.m., on some worthies of the Cambridge Medical School. The library will be open and various objects of interest will be exhibited. Owing to the popularity of these evenings it has been found necessary to provide that guests, unless accompanied by a fellow, member, or associate must be armed with a card of invitation, which can be obtained by fellows, members, or associates from the Secretary of the Society, 1, Wimpole Street, W.1.

WE have on previous occasions referred to the publication by the Health Section of the League of Nations of a series of handbooks dealing with the organization of the public health services of different countries. A report in one volume has now been issued on the progress made in public health in twenty European countries, Canada, and the United States of America. It contains statistics published as recently as the early part of last year, and particulars of health legislation. The information as to each country is classified under such headings as campaigns against tuberculosis and venereal diseases, mortality and birth rates, control of food and drugs, hospitals, and medical education. The volume has a good index and is in fact an up-to-date gazetteer of the health conditions of the various countries dealt with.

PROFESSOR R. J. S. McDOWALL will deliver a course of lectures on physiology applied to hygiene at the London School of Hygiene and Tropical Medicine, beginning on May 7th. The course is primarily intended for students preparing for the diploma in public health, and will deal particularly with the physiological basis of public health work; no fee will be charged to D.P.H. students. The syllabus of the lectures may be obtained from the Secretary of the London School of Hygiene and Tropical Medicine, 23, Endsleigh Gardens, W.C.1.

THE late Mr. J. Basil Hall, M.Chir., F.R.C.S., of Bradford, past-president of the British Medical Association, has left estate valued at £29,823.

ON his retirement from practice Dr. Gardiner W. Trouton was presented by his friends with a grandfather chiming clock, an easy chair, and a silver salver, as a token of their gratitude and affection after thirty-one years' practice in Rotherfield.

UNDER the will of the late Mr. Alfred Shuttleworth of Lincoln the Lincoln County Hospital receives £4,000 and the Lincoln General Dispensary £1,000.

THE third National Congress of Argentine Medicine will be held at La Plata in July, under the presidency of Dr. Carlos S. Cometto.

It is announced in the *Medical Journal of Australia* for March 6th that the John Irvine Hunter Memorial Fund has now reached the sum of £1,956. Dr. Hunter was Professor of Anatomy in the University of Sydney, and died in London, while on a visit to this country, on December 10th, 1924, at the early age of 26. A memoir of his brilliant career was published in our issue of December 20th, 1924, at page 1181.

DR. C. HARTLEY DURRANT, Chief Medical Officer of the St. Kitts-Nevis Medical Service, has been appointed a member of the Legislative Council of the Presidency of St. Christopher and Nevis.

DR. GEORGE A. PRIE, who retired in January last from the office of medical electrician to the Dundee Royal Infirmary owing to impaired health, has been publicly presented with an inscribed silver salver, a grandfather clock, and a cheque for £1,120, in recognition of his self-sacrifice in the study and practice of radiology.

WE have received a copy of the first issue for 1926 of *Internacia Medicina Revuo*, the organ of the International Esperantist Medical Association, edited by Dr. Vanverts of Lille, which is now in its fourth year. The issue contains articles on the control of venereal diseases in the United States by Dr. Ulman of Prague, immunotherapy and protein therapy by Dr. J. Koszrzewski of Cracow, and the present economic state of medicine by Dr. Leon Zamenhof of Warsaw; abstracts from current literature; and congress intelligence.

THE first two monthly issues for 1926 of the *Philippine Journal of Science* have been combined into one volume, and contains an account of dengue by Lieut.-Colonel J. F. Siler and Majors Milton W. Hall and A. Parker Hitchens of the Medical Corps of the United States Army. The subject-matter, which is illustrated by eight plates and twenty figures in the text, deals in detail with the history, epidemiology, the mechanism of transmission, the etiology, clinical manifestations, immunity, and prevention of this disease. The British agents for this journal are Messrs. Wheldon and Wesley, Ltd., 28, Essex Street, Strand, W.C.2.

WE have received specimen copies of the *Zeitschrift für das gesamte Krankenhauswesen*, which is the continuation on a more extensive scale of the *Zeitschrift für Krankenhäuser*. The journal, which is issued fortnightly under the editorship of Professor A. Gottstein, assisted by Drs. P. Weinstock and J. Wirth, is, as its subtitle indicates, the organ of the leading administrative officials of public hospitals, and contains original articles, abstracts from current literature, society intelligence, and reviews relating to the erection, equipment, and administration of hospitals.

WE learn from the *Times* that a number of bonesetters from the North of England and from London met in Scarborough on Easter Monday and resolved to establish a British Bonesetting Association. A council of five bonesetters, of ten years' standing, was appointed to arrange for a register of bonesetters, of whom it is estimated that there are 200 in the country. Persons so registered must have been in practice as bonesetters for five years and must devote the whole of their time to that occupation. Mr. John Blackburn of Doncaster was elected president of the association, which is stated to be quite distinct from the British Osteopathic Association.

THE Fellowship of Medicine announces that Mr. H. J. Paterson will give a clinical surgery demonstration at the London Temperance Hospital on April 22nd at 2 p.m., free to members and general course ticket-holders of the Fellowship. The Bolingbroke Hospital will hold a course in medicine, surgery, and the specialties from April 19th to May 1st. Also beginning on April 19th is a week's intensive course in proctology at St. Mark's Hospital and a two weeks' course in urology at St. Peter's Hospital. From May 3rd to 22nd a special course in medicine, surgery, and gynaecology will be held at the Royal Waterloo Hospital. The Central London Throat, Nose, and Ear Hospital will provide an intensive course in laryngology, rhinology, and otology from May 3rd to 22nd; the course includes clinical and operative parts, which may be taken separately. The Royal Westminster Ophthalmic Hospital will hold an afternoon course from May 3rd to 22nd, consisting of clinical work and special demonstrations thrice weekly. A comprehensive course in venereal diseases will be given at the London Lock Hospital from May 3rd to 29th. At the Maudsley Hospital there will be a course of lectures and demonstrations in psychological medicine from May 3rd to 28th, an abridgement of the diploma course now in progress there. From May 9th to 22nd the Infants Hospital will hold a special course in infants' diseases for medical officers of welfare centres and others interested. The course is limited to fifteen, and will include lectures, clinical demonstrations, and visits to various institutions. Copies of all syllabuses may be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

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MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumshugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

HYPERPYREXIA.

DR. T. J. O'MEARA (Skibbereen) writes in reply to Dr. H. L. McCormick's inquiry about hyperpyrexia (*JOURNAL*, March 20th, p. 554) to report a case of puerperal infection which he attended some years ago. The nurse who sent for him stated that the patient had a rigor and that the thermometer was "as high as it could go." On arrival Dr. O'Meara found that the thermometer registered about 113° F. He checked the reading with his own thermometer in the mouth and found it the same. The temperature fell to 105° during the day, but on the recurrence of the rigor at night it again rose to 113° F. The patient subsequently developed a pelvic abscess, which was opened in the left iliac region. She made a slow recovery, but afterwards bore several children.

LETTERS, NOTES, ETC.

RAW PANCREAS BY THE MOUTH IN THE TREATMENT OF DIABETES.

DR. R. CUNNINGHAM AFFLECK (Edinburgh) writes: Just over eighteen years ago uncooked pancreas was ordered by me to be procured and given to a patient, the widow of an army officer; but it was very necessary, I found, that particular care should be taken, so that what was ingested should actually be the pancreatic gland. If sweetbread was asked for no true sweetbread or pancreas was given by the seller, but the thymus and thyroid glands; these, by the sellers, are known respectively as "heart bread" and "throat bread." The thymus is also known as the "round bread"; to the seller the true pancreas is the "long bread" and also the "gut bread." The true pancreas, I discovered, was often thrown away; sometimes, if the man who slaughtered the animal took the trouble to remove it from the neighbouring intestines, the gland became his perquisite. In the form of bread sandwiches the lady found the "long bread"—that is, the true pancreas—quite pleasant and palatable. I am convinced that at present many experiences and results in dietetic experimentation err grievously, owing to the neglect of taking the precaution that my observation indicates; for example, a national food has been, as a result of recent experiment, condemned. In times past the effects of its consumption were excellent, but at present this particular food is almost invariably prepared differently from the old well tried way.

ANOTHER UNUSUAL PRESENTATION.

COLONEL P. BROOME GILES, C.B., F.R.C.S. (late A.M.S.), writes: Following Dr. W. B. Hunter on Dr. D. J. Malan in your issue of March 13th (p. 476), I well remember a similar case in my early career. A neighbouring practitioner sent a messenger on horseback urgently asking my father's assistance in a case of "locked twins." My father being out, I, who had only a few weeks previously finished being obstetrical assistant at University College Hospital, and keen, scenting a possible Caesarean section, with the usual confidence of youth, went to the case, which, on arrival, I was told was that of twins, the one presenting with the head and the other with a foot. The size of the abdomen, palpation, the stethoscope, and the normal size of the presenting foot negatived turning and the necessity of a Caesarean section. After my senior had given chloroform to a full surgical degree,

I was able, with the loop of an ecraseur, to make sufficient traction on the presenting leg, and with combined internal pressure on the head and external pressure on the trunk to obtain a foot and breech presentation; as usual in feet presentation, there was a little difficulty in getting the arms down and rotating the trunk and head, but ultimately we produced a fine 8 lb. boy. To-day the mother is alive and the baby a grandfather.

EVOLUTIONAL MORALITY.

DR. G. D. PARKER (Flackwell Heath, Bucks) writes: The note in your issue of April 10th (p. 682), "Impregnatio mulieris artificiosa," is very interesting, and seems to me to open up a very important question of what one might term "evolutional morality." The law of evolution contains within itself the opposite law—that of degeneration, or reversion to type. It is possibly too little appreciated that this law is in operation coincidentally with the other; and it is a law probably easier of execution than that of evolution—"The descent to Avernus is easy." This artificial process seems to me a flagrant breach of the unwritten laws of eugenics. Why should an arrested individual, part of whose anatomy is in an early foetal condition, be helped and encouraged to propagate a probably degenerate and ill developed progeny? It would be profoundly interesting, but, I think, evolutionally profoundly immoral, to encourage a continuance of this special race of degenerates. Quite possibly, in another few thousands of years, we might get a sort of merman—mermaid race—fish-like people, even with external and patent gill clefts. It seems to me less aesthetically disgusting perhaps, but evolutionally as immoral as the late German professor's (Peters') attempt to mate black women with male gorillas. When it has taken us these millions of years to rise even into our present state of superficial civilization, why try to retrace our steps, not only till we become apes (or ape-like individuals) "with foreheads villainous low," but, later, fish-like creatures, and later still, possibly, pus cells, bacilli, fungi, and eventually fade, like the creations of Prospero in *The Tempest*, "into air, into thin air!" Look to it, eugenicists! What will Major Darwin, one of our greatest authorities, think of this?

BROMISM: THE SODIUM CHLORIDE TREATMENT.

DR. D. R. BLUNN (Leytonstone) writes: With reference to Dr. Semon's memorandum in the JOURNAL of February 27th, and the letter of Dr. Nichol in that of April 3rd, I have found the sodium chloride treatment of bromacne very successful in two cases seen during the last month; in both the patients were not in the habit of taking salt with their food. In my experience a combination of calcium lactate and potassium citrate produces an even more rapid cure than the sodium chloride treatment. I give (thrice daily) calcium lactate gr. x, potassium citrate gr. xx, aq. ad 3j.

PELLAGRA IN NYASALAND.

SINCE the time when pellagra was first recorded as existing in Nyasaland (by Stannus in 1910) little has been done by way of investigating this disease on the spot, a disease which presents a number of interesting problems. Much might be done to solve them if those who have the opportunities of studying so widespread a condition would devote themselves to special points which still remain obscure. Dr. Shelley, medical officer of the hospital and prison at Zomba, has seen the advantages to be gained by observation of pellagrins who, in prison or hospital, are under control as regards regime and diet, and whose cases can therefore be investigated with thoroughness. A start has been made in a report, a copy of which has been sent to us, containing a brief account of certain points which have been impressed upon him. When a Director of Colonial Medical Services is definitely appointed he will be able to do a vast amount of good by issuing instructions as to the lines on which diseases such as this, found in almost every colony and occasionally in England, should be investigated, in order that the results may be properly correlated. Stray observations without strict controls, though entailing much work, produce little result and are therefore wasteful and uneconomical.

MEDICAL TOUR TO THE SPAS AND CLIMATIC HEALTH RESORTS OF ITALY.

DETAILS have reached us concerning the annual international visit of doctors to Italian health resorts, which, as already announced, will take place this year between September 12th and 28th. Among the places to be visited are Abbazia, the sea bathing resort near Fiume; Grado, also a popular seaside resort on the Northern Adriatic coast; the famous Lido (Venice); Abano, a spa close to Padua; Roncetto and Levico (arsenical waters), in the picturesque Trentino; Morano, the garden resort in the Dolomite region; Riva and Gardone, charming places for winter and summer on Lake Garda; and Salsomaggiore, the well known spa. Interpreters will accompany the party in order to assist at the conferences, discussions, etc., which take place during the tour. A limited number of places are reserved for wives and other relatives of the doctors participating. The fee for the whole tour from Abbazia to Salsomaggiore (fourteen days in all), including travel, hotel accommodation, meals at hotels and en route, tips, transport of baggage, etc., is only 1,600 lire—in all about £13. Moreover, tickets at reduced rates will be issued from any Italian frontier station to the starting point of the tour and from the point where the tour terminates to any Italian frontier station. The tour is accompanied by couriers, who take charge of the baggage, attend to all payments, and relieve travellers of all details incident to the tour. From experience of the previous occasion we have no hesitation in

recommending this tour to any readers who contemplate a trip of this kind. Further particulars may be had from the London office of the Italian State Railways and State Tourist Department, 12, Waterloo Place, Regent Street, S.W.1.

PREVENTION OF PUERPERAL SEPSIS.

AN Irish medical practitioner, in the course of a letter on this subject, writes to suggest that more attention should be paid to vaginal disinfection as a prophylactic measure. Cleansing of the lower part of the body is not easy in houses without baths, where the supply of boiled water is limited to a kettleful. He suggests, therefore, that a small cistern, in which a few gallons of water could be quickly boiled by a Primus stove, in country houses, would be most useful. Another boon would be packets of sterilized bed linen and bedgowns. He thinks it unfortunate that the practice of wearing rubber gloves is not yet general among maternity nurses, especially those of the older school and training. He asks also if there is no way of detecting, prior to labour, patients in whom there is liability to puerperal infection. He considers that vaginal douching after labour might well be combined with intrauterine douching as a preventive of sepsis.

SUPRAPUBIC LITHOTOMY.

DR. D. C. OZA (chief medical officer, Morvi State, India) reports two cases of suprapubic lithotomy—one in a man aged 55, the other in a child aged 5. The first patient required preliminary treatment for acute gonorrhoea; the bladder was found contracted and contained a flat stone the size of a small lemon. Before the operation an attempt was made to fill the bladder with boric solution, but not even half an ounce could be retained. The bladder wound healed completely on the eighteenth day of the operation, function was fully restored, and pre-existing incontinence ceased. Complete recovery also followed in the case of the child.

EPIDEMIC ENCEPHALITIS IN JAPAN.

R. KANEKO contributes an account of the epidemic of encephalitis in Japan during 1924 to the *Japan Medical World* of September 15th, 1925 (p. 237). The epidemic as a whole showed distinct differences from encephalitis lethargica, but many typical cases were encountered. Among these were a lethargic type closely resembling encephalitis lethargica; a myelitic type, in which bladder, motor, and sensory symptoms predominated; and an abortive type, with mild symptoms and no loss of consciousness. The length of the incubation period was not determined, but during the prodromal stage, headache, languor, dizziness, insomnia, and pain in the joints, chest, or hips, were present. A rise of temperature was the first sign of the onset. A characteristic disturbance of consciousness occurred sooner or later, varying in degree from lethargy to coma, and lasting from several hours to one or two days; there might be delirium and tremor, or convulsive movements of the hands. Various meningeal symptoms were seen, such as headache, backache, vomiting, stiffness and pain in the neck and extremities, and Kernig's sign. The cerebro-spinal fluid was turbid and under pressure, containing many leucocytes and a trace of globulin. The disease lasted usually one or two weeks; a few patients died within twenty-four hours, but in most cases death did not occur until after several days. In patients who survived the temperature fell in five to ten days, but recovery was very slow in the senile. The following three types of fever were seen: (1) A sudden rise of temperature, with or without prodromes; the general condition then became very grave and there was no remission or fall of the temperature. (2) A gradual rise for two or three days, the temperature remaining high for another two or three days, after which it gradually fell, the pyrexia extending over seven to ten days. (3) A similar rise as in (2), but the fall was sudden. This type was comparatively rare; it occurred in mild cases. Eye symptoms were seldom observed and complications and Parkinsonian sequelae were rare. The liver functions were very little affected, in contrast with lethargic encephalitis. The mortality was high, ranging from 33.7 to 55.5 per cent. in different places.

MOTOR CAR ACCESSORIES.

THE Lodge standard sparking plug, whose well known excellence is proof against its maker's designation as "Model C3," has recently been altered, so that, while still withstanding a considerable amount of oil or soot, it has even greater powers of resisting heat. As no soft packing is used inside the plug, it is possible to take it to pieces and the internal joint of steel. By oxidizing the body all risk of rusting is engine must now be as nearly perfect as it is possible to make it.

STEPNEY TYRES LTD. announce a reduction of 10 per cent. in their prices of Stepney motor car and motor cycle covers and tubes, both high pressure and balloon types. The reduction came into effect as from March 29th.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, and 48 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47. A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 132.

A Post-Graduate Lecture

ON

CIRCULATORY CHANGES IN ANAESTHESIA
AND THE USE OF OXYGEN.*

BY

LEONARD HILL, M.B., F.R.S.,

DIRECTOR, DEPARTMENT OF APPLIED PHYSIOLOGY AND HYGIENE, NATIONAL
INSTITUTE FOR MEDICAL RESEARCH, HAMPSHIRE.

In considering the choice of a general anaesthetic we are guided by the fact that ether is far less liable to cause dangerous symptoms than chloroform and ought, therefore, to be always used in preference, excepting only cases where very special circumstances indicate the use of the latter. Chloroform is naturally preferred by those ignorant of its danger because it is less irritant, and, being potent in less concentration, excites less feeling of suffocation. Chloroform may have to be used in cases where excitement is to be avoided and very deep anaesthesia is to be obtained with complete muscular relaxation, in cases of bronchitis where the irritating effect of ether must be avoided, in the case of drunkards in whom ether sometimes fails to produce anaesthesia, and in cases where naked lights are necessary on the actual cautery used (that is, when the inflammability of ether forbids its use), and in very hot climates where, owing to rapid evaporation of ether and want of a proper closed apparatus for inhalation, it is difficult to produce anaesthesia. But in many of such cases the safe anaesthetic nitrous oxide and oxygen, if available, should be chosen, or the new anaesthetics recently introduced: 82 per cent. ethylene and 18 per cent. oxygen, which mixture seems safe apart from its inflammability (1 per cent. with 96 per cent. air forms an explosive mixture), or acetylene and oxygen, which, it is claimed, give fuller relaxation of the muscles and form a safe anaesthetic. Propylene is also said to be a safe anaesthetic. A mixture of 70 per cent. propylene, 25 per cent. oxygen, and 5 per cent. nitrogen induced analgesia in a minute, anaesthesia in two minutes, and respiratory failure only after sixteen to twenty minutes. The animals were easily revived after respiration had ceased for half a minute. Nitrous oxide and oxygen form an ideal anaesthetic, safe during, and leading to no bad effects following, anaesthesia, while in the case of chloroform, even after anaesthesia has been successfully conducted, necrosis of the liver follows in a not inconsiderable percentage of cases. We know that chloroform is a general cell poison, but as to cause of susceptibility of the liver in certain cases is unknown, no precautions can be taken against this accident other than shortening the period of anaesthesia, avoiding want of oxygen, and using a concentration no higher than necessary to secure anaesthesia. Such mixtures as A.C.E. are dangerous on account of the chloroform they contain, and their use should therefore be avoided just as much as that of chloroform. The conclusion reached by the American committee on anaesthesia was that the use of chloroform as the anaesthetic for major operations is no longer justifiable. For minor operations also the use of chloroform should cease. As a means of avoiding the ill effects of a prolonged period of ether excitement—in alcoholic and other difficult subjects—the temporary employment of chloroform is, perhaps, sometimes the lesser of two evils. It is justifiable only when nitrous oxide is not available. If a change to chloroform has to be made, it should be made early, as soon as the difficulty of anaesthetizing with ether becomes evident. I wish to emphasize the point that chloroform should never, in any circumstances, be administered after a prolonged period (from five to fifteen minutes or more) of ether excitement. Even a small administration of chloroform is then peculiarly liable to induce respiratory or cardiac death. As

soon as full anaesthesia is obtained ether should be substituted.

"Physiological experiment," said Waller, "shows that ether is five or six times safer than chloroform—that is to say, it takes a concentration of ether five or six times greater to produce poisoning of living tissues." The margin of safety in administration of ether is obviously, then, very much greater. Cushny says that no less than thirty-six times more ether than chloroform must be added to the blood in order to bring the frog's heart into a condition of diastolic standstill.

"The moderately healthy patient under ether," says Hewlett, "may be raised into the sitting posture; he may be subjected to an operation before he is very deeply anaesthetized. His air supply may be so restricted that a considerable degree of cyanosis is occasioned; and yet his circulation will not show that liability to comparatively sudden fluctuations and depressions which undoubtedly occur under chloroform." In addition, under ether "respiration usually is so obvious and audible that any alteration in the function of breathing may at once be detected"; the sleep-like and inaudible respiration not infrequently met with under chloroform is almost unknown under ether. Under ether the pulse is full, bounding, and regular, the blood pressure about normal, the face is abnormally flushed, and incised parts, more especially in the neighbourhood of the neck, are very vascular. "With an overdose of ether, the circulation at the moment when breathing ceases is sufficiently satisfactory for remedial measures to be almost invariably successful, early syncope as under chloroform does not occur." It is only in bad subjects with dilated, fatty, or diseased hearts that syncope may occur under the asphyxial strain of inducing ether anaesthesia. But under chloroform the healthiest subjects may die from heart failure.

Ether anaesthesia should be induced quickly and kept as uniform as possible to prevent excessive breathing and consequent washing out of carbon dioxide from the body, which may result in a period of apnoea, the concentration of carbon dioxide in the blood being the natural stimulant of the respiratory centre in the brain. During apnoea want of oxygen ensues until the centre becomes excited by this; but to produce such want of oxygen is unwise. The poisoned centre may fail to be excited.

Want of oxygen by itself, if sufficient, results in anaesthesia. Consciousness is suddenly lost on breathing nitrogen for some fifty seconds, and speedy minor operations, such as extraction of teeth, have been done under such anaesthesia. But we know that prolonged want of oxygen, as in those rendered insensible by breathing carbon monoxide, leads to degeneration of tissues, such as the heart and brain, from which recovery is difficult or impossible.

Want of oxygen has an injurious effect on living cells such as chloroform or ether has, and adds its ill effect to theirs. Diabetics suffer especially from want of oxygen, some degree of which always accompanies the use of these anaesthetics. For them such an anaesthetic as nitrous oxide and oxygen is most necessary. But for all cases want of oxygen should be avoided as much as possible.

Ether and oxygen has been used, but this mixture is highly inflammable. A mixture of such has recently exploded in a patient's throat, probably through overheating of a syringe which was used to dry the teeth in a dental operation.* The trouble about using nitrous oxide and oxygen for a prolonged general operation is that it is impossible to get complete muscular relaxation without bringing into play some want of oxygen by lowering the concentration of oxygen and raising that of nitrous oxide in the inhaled air. A mixture of 40 per cent. air and 60 per cent. nitrous oxide would contain about 8 per cent. oxygen and about 32 per cent. nitrogen, and although the oxygen would just suffice to keep the patient going the 60 per cent. of nitrous oxide would be insufficient to produce tranquil, deep anaesthesia. By using oxygen in place of air we replace nitrogen by nitrous oxide, and the proportion of the latter can be raised to 90 per cent. and better anaesthesia obtained.

* A temperature of 209° C. suffices to effect the explosion.

Being the third of three lectures on general anaesthesia delivered for the auspices of the Dental Board of the United Kingdom in 1925. The two other lectures, which were by Professor Vandell Henderson, were published in the BRITISH MEDICAL JOURNAL on December 19th, 1925 (1170), and January 9th, 1926 (p. 41).

Nitrous Oxide.

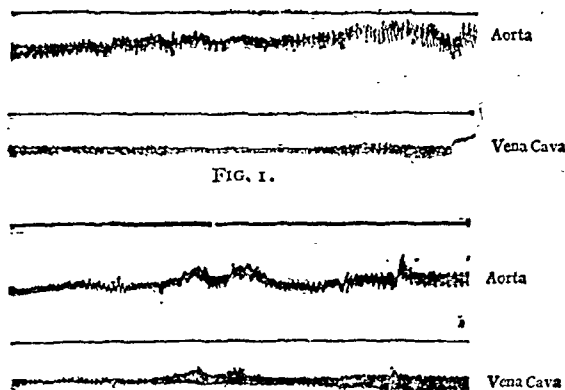
By raising the concentration of nitrous oxide still further deep anaesthesia with full relaxation of the muscles is obtainable. Paul Bert effected this by using a pressure chamber as an operating theatre, in which patient, surgeon, anaesthetist, etc., were all contained. A short length of tube railway would do for such a chamber, closed at one end completely, and provided with a suitable air lock for passing in and out at the other end, and an air pump for raising the pressure and maintaining ventilation. The required increase of pressure is very small—for example, half of an atmosphere. In place of, say, 90 per cent. of an atmosphere of nitrous oxide and 10 per cent. of an atmosphere of oxygen, we should then have $90 \times 1.5 = 135$ per cent. of an atmosphere of nitrous oxide and $10 \times 1.5 = 15$ per cent. of an atmosphere of oxygen, which will give deep anaesthesia and enough oxygen. The circulation and respiration are in no way influenced by this anaesthesia, which may be maintained for several hours. If an animal is kept warm it will, as Dr. H. H. Dale and I have found, confirming Bert, at the termination of anaesthesia be in splendid condition without any sign of shock, and able at once to run across the room fully alert. Such a method of anaesthesia is safe even in the hands of students; there is no difficulty in constructing and using such an operating theatre if the demand for it were made. Through the air lock people could pass quickly in and out, and inside everything would be conducted just as in an ordinary operating theatre, the gas and oxygen mixture being administered in the ordinary way, all inside being submitted to a slightly increased atmospheric pressure. The only precaution to take would be opening of the Eustachian tubes by a deep expiration with mouth and nose shut, so as to equalize the pressure within and without the middle ear. People with tubes swollen by catarrh might be troubled in effecting this. Tunnel workers carry out work in pressures up to two, three, and even four atmospheres in the caissons which are used to keep water out when boring under rivers; half an atmosphere extra pressure is, then, of very little account.

Nitrous oxide and oxygen offer an ideal anaesthetic for dental surgery; the average time of inhalation Hewlett found to be $110\frac{1}{2}$ seconds, the average available time 44 seconds, but varying from 21 to 90 seconds. The addition of a small dose of ethyl chloride is effectual in prolonging the anaesthesia, and appears to be a safe proceeding.

When pure nitrous oxide is administered with the ordinary valved apparatus there results anaesthesia, partly from this gas and partly from deprivation of oxygen. To-and-fro breathing during the last part of the inhalation allows some small amount of oxygen to be retained, and a longer inhalation and period of anaesthesia to be obtained. The exhaled carbon dioxide which is thus re-breathed deepens the breathing. There is, however, a disadvantage in breathing into the bag, because it is difficult to clean and disinfect it for another patient. By using an apparatus such as the Salvus used in mine rescue work, with a caustic soda absorber placed between the mouth mask and the bag, this trouble might be obviated. Each patient would have his caustic soda cartridge to breathe

through. A suitable modification would have to be made to secure sufficiency of oxygen for prolonged anaesthesia.

The circulation is well maintained during nitrous oxide anaesthesia, providing too great a degree of asphyxiation is prevented; the pulse increases in frequency and loses in fullness; flabby, stout patients become deeply cyanosed; the moment air is breathed the pulse becomes less frequent and fuller; the muscular spasms which occur are due to want of oxygen. To obtain the best results, then, it is necessary to eliminate asphyxial symptoms, and mix oxygen with nitrous oxide. All the deaths which occur from use of this gas appear to be due to fright or to want of oxygen; and not to the poisonous nature of the gas. If the air leaks into a mask during inhalation of nitrous oxide, the oxygen in this air is quickly absorbed by the patient, and the nitrogen, which forms four-fifths of the air, remains and dilutes the nitrous oxide; thus want of oxygen increases, and anaesthesia results more from this than from nitrous oxide. It is necessary to have a close-fitting mask to avoid such leaks.



FIGS. 1 AND 2.—Record of blood pressure in aorta and vena cava of a dog anaesthetized with ether, and placed in the vertical position (head up) with the cannulae inserted in the vessels in the axis of rotation. The vena cava pressure falls and the respiratory waves are heightened; the aortic pressure at first falls and then rises, and compensates the effect of gravity for a time; finally it slowly falls, with variations produced by increased depth of respiration as shown by the vena cava record.

action, and under certain conditions fibrillar contraction, the cause of sudden syncope and death. Added to oxygenated blood it dilates the blood vessels of surviving organs, but constricts these if the blood lacks oxygen or is replaced by Ringer's solution. It relaxes the skeletal muscles which support the veins, thus enlarging the capacity of these great veins into which the whole of the blood can easily drain from the upper part of the body when the body is put in the upright position. The cross circulatory experiments of Gaskell and Shore showed that chloroform does not affect the vasomotor centre so as to lower the arterial pressure in the early stages. It may even excite this and raise the arterial pressure at first. In very deep anaesthesia the vasomotor centre is depressed in action just as the respiratory centre is, and arterial



FIG. 3.—Record of aortic blood pressure of a dog under morphine. A, The animal was placed in the vertical posture (head up) and the preliminary fall in blood pressure was largely compensated until, B, chloroform was breathed in concentrated doses. The blood pressure then fell steeply. After stopping the administration of chloroform at C, the abdomen was compressed between D and E and the blood pressure thereby largely restored. Placing the animal in the head-down position at F had the same effect.

dilatation may take place. With either also, after an hour or so of anaesthesia, progressive dilatation sets in. The respiratory pump helps the circulation greatly, furthering the return of blood by rhythmic compression of the abdomen and rhythmic enlargement of the lungs, in which enlargement the pulmonary vessels share. When the respiration pump is enfeebled by deep chloroform anaesthesia everything tells against the circulation—the dilated feeble heart, the relaxation of the

abdominal veins, and the feeble action of the respiratory pump. Hence there is danger in the upright position of the blood draining into the abdominal veins, the heart almost emptying, and the circulation in the brain almost ceasing. Such conditions help to stop the respiration, the respiratory centre itself being partly poisoned by chloroform and much less responsive to the natural stimuli of breathing.

The capillaries—there are, according to Krogh, some 2,700 in each square millimetre of diaphragm muscle—are supported by the contractile cells of Rouget and by the tissues in which they run. They may become dilated by chloroform, and the blood pool within them as well as in the

big veins. In favour of this is an observation of Argyll Campbell that chloroform anaesthesia lowers the tension of oxygen in the tissues, while ether may slightly raise it. Many capillaries in resting organs such as muscle are normally closed. In states of shock the capillaries are dilated, probably by absorption of histamine into the blood from damaged tissues; chloroform and ether increase this effect. Fluid also passes out then from the capillaries into the tissue spaces. The whole body confined by the skin is kept taut and hard, or should be, by the inhibition pressure of the living cells of the tissues. Each organ has its capsule of connective tissue limiting its expansion, in addition to the skin which confines the whole, the brain, spinal cord, and marrow being confined by bone; expansion is thus limited. The tissue cells thus confined, when healthy and in good tone, are swollen with fluid so as to produce a certain tissue pressure, and the capillary pressure is adjusted so as just to balance this and exceed it just to the amount sufficient to cause the flow of blood into the veins, an amount which need be, and is, very small. The conduction of the arterial pulse wave and its driving force depends largely on the tone of the tissues which support the arteries. In shock the tone of the body is generally relaxed, and the blood stagnates in dilated veins and capillaries and sinks to the lower parts of the body. Histamine, a product of tissue damage, dilates the capillaries, and is probably closely associated with the causation of shock. To both pituitrin and adrenaline has been ascribed the function of supporting capillary tone.

Chloroform, by poisoning the tissue cells and relaxing their tone, makes the whole body flabby, turns the circulation from a vigorous one through confined channels in a taut body to a sluggish one in a relaxed body, and the blood in consequence stagnates in dependent parts—hypostatic congestion. The failure of the circulation in deep anaesthesia can be got over by supporting the vascular system, by putting the body horizontal or with the legs and abdomen slightly the higher, or by compressing the abdomen, while failure of respiration can be met by artificial respiration.

Far more dangerous, and the main cause of deaths under chloroform, is cardiac fibrillation, which occurs in the initial stages of anaesthesia, and may be a consequence of too light an anaesthesia and of struggling or sensory excitation. The distinguished medical statistician M. Greenwood has concluded that the condition called status lymphaticus, often made an excuse for fatalities arising from anaesthesia, is a make-believe.

MacWilliam first pointed out that dilatation of the heart occurred, and that this was due to the action of chloroform on the heart itself, and that fall of blood pressure was concomitant with this. In some cases he found the heart thrown into a state of inco-ordinate fibrillar contractions. These waves are quite ineffectual in maintaining a circulation. These facts I confirmed. Goodman Levy has shown that the reapplication of chloroform in concentration of about 2 per cent. or over after an interval may act as a powerful excitant to the upper air passages, and the sensory excitation therefrom may throw a heart, already made irregular by chloroform, into fibrillation. In deeply morphinized dogs inhibition of the heart, reflexly

excited by breathing strong chloroform, may help to embarrass the heart. Prolonged intense stimulation of afferent nerves which reflexly arrest the respiration and inhibit the heart may cause in animals a failure of respiration, to be followed by that of the heart if unrelieved by artificial respiration.

Want of oxygen is another cause exciting the whole sympathetic system, including the accelerator nerves, and causing, probably, increased adrenal secretion, which helps to produce the fibrillation, this being a most powerful cardiac stimulant. An injection of adrenaline may throw the weakly chloroformed heart into fibrillation; but according to MacWilliam, while a small dose has this effect, augmenting excitability, a large dose has the opposite effect, and may be used to stop fibrillation. Direct excitation of the accelerator nerves may provoke fibrillation; painful stimuli in the half-anaesthetized patient reflexly excite these nerves. A cardiac depressant, such as chloroform in full dose, prevents these irritable phenomena—hence the danger of light or irregular administration and safety of deep, full anaesthesia. The latter damps down or cuts out the reflex exciting mechanism, and so protects the heart from any sensory excitation acting reflexly on the accelerator

nerves. Fibrillation is due to a disturbed relation between the conduction time of the stimulus and the refractory period, resulting in the setting up of circulatory excitations in the musculature of the heart. The heart tends to recover spontaneously from fibrillation, but spontaneous recovery in animals does not occur after the first minute or minute and a half. Such spontaneous recovery has even been observed in man by means of an electro-cardiographic record.

Bathing the chick embryo in a suitable nutritive solution to which chloroform is added shows the poisoning action on the heart. So, too, does perfusion of the isolated mammalian heart through

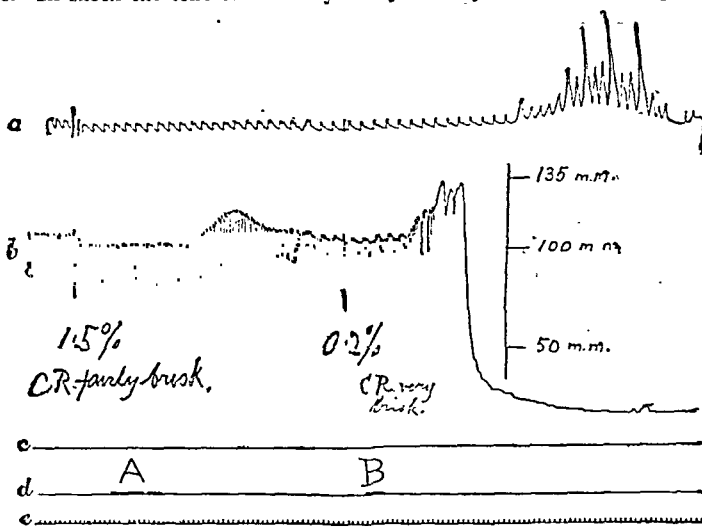


FIG. 4.—Respirations and blood pressure records showing the reaction to adrenaline in a cat under chloroform. *a*, Respiration. *b*, Blood pressure (mercury manometer). *c*, Level of zero pressure. *d*, Signal line. *c*, Time, indicated in seconds. *A*, intravenous injection of half a minim of 1 in 1,000 adrenaline solution when the cat is under 1.5 per cent. chloroform. The blood pressure rises, but the beat remains regular. *B*, A similar injection when the cat is under 0.2 per cent. chloroform. The beat becomes rapid and irregular, and finally ceases abruptly. Following the cardiac collapse the respirations are first greatly exaggerated and then cease entirely. (Levy.)

the coronary vessels with blood to which chloroform is added; Sherrington and Sowton found that the heart is weakened progressively as the strength of the chloroform in the perfusion fluid is raised: finally the heart stops beating and does not recover. The strengths of chloroform used for inhalation, however, do not produce this stoppage, because the respiration fails first when too concentrated a dose occurs, and then the heart can be recovered by artificial respiration. The fatal cases of syncope are due to fibrillation, and these can be recovered, according to MacWilliam, by injecting 0.1 to 1 mg. of adrenaline (using a 1 in 10,000 solution) into the cavity of the left ventricle, or by rhythmic massage of the heart. To effect this massage through the chest wall is very difficult in an adult man. The method then to follow is to make an abdominal incision and through this cut the attachment of the diaphragm to the left costal margin for two inches. The left hand is inserted into the left pleural cavity and the heart grasped through the pericardium and rhythmically squeezed, the wrist preventing air entering the pleural cavity. The rate of compression should be about that of the normal heart. Massage should not be abandoned under an hour, short pauses being allowed at intervals. An occasional intermittent compression of the abdomen to fill the heart helps. Perflation of the lungs by mouth-to-mouth method, or by a stream of air or oxygen blown in by

intubation of the larynx, must be kept up. Artificial respiration can be first tried, but in this desperate condition there must not be more than a very few minutes' delay before direct massage of the heart is begun, because if delay is too long, even though the heart recovers, the nervous system is damaged by prolonged oxygen starvation, and the patient dies from this reason. When the heart gradually fails from overdosage, artificial respiration, conducted by squeezing the chest rhythmically, will recover it by bringing fresh blood into the coronary arteries and through the lungs, and so getting rid of the chloroform and admitting a supply of oxygen. MacWilliam finds that injection of 0.5 gram per kilogram of body weight of urethane beforehand prevents fibrillation in animals during chloroform anaesthesia.

Ether.

When ether is the anaesthetic, the symptoms of poisoning are in general the same, but fibrillation or failure of the heart from overdosage is much more unlikely because of the far lower toxicity of the drug. The anaesthetic partial pressure of ether is 3.7 to 4 per cent. of an atmosphere. The solubility of the brain tissue for ether is practically the same as that of blood. Large pulmonary ventilation and rapid blood flow through the brain results in quick anaesthesia.

In every operating theatre there should be available a cylinder containing oxygen and 5 per cent. carbon dioxide. By using this with ether at the beginning of anaesthetization deep breathing is obtained and quicker narcosis. A lower percentage of ether can be used and less irritation of the bronchial mucosa caused. After prolonged ether anaesthesia the colour and fullness of the veins in the skin are restored by breathing this mixture (Yandell Henderson and Haggard). By using it alone after operation the deep breathing excited by the carbon dioxide washes ether out of the body and introduces oxygen; this greatly lessens the after-effects and helps recovery. It is an advantage to give a liberal dose of morphine half an hour before initiating anaesthesia. This takes away anxiety, lessens the period of excitement, decreases pain after anaesthesia, and is an excellent preventive of shock. The breathing of the oxygen CO₂ mixture

after operation counterbalances the depressive action of morphine on the respiratory centre.

In animals chloralose or urethane (6 c.cm. of a 25 per cent. solution per kg. body weight) injected subcutaneously, or into the rectum, gives narcosis with a high blood pressure, and is very convenient.

Ether in oil introduced into the rectum, after washing this out, produces anaesthesia which may be long lasting. This plan has been suggested for use when no help is at hand to give this anaesthetic by inhalation.

Local Anaesthesia.

Turning to local anaesthesia, we know that cocaine is a general protoplasmic poison, and its poisoning action is exerted on the central nervous system, the symptoms being excitement, convulsions passing into coma, and death from asphyxia. The blood vessels are contracted, blood pressure raised considerably, the heart also being accelerated in the stage of excitement. A local contraction of the vessels is caused by the application of cocaine. The artificial alkaloids used as a substitute for cocaine are much less poisonous, and have not the same constricting effect on the blood vessels. Thus novocain is quickly destroyed in the liver, and is for this reason much safer. Adrenaline increases the toxicity of cocaine according to the findings of the committee of the American Medical Association. This committee believes that local anaesthetics may be applied safely in the following concentrations and total amounts: Cocaine in the mouth 5 per cent., in the nose up to 10 per cent., and in total amounts of from 10 to 15 minims containing at most 1 to 1.5 grain. In the eye not over 5 per cent. should be used. In the larynx 10 per cent. and not over 15 minims, containing 1 to 1.5 grain. Novocain in concentrations not greater than 1 per cent. Adrenaline or epinephrine should not be used with cocaine in concentrations greater than 1 in 10,000, and not more than 10 minims of this—with novocain up to 1 mg. of adrenaline—is allowed; but even this dose may be unsafe in patients suffering with hyperthyroidism (exophthalmic goitre). In poisoning cases the heart must be massaged by artificial respiration to keep up the circulation through the liver; the injection of any other drugs is probably useless, and may increase the danger.

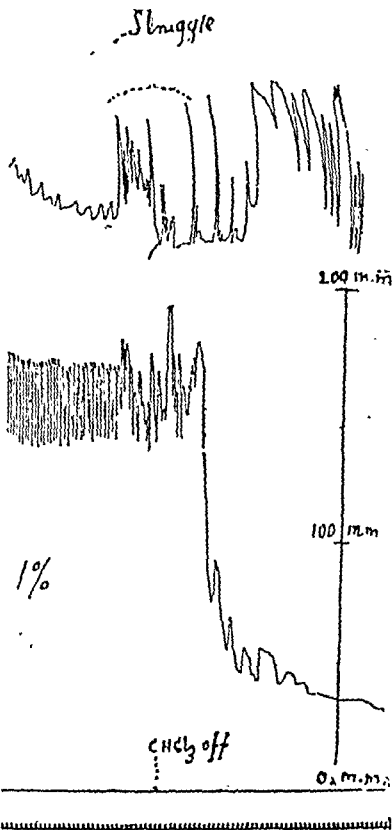


FIG. 5.—Ventricular fibrillation initiated during a fit of struggling in a cat under light chloroform anaesthesia. Upper record: respiratory. Lower record: blood pressure (mercury manometer). Time marked in seconds. The period of struggling is indicated by the irregular respiration record within the dotted bracket. The cardiac collapse is followed by intense dyspnoeic gasps. The heart was in respiration of en to be n on the fibrilla left of (Levy.)

RECOVERY AFTER MASSAGE OF THE HEART.

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THE following case is one of considerable interest, as it illustrates the value of massage of the heart when it has ceased to beat during the performance of a major surgical operation.

History.

A man, aged 50, was admitted under my care to St. Bartholomew's Hospital on September 28th, 1925. His story was as follows: In October, 1913, he was admitted to the hospital with perforation of a gastric ulcer, which was sutured by myself; a posterior gastro-enterostomy was performed at the same time. He made an uninterrupted recovery, and departed for West Africa, where he has been living up to this time. In 1916 he had a bad attack of dysentery. In 1918 he began to have a grinding pain in the neighbourhood of the umbilicus on the left side of the abdomen, extending towards the left iliac fossa; the pain usually came on about three hours after food and lasted for an

hour or two. From time to time this pain would disappear for a period of two or three months; since 1920, however, it had gradually become more persistent, and as a result thereof his life had become very miserable.

On admission to hospital he looked fairly well, but his facies suggested that of a man suffering from constant pain. His teeth had all been removed, so that oral sepsis was excluded as a cause of his symptoms. There was well marked tenderness to the left of the middle line in the epigastric region; over this point of tenderness there was an area of superficial hyperaesthesia. His pain was only partially relieved by placing him on a convalescent diet. The character of the pain suggested that he might have a gastro-jejunal ulcer, and I decided to explore his abdomen to settle this point.

Operation.

On October 2nd he was anaesthetized by the endotracheal gas-oxygen-ether method. No ulcer or scar could be found in the region of the site of the old perforation, but there was thickening around the gastro-jejunal junction on the proximal side of the stoma, which was involving the transverse colon and was obviously the site of a gastro-jejunal ulcer. The jejunum was divided proximally and distally to the stoma and an end-to-end anastomosis made. The transverse mesocolon was then separated from the anastomosis and its adhesion to the colon divided. The ulcer had not actually perforated into the colon; the point of

attachment, however, was very thin, and as a precaution was sown over; the hole in the transverse mesocolon was closed. The omentum and the gastro-hepatic omentum were then separated from their attachments to the stomach.

Massage of the Heart.

At this stage the patient suddenly stopped breathing and his heart ceased to beat. His head was lowered and oxygen only was passed down the intratracheal tube under intermittent pressure. The stomach was rapidly separated, between clamps, from the duodenum and thrown over to the left side of the abdomen. The heart was then gently massaged through the diaphragm at the rate of about sixty to the minute, artificial respiration being kept up meanwhile; 10 minims of 1 in 1,000 adrenalin were injected into the heart muscle through the chest wall. Three minutes elapsed before any sign of heart movements was noticed, when a single forcible contraction was felt; this was followed by fibrillary twitchings for about ten seconds, and was then succeeded by a series of regular, rapid, feeble beats until gradually it beat with its normal rhythm, but at rather a rapid rate. Shortly after the heart began to beat the patient commenced to breathe. Hot packs were placed on the chest wall and the operation was proceeded with, a Billroth No. 1 anastomosis being made, after having excised the distal half of the stomach with the gastro-jejunal anastomosis. This operation took forty minutes to complete, the anaesthesia being continued with pure nitrous oxide-oxygen through the tracheal catheter.

In the excised portion of stomach there was no sign of the old gastric ulcer, but there was a small gastro-jejunal ulcer, a third of an inch in diameter, surrounded by an indurated wall, on the left side of the junction.

After-History.

The patient was returned to bed with hot-water bottles and was given rectal injections of saline and glucose. His pulse rate remained very rapid and its volume was very small, but at the end of three hours he showed signs of recovery and became extremely restless. His temperature remained normal, but the respiratory and pulse rates were raised for about ten days. Some supuration took place in the abdominal wall.

Ten days after the operation he had a severe haematemesis, which was followed by another two days later. He was put on a modified Lenhart diet. From this time onwards he began to improve and made an uninterrupted recovery. When discharged from the hospital, on November 21st, he was taking a light diet, was free from symptoms, and was putting on weight. He has remained well, without any further symptoms. The wound was healed and the pulse, temperature, and respiratory rates were normal. A barium meal, given just prior to his departure from the hospital, demonstrated that the new channel was working satisfactorily. He saw me on March 17th, 1926, stating that he had no symptoms, was quite fit, and was leaving for Uganda.

There are some points worthy of comment in this case, apart from the recovery of the patient. Up to the moment of his collapse there was no indication that this was about to happen; in fact, only just prior to the moment I had commented to the anaesthetist that he was standing the operation well. In the second place, it is surprising that, in addition to obtaining a recovery of the heart's action, it was possible for me to complete the operation, which took at least another forty minutes. Naturally, the completion of the operation was carried out under a severe stress, and it is my belief that the haematemeses were of the nature of secondary haemorrhages, probably due to faulty technique.

Cases of recovery after massage of the heart are, of course, on record, although in many instances failure occurs; the patients survive the operation, but either never regain consciousness or die of some lung complication. In some cases the abdomen has required to be opened in order to perform necessary manipulations. In this case, however, although some preliminary manœuvres had to be effected, owing to the nature of the operation in hand, in order to reach the diaphragm, very little time was lost before massage was commenced. In addition, it is possible that recovery was naturally aided by the presence of a tracheal catheter in position at the moment of cardiac failure, which permitted the immediate inflation of the lungs with oxygen under pressure; so that while the heart was being massaged the artificial circulation provided sufficient oxygenated blood to the brain to obviate the cerebral anaemia which usually proves fatal in these cases. The production of a pink coloration of the patient's face with each artificial pulsation of the heart was a very noticeable feature. The diaphragm was not incised, but the heart was squeezed by the right hand inserted under the diaphragm while the heart was pressed against the anterior chest wall. So far as could be observed, both before and after the operation there was no heart lesion.

I am indebted to my house-surgeon, Mr. Dodd, and to the anaesthetist, Mr. Hewer, for so ably assisting me to bring about the man's recovery.

Lumleian Lectures ON ENDOCARDITIS.

BY
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LECTURE III.*

I PROPOSE now to deal with the anatomical and bacteriological parts of my subject, and then with considerations of diagnosis, pathogenesis, and treatment.

STATE OF THE ENDOCARDIUM BEFORE INFECTION.

The state of the valves prior to the onset of septic endocarditis is an important point. In my original series of 118 *post-mortem* examinations in 150 cases I found evidence of old valve disease in 80 per cent. The figures of other observers approximate very near to this. But it is to be noted that this figure refers to acute and chronic cases when taken together. If we consider acute cases alone the figure is undoubtedly much smaller. If we take the series of cases of ex-soldiers by themselves we find it smaller still. Thus, out of 13 autopsies in this class Starling found scarring from old rheumatic disease in one only. Carey Coombs's experience is much the same. The inclusion of 20 cases of ex-service men explains why, in a second series of 162 cases at St. Bartholomew's Hospital, the figure is only 50 per cent. You, Sir, in the course of the Lumleian Lectures given by you in 1920, stated that, despite the prevalence of sepsis in the wounded during the great war, infective endocarditis was uncommon; that a number of acute and rapidly fatal cases of the disease occurred in men in whom no primary source of infection could be found *post mortem*; and that in these cases the infection had attacked healthy valves. Summing up, therefore, it may be said that in acute cases generally, and in the chronic ex-service cases, there is a notable absence of pre-existing valvular disease; in chronic civilian cases there is a marked preponderance of pre-existing valvular disease. It has perhaps been too readily assumed that the nature of the pre-existing valve damage found at autopsy is generally rheumatic in origin. Care must be taken, as Libman has pointed out, to distinguish the residues of rheumatic infection from the residues of an old septic endocarditis, since it is now known that this latter process may recur after years of apparent freedom from active infection. The patient's history is therefore of great importance in judging the nature of cicatricial and of sclerotic changes in the valves. Since pericarditis is known to be quite rare in chronic septic endocarditis, evidence of this at autopsy is much in favour of old rheumatic infection. The type of myocardial disease, if this be present, may also assist in a correct interpretation of the findings.

Of the valves affected it is again important to distinguish acute from chronic cases, and civilian chronic cases from ex-service chronic cases. In acute cases the incidence of mitral and aortic disease is probably about equal. Of 34 such cases due to *Streptococcus pyogenes* Thayer found the aortic valve involved in 20 cases, the mitral in 26. Gonococcal infection, however, tends to attack the aortic valve by precedence. Thayer's cases, forming the fullest series of which we have details, showed 66 per cent. aortic and only 19 per cent. mitral. There were right heart lesions as often as mitral in this infection. Of 40 cases of pneumococcal endocarditis, Thayer found the aortic cusps involved in 20, the mitral in 13, and the valves on the right side of the heart in 7 only, thus disposing of the fallacy that pneumococcal infection is prone to attack the right heart chiefly. In chronic septic endocarditis, however, there is a preponderance of mitral infections in civilian cases, and a still greater preponderance of aortic cases in ex-soldiers.

MURAL INFECTION.

Mural infection is, I believe, more common than is generally thought. I found instances of this condition in 52 per cent. of 118 *post-mortem* examinations. Thayer's figure is as high as 84 per cent. in chronic cases. Auricular

* Delivered before the Royal College of Physicians, London, on March 30th.

infection is much more common than ventricular. The occurrence of mural endocarditis is usually attributed to the influence of pre-existing scars from old rheumatic disease. The occurrence of mural lesions without valve lesions must be quite rare. I cannot find any case in the literature which is at all comparable with one which I described in my original series, and where, fortunately, a *post-mortem* examination was possible. The disease had lasted for over two years, the type being very chronic, the fever very mild. There was no sign of valvular disease during life. This patient was for some weeks in a sanatorium on account of pyrexia, sweats, and malaise, it being thought that she might be a case of pulmonary tuberculosis without physical signs. She developed multiple infarction of the spleen, and blood cultures were positive. Eventually she died of cerebral embolism. *Post mortem* there was found a small area of fungating auricular mural endocarditis, situated well above the mitral orifice, the cusps of which were natural. The importance of knowing that such cases exist lies in the fact that the disease may be present in the absence of signs of valvular mischief. But, as already stated, such cases are rare.

PARASITOLOGY.

I pass now to a consideration of the parasitology of endocarditis. I need not dwell upon the infecting agent in the syphilitic cases, except to point out that all the evidence favours the view that the route of infection is by the vasa vasorum to the middle coat of the aorta, and that it is therefore probable that the aortic cusps are infected likewise from the depths rather than from the surface.

Nor must I dwell long upon the old controversy as to the causative agent in acute rheumatism. Of late years there has been a growing tendency to consider the streptococcal origin of acute rheumatism as proved. But clearly this is not so, and it seems to me that we do but obstruct further research by so premature a conclusion. With due deference to Poynton and Paine, whose thorough and masterly work all must admire, it is to be doubted if the real picture of acute rheumatism has yet been experimentally produced in animals by the use of the *Diplococcus rheumaticus*. Nor is there so far anything like unanimity amongst the many observers who have given pains to the question of blood cultures in rheumatic fever and to the bacteriological investigation of fatal cases of the disease. Unfortunately the opportunities for this particular research become less and less with the decrease in incidence of severe rheumatic fever, but when the disease was rife, and even now, when it occurs, the number of negative results in the hands of skilled bacteriologists were, and are, strikingly large; and this, too, when the most approved culture methods are adopted. Such strains of cocci as are occasionally found in these cases seem to possess no special features, and considerable weight must be attached to the fact that the blood in cases of acute rheumatism has failed to yield any specific serological affinity, even for those homologous streptococci that have been isolated from the circulation of rheumatic patients. Such is the experience of Swift and Kinsella, who record the following striking case. A streptococcus was isolated from the blood of a patient in a first attack of rheumatic fever. A relapse occurred after a year of good health, and a second streptococcus was this time isolated. The two streptococci differed culturally and serologically. No complement-fixing antibodies against the first streptococcus could be demonstrated in the blood at the time of the second infection. Clawson and Bell have quite recently claimed to obtain a streptococcus by blood culture in 50 per cent. of cases of rheumatic fever. Yet they, again, failed to find antibodies in the blood at a serum dilution higher than 1 in 50. On the other hand, Clawson considers that he has produced lesions in rabbits' hearts which were morphologically identical with the Aschoff nodule, by the use of rheumatic strains of streptococci. He therefore concludes that streptococci, generally of the *viridans* type, are responsible for rheumatic heart lesions in man. This vexed question must still be considered as undecided.

In acute cases of septic endocarditis the nature of the infection calls for no special comment. Positive blood cultures are forthcoming in nearly all cases, and, as already

remarked, the micro-organisms are of a highly virulent type. Until the role of the streptococcus in acute rheumatism is more clearly defined—whether, for example, it is the primary cause or only present in the disease as a secondary infection—we cannot profitably discuss the question if some of the cases of chronic septic endocarditis may not be justly regarded as cases of "malignant rheumatism." Such a conception is only rendered probable by assuming, with Poynton, that the rheumococcus remains latent in the endocardium for, it may be, many years. This seems less probable than that the disease is the result of a new infection grafted upon the old damaged valve, and this view is the one most generally accepted at present.

Positive blood cultures in the chronic cases are, as already mentioned, by no means invariable. In my early series of mixed acute and chronic cases I found micro-organisms in the blood in nearly 90 per cent. of cases at some stage of the disease. Libman gives the same figure for his cases. But in a second recent series of 162 cases at St. Bartholomew's Hospital the number of positive blood cultures was only 47 per cent. This was largely due to the inclusion in the series of a much larger proportion of chronic cases, and especially of twenty ex-service cases; in these twenty cases the number of positive blood cultures was only 30 per cent. This paucity of positive cultures in the ex-service class corresponds with the experience of other observers. The micro-organisms found in these cultures are almost entirely streptococci; the exception is the strange one of Pfeiffer's bacillus, which crops up with extraordinary constancy in the series of all observers, provided the number of cases in any series be not too small.

There seems little reason to doubt that the cocci recovered from the circulation during life, and also those isolated from the diseased endocardium after death, by various observers, have been of the same type, though called by different names. The difference in names has depended upon the different principles adopted in the segregation of the streptococcus and pneumococcus groups. My original description of these cocci was based upon Gordon's well known work, in which the morphological and cultural characters of these micro-organisms were supplemented by biochemical reactions in various sugars. Working in conjunction with Andrevs we were able to trace very close affinities between the streptococci associated with chronic septic endocarditis and the salivary and faecal types as differentiated by Gordon. Schottmüller's nomenclature was based largely upon the fact that these streptococci reacted in a special manner on blood-agar plates; hence his term "*Streptococcus viridans*." Rosenow, on grounds which need not be entered upon here, claimed to have obtained evidence that these comparatively non-virulent cocci are modified pneumococci, and that by frequent passage through animals, and by special anaerobic cultural methods, they could be converted into micro-organisms indistinguishable from pneumococci and possessed of considerable pathogenicity. I am unaware that this work of Rosenow has been confirmed. Libman is content to term the coccus most commonly found in chronic septic endocarditis, "*Streptococcus endocarditidis*." But when we consider questions of pathogenesis it is obvious that the nature and origin of these streptococci become matters of great importance. Too much attention cannot, therefore, be paid by bacteriologists to the life-history of these cocci and to their probable source.

THE BACTERIA-FREE STAGE.

This is perhaps a convenient place in which to refer to Libman's views upon what he terms the "bacteria-free stage" of chronic septic endocarditis. I have already confessed to my inability to accept Libman's concept of the disease we are now considering as being a "subacute" rather than a "chronic" process. I gather that others have the same difficulty. I find that the last edition of Osler and McCrae's textbook of medicine includes two separate paragraphs; one is headed "Subacute bacterial endocarditis," and the other, immediately following it, is headed "Chronic infective endocarditis." But Libman makes it clear that by introducing the term "subacute bacterial endocarditis" he intends it to supersede the older name of "chronic

infective endocarditis," and to include the cases formerly put into this category. I must now confess to another inability to follow Libman when he uses the term "bacteria-free stage" of the disease as being synonymous with "healed stage." This writer speaks frequently of "healed and healing cases" in one and the same term. Now I can understand a "healed" case; there seems no doubt, largely as the result of Libman's own observations, that cases of septic endocarditis do occasionally undergo spontaneous cure, and that the residues of the old infection are found *post mortem*. I can also understand a "healing" case; in many chronic infections we get evidence, both during life and after death, that the lesions show constructive as well as destructive changes—to mention only pulmonary tuberculosis as one example. But to group "healed and healing cases" together under this single term seems to suggest some new type of case the criteria of which have been made by no means clear.

Libman admits that in the so-called "bacteria-free stage" of the disease some degree of pyrexia is often present, that anaemia is marked, that embolism goes on, that Osler's nodes and petechiae appear, that the patients get progressively more and more toxic and eventually die. But is not this passage from a more active stage of the disease to a more passive stage exactly what we see in some, indeed in a good many, other chronic infections?—in chronic pulmonary tuberculosis, again; in lymphadenoma; in chronic *Staphylococcus aureus* pyaemia; in syphilis; in malaria. In chronic septic endocarditis, as in these other diseases, patients not infrequently reach a cachectic stage in which the infection peters out, as it were, at the same time as the patient. The fight has been to a finish and neither party has won. Actually, the micro-organism has won, but only just. It can generally be demonstrated, though perhaps with difficulty, dug in and out of sight; and Libman admits this fact. I instance *S. aureus* infections of a chronic kind in particular as giving us a picture somewhat similar to that which is sometimes seen in chronic septic endocarditis. After a long and tedious illness the patient—cachectic, wasted, anaemic, enfeebled by his prolonged toxæmia—dies exhausted. Blood cultures have been sterile for weeks, even months, and the temperature has been at a much lower level than formerly. At first we were jubilant when these things happened. But they availed nothing, and we became aware that, though the fire of the interaction burned much lower, the disease was still progressing. We make a *post-mortem* examination perhaps; there is no obvious lesion; then, tucked away in some remote corner, we find a collection of inspissated pus—in the sheath of the psoas muscle it may be, or in the centrum ovale of the brain. From these old but still smouldering foci *S. aureus* is recovered in scanty numbers.

We must, of course, distinguish these so-called "bacteria-free" cases from the periods occurring earlier in the disease during which blood cultures are oftentimes negative, yet the patient is obviously in an active stage of his infection. There are possible reasons for these times of relative, or perhaps absolute, abacteraemia. (1) They may be due to the covering over of the colonized bacteria in the valve cusps by a layer of fibrinous material, which for the time being prevents the paying out of cocci into the blood stream. (2) Or they may be the result of a rise in the bactericidal or other immunizing antibodies in the blood, so that the circulation is rendered sterile within the limits of the amount of blood taken for purposes of the culture. Doubtless there are other causes which are as yet hidden from us. Merryn Gordon has raised the question whether there may not be some filtering mechanism at work; he also reminds us of the great tendency of bacteria to yield to gravity. I should like to add the suggestion that in these cases something akin to the process of centrifugalization may go on, by which the bacteria, which are thrown into the circulation, are sedimented in various peripheral organs, leaving the blood stream relatively free. A close study of the cases makes it more and more apparent how innumerable are the embolic events that take place, and therefore how consonant with actual facts such an hypothesis may be.

DIAGNOSIS.

As the result of my earlier experience I was led to the view that to establish a diagnosis four cardinal points were necessary: multiple embolism, the signs of endocarditis, the isolation of a micro-organism from the blood, and pyrexia. Now that we are more familiar with the clinical picture, and have added certain other well recognized signs, the diagnosis becomes highly probable, though perhaps never quite certain, without the third, and certainly without the fourth, of these features. Thus, signs of multiple embolism, with endocarditis, in a patient having clubbed fingers and an otherwise unexplained anaemia, constitute a syndrome which scarcely admits of any other conclusion. In arriving at a decision, however, it is well to remember what a very grave prognosis a positive diagnosis carries with it in the present state of our ignorance of effective treatment. No doubt we shall be able, in years to come, to detect the disease at an earlier stage of its course, in which case we must be satisfied with less severe criteria. It may even be desirable to treat many patients as suspects, and remain uncertain, in the event of a satisfactory issue, if they were, or were not, larval instances of the disease.

In other words, we must strive to anticipate, rather than merely to recognize when present, the fully developed picture. There are other very suspicious combinations of signs and symptoms than that just given, but, granted that neither pyrexia nor a positive blood culture is essential to the diagnosis, it is impossible at present to construct a syndrome that does not include the feature of multiple embolism; and it is questionable if, once this process is in operation, we are not already too late in our efforts to arrest the disease.

We do not know, unfortunately, if there is an early apyrexial stage in the disease. We certainly do know that, though every case is probably at some time in its course pyrexial, apyrexial periods of one, two, or even three weeks are by no means uncommon during the later stages. Starling tells of an extraordinary instance of prolonged apyrexia lasting seventeen weeks. It is clear, therefore, that the absence of pyrexia at any particular time of observation by no means excludes the diagnosis.

Be the significance of negative blood cultures what it may, it is agreed that the diagnosis can frequently be made without evidence of bacteraemia at the time of examination, and, indeed, even though one or more subsequent efforts are also negative.

Libman has described localized tenderness over the lower end of the sternum with light pressure as a common symptom. I have found this present in several cases, but since I have also found it to be not uncommon in cases of severe anaemia, without evidence of endocarditis, I conclude that its importance in diagnosis depends upon the absence of this latter condition. Such tenderness is sometimes very marked, and very localized, in Addisonian anaemia.

MILD AND RECURRING CASES.

We are beginning to see light on the clinical side, and also on the side of gross morbid anatomy, in relation to the earlier stages of the disease, and this light may soon help in the histological and bacteriological sides by suggesting new lines of research. Several authors have described cases of mild bacteraemia, the cocci being of the same type as those associated with chronic septic endocarditis, and in which the clinical analogies with this latter disease are such as to suggest that they may have been abortive cases of it. Some of the cases have been followed for a period sufficiently long to make sure that they have recovered. It is tempting to consider them instances in which, as it were, the disease, as we usually know it, has missed fire.

Cases of recurrence, too, are being brought to light. I have seen two such cases. In one of these I was very doubtful, when the patient first came under observation, if I was not dealing with a case of septic endocarditis. There were signs of aortic regurgitation, and the patient was admitted to hospital on account of mild pyrexia, purpura, and arthritis. The spleen was palpable. Blood cultures were negative. The man was an ex-soldier with no history of any cause for his valvular disease. After two months' observation he was discharged, being given the benefit of

the doubt. He worked continuously as a postman for twelve months, feeling quite well. He was then admitted again to hospital, pyrexia and joint pains of an erratic kind having returned. The diagnosis of chronic septic endocarditis did not now admit of any doubt. In the other case there was again a clear interval of twelve months of good health between an attack of right hemiparesis associated with mitral regurgitation, slight pyrexia, clubbed fingers, and anaemia, and a second admission on account of a left hemiplegia, which was followed a month later by cerebral haemorrhage. It is possible, of course, that in neither of these cases was the interval between the two periods of observation sufficiently long to exclude the question of very protracted infection with unusually long remissions. But Libman and others have reported cases in which the interval between the attacks has been much longer. So that, unless we again take the view that the coccus can lie dormant in the endocardium over a period of years, we must consider the cases as true reinfections.

THE MECHANISM OF INFECTION.

When we turn to questions of *pathogenesis* we are faced with a whole series of unknown factors. We seem to know a good deal about the mechanism of the disease once the endocardial infection is established, and even our knowledge of the associated bacteria is by no means small, but the initial phases in the process of endocardial colonization are still hidden. We assume, perhaps rather too readily, that the source of the invading and infecting bacteria is one or other of the areas which for convenience we term areas of "focal sepsis." Such areas are conceived of as portals of entry of bacteria into the circulation. These areas have been recorded in many cases of the disease as though the relation between them and the heart infection is actually proved. Blumer has collected these records. It does not surprise us to read that the teeth and the tonsils head the list, that the female generative organs come next, and that the bronchial tract follows. But between the very common finding of salivary streptococci in apical tooth abscesses and the relatively uncommon finding of salivary streptococci in the endocardium there is a wide gulf to bridge. With the whole alimentary tract teeming with streptococci of this and of allied types it is quite a question if the area of focal sepsis is more than an epiphenomenon in the process of deep-seated infection.

If we now consider the mechanism of invasion of the infected valve we are equally in the dark. Does the coccus invade the valve from the coronary route or from the general blood stream bathing the outside of the valve? The argument for and against both routes, though old, is still open. Carey Coombs has quite recently convinced himself that, whereas the rheumatic virus reaches the cusps, and produces a valvulitis from within these structures, the bacteria in septic endocarditis attack them from the blood circulating around the cusps. The author's important work in connexion with the endocarditis of swine erysipelas is adduced in support of his views. But we still lack adequate demonstration of this difference of the modes of invasion in the two diseases. Whereas some authors adduce the fact of extra vascularization resulting from old inflammation as evidence that the coronary route is the likely one in septic endocarditis, others consider the scarring of the tissues resulting from the same process as liable to favour invasion from the surface. Certainly if analogy elsewhere goes for anything, it seems more likely that scarred tissues in this situation would be invaded from the surface rather than from the depths. But this latter hypothesis presupposes an initial septicaemia, or at any rate a bacteraemia, and probably of a massive kind. Of this there does not seem to be any clinical evidence: the disease is very insidious in its onset in nearly every case. Moreover, we are now faced with a difficulty with which the war cases have for the first time familiarized us—namely, that in many of these cases there appears to have been no old valve injury, or none the existence of which was apparent. Yet when we recollect that it is in the hearts which possess minor valve injuries, and not in those in which the valves are seriously damaged, that by preference the disease develops, we must

pause before we conclude that the aortic cusps in these ex-soldiers were above suspicion. In this connexion are to be considered the remarks already made concerning congenital defects, such as fusion of cusps, and the effects of strain upon such mechanically handicapped structures. It is rather a terrible thought, and yet it may well be true, that starting life with two aortic cusps instead of three determines a man's ultimate downfall by means of slow but inevitable sepsis, be the conditions of his life what they may. There are many persons in the possession of relatively good health who have minor degrees of valvular disease with good myocardial tone. Is there any way of ascertaining which of these are to be regarded as candidates for endocardial infection? At present the answer is that there is no such way. It is a point worthy of consideration, for if some observations arose by which such predisposition might be recognized, this would be a matter of great importance.

But if we are still much in the dark concerning the mechanism of the valve invasion and colonization, we are still more in the dark as to why it is that such feebly virulent bacteria gain so firm a foothold and pursue such relentless warfare. Is it mainly the general resistance that is at fault, or is it mainly the local tissue resistance? Does the coccus succeed in immunizing itself against the natural protecting substances of the blood and tissues? These are some of the questions that still await our answers. To which may be added the fact that the process of chronic ulceration in general in the body still holds some mysteries we have never yet explained.

RHEUMATIC AND SEPTIC ENDOCARDITIS COMPARED.

I have spoken of one great contrast between rheumatic endocarditis and septic endocarditis—namely, the great tendency to early and considerable involvement of the heart in the former, and the great freedom from intrinsic disease of the heart in the latter condition. I now turn to another great difference between these two diseases. In rheumatic heart disease we feel convinced that we are dealing with the work of a specific agent, and this conviction is not shaken by some doubt as to the causative nature of the infecting agent in certain cases of mitral stenosis. In septic endocarditis, on the other hand, we appear not to be dealing with a specific disease at all—that is, if we are right in our conclusions that the micro-organisms found to be associated with the disease during life and in the *post-mortem* room represent the only infecting agents present. I say this because, although I do not know that anyone has advanced evidence for such a view, it is just possible that all the bacteria associated with the pyaemic state in which the endocardium and various peripheral organs are concerned are of the nature of secondary infections, the primary infection being as yet unknown, and hardly suspected. But if we assume that the micro-organisms that we deal with every day in the disease are the sole causes of the infection, then we are faced with this striking fact—that the same disease picture may be produced by a variety of different micro-organisms. Even if it be argued that Rosenow's conclusions relative to the association of pneumococci with the disease are not yet accepted, and that the gonococcus cases are not really chronic (though two patients in Thayer's series lived over six months), there still remain, in addition to the streptococcal cases which bulk so largely in the whole number, the cases due to Pfeiffer's bacillus. Between these last-named cases and those due to streptococci there cannot, so far as I know, be distinguished any difference either clinically or by naked-eye morbid anatomy. And yet we know of no affinities whatever between the streptococcal group of micro-organisms and the group of which Pfeiffer's bacillus is a prominent member. But the lack of specificity in the disease would appear to go further than this. Individual cases within the streptococcal group show a strange lack of uniformity when investigated serologically. Kenneth Stone, working in Gordon's laboratory upon complement fixation in streptococcal infections, found that the serum from cases of chronic septic endocarditis gave positive reactions with the homologous cocci obtained by blood culture, with a titre even as high as 1 in 4,800, but that this same serum gave very little cross-fixation

with heterologous cocci (that is, with cocci obtained from other cases), and frequently no cross-fixation occurred at all. It would almost appear, therefore, as though the cases, far from being specific as a group, are specific only as individuals. The bearing of all this upon the difficulties of immunotherapy is obvious.

There is, it seems to me, still another striking fact in connexion with the bacteriology of the disease, and that is the absence of any evidence that more than one strain of streptococcus is present in the same case. Nor has any case yet been described in which streptococci and Pfeiffer's bacillus have both been present. If the source of the endocardial infection is an area of focal sepsis, as is commonly supposed, it seems strange that there should not occur in the vegetations, and in the circulation, at least occasionally, more than one strain of these common invaders. That this is so strongly favours the view that the streptococci are performing the role not of secondary, but of primary, infections.

TREATMENT.

I shall not stay to deal with the treatment in cases of syphilitic disease. In rheumatic endocarditis the treatment is that of acute and recurring rheumatism. Into this again I shall not go, reserving my time rather for considerations that apply to septic cases.

When faced with a case of acute infective endocarditis the treatment is that of the septic focus, when this is present, and also of the pyaemia complicating it. Immunotherapy has perhaps a slightly better chance of rendering assistance here than it has in chronic cases; it should therefore be given a thorough trial. The vogue at present is the process known as immunotransfusion, and it is perhaps too early yet to say what the results of this method are. All cases should, whenever practicable, be treated in the open air.

I now turn to the treatment of the chronic type of septic endocarditis.

In one of his most recent communications Libman is good enough to credit me with being the first to emphasize the importance of prophylactic measures in the treatment of this disease. Although there is no doubt he is correct in this, he is kind enough not to point out the paucity of the constructive suggestions which I made under this heading in 1909. I dealt almost entirely with the importance of treating the various forms of oral sepsis, and with considering certain methods by which the streptococci of the intestinal tract might be kept from transgressing the barriers which usually suffice to keep them outside the blood stream. That these measures of preventive treatment are of more importance in patients who have residual endocardial lesions, of whatever origin, than in other persons, will scarcely be questioned. Yet it is by no means an uncommon experience to find devitalized teeth with demonstrable apical sepsis in these patients. The well established sequence of a septic endocarditis arising as a direct consequence of the extraction of such teeth under local anaesthesia, together with the isolation of a salivary type of streptococcus from the blood in such cases, should surely lead to a rule of treatment by the observance of which no dead teeth and no obvious pyorrhoea are permitted to be present in such patients. It is unfortunate that a recent obsession in regard to sacrificing all teeth that are in the least degree suspicious in every patient has militated in the public mind against such a preventive measure being followed in selected cases. The question of septic tonsils is much less simple, because the criteria by which we judge these organs are notoriously vague, whether we consider the matter from the point of view of the general physician, the throat specialist, or the bacteriologist. Tonsils are sometimes condemned because cultures taken from them grow streptococci of the haemolytic, long-chained, or pyogenic type, on the ground that this is a more highly pathogenic type than others. But it is obvious, from what has been said, that in the present connexion such a finding should not condemn the tonsils any more than if the cultures yielded the viridans, short-chained, or salivary type; if, indeed, the condemnation should be as strong. The present state of our knowledge of

the streptococcus group makes the statement so often occurring in bacteriological reports, that "cultures from the tonsils give no pathogenic strains of streptococci" of no service when we are considering the prophylactic treatment of endocarditis. Until we have more definite guidance along these lines we shall probably act most wisely by deciding the question of the enucleation of tonsils on their general merits rather than upon their bacteriological content.

In the direction of "intestinal disinfection," so called, prophylaxis gropes in even greater darkness. There are problems here which we have scarcely begun to probe, but to think that security from subinfection lies in merely avoiding constipation, good though such advice may be, is to invite a rude awakening. We do not even know for certain that subinfection from the bowel bears any definite relation to the quantitative content of streptococci in this situation, or to the relative proportions of streptococci to coliform bacilli, though both of these things are generally taken for granted. Is it not a fact that we not infrequently make use of these and analogous findings to support a scheme of therapeutics, when the premises upon which such a scheme is based are quite lacking in proof? The suggestion of Besredka and others, that it might be well to employ antigens by the intestinal route in cases in which it is presumed that the initial interaction resulting from infection takes place in this situation, has scarcely received so thorough a trial as it deserves. We may get some help from such a trial. We may also get some help from well controlled observations relative to the effect of different diets upon the intestinal flora. Up till now very little work has been done on this point.

The injunction against undue strain, both physical and emotional, in persons having evidence of slight valvular defects, though theoretically indicated, is not likely to carry much weight. Yet it becomes our duty to give such advice in view of all the facts.

Curative measures now call for consideration.

Chemotherapy, despite the enormous number of drugs that have been tried at one time or another, and which I will not stay to catalogue, has so far been of little real help; and this is true by whatever route the drugs have been used. Yet it must not be concluded that we shall not ultimately find some remedy of a chemical nature which shall assist the tissues in their interaction with the infecting agent; for the crude notion that a chemical remedy can only help in microbial infections by a direct bactericidal action is, of course, no longer tenable. Of late years new claims have been made on behalf of arsenic, and especially when given intravenously. Needless to say, when the arsenobenzol series of drugs arrived they were given full trial in septic endocarditis, but, so far as I can find, without any permanently good results. Of immediately serious results by way of cerebral embolus I saw not a few, and I gather this is the experience of others. I have given Capps's sodium cacodylate treatment a very thorough trial, but have so far seen nothing to lead me to the conclusion that the patient has benefited more than is usual with so good a haematinic remedy as this proves to be in many infections. Capps gives daily injections of the drug intravenously, beginning with 1 grain and increasing gradually up to 5 grains. In all I have treated twelve cases, and I have in half of these given larger doses than Capps has recommended. I have also, following Capps's suggestion, followed up the treatment for many weeks. There is certainly this to be said for the drug, that it is singularly free from ill effects.

I think it is clear, from all we know of the disease, that recovery, whether by the aid of remedies used or occurring spontaneously, must of necessity be very slow if it is to be safe. When we remember the characters of the vegetations, and the ease with which they separate off as emboli, it is obvious that any remedy which acted as quickly as, for example, a grand lavage of the blood stream by some reputed blood antiseptic, would endanger death from cerebral embolism. And when we recollect the deep colonization of the infecting micro-organisms in the valves, it is equally obvious that no such lavage is likely to dislodge or kill these, seeing that they are to a large extent outside the direct blood stream.

As little credit can be given so far to measures of *immunotherapy* as to those of chemotherapy. And this applies to all the permutations and combinations of antigen and immune serum that the mind of the immunologist—not a mind lacking in fertility and inventiveness—has so far devised. The latest of these is immunotransfusion, which, though it is claimed that this method raises the bactericidal power of the blood, has not so far been more successful than other methods. A method of treatment which raises the bactericidal power of the blood as tested outside the body gives us no guarantee that it will do this inside the body; or, if it does, that the rise in bactericidal power will be sufficient, within the limits of the method, to turn the scale against the infecting agent and in favour of the patient. These things would be very puzzling did we not know of stranger facts—the fact, for example, that, apart from any immunotherapy whatever, the blood in many cases of chronic septic endocarditis is extremely rich in certain antibodies specific to the micro-organism isolated from the patient's circulation. And yet such patients may, all the time, be losing ground slowly but surely.

In opening a discussion upon chronic septic endocarditis at Cambridge in 1920, when speaking of curative treatment, I raised the point as to whether we ought not to deal with these patients on much the same lines as we follow in cases of chronic tuberculosis, bearing in mind, of course, the difference in the organs affected. I have of late years concentrated more and more upon non-specific measures, as for a disease of "low resistance." I treat as many cases as possible in the open air, with sunlight, natural and artificial. I supplement this by a long series of intravenous and intramuscular injections of sodium cacodylate. Sometimes I have found, as others have, that simple transfusions of blood are of considerable help. These are the only measures I yet know of that seem to give the patients the best chance of overcoming their usually intractable infection.

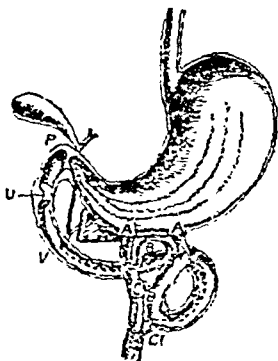
It remains for me to thank you, Sir, and the Fellows, for your patience in giving me your attention during the delivery of these lectures.

CHRONIC PYLORIC OR DUODENAL ULCER: POSTERIOR GASTRO-JEJUNOSTOMY WITH JEJUNO- JEJUNOSTOMY.

BY

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The operation of a no-loop posterior gastro-jejunostomy has had a long trial, and, although the ulcer heals, the after-history of these patients, as regards well-being and comfort, is in a very large number of cases unsatisfactory.



A-C' = $3\frac{1}{2}$ in.; A-A = 3 in.;
B-B = $2\frac{1}{2}$ in.; C-C' = $1\frac{1}{2}$ in.;
P-V = $3\frac{1}{2}$ in.

The new pylorus is at A.A, and the dotted line along the duodenum from Vater's ampulla (V) to the jejunal opening at C,C' shows the course of the secretions from liver and pancreas to join the food stream issuing from the stomach at A.A. The two tubes of jejunum, marked by

THE MAKING OF A NEW PYLORUS.

A modification of this operation¹ is jejuno-jejunostomy, done at the same time as the posterior gastro-jejunostomy so as to ensure the making of a new pylorus, by which the *status quo ante* as regards the physiology of the parts concerned is brought about.

The illustration represents a horizontal section of stomach and bowel after the operation is completed; for clearness' sake the gastro-colic oval omental attachment is not indicated.

arrows, function at the first part of the duodenum. C' is at a point $3\frac{1}{2}$ in. below the new pylorus (A.A), which is the precise distance that the normal Vater's opening (V) is situated from the normal pylorus (P). A 10-inch loop of proximal jejunum, brought to the surface, gives enough bowel to work with, and no kinking ensues. The extra time required for the second anastomosis is only some fifteen minutes.

In effect, the whole physiological plan of the pylorus and the duodenal exit of the digestive fluids is simply removed some inches to the left. The gastric anastomosis is 3 inches and the jejuno-jejunal $1\frac{1}{2}$ inches long. The patients enjoy very good health afterwards, with no unpleasant after-effects.

I have just learnt that one of the surgeons of the Mayo Clinic has begun to do this operation and intends to report his results.

REFERENCE.

¹ *Lancet*, January 31st, 1920; *Practitioner*, June, 1920; *Epitome*, *New York Medical Journal*, 1920.

GANGRENE IN AN INFANT SEVEN DAYS OLD: RECOVERY.*

BY

W. R. GROVE, M.D.CANTAB.

A PRIMIPARA, aged 33, who had had no miscarriages and been married two years, was, on January 30th, 1925, confined naturally, after an easy labour of six hours, of a female child. On the morning of February 5th the child's right leg was found blue from the knee downwards. The cord had separated the day before, and the umbilicus was a perfectly clean scar without redness; there was no rise of temperature, and the heart appeared normal. There seemed little pain, only a slight whimpering when the limb was handled. The leg was kept warm in cotton-wool, and the blueness gradually decreased downwards, until in about ten days there was a line of demarcation straight across the dorsum of the foot at the base of the toes, but on the sole of the foot it extended in a triangle nearly to the point of the heel. This gangrenous area was dry. It was decided to leave events to Nature, but, with the experience of gangrene in the old, the parents were told to expect a weary waiting of months for the separation of the slough. The mother was unable to nurse the child, but on undiluted milk it thrived apace, so that in each week from the beginning there was a gain in weight. On March 18th I was amazed to hear that the toes had separated, the factor of the child's growth away from the dead part never having entered my head. Within three weeks afterwards, very little more than two months from the onset, the foot was completely healed, the triangle on the sole of the foot having been only skin.



An attempt to get a photograph in the gangrenous stage failed from movement, an indoors time exposure being necessary. But the accompanying illustration in the healed state, when the child was 7 months old, shows the want of toes and the ridge on the sole of the foot. The separated toes have been placed in the Pathological Museum, Cambridge.

It is almost certain that the gangrene was due to an embolus caught at the bifurcation of the anterior and posterior tibial arteries, and that the circulation was re-established except in the toes and sole of the foot.

As to the origin of this embolus there must be some doubt; it is possible that it came from the umbilical veins, by way of the ductus venosus, inferior vena cava, and the right auricle, thence either through a patent foramen ovale, or into the pulmonary artery and by the ductus arteriosus

* A paper read before the Cambridge Medical Society, October, 1925.

to the aorta, and so to any artery of the body. Osler has recorded a case of hemiplegia *in utero*; the mother had typhoid fever, and the embolus was derived from the placenta and would have taken some such course. While this route in my case is theoretically possible, from a practical point of view I do not think it can hold, otherwise emboli in various parts of the infant's anatomy would be much more common than they are. It seems to me that such a rare occurrence is likely to be caused by some abnormality, and I would suggest an abnormal umbilical artery on the right as the most probable. The normal hypogastric artery arising from the internal iliac gives off several branches before it ends as the umbilical. In the separation of the cord, should that artery become detached from its moorings, a clot against the blood stream could not get beyond one or two branches. But if the umbilical was a separate one, derived from the common or external iliac, the giving way of this might easily shoot out the clot into the stream to the leg, and, being without branches to moor it, the elastic action would be the stronger.

With the help of Neale's *Digest* and the *Index Medicus* I have hunted up the cases of infantile gangrene in English. The great majority are in older children, and occur as part of other diseases, notably sepsis or syphilitic arteritis; or in Raynaud's disease, where the areas are multiple and smaller. One case only have I been able to find that at all approaches this case.¹ In that the child when first seen was 2 weeks old and died the next day. We are not told the date of the first appearance, but it was supposed to have begun below the knee. At the examination the left leg and thigh were affected. *Post-mortem* examination confined to the femoral artery showed no signs of embolus of that vessel.

I am tempted to add one case which, though inappropriate, is worth resurrection.² The doctor was called to see a woman, aged 40, who had three children alive; these births had been followed by three miscarriages, and being now pregnant she was anxious to have a live child, as she thought her health would be improved by nursing. She was obese, but the doctor felt sure he heard a faint foetal heart, so that he was able to reassure the parents. On making a vaginal examination he was surprised to find already a breech presenting, and still more surprised to bring down two gangrenous legs, the integument coming away in his hand. Meantime the woman had one pain, and a baby which cried lustily and lived for twenty-four hours was shot into the world! The address of the recorder is given as New York.

REFERENCES.

¹Reed: *BRITISH MEDICAL JOURNAL*, 1881, i, p. 639. ²*Lancet*, 1883, ii, p. 1173.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

STRIDOR ACCOMPANYING MEASLES.

DURING epidemics of measles in recent years few serious cases have occurred, but last winter the type was much more severe. Stridor appears to be one of the more rare accompaniments, for the following case has been the only one seen in the last two or three hundred cases. Ker, in his *Manual of Fevers*, mentions the possibility of measles being confused with diphtheria when laryngeal symptoms occur, and Still, in his *Common Disorders and Diseases of Childhood*, quotes a similar perplexity to that which presented itself in the following case.

I first saw X, a boy aged 5, at 5.30 p.m. on March 4th. Ten days previously he had been in contact with a child who subsequently developed a typical measles rash. His eyes were heavy and he looked "measly." His temperature was 101°, pulse 100. There was no abnormality in the throat or chest, no Koplik's spots could be seen, nor was any rash present.

The following day he was much the same, but when seen on March 6th at 11 a.m. the temperature was 102°, pulse 120, respirations 40, and he had developed a croupy cough without pulmonary signs. The tonsils were now considerably enlarged, but no exudation or membrane could be seen. In addition to this he had marked stridor, his cheeks were slightly cyanosed, and although he seemed bright in speech he showed no inclination to sit up. At 6 p.m. the stridor seemed more marked and his pulse and temperature were unchanged. As by 10 p.m. there was still no

sign of a rash or confirmatory evidence of measles in the shape of Koplik's spots, 4,000 units of diphtheria antitoxin was injected subcutaneously, hot applications to the throat were given, and a steam kettle ordered.

On the following day at 10 a.m. his temperature was 103.4°, pulse 128; the stridor was, if anything, slightly less marked, and a few macular spots were visible on the face and behind the ears. By 2 p.m. the rash on the face was quite definite and his temperature had fallen to 102.5°, whilst by 9.30 p.m. the temperature had declined another degree and the case was quite obviously one of morbilli.

Subsequent progress was uneventful. Although the breathing continued noisy for some days, the temperature fell to normal on March 9th, and in spite of the severity of the attack he was able to get up ten days from the first onset of his symptoms.

On examination for Klebs-Loeffler bacilli a swab of the throat proved to be negative.

Tooting Graveney, S.W. E. G. HOUSDEN, M.B., B.S.Lond.

NOVASUROL AND HYPERTONIC SALINE IN
CHRONIC OEDEMA.

REFERENCE has been made in these columns to the diuretic properties of novasurol and its beneficial dehydrating effects on oedema of a generalized type. There are certain advanced cardiac cases, with possibly a recurrent attack of "water-logging," where the effect of the drug, given alone, may not be so gratifying—cases where digitalis has done its utmost in steadying rhythm and increased output—and yet the oedema of arms, legs, and cavities persists.

It seems likely that the prolonged malnutrition of the capillary walls makes it difficult for the tissue spaces to yield up their excess of fluid into the "active" circulation under the osmotic conditions prevailing. In such instances I have found that the addition of 20 to 30 c.cm. of 2 per cent. saline to each dose of novasurol (doses gradually increasing from 0.5 to 2 c.cm., given intravenously at intervals of four or five days) produces a markedly increased diuresis. By such means the output of urine—controlled by injections of the drug alone—has been increased by as much as 20 to 30 oz. in the twenty-four hours following injection.

It seems that the hydraemia thus induced is of sufficient duration to enable the kidneys to excrete (under the influence of novasurol) the additional urine before osmotic equilibrium is reinstated in the tissue-capillary areas. Moreover, the common complication of diarrhoea has been absent—a fact which recalls Sir Leonard Rogers's treatment of Asiatic cholera.

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POISONING BY THE PRODUCTS OF COMBUSTION
OF TOBACCO APPLIED TO THE SKIN.

LATE one evening we paid a visit, urgently requested, to a small girl, whom we found lying in bed asleep; her skin was pallid, and although it was a hot night in June she seemed very cold; the pulse was very weak, and the breathing infrequent and sighing. When aroused the eyes turned upwards, and she was slightly delirious, with gentle retching.

The illness had commenced an hour before with severe vomiting; it followed a vigorous rubbing of her trunk and limbs with a mixture of writing ink and scrapings from an old tobacco pipe (dottle). This her mother had done to cure a very diffuse attack of "ringworms."

Having given the child a quick scrub with hot water and soap, we had the pleasure of seeing a very rapid improvement in vasomotor tone; she would fall asleep as if from intense weariness, but could be progressively more easily aroused. The next day she seemed well, and has remained so.

No doubt most doctors could creditably pass an examination on the physiological action of tobacco, but many, perhaps, will scarcely have realized the great potency of these products even when merely inuncted. Everyone has heard that a dog can be killed by a drop of nicotine placed on the conjunctiva; and one has felt oneself sinking in the swamps of Acheron after embarking upon the adventure of a first smoke, and that of "black shag." Moreover, interest attaches to the phenomenon of absorption of drugs by the skin. Wherefore we feel that this case should be recorded, as it may be appreciated by

pharmacologists, one or more of whom may perhaps be inclined to tell us the name of the essential noxious substance found in the foul bowl of a well used tobacco pipe.

Luff refers to a case of nicotine poisoning by skin absorption, but is nicotine contained in the dottle?

J. O. JONES.

C. E. MORRIS.

Holywell, North Wales.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

OXFORD DIVISION.

THE second meeting of the year of the Oxford Division was held in the Radcliffe Infirmary on March 24th. In the absence of the chairman, Dr. DUIGAN presided over an attendance of forty members.

American Methods in British Hospitals.

The administrator of the Radcliffe Infirmary, Mr. A. G. E. SANCTUARY, M.A., read a paper on the development of British hospitals on American lines. He wished to see in-patient hospital facilities for all three classes of the community. At present there were not enough beds for the poorer classes, practically none for the middle classes, while the richer members of the community were not satisfied with the existing extravagant nursing homes. The problem should be tackled as a whole, and the quickest and best solution would be for the voluntary hospitals to provide accommodation for every class. The first class of patient already contributed a good deal; the second class, by an insurance scheme, could pay more than the actual cost of maintenance and treatment; and the third section of the community would be glad to pay an amount for the advantages of a fully equipped hospital that would leave a handsome profit. Mr. Sanctuary gave it as his opinion that this form of development of British hospitals would be good for all classes of the lay community, for specialists, and for private doctors, and would make the hospitals safe for all time.

Pachymeningitis Haemorrhagica Interna.

Dr. WATKINS read notes of a case of pachymeningitis haemorrhagica interna which had recently been under his care in the hospital.

The patient was a woman, aged 76, who was quite well until two months before admission. She then began to complain of headache, deafness, giddiness, and defective vision. These continued for about five weeks, when her doctor sent her to the Radcliffe Infirmary. For ten days after the patient's admission to hospital there was very little change in her condition. Persistent and severe occipital headache was the chief symptom; she was quite rational. At the end of this period, however, she became definitely "mental" and rapidly sank into a stuporous condition and died in about a fortnight.

At the necropsy, on opening the skull, the inner aspect of the dura showed a marked haemorrhagic layer. There was oedema of the pia mater. The dura was in a stage of organization, and both occipital lobes and anterior fossae. The posterior fossa was free. Over the vertex the pia was stained yellow. The middle cerebral arteries were thickened and there was some increase in size of the lateral ventricles.

Dr. MALLAM showed a case of lupus erythematosus and a case of urticaria pigmentosa.

Modern Treatment of Deafness.

Dr. GEORGE CATHEART gave an address on the modern treatment of deafness. He began by remarking that it had to be remembered that otology was one of the youngest branches of science, and only of late years had anything begun to be done for the deaf; the knowledge gained by specialism had still to filter through till it became part of the ordinary curriculum of the medical student. Yet prevention was beginning to play its part. Already there was a great change in the type of case seen in adult life; a few years ago the mastoid operations that had to be done for chronic ear discharge in order to save life were infinitely more numerous than at the present day, and no doubt that was because of the greater care taken of the ears during the course of measles and scarlet fever, and also because of the more frequent removal of adenoids. Chronic catarrhal otitis media was undoubtedly the com-

monest form of deafness, and yet it was the only form which was not hereditary, and might be prevented by the removal of adenoids and enlarged tonsils in childhood; catarrhal otitis media ought to be curable if treated in the early stages. A few years ago the presence of an intact drum and ossicles was considered an absolute essential to hearing, and a large number of the laity, even the well educated, still raised strong objections when the question of paracentesis was mooted. It was now known, however, that the sounds reached the inner ear by means of the round window, and so long as that was healthy it did not matter so much about the drum. For nerve deafness hitherto there had been no treatment. The sufferers were told to try various drugs; to stop smoking; not to worry; to lead a godly, righteous, and sober life in the future, if they had not done so in the past; and, above all, not to waste any more money on doctors, as no one could do them any good. Nor was the prospect any more pleasing when one turned to the treatment of chronic otitis media: Sir William Milligan had given it as his opinion that there had been no substantial progress in the treatment of adhesive catarrh of the middle ear during the past twenty years. Dr. Cathcart said that for many years he had been of the same opinion, and had got tired of having to tell so many patients, after the classical remedies had failed, that nothing more could be done for them. A few years ago, however, he heard, through an old patient who had been successfully treated by it, of a new method of treating chronic progressive deafness—namely, the electrophonoid method originated by M. Zund-Burguet of Paris. The electrophonoid was an instrument which reproduced the sound vibrations of the whole gamut of the human voice, and thus gave a physiological stimulus to the ear. The sounds produced were of varying quality and were variable at will; they were transmitted to the ear by telephonic receivers which could be adjusted to the sensitiveness of each ear. Finally, a secondary current, producing a gentle short-wave vibratory massage of the ear, was superimposed on the primary one which made the sounds; it was to this double action that the successful results were attributed. This method of treatment laboured under the disadvantage that it was not possible to tell from any tests made beforehand whether it would be successful or not. There was a factor in deafness as yet unrecognized, the presence—or it might be the absence—of which determined the result. The usual course of treatment consisted of thirty sittings, but on account of this unknown factor it was necessary to give a preliminary course of twelve sittings to find out whether it was worth while to continue or not. The speaker had recently published, in detail, a list of 100 cases, of all ages, treated by this method, 34 suffering from nerve deafness, 33 from chronic otitis media, and 33 from otosclerosis; they had all been pronounced by other otologists to be hopeless and incurable. By the electrophonoid method of treatment 81 per cent. of the cases of nerve deafness improved, 67 per cent. of the cases of chronic otitis media, and 55 per cent. of the cases of otosclerosis. Thirty-six of the 100 cases also suffered from noises in the head, which ceased after treatment in 72 per cent., while in the remainder they were much lessened. Dr. Cathcart was strongly of opinion, therefore, that the electrophonoid method, when properly carried out, was the most important advance in recent years in the treatment of chronic deafness and tinnitus.

Reports of Societies.

RICKETS.

At a meeting of the Manchester Medical Society on March 31st, Professor A. H. BURGESS, the President, in the chair, a discussion on rickets was held.

Dr. T. A. GOODFELLOW briefly summarized the research during the past fifteen years, prefacing his remarks with a short statement of the views held upon the etiology and treatment of rickets prior to 1912. He referred to the discovery of the accessory food factors in that year by Gowland Hopkins as the starting-point of the intensive research of recent years, and criticized the various theories as to the causation of the disease. At the present time

these appeared to be concerned chiefly with hygiene and diet, the importance of the former being stressed by the Glasgow school and supported by the work of Margaret Ferguson under the Medical Research Council. Recent work—especially that of the Mellanbys, of the British researchers in Vienna (published in 1925), and of the many observers who had been noting the effects of the ultra-violet rays upon animals and foodstuffs as well as on rickety children—had considerably narrowed the field for discussion. Most observers now agreed with Mellanby that the three essential factors in the etiology of the disease were: an organic factor in the diet which was concerned in the calcification of bone; light, either direct sunlight or radiations from the mercury vapour quartz lamp; and the amount and correct balance in the diet of the salts of calcium and phosphorus. Two recent communications (JOURNAL, March 20th, pp. 515 and 519) by E. Mellanby and L. G. Parsons were cited as producing valuable evidence of the association between rickets and catarrhal conditions in infancy, and, in the latter, of the part played by irradiated cholesterol in the cure of rickets.

Rickets in the First Two Years of Life.

Dr. CATHERINE CRISHOLM dealt with the manifestation of rickets in the first two years of child life. Theories of the causation of rickets were discussed and attention drawn to the frequency with which child after child in one family, out of proportion to its neighbours living under similar conditions, contracted rickets. She thought, therefore, that attention should be paid to a possible familial tendency. Personal idiosyncrasy, as evidenced by one of the twins developing rickets when housed and fed like its brother, had also to be considered as a factor. The weaning time in 200 cases of rickets entering the hospital at various ages showed a largely predominating number of cases weaned in the first two months. A comparative chart of 75 children showed the ordinary weaning time of the Manchester mother. Of these infants a certain number were weaned before the age of 2 months; 75 per cent. of these early weaned cases developed rickets, as compared with a 26.6 per cent. case incidence in the total number. Whether rickets was primarily a disease of bone, one symptom of an entity, or merely a symptom or sequela of wasting diseases, the bone change was the main feature of the condition found. In considering the diagnosis of rickets emphasis was therefore laid on the need for a combined radiological and clinical examination. The classical clinical symptoms alone were undependable. Two types of cases of rickets were found, and were well described, by Wimberger. Clinically there was a tendency to underestimate the amount of bone change in mild cases of the first or florid type, and radiologically in the second or passive type. As to the general incidence of rickets in the population, Thomson of Edinburgh had stated that between 1895 and 1900 over 50 per cent. of the children attending the Hospital for Sick Children under 3 years of age showed unmistakable signs. Paterson found 1.2 per cent. of active rickets in London in April, 1925; 32 per cent. had had rickets. Helen McKay, in a different investigation, found at least 8 per cent.; all but one, however, were slight cases. In an examination of 75 cases of unselected Manchester children who had never attended infant welfare centres, 26 per cent. of active rickets was found; two-thirds of the cases were well marked, and at least 45 per cent. showed radiological signs of having had rickets. Of Paterson's London patients 52 per cent. were taking oil regularly; of the Manchester district patients only five children—that is, 6 per cent.—were having oil. The treatment of rickets was obviously the supply of the chemical constituents needed in the form or with the medium which helped in their absorption and under conditions which enabled them to be used to the best advantage. Various attempts had been made to irradiate food lacking in vitamins, or to isolate the vitamin factor and add it to the diet. At the Babies Hospital infants had been radiologically examined and watched on different lines of treatment. Unfortunately infants could not be regulated as laboratory animals, and intercurrent troubles were always arising to spoil the experiment. But apparently the results at present were as follows. With a well balanced diet alone, rickets might

be healed, even when advanced, but it took a long time, during which the infant must be given exercise, yet prevented from putting weight on weak limbs. The healing was irregular as well as slow, and relapses occurred. Massage was not of much value in the actual healing of rickets where bone lesions were marked. The muscles might improve and the child learn to walk, progress being apparently satisfactory, but the bones healed but slowly. Cod-liver oil was the most dependable single agent for cure, and in combination with Parrish's food was the most reliable form of treatment. Mercury vapour light certainly helped to cure, particularly the lethargic type with flabby musculature or the small atrophic type. Both types of infants seemed to be stimulated by the rays and to respond well. The use of cod-liver oil with violet rays was an excellent and quick combination. A combination of food, massage, light, and oil certainly produced the quickest and best result in the cases selected in the autumn of 1925. The best treatment was cod-liver oil and natural sunlight, even in Manchester, when the summer was good and the infants were properly fed, clothed, and exposed under suitable conditions.

Rachitic Deformities.

Mr. HARRY PLATT said that to the surgical mind rickets was essentially a problem in the prevention and cure of deformity. Many of the efficient measures used to-day in the treatment of rachitic deformities had undergone little modification since their introduction many years ago. Operative intervention in rickets was now tending to be placed on a sounder basis. A deformity corrected in the stage of florid rickets was always likely to recur, so that some criterion of the activity of the disease was needed. This had now been provided as a result of the study of radiograms of the epiphyses in the various stages. In the infant the radiological index of activity had been completely established, but was not so definite in the older child or adolescent. A more careful clinical examination of patients presenting the syndrome of late rickets had revealed the occasional occurrence of so-called "renal rickets," in which the operative correction of deformities was always followed by disaster. Such experience emphasized the importance of a careful examination of the urine and an estimation of the kidney function. Rachitic deformities which called for the attention of the surgeon usually affected the lower limbs. Of these, there were three main types—bow-legs, knock-knee, and coxa vara. Bow-legs was essentially a deformity which showed a tendency to spontaneous rectification; it was rarely necessary to employ any special measures, and still less necessary to operate. For the extreme degrees of deformity in older children, tibial, or more rarely femoral, osteotomy was occasionally needed. Manual osteoclasis was possible when the bones were soft, but at this stage spontaneous cure could be expected in the majority of cases. Anterior bowing of the tibia was a deformity often better left alone. Its correction by operation in the extreme cases was not easy. Knock-knee, in contradistinction to bow-legs, was usually a progressive deformity, and once initiated tended to increase long after rickets had healed. As it was determined chiefly by weight-bearing, in the early stage this should be prohibited wherever possible. Under the exceptional conditions of an open-air hospital moderate degrees of rachitic knock-knee would disappear without any form of splinting. In ordinary hospital out-patient practice it was usual to apply a corrective walking appliance, the best form being the classical knock-knee brace of Thomas. A great many cases of knock-knee in older children, however, came for operative correction, and on the whole the results of femoral osteotomy were exceedingly good, provided the after-treatment was adequate. In the younger patients, after femoral osteotomy, the limb could be treated by immediate fixation in a plaster-of-Paris spica. In the adolescent and young adult it was desirable, however, to employ traction on a Thomas splint for as long a period as possible. This minimized the angulation and overlapping of the fragments, and helped to ensure rapid union. Refracture after a femoral osteotomy was not an uncommon experience in this operation. In the older patients it was sometimes difficult to reproduce the full mobility of the knee-joint in a short time. Rachitic coxa vara could be

almost ignored, as it was chiefly a deformity appreciable only in radiograms; it invariably underwent spontaneous cure. Deformities of the arm possessed little surgical interest. Deformities of the chest were important, and once fully developed could rarely be corrected, although general benefit was gained from regular gymnastic exercises. In the production of spinal deformities rickets was a subsidiary or negligible factor.

Renal Rickets.

Dr. G. V. ASHCROFT, in a paper on renal rickets, presented the results of an inquiry made at Ancoats Hospital into the association of rickets with renal disease. One typical case was described in detail with the results of urea tests, the deformity and x-ray appearances being demonstrated by lantern slides. In renal rickets the clinical picture was one of the onset at puberty of deformities of the late rickets type, associated with a profound muscular asthenia, pallor, stunting without infantilism, a low specific gravity urine, pale in colour and containing albumin, a notable absence of oedema and cardio-vascular change, and negative Wassermann, Loewi, and Goetsch reactions. The x-ray picture was one of rarefaction and porosis, enlargement and lack of cortex, associated with some rachitic changes at the epiphyseal line. The necropsy showed chronic interstitial nephritis associated with fibrosis of the suprarenal gland and an inactive thyroid gland. The degree of renal involvement roughly paralleled the degree of clinical and x-ray abnormality. It was to the association of the typical clinical picture, the typical x-ray picture, and deficient renal function that the term "renal rickets" had been applied. The risk of uraemia following operation and the poor result obtained by osteotomy in such cases was stressed. In view of the frequency of the condition and the ease with which it might be overlooked, it was suggested that before an adolescent with bone deformity came to operation renal function tests should be performed. Of the 24 adolescents with rickets investigated, 33 per cent. showed definite renal inefficiency and 54 per cent. revealed some renal defect. Sufficient evidence had been found to warrant the suggestion that while the kidney lesion was responsible for certain of the findings, such as albuminuria and death from uraemia, the greater part of the condition might be due to fibrosis of the suprarenal gland.

MANIPULATIVE SURGERY.

At a meeting of the Brighton and Sussex Medical-Chirurgical Society on April 1st, Mr. H. J. WALKER, the President, in the chair, a paper was read by Dr. JAMES MENNELL on the principles and practice of manipulative surgery, followed by a demonstration of technique. Manipulative treatment had, he said, suffered a set-back owing to the too rigid adherence to Hilton's teaching of rest and pain. The mistake had been made in the past of failing to realize the essential difference between movement and function—a distinction ably drawn in the work of Lucas-Championnière. Dr. Mennell dealt with the prophylactic treatment of the results of injury, and then with the treatment of cases where either prophylaxis had not been practised or had failed. He drew attention to the danger of putting a joint through its full range of anatomical movement when limitation of movement was marked and of long standing. The desirability was emphasized in these cases of merely passing the first dead point, and then allowing the patient to regain the increased freedom of movement before an attempt was made to gain a yet wider range as the result of subsequent manipulation. The necessity for after-treatment was also pointed out. Dr. Mennell pleaded for a more scientific consideration of lesions of joints of the back, condemning the practice of dubbing every aching back "neurasthenia."

A case of lichen planus with scalp lesions was shown by Dr. WINKELRIED WILLIAMS, who said that this association was usually considered very rare. Whitfield and others had shown cases at the Royal Society of Medicine recently, and it had been suggested that if lesions in the scalp were looked out for they would be found more commonly. Out of twelve cases recently seen scalp lesions were found in two. The case shown was the most extreme of these.

Rebuelus.

ARABIAN MEDICINE.

To the philosopher and thinker, as well as to members of the medical profession, the two scholarly volumes on *Arabian Medicine and its Influence on the Middle Ages*,¹ by Dr. DONALD CAMPBELL, will afford much profitable and intensely interesting reading.

The author appears to be little known among medical historians, and describes himself on the title-page merely as captain, late R.A.M.C., and formerly Indian Army Reserve of Officers; but these volumes disclose him to be a profound and erudite student of classical and mediaeval literature, and indeed of literature generally. Although at first one is inclined to regard him as a compiler and nothing more, this impression is soon dissipated, and, from an incidental note in the second volume, one gathers that he is the possessor of a library of Galenic and other classical works on medicine. He writes as an enthusiastic student of the medical literature of ancient times; and expresses his regret that "Galen and the medical philosophers have been abandoned to a mere handful of research workers who are scattered from Leipzig and Vienna on one side to Washington on the other." He feels that an investigation of the individual manuscripts may yet reveal an aspect of the classics and mediaeval thought that up to the present is hidden. For this reason alone he has felt sufficiently enthusiastic to compile data of all the known Latin translations of Galen, which, together with the Latin translations from the Arabic, a short bibliography, and index, form the whole of the second volume.

The first volume opens with a chapter on Greek medicine and its relation to the Arabians, followed by a catalogue of the Arabian medical manuscripts and the libraries in which they are to be found. The author, however, does not tell us of any of these manuscripts being in the famous Karouin library of Fez. Access to it is difficult if not impossible for all except the followers of Islam, although it may be assumed to hold many treasures in the form of Arabian mediaeval documents and books. The works of Hippocrates, Aristotle, Galen, Paulus Aegineta, and others were preserved through the Dark Ages by Syriac translations, from which they were translated into Arabic by the Nestorians and formed the basis of the Arabic influence on mediaeval Europe. In extremely interesting and admirably written chapters Dr. Campbell traces the rise of Islamism and the influence of the physicians and surgeons of the Eastern and Western Caliphates on the culture of the Middle Ages. Many of them were Jews and some Christians—a fact which is evidence of the wide tolerance of the Moslems of that time. They followed the doctrines of Hippocrates and Galen, but the great writers, Rhazes and Avicenna in the East and Albucasis and Averroes in the West, had a more direct and personal influence on medical thought and education—an influence which continued for centuries after their time. Indeed, the establishment of universities and the regularization of medical practice owe their origin to the Arabism of the Middle Ages and to its influence on the intellectual currents of that period.

The reader is next carried in a most illuminating fashion through the transition stages of the transfer of European culture from Arabism to Hellenism during the Renaissance, and after the recovery of the original Greek texts from the libraries of Byzantium. Up till then the scholastics of Europe derived their knowledge of the Greek classics from imperfect Latin translations made from the Arabic; and the great controversy between Hellenism and Arabism arose when Latin translations were made direct from the Greek texts in the fifteenth and sixteenth centuries. Paracelsus, Copernicus, and Vesalius, all of whom were medical men, led the revolt against Arabism, and we are told that Paracelsus, in order to show his contempt for the Arabist school, publicly burnt the works of Galen and Avicenna, whose *Qanūn*, however, continued as a textbook in some of the European universities till the middle of the seven-

¹ *Arabian Medicine and its Influence on the Middle Ages*. In two volumes. By Dr. Donald Campbell. Trubner's Oriental Series. London: Riccatt, Paul, Trevelch, Trubner and Co., Ltd. 1926. (Extra post 8s.) Vol. I, pp. xv + 228, 2 maps; Vol. II, pp. 235. 21s. net the two volumes.)

teenth century. Arabic pharmacy survived to modern times, and Dr. Campbell remarks that in the nineteenth century we find "Lister with his modern system of treating wounds, as opposed to the salve-surgery of the Arabists, vociferously opposed by his contemporaries who still adhered to the methods commonly practised in mediæval times."

After reading these volumes we confess to an unbounded admiration for Dr. Campbell's literary skill and erudition. We feel sure more will be heard of him as author and scholar; and, unless we are mistaken, he has already shown literary versatility by the publication recently of a novel under a *nom de plume*.

POPULATION PROBLEMS.

PARTLY because of a similarity between our national position and that of our great-grandparents, interest in the manner of growth of population is much keener than at any time within the last fifty years. Both economists and statisticians of the first rank, such as Bonar, Keynes, Pearl, Yule, and Brownlee, have devoted attention to the subject and there has been the usual output of "theories." There was room, however, for an objective study of the growth of population at the beginning of the nineteenth century, and an assessment of the importance of the factors defined by Malthus and, rather uncritically, accepted or rejected by general historians. Mr. G. TALBOT GRIFFITH has provided such a study, in a book, *Population Problems of the Age of Malthus*,² which thoroughly repays perusal.

The task Mr. Griffith set himself was not an easy one. He had to face, not only all the ordinary difficulties of an historian but the special difficulties imposed by the fact that for the elucidation of a problem essentially statistical the data are extremely imperfect. It was not to be expected that a young writer would conquer all these difficulties. In places, Mr. Griffith perhaps seeks to deduce more than the data can fairly be made to yield. Sometimes—for instance, in his remarks on page 193 respecting phthisis—he betrays lack of acquaintance with relevant technical literature, and his narrative style has not the smoothness which comes by practice. These, however, are blemishes which experience is sure to remove, and we have seldom read a first book on a difficult subject which not only showed so much promise but actually achieved so much.

Although Mr. Griffith is not critical of Malthus in any hostile sense, the general trend of his argument is to show that Malthus overestimated the importance of various possible factors of population growth. In the first place, Mr. Griffith argues, we think correctly, that a decline of the death rate at the end of the eighteenth century and the beginning of the nineteenth went for much more in the increase of population than a rise in the birth rate, that diminished destruction rather than increased production was really at work. He then shows that, in all probability, the effect of the old law of settlement in checking, and of the Poor Law allowance system, inaugurated by the famous resolution of the Berkshire magistrates, in promoting growth of population, have been greatly exaggerated. Mr. Griffith's study of the effects of the allowance system is, we think, the most original and most important part of his book. By comparison of both actual growths and natural increases in counties affected much or little by the allowance system, together with a comparison of the rates of growth in England and Scotland, he makes it appear that both Malthus himself and the commissioners of 1834 much exaggerated the stimulus given to reckless propagation by the "Speenhamland Act." A study of the statistics of enclosures, if not equally convincing, at least shows that there is a doubt which may be the horse and which the cart.

In a chapter on the health of towns and factories, Mr. Griffith has collected a good deal of information, and concludes that although the difference between the death rate and the birth rate in towns was less than in the agricultural districts, it can hardly be said that town life was a serious check upon the growth of population. A chapter on

alcohol as a factor of mortality should be agreeable reading to the advocates of a dry England. Here, perhaps, not quite sufficient attention is directed to the probable unreliability of *per caput* consumption figures based upon official data, in the good old days of Smuggler Bill. But, with all reservations, the case against free trade in alcoholic liquors is obviously strong. The last chapter but one, dealing with the influence of our professional activities upon the death rate, is interesting. Of course, opinions must differ as to the emphasis which should be put upon this or that medical reform. On the whole, without any desire to depreciate Jenner, we believe that Mr. Griffith attributes too much to the beneficent influence of vaccination. Many first-rate authorities, however, would certainly agree with Mr. Griffith, and, so far as we can see, his sketch of medical history contains none of the "howlers" which a non-medical writer can so easily commit.

We think this a valuable book, congratulate the author on his achievement, and shall look forward with pleasurable anticipation to his next contribution to historical literature.

PUERPERAL SEPTICAEMIA AND INDUSTRIAL ACCIDENTS.

DR. GEORGE GEDDES of Heywood has published in book form his monograph on *Puerperal Septicaemia*,³ with which he won the Nicholls prize awarded by the Royal Society of Medicine in June, 1924, for the best essay upon this subject. This award of itself compels the serious attention of the profession to his observations. Many of our readers will recall his earlier work on the same subject—*Statistics of Puerperal Fever and Allied Infectious Diseases* published in 1912. The present volume is an elaboration of its predecessor, with a further collection of statistics which have confirmed the writer in the views he had reached as to the causation of puerperal infection.

Dr. Geddes practised in Scotland before he went to Heywood, and the occurrence of puerperal infection in his practice in the industrial area of Lancashire and its absence in his earlier experience led him to contrast the differences in the conditions of his two practices. After excluding many points in which the circumstances of both practices were alike, he came to the conclusion that the frequency of industrial accidents, followed by septic sores which he was called upon to treat, was the most important factor determining the incidence of puerperal infection. This led him to make a painstaking and most praiseworthy statistical investigation as to the relative frequency of puerperal infection and of industrial accidents in different districts of Lancashire. The results of his investigation have led him to formulate the view which is the theme of this volume, that "industrial accidents determine the puerperal fever rate in every district, because such accidents generally produce septic wounds. We assume for our purpose that "accident" and "septic wound" are synonymous terms, and a "unit" considered in their relationship to puerperal fever. The resulting septic wounds become sources of infection, and infect women in labour through the agency of medical practitioners, or other persons, but generally through medical practitioners, who cannot escape contamination by such wounds in the daily routine of industrial practice.

"I feel it necessary to reiterate the statement that the responsibility of the profession is accidental in a double sense, for accidents are incidental to their environment, and they become influenced thereby. One cannot handle pitch and remain undefiled. It is equally true that one cannot treat septic wounds without risk of being contaminated by septic germs . . . The cause of puerperal sepsis does not depend upon either the professional proficiency of the medical practitioners or the service of midwives, but upon the conditions under which they have to practise midwifery."

These extracts sum up in brief the author's thesis. His investigations point to the medical practitioner being more often the unconscious agent of infection than the midwife, who is not called upon to handle septic wounds. Dr. Geddes very properly absolves the profession from blame in this matter, although not from responsibility, because,

² *Population Problems of the Age of Malthus*. By G. Talbot Griffith, B.A. Cambridge: The University Press. 1925. (Demy 8vo, pp. 276; 4 diagrams. 12s. 6d. net.)

³ *Puerperal Septicaemia*. By George Geddes, M.D., C.M.Aber. Bristol: John Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1925. (Demy 8vo, pp. vi + 200; 18 figures. 12s. 6d. net.)

as he points out, the conditions in which the general practitioner is compelled to work make the conveyance of infection almost unavoidable. The author, of course, recognizes other possible sources of infection, particularly the carrying of germs from one infected case to another, but he comes back to his main point, that *the factor* which determines the incidence of puerperal fever in every district is the incidence of septic wounds caused by industrial accidents.

Dr. Geddes supports his thesis with a vast number of most carefully compiled statistics, dealing with different areas and with different industrial groups—for example, residential districts, rural districts, weaving districts, spinning districts, mining districts, engineering districts, and so on. He claims further—a most interesting point—that cessation of work in mining districts during the various coal strikes produced effects upon the puerperal sepsis rate which serve to control and confirm his thesis. It is not easy for the ordinary individual, to whom statistics are more or less of a mathematical puzzle, to assess the absolute accuracy of his deductions. He certainly seems to make out a fair case. This volume contains merely a synopsis of the more important of the large number of tables which he submitted for the Nicholls prize, and he states that a member of the committee which awarded the prize suggested that he might submit the statistical portion to Mr. Caradog Jones, lecturer in social statistics at Liverpool University. He acted upon this advice, and Mr. Caradog Jones worked out the coefficients of correlation of certain factors, with the following results:

Correlation between puerperal fever rate per 1,000 births and—

- (1) Accident rate per 1,000 population = 0.216 ± 0.058 (mining districts included);
- (2) Accident rate per 1,000 population = 0.110 ± 0.067 (mining districts excluded);
- (3) Accident rate per 50 "M. and D."* births = 0.213 ± 0.058 (mining districts included);
- (4) Accident rate per 50 "M. and D."* births = 0.160 ± 0.066 (mining districts excluded);
- (5) Erysipelas rate per 1,000 population = 0.217 ± 0.065 (mining districts excluded).

He (Mr. Caradog Jones) says: "The results indicate a small positive correlation between the puerperal fever rate and the accident rate, and between the puerperal fever rate and the erysipelas rate, but in view of the size of the probable errors, it is not certain that the results obtained are significant."

With regard to the general matter of Dr. Geddes's thesis, it would be easy enough, but not very generous, to pick holes here and there. We feel compelled, however, to draw attention to the scepticism which he evinces with regard to the possibility of a patient becoming infected in the puerperium from pre-existing infected conditions in her own body. Sufficient cases of this sort have been recorded by high authorities to make it clear that this is at any rate a possible cause of puerperal infection, and it is difficult to understand how or why Dr. Geddes should remain sceptical. The mere fact which he quotes as an argument against this, that he attended a patient suffering from cystitis who had no rise of temperature in the puerperium, is neither here nor there, and arguments of this sort, based upon one or two individual cases, can carry no weight.

A point upon which we would join issue with Dr. Geddes is in the scant courtesy with which he treats the report of the Departmental Committee on Puerperal Morbidity and Mortality appointed by the Scottish Board of Health, which came under his notice on the day when his thesis was about to leave his hands for the bookbinder. It would have been wiser had he either taken more time to study this report, or else have avoided reference to it altogether, for it is not accurate to say that "it throws no light on the problem of causation, and therefore its suggestions for prevention are useless. Those who drew up this report are, if I may say so, under the same disability that I was before I left Scotland, and lack the personal experience which has opened my eyes to the problem." And it is literally scant courtesy to stigmatize the conclusions of this committee as "futile."

* "M. and D." births we mean births where doctors are present alone, those where they are present with midwives."

One other disappointing feature of Dr. Geddes's book is that it does not appear to recognize the enormous importance in this connexion, as well as in relation to other causes of puerperal morbidity and mortality, of adequate ante-natal supervision.

The author's recommendations as to prevention follow naturally from the conclusions he has reached with regard to the conditions determining the incidence of the disease.

"The only way to prevent puerperal septicaemia is to prevent those most in contact with septic wounds from attending puerperal women. Who are they? I answer unhesitatingly, 'general medical practitioners,' especially those practising in industrial districts. If this be an impracticable gospel—and one must admit that it is—then the only alternative is that all labours should be conducted under strictly aseptic conditions; such conditions are only possible in lying-in institutions."

In addition to this recommendation, the author refers to the strengthening of the patient's resistance against the infecting organisms, and the ante-natal attention to vaginal discharges and other signs or symptoms of infection. He recommends the wearing of rubber gloves, but makes the unfortunate and dangerously misleading statement that "if these are to be worn, there need not be the same care bestowed upon the hands." It is just here that rubber gloves are apt to be a trap and possibly more dangerous than the bare hand, for there is no surgical procedure in which gloves are so apt to be damaged as in a midwifery case. The author's other recommendations need not be specified. They are, like those which have already been referred to, closely in line with the recommendations which have been made from time to time by individual obstetricians and the various committees. Indeed, some of them are in substance very like the "futile" recommendations of the Scottish Departmental Committee.

These criticisms apart, Dr. Geddes's work will stand as a suggestive and interesting contribution to this most baffling subject, and we congratulate him upon the perseverance and assiduity with which he has conducted a laborious and painstaking research, while engaged in the harassing work of a large general practice. The circumstances in which the book was written explain in large measure such weaknesses as are present in his thesis, and the comparative paucity of references to the researches of others in the same field.

NOTES ON BOOKS.

AN author who styles himself JAMES BRIDIE, a "quiet, respectable practitioner of medicine," has written an account, under the title *Some Talk of Alexander*,⁴ of what happened to him during the years 1917-19. The spirit of adventure which led him to France early in the war was dead by the time he took ship for the East; but the Arabian nights and days through which he passed left upon him an impression which has induced him to write this book of quaint disconnected incidents. A comic chart of the itinerary contrived after the fashion of seventeenth century maps is prefixed to the volume; and interludes, intended to be metrical but hardly poetic, separate the chapters. So we wander pleasantly from India to Mesopotamia and Northern Persia, through Kasvin to Baku. In each country we learn much of the manners and habits of the natives from the amusing incidents described by James Bridie. In the chapter entitled "The Pax Britannica" it is inspiring to read of British prestige in Baku and South Russia in 1919, illustrated by the story of "How the Quartermaster Stopped the War" between Armenia and Georgia. *Some Talk of Alexander* is an entertaining book, for which the author's apologies in his preface are unnecessary.

"*Train Up a Child . . .*"⁵ is an interesting and comprehensive book on the upbringing and education of children, a subject which has presented its problems in all countries and in all ages. Judged by the evidence which Dr. McVittie produces, some countries have solved their problems with far greater wisdom and foresight than we in Great Britain have yet shown. His book deals with the physical, mental, and spiritual development of the individual, and contains many historical allusions, though the problems of the present:

⁴ *Some Talk of Alexander*. By James Bridie. London: Methuen and Co., Ltd. 1925. (Cr. 8vo, pp. xii + 180. 6s. net.)

⁵ "*Train Up a Child . . .*" By Robert Blakie McVittie, M.D. London: John Murray. 1925. (Cr. 8vo, pp. xvi + 272; 64 figures. 7s. 6d. net.)

day are those chiefly considered. The first three chapters are devoted to pre-natal existence. In the first chapter certain remarks on the diurnal tide of energy are made, as indicating the reason for the midday meal and the necessity for rest at this time. The author has collected information from many sources and has had practical demonstration of the training of children in various countries. Italian, Dutch, Swiss, and especially Swedish methods, are discussed. Much space is devoted to the Swedish Slöjd system, of which the author thinks very highly. Its graduated exercises in paper, wood, metal, drawing, singing, gymnastics, and games encourages the full development of the senses and freedom of movement of the body. The author claims that "the educational value of an idea is its capacity for association and suggestion." Failure to interest the child means failure to educate him. The choice and training of teachers, the construction of schools, the composition of boards of management, are all considered from the point of view of benefit to the child, and ultimately to the nation. The author's conclusions should stimulate to further efforts all who are interested in children. His hope is to direct attention "to the paramount importance of accepting the child as a physiological creature." Dr. McVittie's conception of the aim of education and his criticism of existing methods appear in the following extracts: "The aim of true education should be more abundant life, physically, mentally, morally, and spiritually," but the prevailing system frequently results in "more abundant crooked spines, contracted chests, dilated hearts, stomachs and bowels, twisted limbs, damaged eyes, exhausted nervous systems, irritability of temper, and unreliability of character."

THE ROYAL MEDICAL BENEVOLENT FUND.

THE annual meeting of the Royal Medical Benevolent Fund took place on April 20th, with the President, Sir THOMAS BARLOW, Bt., in the chair.

The financial statement, as presented by Sir CHARTERS SYMONDS, the honorary treasurer, showed that the book value of the invested property of the Fund stood at £103,887, and the treasurer said that the present market value was only slightly lower. The subscriptions and donations during the year amounted to £6,685, as against £4,780 in 1924. The amount expended in grants was £5,371, and in payments to annuitants and Christmas gifts, £3,850. The total expenditure was £10,549, of which £1,308 represented working expenses. Legacies had been received (including one of the nominal value of £3,325 under the will of the late Dr. M. G. Evans) to the amount of £4,300, and in addition there was a contingent legacy of £5,000 under the will of the late Sir Rickman Godlee.

Dr. NEWTON PITT, in his report as honorary secretary, said that the Fund had gratefully to acknowledge a special donation of £1,000 from Dr. W. Tinker, also a grant of five hundred guineas from the Medical Insurance Agency, together with a contribution of fifty guineas from the same source to the Christmas gifts. Another interesting donation was from a practitioner who sent a sum equal to two guineas for every year in which he had been in practice, accompanying it with the remark that his conscience troubled him because he had not supported the Fund earlier.

The number of persons relieved during the year was 392 by grants and 167 by annuities. The demands on the grants department had increased very considerably, and he was sure that if the distressing nature of many of the cases was more widely known there would be a still more generous response in the way of subscriptions and donations. During the year eleven annuitants had died, and the committee had elected 39 annuitants and had increased the annuities in 17 cases. The Fund was able to grant 20 annuities of £40, 19 of £30, 30 of £26, and 64 of about £20. Under the war emergency fund, now coming to an end, £1,778 had been distributed during the year, the greater part for the education of 29 children, and the remainder in the shape of grants to six medical officers.

The committee desired to tender its thanks to the British Medical Association for its assistance in collecting subscriptions amounting to £1,090 during the year, an increase of £79 on the amount so collected for the year preceding. The Fund had also co-operated with the Medical Secretaries of the Association in several cases requiring investigation and assistance. Attention was drawn to the good work of

the local honorary secretaries of the Fund, who, particularly in Scotland, Lancashire, and Devon, had been instrumental in collecting large amounts.

Sir THOMAS BARLOW, speaking from the chair, paid a tribute to the Ladies' Guild, which, he said, brought into the work a personal touch and sympathy which was most valuable. He also emphasized the fact that the Fund did not in the least do away with the need for local help. The Fund throughout had a supplementary function. He spoke of the painful nature of many of the cases, not least those in which, along with dire need, there was evidence of thriftlessness and lack of adaptability to changed circumstances.

Sir Thomas Barlow was re-elected president of the Fund, and to the list of vice-presidents, already numbering close upon one hundred, ten further names were added. From the Committee of Management it was reported that Sir HUMPHRY ROLLISTON and Dr. ARNOLD CHAPLIN had resigned, the former owing to his work at Cambridge, and the annual meeting elected to the committee five new members—namely, Sir JOHN BROADBENT, Dr. G. de BEC TURTLE, Mr. H. M. STRATFORD, Mr. F. A. JULER, and Mr. W. GIRLING BALL. Sir CHARTERS SYMONDS was re-elected treasurer, and Dr. NEWTON PITT and Mr. R. M. HANDFIELD-JONES joint honorary secretaries. Votes of thanks were accorded to the president, officers, and committee, and, on the motion of Dr. NEWTON PITT, to the medical and lay press. Dr. PITT said that, in addition to publishing monthly reports of cases, the BRITISH MEDICAL JOURNAL had published an appeal for Christmas gifts which had brought in a very favourable response. The special efforts of the British Medical Association to benefit the charity were much appreciated.

BRITISH EMPIRE CANCER CAMPAIGN.

GRANTS FOR RESEARCH.

At the quarterly meeting of the Grand Council of the British Empire Cancer Campaign, held on April 13th at the offices of the British Red Cross Society, 19, Berkeley Street, London, W., a number of grants to hospitals and individual workers were made. In the absence of Viscount CAVE, Sir JOHN BLAND-SUTTON, Bt., President of the Royal College of Surgeons of England, took the chair.

Lieut.-General Sir JOHN GOODWIN, K.C.B., organizing adviser to the Campaign, reported satisfactory progress in the scheme of local organization by county committees. Excellent headway had been made by the Yorkshire appeal for funds to establish a Yorkshire cancer research centre, and by the Birmingham appeal for setting up a similar centre in that city. Strong county committees had been organized in Kent, Essex, Hertfordshire, and the Isle of Wight, while the Lord-Lieutenants or other important county officials of Sussex, Surrey, Bedfordshire, Durham, Norfolk, Hampshire, and Berkshire had signified their willingness to appoint county committees in support of the Campaign.

The following grants were made: £1,695 to St. Bartholomew's Hospital, towards the maintenance of the new X-Ray Cancer Research Department; £2,500 to the Cancer Hospital, towards the upkeep of the Research Institute; £3,000 to the Middlesex Hospital, for cancer research; £300 to Dr. Malcolm Donaldson (St. Bartholomew's Hospital), in connexion with his investigations into inoperable cancer of the cervix uteri; a further £250 to St. Mark's Hospital, for cancer research, making a total grant of £500 for the year; £300 to Dr. Charles Walker (Liverpool University), to defray certain cancer research expenses; and £300 to Professor D. P. D. WILKIE (Edinburgh University), for the purchase of apparatus and material for use in cancer research. These grants, together with sums set aside for commitments entered into by the Campaign, amount to an expenditure of approximately £25,000 to date.

It was reported that the first number of the new publication, to be known as the *Cancer Review*, would be issued in May, under the editorship of Dr. Francis Cavers, and would continue thereafter as a monthly publication. It would embrace reports of all cancer research work being undertaken throughout the world, and it was hoped that in this and other ways the new periodical would link up the work of all cancer researchers. Mr. J. P. LOCKHART-MUMMERY, F.R.C.S., chairman of the executive committee, again undertook to edit the annual report of the work of the Campaign. Professor R. T. LEIPER, M.D., D.Sc., F.R.S., of the London School of Hygiene and Tropical Medicine, was elected a member of the Grand Council.

REPORT OF THE DEPARTMENTAL COMMITTEE
ON MULE-SPINNER'S CANCER.

THE condition now generally known as mule-spinner's cancer was practically unheard of until 1922, when it was brought into prominence in a paper by Mr. A. H. Southam and Mr. S. R. Wilson, published in the *BRITISH MEDICAL JOURNAL* of November 18th, 1922 (p. 971). In this paper attention was drawn to the prevalence of epithelioma of the scrotum among spinners in South Lancashire, and the suggestion was put forward that the disease was due to soiling of the clothes by the lubricating oil used on the spinning machinery. The article was illustrated by photographs showing the characteristic attitude adopted by the spinner when at work to explain the incidence of the disease on the scrotum.

As a result of the widespread interest aroused by the paper, and the alarm it caused amongst workers in the cotton trade, the Home Secretary appointed a departmental committee in March, 1925, to consider evidence at present available as to the occurrence of this condition, and "to report what measures are practicable for the protection of the workers, and what regulations (if any) are required." This report* has now been issued, and it is interesting to find that it practically confirms the suggestions originally brought forward in 1922 by Southam and Wilson. Since the 69 original cases recorded in their article the committee has been able to trace up to the present 539 cases. But it is remarked that many other cases must have escaped notice.

The following table shows the geographical distribution of the cases which have actually been brought to the notice of the committee, collected from 1876 onwards.

TABLE I.—Geographical Distribution of Cases Collected from 1876 onwards.

District.*	Spinners.		Ex-spinners† in other Occupations.		Total.
	Scrotum.	Other Parts of the Skin.	Scrotum.	Other Parts of the Skin.	
Oldham (5,131) ...	160	39	25	4	229
Bolton (3,900) ...	57	12	11	—	80
Ash-ton-under-Lyne (2,740) ...	25	8	11	2	46
Rochdale (2,702) ...	22	3	3	1	29
Wigan (2,476) ...	8	6	1	—	15
Preston (2,139) ...	19	1	4	—	24
Blackburn (974) ...	44	3	4	2	53
Stockport (755) ...	7	1	4	—	12
Halifax (625) ...	5	2	1	—	8
Manchester (514) ...	11	2	2	1	16
Barnley (427) ...	18	2	2	—	22
Huddersfield (329) ...	4	—	—	—	4
Keighley (55) ...	1	—	—	—	1
Total (32,699) ...	331	79	69	10	539

* The districts include not only the towns mentioned but also the adjacent areas, and the figures in italics after each town show the number of spinners, excluding piecers, employed in these areas in 1925.

† The only cases included in these columns are those of persons whose logical occupation has been that of spinning.

Inquiry abroad as to evidence of a similar incidence amongst mule-spinners in France, Germany, Russia, Poland, and America has led to entirely negative results.

The report shows that with the exception of patent-fuel workers and chimney-sweeps, the mean annual death rate for persons employed in cotton-spinning processes is very

* Report of the Departmental Committee (Home Office) appointed to consider Evidence as to the Occurrence of Epitheliomatous Ulceration among Mule-Spinners, 1926. H.M. Stationery Office (London, Manchester, Cardiff, Edinburgh, Belfast), or through any bookseller. Price 1s. net.

much higher than that for any other class of worker. Another table shows that the mortality among cotton-spinners is fourteen times as great at the ages of 25 to 35 as that in the general population, between the ages of 45 to 55 it is sixty times as great, and between 55 and 75 a hundred times as great. Inquiries, moreover, go to show that the incidence of the condition has been rapidly increasing. Returns prove that the number of deaths from it has increased at a rate out of all proportion to the increase of spinners employed.

The earliest age at which the condition was recognized was 22 years, and the latest 77 years. The age period at which it appears to be specially liable to manifest itself commences at 35 years, and reaches its maximum at about 55, the average age for all cases being 52.4 years.

While the majority of cases occur on the scrotum, the growths may be found on other parts of the body. In 539 cases the disease was on the scrotum in 450 (83.5 per cent.) and on other parts of the skin in 89 (16.5 per cent.). The following table shows the different parts of the body on which the growths were found.

TABLE II.—Site of Disease.

Site.	Spinners.	Ex-spinners in other Occupations.	Total.
1.	2.	3.	4.
Scrotum	381	69	450
Head and neck	29	2	31
Upper limb	22	1	23
Lower limb	13	1	14
Groin and trunk	5	1	6
Penis	10	3	13
Multiple—			
Leg and arm	1	—	1
Forearm and ear	—	1	1
Ear and scrotum	—	1	1
Penis and scrotum	2	—	2
Total	460	79	539

While, therefore, the scrotum is undoubtedly the site of election, these figures suggest that approximately 25 per cent. occur in other parts of the body.

It appears that wart formation usually precedes, sometimes by many years, the development of the cancer. The warts may be single or several may develop at one time. Once it has started as an epithelioma the progress of the growth is rapid, and as the months pass the prospect of effective cure is diminished. Medical evidence is to the effect that if the wart is removed early there is a good chance of a permanent cure. The scrotal growth soon spreads to the glands, but in other situations the progress of the disease appears to be relatively slow and more amenable to treatment.

In dealing with the cause of the disease, the report recalls that Southam and Wilson put forward the suggestion that in these operations the substance responsible for causing the disease was the mineral oil used in lubricating the spindles. They based their view on the knowledge that in other forms of cancer tar and paraffin were recognized as direct causal agents and were shown by animal experiments to have such a property. The proof that certain mineral oils are capable of inducing cancer of the skin is twofold, being founded on observations on men and experiments on animals. Scott has provided evidence of the occurrence of epithelioma amongst the employees in the Scottish shale industry, whilst experimental evidence has been furnished by Leitch with his experiments on mice.

The report then goes on to state:

"We have thus conclusive evidence that certain mineral oils, including such refined mixtures as lubricating oil, are capable of inducing epitheliomatous formation when the subject has long been exposed to their action. Whether these oils are the direct immediate products of the cancerous growth, or merely the

principal factors that prepare the soil for some other and more general cancer-producing agent, is a scientific matter, which we are not called upon to settle. The broad fact is beyond reasonable dispute, namely, that in the absence of exposure to such mineral oils there would be no mule-spinner's cancer. It does not follow that all mineral oils necessarily have this effect; some, indeed, may be found on investigation to be innocuous; but until any particular oil is shown to be free from cancer-producing property, it must be regarded as dangerous. In this connexion it should be mentioned that our attention has been called to a certain oil which was claimed to be harmless. It was said to have been prepared after careful chemical analysis, and there is no doubt that the producers felt satisfied that the dangerous elements had been eliminated; but we feel it necessary to point out that their opinion was based on a purely chemical test, and that the oil has not been subjected to any physiological test. We think that in the absence of such physiological proof the oil cannot be regarded as free from danger."

The construction and working of the mule is given, and it is shown how oil is thrown off the spindles, sometimes at the rate of one-thirteenth of a pint a day per mule of 1,320 spindles. This test was carried out at random and the conditions were not abnormal. Fine particles of oil are also to be found continually in suspension in the air of the room, whilst it is not unusual to find oil on the trousers from contact with the carriage doors.

Other factors may be present, but none of them has been shown to have any direct bearing on the causation of the disease. The committee comes to the conclusion that the evidence is strongly in favour of this disease being due to the prolonged action of mineral oils.

The committee, having reached these conclusions, has had to consider what means can best be adopted to combat the disease, and the following recommendations are set out.

Summary of Recommendations.

(1) Institution of experimental research into oils with a view to finding oils which are innocuous and at the same time suitable as lubricants.

(2) Development of a non-splash type of spindle bearing, more particularly for new mules.

(3) Prevention of oil splash from the spindles of existing mules by means of some form of guard, the type to be decided by a series of tests to be mutually agreed upon and arranged by the Masters' Federation and the operative spinners.

(4) Periodic medical examination of the workers.

(a) To be tried at first on a voluntary basis, but, if unsuccessful in one year or at any subsequent period, to be made compulsory.

(b) To be performed at the factory.

(c) To take place at least every four months.

(d) To include every worker in the mule-spinning room who is 30 years of age and over.

(e) To be performed by three or four medical men appointed by the trade, with Home Office approval, for the whole area, or failing this by special medical men appointed for suitable areas by the Home Office in conjunction with trade representatives, all workers in any given area to be examined by one man.

(5) Education by periodic distribution of leaflets in order to direct attention to the importance of cleanliness and to the danger of delay in securing early treatment.

The committee concludes its report by paying a tribute to its secretary, Dr. S. A. Henry of Manchester, medical inspector of factories, who has followed up cases of the disease and has made a careful search through the records extending over many years in Lancashire hospitals and through death registers, which has thrown an important light on the dates from which this disease began to manifest itself and of the increase in its incidence during recent years.

RADIUM THERAPY.

REPORTS FROM RESEARCH CENTRES.

The Medical Research Council has published a summary of reports for 1924 from the various centres where investigations are being made into the medical use of radium supplied by the Council. In the *JOURNAL* of December 20th, 1924 (p. 1170), we dealt at length with a previous similar report for 1923, describing the way in which this research had originated at the end of the war and was being conducted. In the present report¹ it is announced that the original general scheme is now being extended in two main

directions. Further quantities of radium salt have been made available by the British Empire Cancer Campaign and a campaign in connexion with St. Bartholomew's Hospital; fresh allocations of radium were also made to St. Peter's Hospital, London, and to a committee of the London Association of the Medical Women's Federation for use in a group of hospitals. In the second place, arrangements have been made to augment the resources of the different clinical centres participating in the scheme by the establishment of a depot at the Middlesex Hospital for a supply of radium emanation (radon), under the supervision of Professor Sidney Russ, D.Sc., the expenses being defrayed by the British Empire Cancer Campaign. An account of these arrangements for the supply of radium emanation is given in an appendix to the report and is illustrated by photographs of apparatus.

In discussing the previous report we mentioned that an arrangement had been made by which the Radiology Committee originally appointed by the Medical Research Council should also co-operate in this campaign, and this committee has drawn up working conditions as follows. Radon will be supplied to any applicant associated with the radium investigations of the Medical Research Council, one week's supply being the maximum quantity issued. Priority is given to applications where the radon is required in a form in which the solid salt cannot be used. Requests for radon for biological or physical research will be met wherever possible. During eight months there were 129 requisitions for radon, the number of millicuries used being about 3,600. Nine clinical centres are concerned in this work: they are the Middlesex Hospital, University College Hospital, St. Bartholomew's Hospital, King's College Hospital, the London Hospital, the Birmingham General Hospital, Cardiff Royal Infirmary, Aberdeen Royal Infirmary, and the Irish Public Health Council in Dublin. The salt allocated to the last named centre has been used as a source of emanation for distribution in Ireland. Fractions of radium salt have also been allocated for purely experimental work to Dr. J. C. Mottram of the Radium Institute, and Sir Ernest Rutherford at the Cavendish Laboratory, Cambridge; a small quantity has also been lent to Mr. A. G. T. Fisher for work upon arthritis. At several of the clinical centres the radium is also available for experimental work.

Clinical Investigations.

The present summary of the reports from the different centres upon the work of 1924 deals with three main subjects—namely, clinical investigations in malignant disease and in non-malignant conditions, and experimental investigations. The malignant diseases are divided into five sections according to the site and nature of the malignant growth. Non-malignant conditions are dealt with in a separate section.

1. Cancer of the breast has been treated at the Middlesex Hospital by surgical and by surface radium therapy, and at St. Bartholomew's Hospital by surgical radium therapy. The conclusions drawn are that radium has a definite therapeutic value in breast cancer; local recurrences treated by the surgical insertion of radium are often checked, and may sometimes disappear after the use of comparatively large doses. More information is still required in order to define the optimum intervals of time and the doses of radiation in the surface therapy of inoperable tumours.

2. Cancer of the uterus was dealt with by seven centres. The report of University College Hospital contains an analysis of twenty cases of carcinoma of the cervix treated during the previous twelve months, and a short summary of seventy-eight cases treated from May, 1921, to October, 1924, including two cases of carcinoma of the body of the uterus, one of vaginal carcinoma, and one of vulval carcinoma. St. Bartholomew's Hospital supplies an abstract of the work during the three and a half years ending May, 1924. A synopsis is given of eighty-five cases of carcinoma treated with radium only, and sections are devoted to discussions of the value of radium as a palliative, curative, and prophylactic agent, and to dosage. Cardiff Royal Infirmary reports on the treatment of forty cases of cervical carcinoma, six of carcinoma of the body of the uterus, one of uterine sarcoma, two of carcinoma of the vagina, and three of vulval carcinoma. The London Hospital dealt with twenty-one cases of inoperable carcinoma of the cervix, eleven of cervical cancer followed by Wertheim's hysterectomy, and four cases of cervical cancer followed by panhysterectomy. At Aberdeen Royal Infirmary six cases of cancer of the cervix and one of the

¹ Medical Research Council, Special Report Series, No. 102. Medical Uses of Radium: Summary of Reports from Research Centres for 1924. London: H.M. Stationery Office, 1925. Price 1s. 6d. net.

COMMITTEE ON VACCINATION.

vulva were treated. Birmingham General Hospital used the radium for fifteen inoperable cases of cervical carcinoma, and one of epithelioma of the vulva. King's College Hospital treated twenty cases of carcinoma of the cervix, mostly inoperable, and the Irish Public Health Council dealt with a smaller number of cases of cervical cancer and cancer of the body and vulva. The conclusions drawn from the combined results in these reports are that radium treatment is of the greatest value as a palliative for malignant diseases of the uterus. Haemorrhage ceased in nearly all the cases, the local growth disappeared in the great majority, the patients improved in health and gained weight, and in many instances life was definitely prolonged. Histological examination proved that where the growth was localized in the cervix the malignant cells were completely destroyed in certain cases. Although the evidence is insufficient to indicate which is the best technique, it appears that the majority of failures are due to insufficient treatment received by the periphery of the growth—that is, in the parametric tissues and metastases in the glands. It was shown that tissues two inches away from the radium source only received about one-thousandth part of the dose obtained by the tissues in contact with the radium. The Radiology Committee is convinced that the probable limits of uterine malignant growth cannot be efficiently treated by placing a single tube of radium in the cervical canal. Some evidence was very efficacious, but in the dose given over a long period was used for a long time majority of cases where a small dose was used through the tumour the radium was also distributed more evenly through the tumour than was possible using few foci of radiation. It appeared also that when hysterectomy was performed soon after the application of radium no great difficulties had been added to the operation by this preliminary treatment.

3. Cancers of the mouth, naso-pharynx, larynx, and oesophagus were treated at the Middlesex Hospital (thirteen cases), St. Bartholomew's Hospital (twenty-nine cases), University College Hospital (eight cases), and Aberdeen Royal Infirmary (five cases). Birmingham General Hospital reported that the treatment of oesophageal cancer by radium alone had been abandoned, but that radium was still employed in conjunction with diathermy. The conclusions drawn from the results in these reports are that the value of radium therapy in malignancy in these neighbourhoods is very dependent on the technique adopted, and that owing to the great variety of the involvement in malignancy no sharp determination of the factors with dosage can be expected. Secondary growths in these sites may disappear under irradiation, without the process of dissemination from the primary growth elsewhere being stopped. Sepsis was one of the most important factors limiting the establishment of a satisfactory technique. The irradiation of tumours with numerous, though weak, radium sources, applied for a long time, appeared hopeful, but more cases were needed before definite conclusions could be reached.

4. The number of sarcoma and lymphosarcoma cases treated was sixty-six, the clinical centres concerned being the Middlesex Hospital, University College Hospital, the Royal Infirmary, Aberdeen, the Cardiff Royal Infirmary, King's College Hospital, and the Irish Public Health Council. An attempt is being made to correlate the clinical results of treatment with the histological features of the growths.

5. Rodent ulcers were treated at the Middlesex Hospital (forty-nine cases), King's College Hospital (twenty-seven cases), Birmingham General Hospital (forty cases), Cardiff Royal Infirmary (two cases). It was found that radium therapy was effective in a large proportion of rodent ulcers, but that there was a tendency for recurrence of the growths. Recurrence was at the surface of the growth indicated unusual resistance of these cells to irradiation, but when it occurred in cells at considerable depth below the surface it pointed to a probable defect of the beta-ray application—namely, insufficient intensity at comparatively small depths. Since the probability of such recurrence is much diminished by the use of gamma-ray sources, it is suggested that it would be useful to have information about the end-results of treatment of such rodent growths by means of gamma-ray sources of known intensity.

6. The non-malignant gynaecological conditions dealt with consisted mainly of menorrhagia and irregular uterine haemorrhage, especially at the menopause, and of fibroids giving rise to menorrhagia. The Committee expresses itself as convinced that radium is completely efficient in creating an artificial menopause, or in cutting short a prolonged and abnormal menopause. The minimum dose for this result would appear to be about 35 mg. of radium element used for twenty-four hours, but the usual dose is 70 mg., retained in the body of the uterus for twenty-four hours; this is more certain in its results. It is noted that at University College Hospital radium is used as a routine treatment in such cases, and the Committee concludes that more research work might profitably be carried on in patients aged between 25 and 40, suffering

from intractable haemorrhage, and in whom it is desired to control the haemorrhage by small doses without causing a premature menopause. Radium treatment was found very valuable in the case of small fibroids giving rise to menorrhagia, but generally caused an artificial menopause; in a few cases the fibroids diminished in size. It is suggested that more attention might be devoted to patients suffering from chronic cervicitis, with a view to discovering whether it is possible to destroy the mucous glands of the cervix without destroying the ovaries and producing an artificial climacteric. Two cases of myeloid leukaemia were treated at the Middlesex Hospital, and Aberdeen Royal Infirmary dealt with five cases of this disease, one of polycythaemia, and two cases of Hodgkin's disease. In six of the seven cases of myeloid leukaemia treated by the external application of radium to the spleen or to the long bones considerable improvement followed; in some cases a quick and pronounced fall in the numbers of circulating leucocytes occurred. The detailed blood counts in the seven cases of myeloid leukaemia are reproduced in full.

Experimental Investigations.

With regard to the experimental investigations, it is stated that Sir Ernest Rutherford is continuing his work at the Cavendish Laboratory on the subject of atomic constitution and stability, greatly helped by the loan of radium. Dr. H. A. Colwell is investigating the effectiveness of secondary radiations, when such radiations are generated in the intima of living structures. Professor E. C. Dodds and Dr. D. Webster have continued their study of metabolic changes associated with α rays and radium treatment. Dr. J. C. Mottram, at the Radium Institute, has published an investigation into the skin reactions of exposure to radium as affected by heat and cold; other lines of research are also being followed. The work of the different clinical centres is directed by local research committees.

COMMITTEE ON VACCINATION
(MINISTRY OF HEALTH).

REQUEST TO MEDICAL PRACTITIONERS.

The Departmental Committee on Vaccination recently appointed by the Minister of Health considers it desirable to invite the assistance of all members of the medical profession who are in active practice in this country in the elucidation of a question which has arisen under its official reference.

The Committee has decided to make a special study during the next twelve months of all cases in which the occurrence of acute disease of the central nervous system (such as meningitis of any kind or origin, encephalitis, poliomyelitis) has been "post-vaccinal"—using this term in the sense that the first symptoms have occurred within four weeks of vaccination.

The object of the Committee is to obtain a collection of data sufficient to enable it to ascertain whether there are any features which distinguish cases of acute nervous disease which happen to be "post-vaccinal" (as defined above) from those which are not.

The request which is, therefore, made to all practising members of the medical profession is that, when called in to any case of disease of the central nervous system with an acute onset, they will be so good as to inform the Committee as soon as possible of every case in which they have ascertained that vaccination has preceded the onset of the symptoms within a period of four weeks. The intimation should be sent as speedily as possible to the Secretary of the Departmental Committee on Vaccination (Dr. J. R. Hutchinson), Ministry of Health, Whitehall, London, S.W.1. The appointment and constitution of the Committee were recorded in the *BRITISH MEDICAL JOURNAL* of February 13th, 1926 (p. 294).

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SATURDAY, APRIL 24TH, 1926.

ENDOCARDITIS.

IT is forty-one years since Sir William Osler gave the Goulstonian Lectures on malignant endocarditis before the Royal College of Physicians of London, and twenty-three years since the veteran Professor T. R. Glynn's Lumleian Lectures on infective endocarditis; it is seventeen years since Sir Norman Moore delivered the same course on rheumatic fever and valvular disease, and now his distinguished pupil, Sir Thomas Horder, has reviewed the whole subject of endocarditis in the Lumleian Lectures for this year, the text of which has been published in our columns during recent weeks, the last in this issue (p. 733). The time for such a general survey of the subject is ripe, but the field is very extensive, as is shown by the following among other considerations: the probable but not accepted infective origin of rheumatic fever, the investigations of Libman and Baehr in America, of Lewis and Grant, Cotton and Starling in this country on bacterial endocarditis, which has bulked so much more since the war, Poynton and Carey Coombs's work, W. S. Thayer's elaborate analysis¹ of the 362 cases of acute and subacute endocarditis studied during thirty-four and a half years (1890-1923 inclusive) at the Johns Hopkins Hospital, and the campaigns to prevent rheumatic heart disease. It should also be recalled that Sir Thomas Horder in 1909 analysed 150 cases of infective endocarditis especially with reference to the chronic form of the disease, and that his paper appeared in the same volume of the *Quarterly Journal of Medicine* as one by Sir William Osler on chronic infectious endocarditis.

Starting with the conditions of rheumatic carditis and syphilitic disease of the heart and aorta, Sir Thomas Horder pays a tribute to Sturges's forty-two-years-old conception of rheumatic carditis, now histologically established by Aschoff's perivascular bodies, the existence of which was early and independently confirmed in this country by Dr. Carey Coombs. The Lumleian lecturer, however, is careful to express his opinion that failure to find Aschoff's nodes in an old cardiac lesion does not exclude its rheumatic origin. Professor Thayer regards them as quite specific of acute rheumatic pancarditis and unlike anything else; but Sir Thomas Horder, from a cautious comparison with military syphilomas, expresses mild surprise that the possibility of a spirochaetal origin for acute rheumatism has not attracted attention. A reference to Sir William Church's analysis of 700 cases of rheumatic fever in 1887 raises the interesting question of the change that has taken place in the clinical characters of the disease since Peter Mere Latham's classical lectures describing its acute and stormy features before 1840, and the lecturer suggests that the exudative lesions, such as pericarditis, have become less common and the proliferative perhaps more frequent. Though no statistics are given, belief in the increased incidence of subacute and chronic rheumatic endocarditis is in accordance with general opinion. The much discussed problem of the distinction of rheumatic from other established forms of cardiac infection

is dealt with by Professor Thayer, among whose 362 cases of endocarditis there appeared to be 43 cases of acute rheumatic endocarditis; but these were cut down to 24 by the rigid application of his criteria of rheumatic heart disease—namely, a rheumatic history, a negative bacteriological result from blood cultures during life, and from the blood and cardiac lesions after death. In this way some examples of terminal streptococcal invasion were excluded. That rheumatic heart disease often precedes streptococcal infection is, according to Thayer's statistics, a characteristic feature, thus contrasting with the rarity of syphilitic aortic valvulitis as the basis for this coccic infection. Though this association of streptococci with rheumatic pancarditis is regarded as due to secondary infection, he admits the possibility that at some future time acute rheumatism may be proved to be dependent on streptococcal infection. But in the meanwhile it is difficult to avoid the conclusion that Poynton and Paine's cases of "malignant rheumatism" are examples of streptococcal infection on a rheumatic endocarditis. In comparing rheumatic and septic endocarditis, Sir Thomas expresses the belief that the rheumatic form will be proved to be specific, whereas the septic is certainly not, unless, indeed, all the septic cases are due to some underlying but unknown infection on which the recognized bacteria are secondarily implanted.

The recognition of non-microbial factors in the production of endocarditis dates at least as far back as 1844, when Sir James Paget pointed out the liability to subsequent disease shown by the pulmonary and aortic valves when congenitally abnormal; this has attracted the attention of Sir Archibald Garrod and of the lecturer, and more recently has been investigated by Sir Thomas Lewis and Dr. Grant (1923) in regard to minute congenital abnormalities, and statistically by Dr. Maude E. Abbott (1925), who, in a collection of 555 congenital cardiac defects "of clinical significance," found acute endocarditis in 98, or 17.6 per cent.

The influence of physical strain in favouring endocarditis, insisted on as a cause of chronic heart disease by the late Sir Clifford Allbutt since 1870, finds support from the lecturer and from Drs. H. J. Starling and Carey Coombs's experience in ex-soldiers who, apparently free from previous cardiac lesions, were, after strenuous service, attacked by chronic infective endocarditis. There is thus a very definite difference from Professor Thayer's careful statistics, which show that 75 to 80 per cent. of infections with *Streptococcus viridans* are implanted on old valvulitis. The lecturer concludes that, whereas in chronic civilian cases there is usually evidence of pre-existing valvular lesions, in acute cases generally and in chronic ex-service cases there is a notable absence of previous valvular disease, though he suggests that even in these there may be some definite though not very obvious congenital defect. He lays stress on the limitation of this chronic infection to the endocardium, the rarity of auricular fibrillation, and the relatively long preservation of myocardial efficiency; this, however, does not necessarily conflict with Thayer's observation of the frequent evidence of past rheumatic myocarditis in streptococcal endocarditis.

With Sir Thomas Horder's criticism of the confusion between the conditions connoted by the labels sub-acute and chronic bacterial, or, as he prefers to call them, septic endocarditis, many will sympathize, and would be content to apply the term "chronic" to all those which are not acute, and to drop the title "sub-acute bacterial endocarditis" applied by Libman to the group of cases which he so greatly elucidated,

¹ W. S. Thayer: Studies on Bacterial (Infective) Endocarditis, *Johns Hopkins Hospital Reports*, 1926, vol. xxii, fasciculus 1, pp. 163, 10 charts.

especially as cases sometimes headed "subacute" are found on analysis to be really more drawn out than those formerly designated "chronic." In Professor Thayer's monograph all cases of less than one month's duration are called acute, and all more than this subacute, though such a division is admittedly adopted purely for convenience of analysis.

As regards the articular symptoms, both Thayer and the Lumleian lecturer remark on their arthralgic and fleeting rather than their arthritic characters, and the latter suggests that some cases of pain about the hands and feet may be really due to embolism of the radial or posterior tibial arteries. The café-au-lait tint of the complexion, described by E. Libman, is regarded as evidence of considerable chronicity by Sir Thomas Horder, who associates tenderness over the sternum (also described by Libman) with anaemia, but not otherwise with the disease, and Professor Thayer expressly states that it is not of any special significance. The rarity of pericarditis in streptococcal endocarditis—6 per cent. in Thayer's 110 cases, as compared with 70 per cent. in rheumatic cardiac disease, 28 per cent. in gonococcal, and 19 per cent. in pneumococcal endocarditis—is noteworthy in connexion with the suggested streptococcal etiology of rheumatic fever. Embolism occurred in 88 per cent. of Sir Thomas Horder's chronic cases, and in 96 per cent. of Professor Thayer's chronic streptococcal endocarditis patients coming to necropsy; among the latter cerebral embolism occurred in 34 per cent., as against 16 per cent. in the Lumleian lecturer's 162 cases. Sir Thomas Horder regards Osler's nodes as probably embolic, but admits the absence of any proof that this is true in the case of petechiae. The clinical improvement seen after undoubted infarctions, such as of the spleen, suggests that antibody formation may occur during the changes thus set up.

Libman's description of the bacteria-free stage is submitted to criticism by the Lumleian lecturer, who is anxious to make it clear that negative blood cultures do not mean that the infection has been vanquished, for it may be progressing all the time, and he suggests that the bacteria may be centrifugized out of the circulating blood into the peripheral organs. The treatment is critically considered, and, while not neglecting "hods, both the Lumleian lecturer and trust more to fresh air, sun, and good food. Thayer, indeed, remarks that the chronic cases rarely escape "meddlesome treatment" on account of the importunities of well-meaning relatives. Sir Thomas Horder tried Capps's caco-dylate injection treatment on twelve patients, who, if they were not specially benefited, suffered no ill effect.

From an inevitable comparison the thoughtful reader will appreciate the keenly stimulating influence of the Lumleian Lectures, and the value for the formation of definite decisions of the minute analyses to which the Johns Hopkins Hospital material has been submitted by Professor Thayer.

THE ECONOMY BILL AND NATIONAL HEALTH INSURANCE.

THE clauses of the Economy Bill affecting national health insurance have completed their leisurely course through Committee of the House of Commons, and, as was to be expected, have survived the epithets applied to them in Parliament and on the platform. They bind themselves to misrepresentation for purposes of party politics and for those of Approved Society

officials anxious to aggrandize the position and funds of their societies. It is more profitable to examine with less prejudice their intention and their effects on national finance and on health services. This examination has been aided by the reply of the Minister of Health to a deputation representing Approved Societies, a report of which will be found in the SUPPLEMENT this week at page 159. Clauses 1, 2, and 5 of the bill, and certain financial resolutions necessary to these clauses, have been the principal objects of attack. The lines of this attack have been three: (1) that the reduction in the proportion of State grant is a breach of contract unfair to Approved Societies, endangering their financial stability, or at least diminishing their usefulness; (2) that the raid on the Army, Navy, and Air Force Fund is a particularly unworthy form of robbery, as it is at the expense of those who have suffered in health in the service of their country; (3) that making the whole cost of medical benefit a statutory charge on the Insurance Fund is merely paying the doctors disproportionately at the expense of insured persons. It is to be noted that the officials of Approved Societies have not, in general, associated themselves prominently with these last two lines of attack, which have, however, seemed specially acceptable to certain members of Parliament. It may be useful to state, or restate, briefly the present position with regard to these three points.

There are three contributing parties to the scheme of national health insurance—the State, employers, and insured persons. Experience has shown that the total contributions are in excess of the amount required to provide the guaranteed benefits. The present proposals leave the contributions of employers and of insured persons untouched, but reduce the State contribution by more than two and a half millions a year. It must be remembered, however, that, owing to the lowering of the pension age by last year's Pensions Act, the annual contribution from the two other contributory parties will soon be reduced by an amount not far short of the same total. None of the present statutory benefits will be affected by this reduction. The proposals of the Royal Commission for extensions of these statutory benefits will, however, be affected. The second (in order of priority of establishment) of these extensions was to be an additional payment to an insured man in receipt of sickness or disablement benefit of 2s. a week in respect of his wife and of each child under 14 years of age. It appears that the cost of this proposed extension would be almost exactly equal to the reduction of the State contribution made by the Economy Bill in this regard. This particular extension of benefit will, therefore, not be proposed by the Government; but the position of the other treatment extensions recommended by the Royal Commission—consultant and laboratory services, improved provision for maternity, and dental treatment—will be unaffected. As Mr. Chamberlain told the deputation, "It should not be forgotten that societies had been for some time able to provide allowances in respect of children as an additional benefit, but they had not seen fit to do so."

The Navy, Army, and Air Force Insurance Fund was established to receive the contributions paid in respect of service men (who are not members of Approved Societies during service) and to provide ordinary benefits (but not any "additional benefits") for those of such men who are unable on discharge to obtain admission to Approved Societies on account of the state of their health. From various causes the surplus in this fund is very large relatively to its liabilities. The State has been making to the fund

contributions in excess of the needs, and it is proposed to appropriate the greater part of this surplus in relief of the Exchequer. But the stability of the fund for future benefits will not be affected, and those who are entitled to benefit from the fund are to be advantaged in two ways—first by having “additional benefits” granted to them as though the fund were an Approved Society, and secondly by having a special “transfer value” attached to them if they join an Approved Society on discharge, so that they shall at once be fully entitled to any advantage which the society affords. The position of service men will therefore not be worse, but better, under the proposals of the bill, and their future eligibility for additional treatment benefits is of importance, not only to them, but to the medical profession.

The whole cost of medical benefit is, after the end of the present calendar year, to be made a statutory charge on the insurance fund. To most people this will seem only the most elementary common sense, but certain facts might well be pointed out to those members of Parliament and some others who profess to regard such a provision as robbing insured persons in order to overpay the doctors. One of these facts is that medical benefit in this connexion includes not only the remuneration of insurance practitioners (including in this a mileage fund for rural areas), but also the whole cost of drugs and appliances, the cost of administration, and part of the cost of certain other matters ancillary thereto which do not affect the remuneration of insurance practitioners at all. A second fact is that the profession has always asked that its remuneration should be determined on the merits of the case by an impartial authority, and should not be made dependent in the slightest degree upon the varying financial fortunes of any particular portion of the insurance fund. A third fact is that the statutory provision now to be made for medical benefit as a whole, together with its administration, is limited to a maximum of 13s. per insured person entitled to such benefit, and the Government actuary states that “the present cost of medical benefit approaches that to be provided for by the bill.” It follows that even a slight increase in the cost of any of the items making up this benefit may affect the adequacy of the maximum amount prescribed by the bill; and it must be made clear by the medical profession that this possible contingency cannot be allowed to influence any demand put forward, either at once or in the future, for a justly adequate remuneration of such services as are given by medical practitioners in connexion with the national insurance scheme.

MULE-SPINNER'S CANCER.

In commenting on the original communications which we had published¹ directing attention to the existence, and demonstrating the probable cause, of a form of occupational cancer till then unsuspected even by those engaged in the industry itself, we stated: “There seems to be no reason why this form of cancer should not be entirely prevented, and probably a commission or committee composed of representatives of employers and workmen, together with technical experts and cancer investigators, would soon find effective means.”² We were therefore highly pleased when shortly afterwards the Home Secretary, Sir W. Joynson-Hicks, appointed a committee of investiga-

tion constituted as we had suggested, and we would congratulate its members on the promptitude and thoroughness with which they have conducted their inquiry. An account of their findings appears at page 746. The committee consisted of Mr. F. Holroyd and Mr. E. Judson, representing respectively the Master Spinners' Federation and the cotton operatives, Dr. A. H. Gibson, Professor of Engineering in Manchester University, Dr. Archibald Leitch, director of the Cancer Hospital Research Institute, and Lieut.-Colonel Smallman of the Ministry of Health, with Sir Gerald Bellhouse, chief of the Factory Department of the Home Office, as chairman, and Dr. S. A. Henry of the same department as secretary. Sir Thomas Legge was unfortunately prevented by illness from attending the meetings of the committee.

Much valuable evidence, which would not have been procurable otherwise, was placed at the disposal of this departmental committee. It had been thought at first that the “epitheliomatous ulceration” to which mule-spinners were liable was confined to the scrotum, as in the case of chimney-sweeps, and that the disease had made its appearance only within the last few years; but the report shows that in approximately 25 per cent. of the cases the skin of other parts of the body—arms, legs, face, etc.—is affected, and of the 539 cases which were traced in mortality returns and old hospital records instances were discovered going back for forty years. The earliest age at which the epithelioma was found was 22, and the average age of incidence is in the neighbourhood of 55, or, when reckoned in duration of employment, the minimum time of exposure to the risk was ten years, and the average approximately forty years. The striking fact was elicited that the disease might manifest itself at some considerable period after employment in the mule-room had ceased, even thirty years afterwards, provided that the necessary length of exposure had been undergone. Though the incidence of epithelioma is less than in chimney-sweeps and patent-fuel workers in comparison with the numbers of men engaged, yet, owing to the size of the industry, the cancer of mule-spinners is pre-eminently the occupational cancer of this country. Taking the age period of 55-75 we find that the mortality from cancer of the scrotum in cotton-spinners is one hundred times as great as in the general population.

The committee, after considering carefully and extensively all the possible factors in the causation of the disease, states that “on the analogy of mule-spinner's cancer with other forms of occupational cancer (tar workers, patent fuel manufacturers, paraffin workers, chimney-sweeps, etc.), by the evidence of the occurrence of cancer in petroleum refiners, from the results of deliberate experiments with mineral oils, by our knowledge of the conditions under which mule operatives are exposed to the action of such oils, and by the general consensus of opinion expressed by the medical witnesses who appeared before us, we feel bound to come to the conclusion that the evidence is strongly in favour of this disease being due to the prolonged action of mineral oils.” The slight hesitation noticeable in the last phrase is doubtless due to two circumstances for which no thoroughly satisfactory explanation is forthcoming: (a) mule-spinner's cancer is not known in other countries, and (b) though the spinners work with bare feet, which are more thoroughly saturated with oil, yet epithelioma of the feet has been found to be excessively rare. It may be said that the scrotum, as far as one can gather, is a site but rarely affected with

¹ Cancer of the Scrotum: A. H. Southam and S. R. Wilson, *BRITISH MEDICAL JOURNAL*, November 18th, 1922. Mule-spinner's Cancer and Mineral Oils: Archibald Leitch, *ibid.*, November 22nd, 1924.

² *ibid.*, November 22nd, 1924, p. 959.

cancer in the experience of foreign observers, and then only in association with mineral oils; and further, that mortality statistics and the medical inspection of workers are not so highly developed abroad as in this country. It is a strange fact that chimney-sweep's cancer also is practically confined to the British Isles. With regard to predilection for the scrotum rather than for other parts of the skin which may be more exposed, one can only put it that the scrotal skin, for some unknown reason, is more sensitive to the action of such carcinogenic substances. That mineral oil is capable of producing epithelioma on favourable sites is beyond reasonable dispute. That being so, it will be no matter of surprise that the committee is of opinion that other industries entailing an exposure to mineral oils may show a similar liability to skin cancer, and instances of this are coming to light. Indeed, if it had not been for the large numbers of men employed in such a well defined trade as cotton spinning the incidence of the disease might wholly have escaped notice.

The obvious way, therefore, to prevent this form of cancer is to find an innocuous lubricating oil, and this is the chief recommendation of the committee. Dr. Leitch has shown that several mineral oils at least have a carcinogenic property. Whether some mineral oils are devoid of this power is a matter for experiment, though possibly an investigation into the biological effects of animal or vegetable oils, as we understand is being done, might prove more useful. At any rate, the problem of finding such a safe oil must be solved by the oil technologists in conjunction with

meanwhile the committee suggests of the present mule machinery in order to prevent the lubricating oil from being sprayed from the revolving spindles on to the clothing of the workers, insists on the value of cleanliness, and advocates the issue of warning leaflets to all engaged in the industry. Frequent medical inspection is of the utmost importance in order that the preliminary manifestations of lesions may be detected (local skin hyperplasias and warts) and remedial measures undertaken long before the condition becomes frank epithelioma. A trial of voluntary medical examination is to be made, but if this does not succeed then a compulsory system of medical inspection is recommended.

It is very gratifying to find that the whole question has been so expeditiously and thoroughly considered. Within a period of little more than three years, the occurrence of the disease was shown and the cause suggested by Messrs. Southam and Wilson, the cancer-producing properties of mineral oils were demonstrated by Dr. Leitch, and the effective means of prevention were suggested by the Home Office Departmental Committee.

CASSEL HOSPITAL FOR FUNCTIONAL NERVOUS DISORDERS.

THE fourth annual report of the Cassel Hospital for Functional Nervous Disorders at Swaylands, Kent, includes, as in those of former years, a number of interesting details in regard to the forms of mental disorder treated, the subsequent history of the patients, and the modes of psychotherapy adopted. During the year under review (1924) 225 patients were discharged; but as three of these had been in the hospital twice during the year only 222 individuals were dealt with. Twenty of these were readmissions from previous years, and there were therefore 202 new patients who completed their treatment during the year. These are the largest numbers, both as regards the total amount and the number of new cases, in the history of the

hospital. It is thus evident that the hospital continues to cope successfully with the needs of a large number of patients suffering from the minor forms of mental illness. Dr. T. A. Ross, the medical director, continues his excellent practice of giving a statistical survey of the after-history of his cases. Altogether he has been able to keep in touch with 179 of his new patients in 1924, these being classified under the headings of psychoneuroses (114), drug addictions (3), psychoses (30), organic diseases (26), other conditions (6). In the psychoneurotic group 86 are reported as well or much improved; in the drug addicts the results were not so favourable, and Dr. Ross makes the observation that no morphine addict who has been in the hospital since it opened has failed to relapse; in the psychotic group 11 were well or improved. Further reports on cases discharged during the years 1923, 1922, and 1921 are also given, and these enable a summary of the results of all cases heard of subsequent to discharge at the end of 1924 to be made. The fact that, out of 331 psychoneurotic patients discharged since the hospital was opened, 241 are known from their subsequent history to be well or improved by their treatment at Swaylands, indicates that this has been of lasting benefit to a considerable proportion of the cases. Much of the report is taken up with a tabulated statement indicating the sex and age, length of treatment, symptoms, report on discharge, and late report in each case which has been followed up. Dr. Ross devotes the first nine pages of the report to an account and discussion of the methods of treatment which he found to be efficacious in dealing with his psychoneurotic cases. His views are supported by brief clinical accounts of a number of patients he has personally treated in the hospital, together with a few words describing the particular psychotherapeutic measures adopted in each case. From the study of these cases he has arrived at the conclusion that there are illnesses or states of discomfort which depend wholly on ideas, which have no etiological relation with the body, and which can be abolished by a change of mental orientation. Such cases he regards as definitely psychogenetic in origin, and he is of the opinion that they would have been made worse by physical methods of treatment. Briefly, the essence of their treatment consisted in making them understand that their symptoms were emotional rather than physical in origin. The next point he emphasizes is that there are several methods of therapeutic approach, the form and complexity of which must depend on the features of each case. Simple explanation he finds quite adequate for a larger number of cases than is commonly supposed. When there is some worry, anxiety, or conflict which is not present in consciousness, however, more elaborate procedures are necessary, and in such cases he has found that success has been attained by some form of the technique of psychoanalysis, combined, when considered desirable, with hypnotic methods. Considerable stress is laid upon the fact that treatment need not always be prolonged in order to be effective; experience has shown that treatment lasting many months is quite unnecessary in a large number of cases. There can be little doubt that there are a large number of persons suffering from psychoneurotic symptoms which greatly diminish their efficiency and happiness who might be greatly benefited by treatment similar to that given at the Cassel Hospital; there would appear to be a need for the development of more clinics for the treatment of minor mental maladies.

DIPHTHERIA IN EUROPE.

ON February 20th (p. 339) we referred to the interesting figures given by the *Journal of the American Medical Association* relating to the mortality from typhoid in Europe. In its issue of January 16th our contemporary has published the results of a similar inquiry concerning the mortality from diphtheria in 1924 in certain European

cities with a population exceeding 100,000. The death rates in Great Britain were, on the whole, very similar to those in the large cities of the United States for the same year, but the range was somewhat greater, being from 0.0 in Southend to 25.7 in Dundee, as compared with the American range from 1.6 to 23.0. Seventy-three per cent. of the British cities had a rate under 10, as compared with 54 per cent. of the cities in the United States. The rates in Glasgow (12.6), Edinburgh (16.8), and Dundee (25.7) were all high, while that of Aberdeen (6.8) was relatively low. It is noteworthy that the average death rate from diphtheria in Scottish cities in the pre-antitoxin period 1858-95 was much higher than that of most English towns. Manchester had a death rate (8.1) which was eight times that of Birmingham (1.0), and London's rate (12.5) was almost exactly like that of New York (11.9). In Germany the death rates ranged from 0.8 (Lübeck) to 19.5 (Mannheim). The death rates in Berlin (2.9) and Munich (5.7) were very much lower than those in London and New York. Fifty-nine per cent. of the German cities had rates of 5.0 and over. In the decade 1880-90 the diphtheria mortality was considerably greater in Berlin and other German cities than in Great Britain. In France the rates ranged from 0.0 in Toulouse to 11.3 in Rouen, which was the only French city with a mortality above 10 per 100,000 in 1924. Paris, where diphtheria seems to have been about the same as in London in the pre-antitoxin era, had a rate of only 5.4 in 1924. Of the other European cities, Geneva was the only one with no deaths from diphtheria. For the most part, even in Northern Europe, diphtheria rates in Europe were very low. It is surprising to find that Rome had a higher diphtheria mortality than the cities of Holland, Belgium, Norway, and Sweden.

CLOSING OF CANTON HOSPITAL.

WE are indebted to Dr. James Maxwell, secretary of the China Medical Association, for an account of the circumstances in which the Canton Hospital, which is an Anglo-American institution, has been forcibly closed by a labour organization calling itself the Tsaap Mo Kung Se. Dr. Maxwell, in a contribution to the *North China Daily News*, gives an account of this deplorable event, from which it appears that on March 1st an ultimatum was received by Dr. J. O. Thomson, medical superintendent of the hospital, in which it was demanded that the hospital should in future only engage new employees from the labour union, and that extensive additions should be made to wages and holidays. The labour union reserved the right to approve all dismissals of employees. A reply was sent by the hospital directors explaining the basis of the hospital administration and the impossibility of permitting interference by an outside organization. The labour union concerned thereupon closed the doors of the institution forcibly, and cut off the water and electric light supplies, with the result that many seriously sick patients were turned into the streets. The Canton Hospital was the first modern hospital in China, and was opened more than ninety years ago by the American physician, Dr. Peter Parker. We referred on March 21st, 1925 (p. 569), to the deep interest taken in it by the late Dr. Sun Yat-Sen, and this outrage will give rise to as much surprise as horror, both in China and elsewhere. It is stated that there is every reason to believe that the Government of Canton took no part in this affair, and, indeed, that it was perpetrated in direct defiance of the Government's orders. The incident would, therefore, appear to be another illustration of the complete disorganization in China, and of the power in isolated cases of Bolshevik organizations. The difficult economic conditions which have prevailed during the last year had been hitherto successfully countered by the hospital authorities,

who had maintained living conditions, wages, food, and holidays for their employees on a higher scale than existed in Canton, though there was a deficit at the end of last year of 20,000 dollars. No financial help was received from the local Government, and contributions from local sources were very small. The hospital was only kept going by donations obtained by American members of the staff from their friends in the United States.

PARASITISM IN EVOLUTION.

SIR ARTHUR SHIPLEY has contributed to the current number of *Science Progress*¹ an article in which parasites are considered in relation not to the host, as is customary in medical and veterinary literature, but to the family to which each zoologically belongs. The reader is taken through the protozoa, the rotifers, the annelids, platyhelminths (flat worms), nematodes (round worms), crustacea, including the strange story of the barnacles, the insects, acarines (mites and ticks), molluscs, to the vertebrates, which contain a few parasitic or semi-parasitic forms. The article is very full of details, and does not give the author many opportunities for those graphic comparisons and brilliant sidelights for which he has trained his readers to look out. But there are a few. Thus, talking of the nemertines, a few of which are parasitic, he says, "these creatures sometimes reach an enormous length, scores of feet longer than a tennis court"; and again, of tapeworms he says, "they may be a few millimetres in length, or they run into metres, almost as long as a cricket pitch." Etymologically a parasite is "one who eats at the table of another, hence one who lives at another's expense." One who lives at another's expense loses initiative and the desire for exertion. So with the animal parasites. Their evolution towards the complete parasite is downward; they lose locomotor and sensory organs their free-living congeners possess, and as they approach parasitic perfection the alimentary organs also. They live, as for instance the tapeworm, by absorbing through their skin the semi-digested or digested liquid food of their host. The one function they retain in fullest measure is reproduction; they produce an incredible number of ova. This is brought about in the tapeworm by the body consisting of an enormous number of segments. There may be hundreds of these, each packed with eggs, and the hinder one is always dropping off and passing out of the alimentary canal of its host, while new ones are always being formed at the other end behind the head: "The whole creature behaves as if it were a recurring decimal." The parasites are a sore trouble to the teleologist, for what good are they? and something of a stumbling-block to the evolutionist, for though their goal seems to be to attain the condition of a mere sac of fertile eggs a great complication is introduced by the fact that nearly all of them must have an intermediate host. Even the gregarine parasite of the earthworm has a life-cycle. It produces a sickle-shaped spore which, it is believed, is picked up by birds, passes out from the bird's body to the earth, and is again swallowed by earthworms; thus "the vicious circle of parasitism" is maintained. The number of eggs produced by parasites is always large, sometimes enormous; a single nematode, it has been calculated, may produce over sixty million eggs. This enormous output is necessary because the offspring has to find the right host. There are many thousand more misses than hits. Doubtless nearly all of the eggs are eaten by some small fry; indeed, somebody has suggested that these worms should be looked upon as cereals of the water. Again, there is the astonishing complication of the life-history of such a creature as a

¹ *Science Progress*. (A Quarterly Review.) April, 1926. London: John Murray. Price 7s. 6d. (by post 7s. 9d.) or 31s. 2d. a year, post free.

certain sacculina parasite of crabs, which, after a short free existence in one stage, attaches itself to a hair of any part of the crab's body. It then pierces with its antennae the soft area at the base of the hair and exudes from its body a small mass of similar cells which, passing down the antennae into the body of the crab, reaches the blood stream and is carried along till it arrives at the intestine of its host in the neighbourhood of the thorax. It attaches itself to the intestine, and throws out roots spreading like those of a tree. They penetrate all through the body of the crab, embracing all organs not absolutely vital. Next a "central tumour," as it is called, grows out from the roots towards the lower part of the intestines, and sends out another set of roots branching all over the body of the crab. The central tumour protrudes to the exterior at the point where the thorax and abdomen join, and when next the crab moults a small hole is left. Through this an external sacculum projects, and the moulting of the crab comes to an end. As Sir Arthur Shipley says, "This amazing metamorphosis is difficult to explain. How the animal finds its way to a hair of the crab, how the undifferentiated mass of cells reaches the exact spot it wishes to attain before the branching begins, and how the 'sacculina externa' comes to the right position for extrusion, are matters of speculation more than of knowledge." However, the curiosities of parasitism are inexhaustible, and we must pass on to the last sentence of the article: "There is practically no animal immune from parasites, and it is quite possible that the number of parasites is not greatly inferior to the number of all the other animals added together." Probably it has not occurred to many to think of the matter in this way, but a little consideration is enough to establish the conviction that probably we have here rather an under- than an over-statement.

JAPANESE VITAL STATISTICS.

INQUIRY into the growth and restriction of populations throughout the world, and the causes thereof, is receiving useful assistance on the statistical side. Professor G. Ichok contributed to the *Presse Médicale* for January 20th an account of the conditions prevailing in Japan since 1912, as indicated by the statistics supplied by the International Office of Public Health up to and including 1916, which is the latest year dealt with so far. In the five years 1912-16 the population of Japan increased from 51,743,600 to 55,224,500; the percentage gain was 14.8. During the first three years of this period the birth rate increased rapidly, but in the last two it fell, and in 1916 the births amounted to only 327 per 10,000 of the population. This figure is, however, far higher than that of the great European countries in 1920, when Italy headed the list with 318 births per 10,000; Scotland and Holland occupied the fourth place with 281; Germany had 271; England 254; and France was placed last with only 213. The high Japanese birth rate is deprived of much of its influence on increase of the population by the high and rising infantile mortality, which in 1912 was 154 births per 1,000 in the first year of life, and in 1916 had risen to 170. The chief cause of this high infantile mortality in Japan is stated by Professor Ichok to be beri-beri, which is responsible for 5,000 to 20,000 deaths each year, one-third of which occur in the first year of life. Much disease and ill health appears also to be attributable to the extreme poverty of a considerable part of the population, combined with bad food and overcrowding. Whereas in 1912 the death rate per 1,000 inhabitants was 20.65, in 1916 it had risen to 21.54. During the same period the highest European mortality was that of France in 1914, which was 18.5; in Denmark and Holland the death rate never rose above 15. In 1910 tuberculosis was responsible for 22.4 deaths per 10,000 in Japan; in 1919 the rate had risen to 23.6,

although this was slightly better than the previous year, when the rate was as high as 25.3. Such figures have naturally caused great anxiety, and a systematic anti-tuberculosis campaign has been started. Other prominent causes of the high death rate are influenza, cholera, plague, "river fever," and a form of epidemic meningitis. Commenting on these statistics Professor Ichok suggests that the continuous increase of the population of Japan notwithstanding these heavy losses is proof of an inherent national vitality.

INFLUENZA.

THE present recrudescence of influenza is widespread, and the deaths in the great towns of England and Wales increased last week from 223 to 294; in London from 48 to 74. Four cities other than London recorded 10 or more deaths—namely, Birmingham (16), Manchester (14), Oldham (15), and Hull (11). A feature of the present year has been the early rise in the notifications of pneumonia, which were already, before the beginning of the year, much above the average, and last week exceeded any week of the corresponding period of 1925, although in 1925 deaths from influenza had already exceeded 350 as early as the sixth week of the year. Probably this points to the recrudescence being of a mild type, which, indeed, seems to be the general experience of clinicians. In 1924 the number of deaths was much larger than in any corresponding week of this year; the maximum was 730 in the tenth week. From the monthly return of the Registrar-General for Scotland it appears that influenza has been increasing also in Scotland. The number of deaths during March from this cause was 100. They have occurred chiefly in the cities of Glasgow and Edinburgh. The number of deaths in Glasgow was 61 and in Edinburgh 27. The Scottish figure for February had been 35 deaths, for January 40, and for December 72.

SIR SQUIRE BANCROFT.

SIR SQUIRE BANCROFT, who died on April 19th, at the age of 84, was a good friend of the voluntary hospitals. He was one of those rather rare wise men who give up work when they have saved as much money as will enable them to live in the manner they prefer. He was a very successful actor-manager, but he and his wife, who contributed so much to this result, made up their minds to retire when yet in early middle age. On two occasions only did he go back to the stage, but for a good many years he gave frequent readings from Dickens's *Christmas Carol*, both in England and Canada; they afforded more than one generation which had never seen him on the stage some taste of his remarkable artistic abilities, and always attracted large audiences. Altogether he thus raised some £20,000 for the voluntary hospitals. He was a member of the board of the Middlesex Hospital; he was chairman of the Foundling Hospital, and showed great and continuous interest in all charities for the benefit of actors. He was a singularly handsome man, tall, with a fine presence, and genial manners which won for him innumerable friends. Without doubt he enjoyed every day of his forty-two years of retirement.

THE KING has promoted Lord Dawson of Penn, G.C.V.O., K.C.M.G., C.B., M.D., Physician in Ordinary to His Majesty, to be K.C.B.; and has appointed Sir Frederick Stanley Hewett, K.C.V.O., M.D., Surgeon Apothecary to His Majesty, to be K.B.E. Lord Dawson and Sir Stanley Hewett were in attendance upon Princess Victoria throughout her recent severe illness.

Statement

ON

THE SPAHLINGER TREATMENT.

PUBLISHED BY AUTHORITY OF THE SCIENCE
COMMITTEE OF THE BRITISH MEDICAL
ASSOCIATION.

DURING the past few years there has been so much discussion concerning the merits of the Spahlinger treatment of tuberculosis that it seems desirable to state clearly the attitude of the Science Committee of the British Medical Association in this matter.

It is common knowledge that a patient suffering from tuberculosis who comes under suitable treatment may for a time at least improve in health and may put on weight, no matter what special form of treatment is used. Nutritious food, suitable exercise, rest, nursing, sunlight, fresh air, and cod-liver oil will all no doubt contribute towards this end, and with such treatment alone some patients get well. Certainly it is not until hygienic measures alone have been shown to be ineffective that serum or drug treatment can be evaluated.

In the past many systems of treatment have been advanced, and in their beginnings many cases of cure were recorded. Koch's original tuberculin is an example of one of the earliest of these cures. Linden's copper lecithin compound, introduced thirteen years ago, effected wonderful cures according to the records; at first nearly all the reports were favourable to its use, but more extended experience has shown the treatment to be valueless. The earlier gold "cures" have passed through a similar stage, and Moellgaard's sanocrysin is still on its trial. Sanocrysin is a known substance, its preparation and mode of use are described, so that the profession is in an ideal position for estimating its value. If the Spahlinger treatment is to be subjected to trial in this country it is essential that the trial be placed in the hands of physicians who are specially skilled in this particular branch of medicine, and who can gauge the probability of the patient recovering with hygienic measures alone.

It is unnecessary to point out that the Science Committee cannot endorse any new method for the treatment of tuberculosis until this has been subjected to a full and independent test. The success of the appeal now being made for money in this country would obviously make such a test financially possible, and we sincerely hope that the money will be obtained for this object, and that an independent and adequately controlled investigation on a sufficiently large scale will be undertaken in this country as soon as the necessary material for treatment becomes available.

The procedure recently followed in the investigation of the claims of sanocrysin appears to offer a good model for such an investigation. We would welcome such an investigation, particularly because of the misconception which seems to have arisen in some quarters to the effect that the medical profession is prejudiced against this treatment. We must, however, disclaim any endorsement of the terms of the propaganda that is being conducted in this country by some of the advocates of the Spahlinger treatment, because many of the statements made cannot be considered established, and can only be established by such a test as we desire to see made and as the Ministry of Health has offered.

Information with regard to M. Spahlinger's treatment has been published from time to time in the BRITISH MEDICAL JOURNAL. On May 12th, 1923 (p. 830), an article was printed defining the position at that time. It recalled that in 1922 a medical officer of the Ministry of Health visited M. Spahlinger's bacterio-therapeutic institute at Carouge, Geneva, and reported that although it was not then

possible to express an opinion upon the scientific value of M. Spahlinger's work from the bacteriological standpoint, inasmuch as the details of the technique used in the preparation of the vaccine and serum remained undisclosed, the clinical results obtained in Switzerland and in England warranted further investigation. The Minister of Health promised in Parliament, and intimated to M. Spahlinger, that, with his consent, the Ministry would be prepared to appoint an impartial committee of recognized medical authorities who would watch the results of his method of treatment in a number of clinical cases to be selected by a physician nominated by M. Spahlinger. M. Spahlinger has not yet accepted this offer. The British Red Cross Society made M. Spahlinger an offer of financial assistance under certain conditions, but nothing, so far as we can ascertain, came of this.

M. Spahlinger made a "complete" vaccine and a "complete" serum, but it appears that since 1914 he has practically exhausted his supply of both. M. Spahlinger has continued to make a partial serum, and it has been used for the treatment of cases. The preparation of the complete serum was stated to be a long and complicated process, and M. Spahlinger could not at that time assign any definite date for the production of the serum in quantities sufficient for an experimental investigation such as that proposed by the Ministry of Health.

On June 2nd, 1923 (p. 938), the BRITISH MEDICAL JOURNAL published a second article giving further particulars with regard to the vaccines and serums. So far as we are aware or can ascertain, the position with regard to the supply of the vaccines and serums has not changed in any material respect since 1923. Owing to the failure to secure any supplies of the preparations employed, there has been no opportunity of adding materially to the information available in 1923. The best course, therefore, would seem to be to reproduce the article then published. It was as follows:

(Article published in the BRITISH MEDICAL JOURNAL,
June 2nd, 1923.)

It will be of interest to give some further particulars about the various products which, as has already been implied, can be classified under two headings—namely: (1) vaccines; (2) anti-serums. A great majority of the cases of tuberculosis treated are given vaccines. Serum is only used in rapidly progressive cases, or in special emergencies.

The Vaccines.

These products are essentially similar to the tuberculins, the use of which from time to time has been advocated. M. Spahlinger has modified and elaborated the methods for the preparation of tuberculin or vaccine, and claims to have obtained products which are more effective than other preparations. Tubercle bacilli are treated by various processes and four vaccines are made. The complete course of vaccine treatment consists of successive courses of injections of each of these four vaccines.

Preparation of the Serum.

What is called the complete anti-serum is made by mixing a large number of (partial) anti-serums, each obtained from a horse which has been subjected to some particular course of injections. The serum of each horse which is added to the mixture is called a partial anti-serum. The partial anti-serums are of different kinds; some are obtained by injecting tubercle bacilli or products of tubercle bacilli into horses, some by injecting other varieties of bacteria which are found associated with the tubercle bacilli in cases of mixed infections. The former group is further divided into bacteriolytic serums and antitoxic serums. The antitoxic serums are prepared by injecting products which are called toxins. These products are obtained from tubercle bacilli by somewhat elaborate methods.

The methods imply nothing new in principle and are essentially those which have been tried sometimes with and sometimes without success in other bacterial diseases.

It is sought (1) to produce active immunity against the tubercle bacillus and its toxins in the patient by the injection of a vaccine, and (2) to make an anti-serum which has antitoxic and bacteriolytic properties and to use this anti-serum to confer passive immunity on a human being.

These are the general principles which have inspired every worker from the times of Pasteur and Behring. The only novelties relate to the technical details and exact methods of preparation of the substances which make up the vaccine and of the various products which are used to inoculate the horses. The exact methods employed are secrets; at any rate the full details which would be needed, by anybody who wished to work at the method have not been published. As regards the vaccine, an attempt is made to produce an active immunity by the injection of a series of substances obtained from tubercle bacilli. We do not know of any published experimental data which show that animals inoculated with these vaccines develop immunity against the tubercle bacillus. There remains the evidence to be derived from clinical observations on cases treated with these vaccines. On this point it is not yet possible to form an opinion; it is notoriously difficult to obtain satisfactory evidence unless a very large number of cases are treated and observed under strict experimental conditions, which are difficult to maintain in the ordinary course of medical work.

Effects of the Anti-serums.

It is claimed that the mixture of serums, which is called complete serum, contains both bacteriolytic and antitoxic serums. Antitoxic serums are prepared by injecting horses with preparations which are called ecto-toxins and endo-toxins. We have not seen any published experiments which show, or attempt to show, that these substances are toxins in the sense in which bacteriologists use the word "toxin." In the case of diphtheria bacilli and the tetanus bacilli, as everybody knows, it is possible to prepare a bacteria-free toxin which when injected into animals produces the characteristic features of the disease in question. Nobody has ever succeeded in making a potent ecto-toxin from tubercle bacilli, and M. Spahlinger has not published any experiments which would support the claim that he has been more successful than other workers. The serums which he calls antitoxins are so called because they are obtained from horses which have been injected with substances which he calls toxins. We do not know of any published work which shows that these serums contained antitoxins, and as there is no evidence that M. Spahlinger has ever prepared an extracellular toxin, in the ordinary sense of the word, from the tubercle bacilli, it is difficult to say how such evidence can be forthcoming. The claim for the antitoxic properties of the serum is based on the fact that cases of rapidly advancing caseous tuberculosis have been arrested by the use of the serum. As to the value of such clinical evidence it is not possible, from the material so far published, to express any opinion. It is common knowledge that many cases of acute caseous tuberculosis do survive the acute stage and reach a chronic stage, when the patients are able to resume a more or less normal life. The cases of pulmonary tuberculosis showing the signs of large dry cavities, which may be seen in any out-patient department, are sufficient evidence of this.

It is, of course, possible that the elaborate and complicated methods which M. Spahlinger employs may possess advantages, but there is no laboratory evidence that they are any better than what has been done before, and the only evidence there is rests on the observations of some clinical observers who have been favourably impressed by the results which they are obtaining.

If M. Spahlinger and his friends seriously desire to have this method of treatment investigated, it would seem proper and desirable that money should be provided to defray the cost of a satisfactory and conclusive test, and for this reason, as already stated, any appeal for funds would have our good wishes, so far as it might be directed to this end. We do not think, however, that any large sum of money would be necessary for such a purpose. The clinical and experimental tests would, we believe, be undertaken by experienced physicians and bacteriologists in this country without special fee or remuneration. A sum of money might be required to enable M. Spahlinger to provide a supply of vaccine and serum adequate for the test which we have suggested. The Spahlinger treatment has been before the public for more than a dozen years, and it is a remarkable fact that during these years no report has been published which has convinced the medical profession in general that the claims of this method for the treatment of tuberculosis have been established.

Again, we feel it desirable to draw a clear distinction between an invitation to subscribe money for the purpose of testing any method of treatment and an invitation to

subscribe money for the dissemination of a "cure." Before the public is invited to subscribe money for the latter purpose, evidence of a convincing nature of the value of the "cure" should be available. As a general principle the medical profession is opposed to secrecy regarding remedies, but it is understood that M. Spahlinger considers that publication of his methods in detail would at present be opposed to the public interest; the investigation here proposed would impose no obligation on him to disclose publicly the secrets of his laboratory, but only to provide the material necessary for the test.

Before any general appeal for money is made M. Spahlinger should be invited to state the sum of money which would be necessary for the preparation of the supply of vaccine and anti-serum which would be needed for a test.

The details of an adequate test should be left to an impartial committee of physicians and bacteriologists, such as that suggested by the Minister of Health, who have had special experience in the treatment of tuberculosis and the problems of immunity. The tests would be carried out in part in the laboratory, in part in a hospital. As to the vaccine, it should be shown:

- (1) That it produces immunity or at least some degree of protection in animals; that is to say, that it has a specific prophylactic action against experimental tuberculosis.
- (2) That when it is administered to animals already infected with tuberculosis the disease is arrested, or at least that the extension of the disease is delayed.
- (3) That its employment on a large group of tuberculous patients, who have been under skilled and sufficient observation for adequate periods before, during, and after the vaccine injections, has been followed by a degree of improvement which has not occurred in a control group containing an equal number of cases of tuberculosis as similar as possible to those in the experimental group, and maintained under identical conditions, except that the vaccine has not been administered.

As to the anti-serum, it should be shown:

- (1) That those substances prepared from tubercle bacilli which are called by M. Spahlinger toxins, and which are used for injection into horses, are in fact toxins in the sense in which the word is used among bacteriologists.
- (2) That the "antitoxic" serums contain antitoxins capable of neutralizing the toxins which have been used for the preparation of the antitoxins.
- (3) That the bactericidal serums have a destructive or unfavourable effect on living tubercle bacilli either in the animal body or *in vitro*.
- (4) That the "whole anti-serum" or any constituent "partial anti-serum" has a specific influence on the progress of tuberculosis in the human subject. Here, again, suitable cases would presumably be divided into groups, the individuals in one of which would receive anti-serum while the other group would provide a control.

We have no reason or desire to discredit the claims and statements of M. Spahlinger and his friends and supporters. But we should be wanting in our duty alike to the medical profession and to the general public if we failed to point out that:

- (a) This is a secret remedy in the sense that the exact methods of preparation have never been fully published, and have, in fact, for reasons which seemed sufficient to M. Spahlinger, been withheld.
- (b) No investigations carried out under strict experimental conditions which afford direct and convincing evidence of the curative action of these substances have been published.
- (c) The scheme above suggested gives a full opportunity of testing the value of the treatment without any public disclosure of the laboratory methods which M. Spahlinger deems it necessary in the meantime to withhold.

THE OPTICAL CONVENTION.

[FROM A CORRESPONDENT.]

SIR DAVID BREWSTER'S remark that of all the sciences optics is the most fertile in marvellous expedients was borne out at the Optical Convention at South Kensington last week, when there were actually long queues at the doors every afternoon to see the wonders exhibited. It is true that the people in the queue were mostly in search of the kind of entertainment popularized in former days by the late "Professor" Pepper, but the interest of the more serious side of the Convention was also well sustained. Papers were read in two sections all day long, a number of popular lectures were given, and there was an exhibition with historical, research, and commercial sections of which it seemed one could never come to the end. Sir Frank Dyson's presidential address was a recital of recent optical triumphs, especially in his own field of astronomy, and also in surveying and telephotography. A lecture greatly appreciated was that given by Professor Elliot Smith on the eye and its functions, in which he traced man's intellectual superiority to his sense of sight, pointing out how in the course of evolution his special characteristics of vision had separated man from the lower creatures, with whom smell was the directive sense.

Production of Optical Glass.

The recent developments in the art of production of glass for optical purposes were ably summarized in a lecture by Mr. W. H. S. Chance and Mr. W. M. Hampton. They included an account of the manufacture of the tinted glasses which have been introduced of recent years. These glasses include, in addition to the "Crookes glass" for ordinary use, a dark green glass to protect the eyes of workmen, such as acetylene and electric welders, from light of extreme intensity as well as from excessive ultra-violet radiations. Another glass with absorptive properties, but used for quite a different purpose, is "calorex"—a roofing glass which has the property of absorbing the maximum amount of heat consistent with transmitting a predetermined amount of light. It has its value in hot climates or in factories at home where it is desirable to keep goods at a low temperature and yet to take advantage of natural daylight. Yet another glass with suitable absorptive properties has been produced for the glazing of buildings where the contents are liable to injury by the chemical action of ultra-violet rays. Then there are special glasses which depend, not as in these cases on the exclusion of certain portions of the spectrum, but on the transmission of certain wave-lengths absorbed by ordinary window-glass. Vitaglass was also shown. Details of this new form of window-glass, which is transparent to a large extent to ultra-violet rays, were published in this JOURNAL a little more than a year ago (April 4th, 1925, p. 664). It has found a use in hospitals and other institutions, and has also been used for the glazing of houses at the Zoological Gardens. Another new form of glass is a "daylight" glass, the result of a number of attempts made during the last twenty years to find a single filter which when used in combination with some artificial source of light—in this case a half-watt lamp—would give a spectroscopically correct match with daylight.

Ophthalmic Investigations.

A small group of papers dealt with ophthalmic optics. One of these which had some "human interest" was a description of the difficulties of the optician in fitting glasses for persons—apparently the generality of mankind—whose faces are asymmetrical. The author, Mr. H. L. Taylor, said that everyone who had paid attention to the fitting of spectacles was aware of the displacement of the right eye in the majority of adults, and this he explained by the evolution of binocular vision resulting in a directing and predominant eye, which, man being right-handed, might be expected to be on the side of that member which had to perform most of the guiding operations. The proportion of adult males, in Western countries, who have asymmetrical features, to an appreciable degree was put by Mr. Taylor at 80 per cent.; in females the proportion is lower, and among people in Eastern countries, whose features are as a rule more impassive, asymmetry

is much less frequent. The perfectly regular face seldom has ocular asymmetry, whereas the possessor of angular or irregular features nearly always shows it in a marked degree. The general rule is to find the right eye further from the nose than the left, the amount of difference being usually 2 or 3 mm. To fit a person with frames and lenses when he has irregular features, and when, as in most cases, he is unaware of it, is one of the worries of the optician. It appears that rimless glasses make the anomalies rather less conspicuous, and also, at the other extreme, that the heavy xylonite and similar rims now worn mask the facial irregularities by drawing attention to their own obtrusive ugliness!

A statistical study of age and sex variations in respect to refractive errors was ventured upon by Mr. W. Swaine, who brought forward a large number of records obtained from sight-testing opticians in this country and from one American ophthalmologist, upon which he prepared certain tables. These showed, among other things, that direct astigmatism—astigmatism, so called, "with the rule"—is more common in youth, while the inverse variety of astigmatism, "against the rule," is more common in middle age. The younger females examined appeared to show a consistently high percentage of direct astigmatism. He also found more hyperopia among females than among males of the corresponding class. Another deduction from some 300 records taken in Devonshire and some 2,000 in London was that myopia bulked less largely in Devonshire than in the metropolis among the defects for which people sought the services of an optician.

Two workers, Mr. H. Hartridge and Mr. R. J. Lythgoe, described some investigations on the influence of illumination on visual acuity. Their conclusion was that while artificial illumination of from 2 to 4 foot-candles is most probably adequate for a variety of purposes when doing fine work, yet only about one-half the full acuity of the eye is achieved at these intensities, and that for the maximum acuity an intensity of from 100 to 200 foot-candles is necessary.

In a long and elaborate paper Mr. E. F. Fincham discussed the mechanism of accommodation. His purpose was to show that the theory of Helmholtz is fully supported by the results of more recent study of both the anatomy of the parts concerned and the observed physiological processes. The two phenomena of the relative immobility of the posterior surface of the lens and the change of the anterior surface to the hyperbolic form, which were believed not to be satisfactorily explained by the Helmholtz theory, are, on the author's showing, quite compatible with that theory and completely explained by it if account is taken of the peculiar properties of the lens capsule, as recently described by Mr. Basil Graves.

A mechanical theory of heterophoric correction was put forward by Mr. J. B. Reiner, who said that physiological evidence showed that the anatomical position of rest of the eyes was one of divergence, and experience of cases in practice suggested that there was not uncommonly a marked difference in this divergence. His theory was that the true anatomical position of rest for each eye was midway between the maximum rotation inward and the maximum rotation outward, the other eye meanwhile being visually fixed upon an object directly in front.

An interesting instrument demonstrated was the myophoriograph, the invention of an optician, Mr. A. J. Esdaile, of Newport, for ascertaining the strength and control of the muscles of the eyes by means of a moving red spot and a white circle, and correctly recording it. From charts made with this instrument Dr. Margaret Dobson read a paper on imbalance or lack of equality in the tension and contractile strength of the eye muscles.

Optical Progress in Many Fields.

One department in which much recent work has been done, as evidenced in the exhibition, is pyrometry. Several examples of the optical pyrometer were on view, some of them based on the measurement of the brilliancy of the light from the glowing material, and others on its colour. Instruments were shown by which stellar temperatures as high as 28,000° C., far exceeding the temperature of the sun, were indicated, and it was stated that the

optical laws on which the pyrometer is founded are so accurate that the figures may be accepted with confidence. Astronomy, as the science most completely dependent on optics, was the subject of some interesting exhibits. One advance illustrated was the verification of the enormous tensivity predicted by Professor A. S. Eddington (who lectured at the Convention) for the faint companion of Sirius. The verification depended upon the possibility of separating the spectra of the two components of this double star, one of which is ten thousand times as bright as the other. The great reflecting telescope at Mount Wilson, the mirror of which has a diameter of 100 inches, proved equal to the task, and thus a deduction from the theory of relativity was also verified—namely, that the wave-length of a spectrum line depends on the gravitational field in which the line originates.

The microscope revealed its many and increasing uses, including its systematic application to the study of metals. In the exhibition were to be seen experiments in television, or the transmission of images at a distance by means of wireless signalling; the results somewhat resembled those yielded by the very early cinematographs, and the piercing whistle or other interference in wireless reception has its equivalent in the "televisor" in the shape of white flashes across the screen or an appearance of snowflakes. The optical instruments used in aviation were of interest, especially in connexion with the overcoming of the difficulty arising from minute droplets of water deposited on the glasses. Every wearer of spectacles is familiar with the fact that the glass when rather cold can be obscured by light moisture. The designers of aircraft optical instruments, however, have managed to construct sights which cannot "mist over" even when the temperature is reduced to many degrees below freezing point.

Among many other objects of interest in the exhibition mention should be made of the exhibit from the optical appliances depot of the Ministry of Pensions which showed the manufacture of artificial human eyes from soda-aluminium glass in all its various stages.

England and Wales.

DERBYSHIRE ORTHOPAEDIC HOSPITAL.
BRETRY HALL, near Burton-on-Trent, was formally opened by the Duke of Devonshire on April 14th, as an orthopaedic hospital, under the control of the County Council of Derbyshire. As the result of the efforts of the late Dr. Sidney Barwise, who, since 1919, had endeavoured to obtain an institution for the treatment of surgical tuberculosis in children, the present building was selected because of the nature of the soil and its elevation above sea-level rendered it very suitable for the purpose. The original purchase price was £23,750, and about £11,500 was spent in adapting the Hall to accommodate fifty crippled children; the Ministry of Health gave £8,000 towards the building. Dr. W. M. Ash, county medical officer of Derbyshire, stated that there were over 800 tuberculous cripples in the county, only 135 of whom were of school age, and 550 were still untreated. Another fifty beds for tuberculous crippled children below the age of 16 was urgently needed, and also an extension of the building to enable treatment of adult cripples to be undertaken under the control of the Derbyshire County Council.

PORTSMOUTH TUBERCULOSIS HOSPITAL SCHEME.
On April 12th Portsmouth Town Council approved unanimously a scheme submitted by the public health committee to reorganize the hospital services under the corporation at a cost of £81,500. Two infectious diseases hospitals are at present in existence at Mount Gold and Swilly respectively. For a large part of the year, when scarlet fever is not rife, each hospital has a half-filled ward with separate administrations and staffs. The new scheme provides for the centralization of all the infectious diseases at the Mount Gold Hospital, thus economizing finance and administration. Two sanatoriums exist—one at Didworthy for early cases, and one at Udal Torre for intermediate and advanced cases. No accommodation is yet available in the borough for adult female cases, inter-

mediate female cases, or surgical cases in adults or children. It is therefore proposed to convert the hospital at Swilly into an orthopaedic hospital and to erect a sanatorium at Efford, adjacent to the tuberculosis colony; such a scheme would obviate sending patients away to distant institutions in Shropshire and elsewhere, and a certain amount of income might be derived from receiving patients from districts where no such treatment is available. The total annual cost of the scheme is estimated at an additional £4,430, which could be provided by rather less than 1d. of the rates.

FAREWELL DINNER TO DR. H. C. PATTIN, NORWICH.
On April 15th, at Norwich, Mr. H. J. Pond, chairman of the health committee of Norwich City Council, gave a farewell dinner to Dr. H. Cooper Pattin, late medical officer of health, who has retired after thirty-three years' service. The Lord Mayor was present, together with the Deputy-Mayor (Dr. G. S. Pope), the Sheriff, and other city officers. Sir George Morse, in proposing the health of the guest, described the steady improvement in public health administration under Dr. Pattin, and referred to the great variety of his interests and activities. Dr. Pattin, in his acknowledgement, quoted statistics from his first report to show how the death rate had fallen from 19 per 1,000 to 12; the infant mortality had fallen from 196 to 58; while in his first year there had been 15 cases of puerperal fever with 10 deaths, during his last year there had been 9 cases with 3 deaths, which could have been still further reduced by improved maternity accommodation.

Scotland.

PRODUCTION OF CERTIFIED MILK.
The first annual general meeting of a society which aims at inducing the public to utilize the higher grades of milk, the Scottish Certified Milk Producers' Association, was held in Edinburgh on April 15th. Lord Hamilton of Dalzell is chairman of the society. A report was submitted showing the activities of the association during the eighteen months since it was formed. Attention was drawn to the fact that the public are liable to be deceived as to the nature of ordinary milk produced without any of the special precautions which are demanded under the Milk Designations Order for the higher grades of milk. This Order, for example, is avoided by vendors putting out ordinary milk in bottles bearing fancy trade designations, and it has been suggested that vendors of such milk should be obliged to label their bottles in such a way as to show clearly that the milk contained therein does not come under or comply with the Milk Designations Order. The demand for certified milk had been gradually increasing, and a decision was recently made by the corporations of Edinburgh and Glasgow that all milk supplied to public institutions under their administration must be produced from certified cows. Another important fact was stated at the meeting by one producer, who said that the greatest demand for certified milk came from industrial districts, where the value of reliable milk supply was being more fully appreciated. The Edinburgh Town Council, at a meeting on April 16th, decided that the corporation should maintain a herd of tubercle-free cows at its farms at Colinton Mains and Oxbgangs, with a view to supplying the various institutions belonging to the corporation with Grade A (tuberculin tested) milk. The consumption of milk in the various hospitals under the corporation amounts to about 165 gallons a day. Grade A (tuberculin tested) milk has been chosen because "certified milk" must be provided in sealed bottles, and this is unnecessary for the wholesale supply and quick consumption that obtains in large hospitals. A trade price has been fixed for Grade A (tuberculin tested) milk, which is only 3d. a gallon above the price prevailing for ordinary market milk. The corporation has been urging for some time that the public should be supplied with high-grade quality milk, and its Public Health Committee has felt that by maintaining a herd of tubercle-free cows the corporation would be providing an object lesson to those who naturally expect it to give a lead to the public in the matter.

STUDENTS' COLLECTIONS FOR HOSPITAL FUNDS.

Following the example of students at Glasgow University, who recently raised over £10,000 for the hospitals in the city, and of the Edinburgh students, who have for some years raised considerable funds by taking part in a pageant held each spring, students in other towns of Scotland are organizing displays for the benefit of their local hospitals. On April 4th a students' day was held in Ayr in aid of the Ayr County Hospital, and from morning till evening bands of collectors assailed citizens and visitors. During the afternoon many thousands of persons thronged the streets to watch an organized procession in which over 600 collectors in costume took part. Over £962 was collected, and altogether, with the proceeds of entertainments and dances, over £1,200 was realized. On the same day students in Stirling, assisted by their friends from Edinburgh, Glasgow, Falkirk, and other centres, took a collection from the public in aid of Stirling Royal Infirmary Building Fund. Here the students also organized a procession, and the proceedings closed with a carnival dance. The proceeds in this case amounted to £1,111.

GLASGOW HOSPITAL SUNDAY FUND.

The annual report of the Glasgow Hospital Sunday Fund shows that the number of churches contributing to this fund during the past year was 526, as against 521 in the preceding year. The average contribution per church was slightly over £17. The total income raised in this way amounted to £10,151, a decrease of £272 as compared with the preceding year. Out of this fund the Royal Infirmary (740 beds) received £4,585, the Western Infirmary (556 beds) received £3,445, and the Victoria Infirmary (288 beds) received £1,784.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

At a special meeting for the hearing of penal cases, Dr. James Haig Ferguson in the chair, a certified midwife appeared along with her agent, in reply to a citation for contravention of the rules as to notification to the local authority anent being in contact with a patient suffering from puerperal fever, as also other breaches of the rules. Nurse Anna Blane, assistant inspector of midwives, Kirkcaldy district, gave evidence in support of the charges. After deliberation the Board instructed the secretary to remove the name from the Roll of Midwives and cancel the certificate. A certified midwife was cited to appear in respect of having failed to send for medical assistance in a case of abortion and of other breaches of the rules. The Board found the charges proved and instructed the secretary to remove her name from the Roll and to cancel her certificate. At the same sitting a certified midwife appeared in reply to a citation alleging various breaches of the rules in regard to keeping of records of pulse and temperature, register of cases, etc. Nurse Jane C. Barker, assistant inspector of midwives, Glasgow, gave evidence in support of the charges. The Board resolved that the charges had been proved and instructed that, in order to give the person cited an opportunity of proving amendment, action be postponed for reports at the end of three months from the local supervising authority on her conduct and methods of practice, and also at the end of six months. Failing satisfactory reports being received, her name was instructed *ipso facto* to be removed from the Roll.

Ireland.

MEDICAL INSPECTION OF SCHOOL CHILDREN IN DUBLIN.

A scheme for the medical inspection of school children in Dublin is at present under consideration by the City Commissioners. It is somewhat similar to that which has been in operation for nearly two years in Cork City, where it has been attended with remarkably successful results. For a considerable time past the whole problem of medical inspection for schools throughout the country has been receiving attention from the Department of Local Government and Public Health. The department intends, where possible, to inaugurate the schemes, but inevitably the progress will be slow, as the preliminary work involves

time and close attention to details. The schemes will be administered by the county boards of health, which will be recouped 50 per cent. of the cost. The expenditure involved will be considerable, but in every case steps will be taken to reduce cost as much as possible by utilizing existing institutions in the way of hospitals and dental clinics. In considering the scheme submitted to them the Dublin Commissioners have the benefit of the experience of Cork Corporation, and, latterly, the Cork Commissioner. The advantages of such a scheme to Dublin, with its big slum area and its thousands of poor children, are obvious.

- TUBERCULOSIS: PREVENTIVE INOCULATION.

At the annual general meeting in Dublin of the Royal National Hospital for Consumption for Ireland, Dr. W. M. Crofton, consulting physician to the hospital, said that, while the treatment at the hospital enabled many advanced cases to be arrested, the treatment must be prolonged, and they were always badly damaged people. Under modern conditions such cases should not occur, for, if there was any doubt about a diagnosis, a test could be applied which gave definite information as to whether the patient had tuberculosis or not. The recovery of patients diagnosed in this way and treated by the method used was as certain as anything in the practice of medicine. He hoped that every possible publicity would be given to the question of preventive inoculation. The death rate from tuberculosis in infants born of tuberculous mothers was very high—usually over 90 per cent. For twenty years he had been doing preventive inoculation on members of families in which tuberculosis had occurred, and he knew of no case to develop the disease. The method produced no illness, and was not done with a living microbe, as in vaccination against smallpox. Dr. Nathan Raw had been able to stamp out tuberculosis from a pedigree herd by this method, so that it was possible to produce races of human beings and cattle highly resistant to this disease. The method was simple, inexpensive, and could be carried out by any doctor.

Correspondence.

NON-INFECTIVE ARTHRITIS.

SIR,—All practitioners who have had experience of Drs. Cumberbatch and Robinson's method of treating gonorrhoeal infections by diathermy must have been impressed by the way in which many outlying symptoms disappear following the application of this current to urethra, cervix, prostate, or testicles as the case may be. This holds good not only in cases of arthritis but also for sundry muscular and nervous symptoms. So frequent and so impressive are the generalized benefits following pelvic diathermy that it is an obvious step to try it, particularly when other treatments have failed, on cases that cannot be considered to have a gonococcal basis but are otherwise clinically suggestive. Cases so treated will frequently clear up as quickly and fully as if they had been of a gonorrhoeal origin.

If one accepts the theory that diathermy only acts because of the deep heat produced by the current, then one must assume that in those apparently non-gonococcal cases the history or the pathological examination must be inaccurate or that there are other pathogenic organisms in the pelvic region also susceptible to heat.

If, however, it is admitted that the diathermy current can produce effects not solely attributable to heat (and what physician will deny these who has seen the benefit of this current in cases of pneumonia, poliomyelitis, and hyperpnea: or what surgeon will doubt who has seen the scars of diathermy fulguration?), then it is not unnatural to suggest, as Drs. Cumberbatch and Robinson have done, that this second action of the current should be on the ovaries in the case of women.

The arguments used by Dr. Warren Crowe in his letter of April 17th (p. 722) are logical and forcible, but are not constructive, as he does not advance any theory to account for the improvement in the cases cited by Dr. Cumberbatch.

Many cases, resistant to all ordinary electrotherapeutic measures, and clinically and pathologically free from active gonorrhoeal infection, have now been treated by me both

CORRESPONDENCE.

at the Royal Free Hospital and in private with pelvic diathermy with a high average of benefit. For a long time I considered the diagnosis was probably inaccurate and that a gonococcal basis existed in all those that derived benefit from this treatment. However, I have been forced from this view by cases that, for one reason or another, had to be considered free from gonorrhoeal taint. For a time also I held the opinion that either the specific nature of the current or the internal fomentation action of it on the prostate or ovaries was responsible for the cures effected. This theory, for clinical reasons and for reasons similar to those given by Dr. Crowe, I have abandoned.

I have therefore searched for some differentiating factor to enable me to select those cases most likely to derive benefit from this treatment, and I find that the patients that respond best are those that have a bilateral zone of hyperaesthesia in the groins about 1 inch broad and 6 to 7 inches long (cf. Henry Head). The method I employ for ascertaining the presence or absence of an area of hyperaesthesia or hyperalgesia is by a small induced current (which I have called the subradic test), and although this method is not one advocated by Dr. Head it has certain practical advantages over either the pinch or pin method that compensate for a course of treatment in these selected cases the zones of hyperaesthesia and/or hyperalgesia either disappear or greatly diminish.

It is, I think, too early to press any definite theory as there are many possible explanations. It may be, for instance, that in these cases we have the diathermy current raising the resistance of tissues to some chronic toxic absorption.

Drs. Cumberbatch and Robinson (April 3rd, p. 612) have done a service in drawing attention to this group of cases and to the beneficial effects of diathermy, which are, not infrequently, more dramatic than those secured by ultra-violet light.—I am, etc.,

C. B. HEALD.

London, W.1, April 18th.

THE "SPECIAL REPORT SERIES" OF THE
MEDICAL RESEARCH COUNCIL.

Sir,—Dr. Major Greenwood states (BRITISH MEDICAL JOURNAL, April 10th, 1926, p. 673) that a report issued under the auspices of the Medical Research Council, and drawn up for this body by "particular investigators" to whom the work was "entrusted"—namely, Dr. M. Young and Mr. W. T. Russell, of the National Institute for Medical Research, with the collaboration of Dr. J. Brownlee, Director of Statistics, Medical Research Council, and Professor E. L. Collis, member of the Statistical Committee of the Medical Research Council—was not a report of the Medical Research Council.

The statement that the authors are personally responsible for their conclusions is natural, but is considerably weakened by the criticisms contained in the introduction, which apparently represent the views of the majority of the Statistical Committee of the Medical Research Council, of which Dr. Greenwood is chairman. It is stated also in which Dr. Greenwood is chairman. It is stated also in the introduction that "a large amount of information... by the courtesy of the Registrar-General has been freely placed at the disposal of the Medical Research Council, acting through their Statistical Committee." (The italics are mine.)

Surely, in the face of all this it is not surprising that I should have referred to the publication as a report of the Medical Research Council; and, having done so, I completely fail to understand how such an interpretation can be considered a "grave offence," or a "discourtesy" to the painstaking authors. I am sure many will sympathize with my inability to appreciate the subtle relationship that evidently exists between the Medical Research Council and its own scientific workers and advisers. I am not considering the position of the Council-aided, really independent, worker. I am glad, however, the matter has now been made clear—namely, that the Medical Research Council assumes no responsibility for reports by its own scientific workers and advisers; possibly the Council is wise. I regret that the letter of Dr. Greenwood should have made necessary this explanation of what he calls a misstatement.

Per contra I should like to ask whether it would not have been more becoming of so distinguished a statistician as Dr. Major Greenwood frankly to have acknowledged the grave error made (see BRITISH MEDICAL JOURNAL, March 6th, 1926), in spite of the warning contained in my paper, by the authors of the report when criticizing my work, instead of attempting to cover them and referring to a fundamental statistical point as "trivial."—I am, etc.,

W. BLAIR BELL.

Liverpool, April 17th.

MENTAL IRRITABILITY AND BREAKDOWN
IN THE TROPICS.

Sir,—In the whirl of medical literature and theories Dr. J. W. Thomson (April 3rd, p. 634) has confused my work with that of another observer. What I endeavoured to explain at Portsmouth was, that with high electrical potentials in the winter months epileptics had more fits than they did with the low potential in summer months. I have not made any observations on the electric condition of vitiated air. These were made by Dr. Potter of Armstrong College, and described at the Newcastle meeting in 1921.

I think Dr. Thomson's theory is very reasonable. The electric potential in the tropics is generally less than that of the temperate zones; but, of course, mountainous areas would show a high potential. I am of opinion that a high positive potential stimulates mental activity. I have drawn attention to Thackeray's experience in America:

"There is some electric influence in the air and sun here which we don't experience on our side of the globe: people can't sit still, people can't ruminate. . . . Yesterday as some rain began to fall I felt a leaden cap taken off my brain pan, and began to speak calmly, and reasonably, and not to wish to quit my place."

This is over-stimulation. When a person who from an act has bred a habit, and from a habit a temperament, proceeds to the tropics we might expect him to feel, at first, a sense of capacity to endure; but with the continued absence of a customary stimulant we might prognosticate depression.

The theory fits in with the improvement derived from residence in the hills, because one is then removed to an environment of high potential; but, as in most cases where an explanation is sought for a group of symptoms, economical or physiological, the answer is not in one but in several collateral factors. Exposure to sun can be harmful. I think the late Jack London suffered from this, and that his widow admitted it in a book describing his last cruise in the South Pacific. No doubt isolation, monotony of diet, living amid an alien population, are contributory causes. We (as I have said elsewhere) badly need observations on atmospheric electric variations. In some tropical countries the daily variations are considerable and not become frequent, as in Java. Perhaps people do not become neurasthenic there. One has to eliminate a number of possibilities before one can begin to attribute a part to atmospheric electricity, and unfortunately many people will accept anything if you once mention "electricity" as a possible explanation.—I am, etc.,

GEORGE MAHOMED.

Bournemouth, April 5th.

Sir,—With regard to the Bishop of Singapore's letter on nervous irritability in the tropics (March 13th, p. 503), having been twenty years in the East I venture to offer a few practical suggestions.

The first thing is to rid ourselves of all prejudice, and to realize that we cannot live in the East as we do in England. The natives are healthy enough, and so are the officers of the Indian army, taken as a class. English men are healthier than English women and children in the tropics, because they lead a more open-air life. Ill health in the tropics depends on want of common sense as regards food, drink, constipation, clothing, light, and exercise.

Food.—Modern research teaches that fresh food is essential to man, that it contains vitamins which are destroyed by long

cooking or long exposure to sunlight. In India the cook is trained to overcook and stew everything, from porridge, soup, and vegetables to the meat. Peas and other things are put in cold water and left for hours to simmer—meat the same; the milk is boiled and reboiled many times. All fresh fruit and vegetables are excluded for fear of cholera.

Drink.—Pure water is the best, and plenty of it; four or five big glasses a day is not too much. It should be boiled and cooled, if not obtainable from a reliable spring. Alcohol is most inadvisable.

Constipation is due to improper food, nothing raw in the diet, and to insufficient water to drink. It may be traced also to the use of animal fat for cooking instead of oil, and perhaps chiefly to the wrong posture used during defaecation. The Government Public Works Department in India has standardized a high commode, which would induce constipation in the healthiest. The closet seat should be as low as possible. Observe the native and be willing to learn.

Clothes.—Clothing must admit of a free supply of light and air on the skin. Shorts and a shirt are the proper clothing for hot weather in the tropics. The clergy are the worst offenders, and to see Indian candidates for holy orders in black coats and white collars, perspiration streaming down their faces, is calculated to make both men and angels weep. Prickly heat is due to overclothing, and is never seen on naked skins.

Light.—Light does no one any harm; on the contrary, no one is healthy without light on his skin. As with the air, people can shut themselves up until they become sensitive to every draught and every ray of light, or they can harden themselves to bear sunlight and be the better for it. The harmful rays are the heat rays, and it is better for people to avoid the sun from midday until 3 o'clock; and to lie under a thick tree is better than to be shut up in semi-darkness and stagnant air, as is too often the European custom.

Exercise is essential in the morning and evening. As recent research has shown, the ultra-violet rays are then at the maximum, whereas at midday the heat rays predominate and lead to exhaustion. Contrast two classes in the East. The subaltern, who leads an active life and attends parades, route marches, polo, tennis, dances, and can wear shirt and shorts, keeps hard and fit. The clergy and office workers wear special clothes, designed to keep off all light and air from their bodies, with hard tight collars; exercise is at a minimum, indoor life at a maximum. The sedentary life in the East as led by Europeans sooner or later ends in disaster, because Nature never intended us to live in that way. Note the Indian holy man who gives himself to meditation. Not for nothing is he naked and sits in the sun. The more thinking done the more light required.

I would sum up by saying that to keep well in the tropics, light and air on the skin, exercise, plenty of water to drink, fresh food, fruit, and nuts, and avoidance of constipation are essential.—I am, etc.,

April 15th.

K. VAUGHAN, M.B.Lond.

DR. YOUNG'S CANCER PARASITE.

SIR,—In my letter (BRITISH MEDICAL JOURNAL, April 10th, p. 675) I deprecated much of the looseness and inaccuracy of statement which in discussions on cancer often masquerade as sincere scientific criticism. Dr. Leitch's reply (April 17th, p. 721) is a very complete vindication of this plea. Two of his main statements are demonstrably inaccurate. He affirms that at the end of the test experiment carried out at his laboratory he "learned, for the first time, that it was 'leukaemia' rather than cancer" which I undertook to produce. He states further that "we insisted on controls, which Dr. Young regarded as quite unnecessary." It is obvious that were these statements true Dr. Leitch sweeps the ground from under my feet. So far, however, are they from being true that on May 10th, 1924—that is, before the experiment was commenced—I sent a letter to Dr. Leitch outlining the proposed scope and nature of the experiment, in which I undertook to produce "a progressive lymphomatous lesion of the nature of pseudo-leukaemia and, in an advanced case, of lymphosarcoma." Further, I asked Dr. Leitch to arrange for an adequate number of mice, "say 50 with 50 controls," which he did! These quotations from my letter prove that on both counts Dr. Leitch's statements are misleading, and his inaccuracy in regard to a scientific experiment is as remarkable as it is inexcusable. I have no doubt that when Dr. Leitch consults his correspondence he will see the need for apology.

Dr. Leitch states, moreover, that I was not interested in nor did I wish to see the control animals. The real facts are that Dr. Leitch informed me that only two control animals were alive, the remaining forty-eight, like the dead injected mice, having been thrown away without

examination of the organs concerned. He attempts to minimize the value of my experimental results by the statement that so-called leukaemic patches in the liver "are exceedingly common in laboratory mice. They consist of multiple small foci of lymphocytes and bear no relation to tumours—or even to leukaemia." The futility of this is seen by the description of my experimental lesion which I published in 1922.

"Microscopically the histological picture is that of lymphatic leukaemia, the lymphoid growth being especially abundant in the portal areas and extending in the form of plugs of tumour cells into the surrounding parenchyma. Even in an early case the hepatic capillaries may be filled with lymphocytes. In an advanced case the liver tissue may be ploughed up and destroyed by the invading cells. . . . A close study of the appearances has practically convinced me that the neoplastic cells may, and usually do, originate *in situ* in the liver from the lymphoid nodules which, even in the adult, are constantly present in the normal mouse liver. . . . In many cases the proliferating cells may be found in vessels, the lumina of which may be completely plugged by the tumour cells. Mitotic figures may be present in these intravascular elements."

In the test experiment referred to this obvious leukaemic picture reappeared exactly as in my own previous experiments. In Maud Slye's laboratory, where the condition has been closely studied, it is considered as a malignant tumour, and it has been found to occur spontaneously in only 1.5 per cent. of the animals. It is abundantly clear that Dr. Leitch's "foci of lymphocytes" correspond to the appearance which I italicize in the above quotation! The "certain amount of glandular hyperplasia in the region of the thymus gland" found in two out of the eleven animals ultimately rescued from a mishandled experiment (in one it formed a tumour half filling the thorax!) obviously corresponds to the lesion described by me in 1922, where I state that "in an infected animal this scattered lymphoid tissue may exhibit evidence of hyperplasia in the shape of numerous mitotic figures, and in an invasion of the surrounding structures, large vessels, heart wall, etc." This tumour, which has a well recognized association with malignant types of leukaemia, reappears in Dr. Leitch's test experiment. Had Dr. Leitch taken the trouble to read the paper I sent him before the experiment began, in which I show that these lesions have been produced by the "cancer parasite" he affects to despise, or had he studied the observations of others who have described these very significant lesions, he would have been better able to judge how far the arguments for an essential linking of leukaemia, pseudo-leukaemia, lymphosarcoma, and cancer are justified. He would have been able, as was expected, to adjudicate between my claims and the "several" observers and the "numerous distinguished pathologists" to whom he refers, and behind whose opinions he now seems to find comfort in sheltering himself.

It is unnecessary further to multiply the evidence of prejudice and inaccuracy with which Dr. Leitch crowds his letter. The purpose of this correspondence is amply served with the few instances I have selected. It is interesting to note that, whilst Dr. Leitch has been hoping "to have heard the last of it," increasing evidence has been arriving from other laboratories in support of my work. My reason, however, for embarking on this correspondence was not to argue the validity of my views; it was rather to urge a general plea for fairness and accuracy in scientific criticism.—I am, etc.,

Edinburgh, April 17th.

JAMES YOUNG.

A CORRECTION.

SIR,—On page 611 of the issue of the BRITISH MEDICAL JOURNAL for April 3rd Dr. Alcock quotes my remarks at the Annual Meeting at Bath, and says that I gave as indications for operative treatment in cases of retroversion "sterility, dyspareunia, and prolapse." What I really said was that I seldom operated for uncomplicated retroversion, and considered that the indications for operation were dyspareunia, usually in acquired retroversion, and sterility or repeated early miscarriages without other obvious cause in cases of so-called congenital retroversion.—I am, etc.,

London, W.I, April 20th.

HENRY RUSSELL ANDREWS.

Medico-Legal.

LUNACY CERTIFICATION.

HARNETT v. FISHER.

THE action in the King's Bench Division, before Mr. Justice Horridge and a special jury, brought by Mr. William Smart Harnett, farmer and fruit grower of Newington, near Sittingbourne, against Dr. Henry Holdrich Fisher of Sittingbourne, for damages for alleged negligence in certifying Mr. Harnett, on November 10th, 1912, to be a lunatic and a proper person to be detained under care and treatment, resulted in the jury finding that the defendant had not exercised reasonable care in certifying the plaintiff at a time when the plaintiff was sane, and awarding the plaintiff £500 damages against the defendant. The hearing commenced on April 13th, 1926, and lasted four days. On the fifth day (April 20th) Mr. Justice Horridge heard legal arguments on the question whether the Statute of Limitations pleaded by the defendant deprived the plaintiff of his right of action, and reserved his judgement.

This action was against one of the doctors who originally certified Mr. Harnett as a lunatic, the other doctor, Dr. Penfold, having since died. The former action, brought by Mr. Harnett, was against Dr. Hubert Bond, a Commissioner in Lunacy, and Dr. G. H. Adam, medical superintendent of a private mental hospital at West Malling, Kent, for an alleged joint tort on December 14th, 1912, whereby Mr. Harnett, whilst on parole on a leave of absence order, was returned to the mental hospital. In that action, tried before Mr. Justice Lush and a special jury (see BRITISH MEDICAL JOURNAL, March 8th, 1924, at p. 449 et seq.), £20,000 damages were awarded against Dr. Bond and Dr. Adam jointly, the judge deciding as a matter of law that the defendants were responsible for the whole period of Mr. Harnett's detention in mental hospitals from December 14th, 1912, to October 15th, 1921, when Mr. Harnett escaped, while a further sum of £5,000 damages was awarded against Dr. Bond for detaining Mr. Harnett for three hours at the offices of the Commissioners in Lunacy before he was returned to West Malling. In the Court of Appeal (see BRITISH MEDICAL JOURNAL, April 12th, 1924, at p. 692 et seq.) Bankes, Warrington, and Scrutton, L.J., held that there was no evidence upon which the jury could have arrived at their finding that Dr. Adam did not exercise reasonable care, and further held that even if Dr. Bond's act of detaining Mr. Harnett was unlawful it was not the direct cause of the plaintiff's subsequent detention, the many certificates of doctors each constituting a new intervening act breaking the chain of causation. A new trial was ordered against Dr. Bond for the detention at the offices, judgement being entered for Dr. Adam. In the House of Lords (the Lord Chancellor, Lords Dunedin, Atkinson, Sumner, and Buckmaster) (see BRITISH MEDICAL JOURNAL, March 14th, 1925, p. 533 et seq., May 23rd, 1925, p. 989 et seq.) the decision of the Court of Appeal reversing the judgement of Mr. Justice Lush was upheld.

In the present case the defendant denied negligence, and pleaded that he acted in good faith and with reasonable care, as required by Section 330, Subsection 1, of the Lunacy Act, 1890.

Mr. J. W. J. Cremllyn and Mr. N. L. C. Macaskie (instructed by Mr. H. Coulson) appeared for the plaintiff; and Mr. A. Neilson, K.C., and Mr. T. Carthew (instructed by Messrs. Le Brasseur and Oakley, for the London and Counties Medical Protection Society) appeared for Dr. Fisher.

The Plaintiff's Case.

Mr. Cremllyn, in opening the case for the plaintiff, said Mr. Harnett was born in 1861. After his father's death in 1910 he successfully managed not only his own three farms but also that of his late father for the executors. In a previous action brought by Mr. Harnett against Drs. Bond and Adam it was established that Mr. Harnett was sane on December 14th, 1912. It was on November 10th, 1912, that the present defendant had certified Mr. Harnett to be insane, basing his certificate on facts observed by him when seeing the plaintiff in the street at Newington for a minute or two, and the plaintiff was said to have been excited and to have "called out in a loud voice to everybody," and also on facts related by a younger brother of Mr. Harnett, who was the petitioner for his detention in a mental hospital. These facts were to the effect that the plaintiff rambled about religious matters, that he said he had a call to rescue persons in the Borsal institutions and to draw everybody to Christ, and that he was deeply steeped in sexual matters. Evidence would be called to show that every one of those statements was untrue, but, even if they were true, counsel submitted that they did not justify the plaintiff being certified as a lunatic. The Lunacy Acts did not intend a man to be certified merely because he was a "queer fellow," or was said to be "as mad as a March hare," but only if he was of unsound mind and ought to be kept under care and treatment. The younger brother of Mr. Harnett had admitted that Mr. Harnett was not violent or dangerous either to himself or to anybody else. The Act was intended to protect the in-

dividual against abuses and the public against danger. In any event, there was no urgency in this particular case. In 1908 Mr. Harnett's first wife died of an affection of the throat, and when soon afterwards Mr. Harnett himself became troubled with catarrh he consulted first Dr. Jenkins, a Harley Street specialist, and, secondly, a quack doctor, who unfortunately inoculated him with an antituberculosis vaccine, which Dr. Fisher himself mentioned as a substantial cause of Mr. Harnett's alleged insanity.

The plaintiff gave evidence in support of his counsel's opening.

Cross-examined by Mr. Neilson, the plaintiff said that on October 29th, 1912, he was very ill, being in a comatose condition, and "talked nonsense." His mother died in a lunatic asylum from special causes, but there was no history of insanity in either his father's or his mother's family. It was his plan at that time to leave his farm and go preaching for the salvation of souls, if asked to do so. Regarding statements in a certificate for his detention made by the late Dr. Penfold, the plaintiff said it was true that on November 6th, 1912, whilst at tea with his second wife, his mother-in-law, a solicitor, and a solicitor's clerk, he said: "You are all treating me as if I were not in my right mind. Spell parallelogram." They all declined, whereupon he obtained a copy of Webster's dictionary, handed it to the solicitor, and spelt it correctly himself. In reply to the judge he said that he put it as an example of his sanity, not as a test.

Dr. T. B. Hyslop, consulting physician for nervous diseases, and formerly medical superintendent and resident physician at Bethlem Hospital, said he did not consider the facts set out in Dr. Fisher's certificate as to that doctor's own observation of Mr. Harnett sufficient to justify the certificate that the plaintiff was irresponsible and suitable for treatment in a mental hospital. By "irresponsible," he meant that Mr. Harnett was neither dangerous to himself nor to the community. Insanity was a matter of degree.

Cross-examined by Mr. Neilson, Dr. Hyslop said that "unsound mind" was almost universal, but "irresponsibility" and "certifiable insanity" were totally different considerations.

Dr. Risicu Russell, consulting physician for nervous and mental diseases, said there was nothing in Dr. Fisher's certificate that gave any indication of Mr. Harnett's insanity, and, that being so, there could not have been reasonable care exercised by Dr. Fisher in certifying the plaintiff. To say that Mr. Harnett was "steeped in sexual matters" was nonsense. Dr. Hyslop had said insanity was a matter of degree, but "degree" did not quite fit the case. One of the things alleged against the plaintiff was that he had said that he had a mission to save souls. It was a big jump, however, from that to the man who said that he was a new prophet come into the world. The witness said he had often been asked to define insanity, but it was impossible to give any definition which would be applicable to all cases. One must know something about the individual's past. There were plenty of eccentric people in this world, and one must know something about the type of man the individual was. The man who had always possessed strong religious principles was in a very different category from the ordinary man about town who, not having gone to church and having no special belief in prayer, suddenly became very religious and proclaimed that he was out to save souls. He did not think it justifiable to certify a man unless he had gone over the border-line.

Mr. Justice Horridge: The question here is whether the doctor went over the borderline in not exercising reasonable care.

The witness, continuing, said the doctor certifying a patient was quite at liberty to get information from other persons as to the patient's insanity, but it was an essential safeguard that the doctor should examine the patient physically. He questioned whether the statement that Dr. Fisher said he had received from someone else could be corroborated. The certifying doctor must also test the patient with regard to his supposed delusions.

Mr. Cremllyn: Are you aware that, under the Lunacy Act, a doctor is not permitted to certify a man to be insane merely on information conveyed to him by others?—Surely, in a border-line case a physical examination is necessary. There might be disease of the brain. If Mr. Harnett had had disease of the brain he would not be here to-day bringing his action.

Mr. Cremllyn: Is there anything in Dr. Fisher's certificate which indicates that anything like a proper and adequate examination was made by him?—No; it clearly reveals that the man who penned the certificate was very hard up for materials on which to certify.

Mr. Cremllyn: Was there, in your opinion, a reasonable, careful, and proper examination of the plaintiff?—There was not. It has been suggested that there are people so obviously mad that it is not necessary to examine them, but Mr. Harnett's case was not like that.

Cross-examined by Mr. Neilson, the witness said that while he did not see Mr. Harnett in 1912, he did not agree that anything he now said was speculative and hypothetical. What he said was based upon the certificate. He did not know what steps Dr. Fisher took, but if Dr. Fisher had seen anything he should be on the certificate. A physical examination ought to be made in every case of certification if it was possible and the patient was not too violent. Excitement and haranguing a collection of villagers might be a sign of insanity, and so might "rambling about religious matters." He did not know what "steeped in sexual matters" meant.

Mr. E. Hambrook, formerly farm bailiff to Mr. Harnett, said that Mr. Harnett always appeared quite sane, and from the time that he recovered from his illness at the end of October until he was taken to the asylum on November 10th, 1912, Mr. Harnett sanely transacted the ordinary farm business with him. He never saw anything to indicate that Mr. Harnett was insane.

Several residents in the district where Mr. Harnett resided also testified that on the day Mr. Harnett was taken to the mental hospital he appeared to them to be perfectly sane.

The Defence.

Mr. Neilson, opening for the defence, first submitted, as a matter of law, that the action was barred by the Statute of Limitations, and, secondly, that the defendant, in certifying Mr. Harnett, acted in pursuance of the Lunacy Act, 1890, in good faith and with reasonable care, and was therefore protected, unless the plaintiff could show that there had been an absence of reasonable care and good faith. The onus of showing this was on the plaintiff, and it had not been discharged.

Mr. Justice Horridge said he would take the verdict of the jury on the question of the exercise of reasonable care, and would deal with the submission that the action was barred afterwards.

Dr. Henry Holdrich Fisher, the defendant, then gave evidence. He said he was M.D. Lond. and L.R.C.P., M.R.C.S., and had been medical officer of the Milton Union and the Sittingbourne district since his father died in 1897. He had had a full course of instruction at Bethlem Hospital and other mental hospitals. On November 10th, 1912, he received a message from the late Dr. Penfold, asking him to go over and see Mr. Harnett for the purpose of certifying him. He drove straight to Newington, where he had a conversation with Dr. Penfold about Mr. Harnett. Dr. Penfold told him that he had complete and sure evidence that Mr. Harnett was not in a state of mental soundness and referred to his recent attack of mania. Dr. Penfold attached vast importance to the plaintiff's letter to the local post office officials, and added that Harnett was "roaring about the street," and matters had come to a climax. From the window of a cottage the defendant himself saw Mr. Harnett rush along the street waving his arms furiously and passing from one group of persons to another gesticulating and muttering something to them. The defendant followed him and put a few simple questions to him, but could get nothing from him. He had been previously told that Mr. Harnett had said that he was collecting witnesses to prove that he was sane. Being of opinion that there was sufficient material to justify his doing so, he made out the certificate.

The Judge's Questions to Dr. Fisher.

By Mr. Justice Horridge: He was not with Mr. Harnett in the street for more than two or three minutes. He was fully convinced then that Mr. Harnett's mind was a blank and that he was mentally unsound. He was certainly not violent or dangerous.

Mr. Justice Horridge: Why did you not take the trouble to ask him about the matters the brother had spoken of? You appear to have asked him nothing.—There are cases where it is futile to ask.

You assumed that he was incapable of telling you anything because he would not speak. How could he tell you anything unless you asked him?—I asked him a few simple questions.

Tell us one single question you asked him.—I must have asked him something, but I cannot say what the phrases were.

It is a serious matter to send a man to an asylum. I should have thought that you could have told us the questions you asked him?—I only remember that it was a simple thing, like "How are you?"

Did he not say to you, "I know you; you attended my wife"?—Yes. Is that any sign that he was not prepared to answer you?—That was of no value to me.

It showed that he knew you and you could have asked him anything you liked. I want you to give some suggestion of some questions you asked. I should have thought that a doctor should get his facts first and then test the man to see whether they were true or not. Did you ask him anything about his letter to the post office?—I do not think I did.

A Juror: My lord, did the witness ask this man any questions at all? His Lordship: He says that he put such small questions that he cannot tell us what they were.

Dr. Fisher: I had to take the man as I found him. I cannot tell you anything more than I have done.

The Juror: There is no definite question at all.

The defendant added that it occurred to him that if he had had Mr. Harnett in a home he might have ascertained more. He thought he had enough upon which to make a certificate. He was absolutely satisfied, as he had sufficient knowledge of the circumstances and of the disease.

Mr. Justice Horridge: Was there any urgency that you should be satisfied on that day?—I could not put the day off because I was asked to go on that day.

Cross-examined by Mr. Cremllyn, the defendant said that the evidence of insanity was meagre but sufficient. He denied the suggestion that he was picked up at the Bull Hotel, Sittingbourne, by Dr. Penfold and driven with a keeper from a mental home to see Mr. Harnett.

Re-examined by Mr. Neilson, the defendant said that he certified Mr. Harnett as long ago as 1912 and the whole thing had passed from his mind. It had been an ordinary incident in his professional life, and he had had no occasion to remember it.

Mr. Justice Horridge: Obviously the defendant has a right to say that it is a hardship to be asked to remember matters after such a lapse of time.

The defendant, continuing, said that as medical officer he had dealt with 247 cases, and he had certified in about a dozen cases before an order was made. He had never had any of his certificates questioned before. If he had not been fully satisfied he would have gone further into the case, but he stopped when he could not elicit any further facts. He wanted to avoid the possibility of retaliation and to leave Mr. Harnett in as calm a state as possible, having regard to the exaggerated state of overexcitability in which he obviously was.

Mr. C. M. Moir, a reporter on the staff of the *East Kent Gazette*, said that, in response to a telegram from the plaintiff to his newspaper, he interviewed the plaintiff on November 9th, 1912, and, from a layman's point of view, he formed the opinion that Mr. Harnett was not right in his mind.

Colonel Richard Locke, Deputy-Lieutenant of the county of Kent and a justice of the peace, who signed the plaintiff's reception order on November 10th, 1912, said he had known Mr. Harnett all his life. Dr. Penfold, who was highly esteemed in the district, told him he was anxious about Mr. Harnett, so he went with Dr. Penfold to the plaintiff's home. Dr. Penfold had warned him not to upset Mr. Harnett, who was exceedingly excitable and some-

times depressed, and when he (witness) saw him he was sitting at the head of the table with his head in his hands. He did not say to Mr. Harnett, "William, you are to go away," immediately he saw him, but he did tell Mr. Harnett later that it would be well for him to go away and have a rest. Mr. Harnett, who was tired and worried, seemed quite willing to go.

Mr. Justice Horridge: If Dr. Penfold, when he left the plaintiff, had said to him: "Mr. Harnett, I am coming around later with a magistrate," would that account for the state of worry and depression in which you found him?—I cannot imagine that Dr. Penfold would have said such a thing.

Mr. Justice Horridge: But Mr. Harnett says that he did say that.—It would have made a difference to Mr. Harnett, no doubt, but I do not think for a moment that Dr. Penfold would say it.

Re-examined by Mr. Neilson, the witness said he had no doubt from what he saw that Mr. Harnett was a proper person to be certified at the time, but he only looked upon his condition as temporary.

Dr. George Henry Adam, one of the defendants in the previous action brought by Mr. Harnett, said that in 1903 he assumed full control of a private mental hospital at Malling Place, Kent, where Mr. Harnett was first received as a patient. The note he made in his case-book after examining Mr. Harnett on his arrival was: "Aspect wild; eyes bulging; actions out of control; jumping from one seat to another; throws his arms about; talking continually on religious subjects; shouts loudly; justifies his behaviour by saying he is acting by the will of God." The witness definitely concluded that Mr. Harnett was of unsound mind. He was bound to take him in under the reception order. He did not know then that Mr. Harnett had had a serious physical illness, or that he had been ill at all. In his statement to the Lunacy Commissioners after the usual seven days, witness said Mr. Harnett was incoherent and rambling, that he chanted aloud from the Bible, talked continually on religious subjects, and believed that he had a special mission to save souls. On December 5th he notified the Commissioners of Mr. Harnett's escape and recapture, on December 10th he reported that the patient's mental condition had improved, and on December 12th he reported that he had allowed him out on twenty-eight days' probation under the care of his brother. On December 14th he heard from the Board of Control that Mr. Harnett was there, and he was fetched back and examined. The record of that examination was: "Patient in a very excited state and much worse mentally than when he went away, and had a delusion that he was going to be infected with various drugs." Later Mr. Harnett was removed to Croydon Mental Hospital.

Cross-examined by Mr. Cremllyn, the witness said he did not think that the original certificates were very strong, but they were strong enough for detention.

By Mr. Justice Horridge: He formed the conclusion that Mr. Harnett was insane, although the jury in the case *Harnett v. Adam and Bond* said Mr. Harnett was sane then.

Further evidence was given by Dr. Ludford Cooper, ophthalmic surgeon, who saw Mr. Harnett at Dr. Penfold's request on October 31st, 1912; by Dr. E. S. Passmore, who received Mr. Harnett into the Croydon Mental Hospital in February, 1913; and by Dr. J. G. Porter Phillips, physician superintendent of Bethlem Hospital.

The Summing Up.

Mr. Justice Horridge, in his summing up, said that the case was one which had rightly been said to be of considerable importance. It was of importance to that unfortunate man, Mr. Harnett. It was of importance to the doctor. It was of importance to doctors because they had to do their duty in giving certificates, and it might well be that if a jury handled such cases heavily in the sense of punishing them, great difficulty might be experienced in getting doctors to certify at all. The case was also of importance to the general public because the public liked to know that, if anybody for whom they cared was to have the same question raised about him as that which had been raised about Mr. Harnett, all due care would be taken before the patient was certified. Dealing with the evidence, his lordship said it revealed that on October 29th, 1912, Mr. Harnett was seriously ill as the result of an injection of tuberculin by an unqualified person. It might be that although a man was thereby caused to do things which might be a bit exaggerated, and might perhaps be in a mental state which might be thought to be unsound, the jury would consider that he had been delirious, had had a temperature of 105°, and was subsequently unconscious, and the jury might think that if these facts were taken into consideration they might explain matters which Mr. Harnett did afterwards, and which without the explanation might strike them as very strange. Colonel Locke, who signed the reception order, was not told one word about the illness Mr. Harnett had had. What did Dr. Fisher's evidence amount to on the point of exercising reasonable care? He had never seen Mr. Harnett before he saw him for a minute or two when Mr. Harnett passed by the window which looked out on the village street. He had a discussion about Mr. Harnett with Dr. Penfold lasting about half an hour, and when he approached Mr. Harnett in the street he only asked him simple questions, none of which he could remember. Dr. Fisher had said that he did not ask Mr. Harnett more questions because he did not want to excite him. That, no doubt, was very kind, but it might mean that because he did not excite him he did not get sufficient evidence upon which to certify him. The Lunacy Act required that a reception order was not to be made unless the practitioner who signed the certificate had personally examined the alleged lunatic within seven days of the order being made. Was Dr. Fisher's examination—making every allowance for the lapse of memory—such as the jury might think sufficient to justify his signing the certificate? He (his lordship) thought that they could have very little doubt that Dr. Fisher never attempted in any way whatever to verify any of the statements made about the patient by his

(Mr. Harnett's) brother. Did the jury think that any careful man would consider that a person was of unsound mind solely on the ground that he was "excited," and "harangued the villagers," and "called out in a loud voice"? The jury would have no doubt from the evidence that when Mr. Harnett was said to be in this condition he knew that there was something on foot to put him away. In dealing with these matters they had to give a pretty broad latitude to the honest exercise of a doctor's duty, which was a difficult one to perform.

His lordship, referring to the question of damages, said there had been argument as to how long a part of the plaintiff's detention could be said to be the result of the defendant's certificate, and the plaintiff's counsel had said that he would accept the shortest possible time. The damages must cease to flow directly from Dr. Adam had Mr. Harnett in his care at Malling Place. The jury must not give the plaintiff damages which he would not be able to hold elsewhere. The damages should be moderate and strictly limited to what Mr. Harnett had sustained if he were a sane man taken to the asylum to the knowledge of other people.

The jury, after an absence of an hour, returned the following answers to the questions left them by the judge:

Was Mr. Harnett of unsound mind on November 10th, 1912, when he was certified by Dr. Fisher?—No.

Did Dr. Fisher use reasonable care in certifying him?—No.

Damages?—£500.

A SENTENCE UNDER THE DANGEROUS DRUGS ACT.

The London Sessions (Sir Robert Wallace, K.C., presiding) on April 16th remitted the sentences, totalling six months' imprisonment in the second division, passed upon Dr. Samuel Grahame Connor of Dryden Chambers, Oxford Street, London, by Mr. H. L. Cancellor, the Marlborough Street stipendiary magistrate, for offences against the regulations under the Dangerous Drugs Act, 1920, but decided to allow the fines, amounting to £200, to stand.

The proceedings before Mr. Cancellor, in which the defendant pleaded guilty to technical offences only, were reported in the *BRITISH MEDICAL JOURNAL* of April 10th, at page 677.

Mr. J. A. Hawke, K.C., and Mr. H. D. Roome appeared for the appellant, and Sir Travers Humphreys and Mr. W. B. Purchase appeared in support of the magistrate's decision.

Sir Travers Humphreys said that Dr. Connor in his petition described himself as a medical practitioner of high standing and reputation, and declared that he had been carrying on his profession in London for thirty-three years. Dr. Connor further said he had never previously had any charge against him, and he had never supplied morphine except to a small number of patients, and then only in quantities which he considered would be beneficial. Dr. Connor had submitted that the offences to which he had pleaded guilty were technical in character, inadvertent, and not based upon any improper motive or desire for concealment. The prosecution's case was that Dr. Connor had, during the year 1925, given orders on chemists for a total amount of 850 grains for surgery use. When the summons was served upon Dr. Connor the reply was that he did not understand it, and knew nothing about the regulations. As a matter of fact, as far back as December, 1922, Dr. Connor was seen by the police, on behalf of the Home Office, and asked to be more careful in regard to the prescriptions he gave for dangerous drugs, as he had been a trifle careless in certain minor matters.

Mr. Hawke, for the appellant, said he did not contest the facts, though he protested that they were heavy. He submitted, however, that a medical man might not be sent to prison for such offences. Of course, it was admitted that Dr. Connor had not kept his books properly, but he had used the morphine he obtained in a perfectly legitimate manner for the purposes of treating unfortunate people who were addicted to good results. In several cases Dr. Connor had achieved good results. The appellant, in evidence, said he had infringed in a handbook, through being misled by a paragraph in a handbook, a number of morphine addicts were on his books, and he had actually succeeded in curing some of the habit.

After retirement, the Bench, through Sir Robert Wallace, said they had come to the conclusion that the appellant had been guilty of gross carelessness rather than of wilful misconduct. In the circumstances, and having regard to the whole of the cases and to the fearful consequences which would ensue to Dr. Connor if the magisterial decisions were allowed to stand, the Bench had decided to remit the sentences of imprisonment.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has this week completed discussion of the Economy Bill, and has also taken the Army Annual Bill of the Economy Bill, and the second reading of the Moneylenders Committee stage and the second reading of the Moneylenders Bill. It is proposed to introduce the Budget on April 26th. A meeting of the Parliamentary Medical Committee was summoned for April 21st for a general discussion of medico-political subjects.

General Medical Council.

In reply to Colonel Woodcock, Major Hennessy, Vice-Chamberlain of the Household (who answers in the House of Balfour), said for the Lord President of the Council, the Earl of Balfour, that the five members of the General Medical Council nominated

by the Crown with the advice of the Privy Council under Section 7 of the Medical Act, 1886, are:—For England: Sir Francis H. Champneys, Bt., M.D. (originally appointed 1911, reappointed for further periods of five years, 1916 and 1921; date of registration, March 4th, 1875); Sir George Newman, M.D. (appointed 1919, reappointed 1924, date of registration, November 10th, 1892); Sir Nestor Tirard, M.D. (appointed 1922, date of registration, May 15th, 1876). For Scotland: Sir W. Leslie Mackenzie, M.D. (appointed 1922, date of registration, October 27th, 1888). For Ireland: Sir E. Coey Bigger, M.D. (appointed 1917, reappointed 1922, date of registration, December 15th, 1885). Colonel Woodcock asked whether the Lord President of the Council would consider setting up a committee of inquiry to investigate and report on the constitution and working of the General Medical Council, as set up by the Medical Act of 1858, with a view to bringing the work and authority of the Council more in accordance with the trend of modern ideas and practice. Major Hennessy referred Colonel Woodcock to the answer given him on December 8th last. (This answer was that the Earl of Balfour did not consider sufficient reason had been shown for setting up a committee of inquiry.) Colonel Woodcock asked whether Major Hennessy was not aware of the great feeling throughout the country engendered by a recent decision of this Council. Major Hennessy replied that he was aware of this question had been taken up by certain sections of the press. If Colonel Woodcock wished to know whether the Privy Council would look into the matter he should put a question down.

Economy Bill.

In committee on Clause 2 of the Economy (Miscellaneous Provisions) Bill Mr. T. Williams moved to postpone Clause 2 for twelve months to 1928. He said that, calculating upon 1924 payments, the clause would mean a reduction in potential benefits of approximately 3s. per person in approved societies. Mr. Chamberlain offered to explain the position with regard to the 13s. mentioned in the clause. The main National Health Insurance Act provided 9s. 6d. plus 6d. as the cost of medical benefit and administration expenses. In 1924 it was necessary to arrange for meeting the difference between this 10s. and the actual cost of the approved societies were asked to meet the difference out of their benefit fund and they refused. Finally, certain moneys were taken from the Unclaimed Stamps Sales Account and utilized to make up the difference. That arrangement was embodied in the Cost of Medical Benefit Act, 1924. Under that Act the full cost had been met up to the present without charge on the Exchequer. If Mr. Williams's amendment were accepted there would be no statutory provision for the difference between the actual cost and the 9s. 6d. plus 6d. provided in the original Act. The Unclaimed Stamps Fund would be exhausted by the end of this year. Unless the clause were passed in its present form the whole scheme would be thrown into disorder. The amendment was defeated by 244 to 144. On the motion that the clause stand part of the bill, Mr. J. H. Thomas pointed out that the clause had estimated that the extra cost of medical benefit of the approved societies would be £1,900,000 annually, exclusive of the State grant. Mr. Buchanan asked how the clause affected Scotland. Sir Kingsley Wood said there was a special provision that, in addition to the payments out of the 13s. grant which were generally authorized by the clause, the expenses of the provision for a medical service for insured persons in such parts of Scotland as were determined by the Board to be necessitous. The 13s. of a medical service for the Board to be necessitous. The 13s. as were determined by the Board to be necessitous. The 13s. included expenses for the mileage of doctors in the bill was less than in England this provision could be made. The provision for special assistance to the doctors in particular sparsely populated areas of Scotland had been put in at the request of the Scottish societies. The Highlands and Islands Medical Service Grant Act, 1913, already made this special provision for the Highlands, and the clause under discussion only considered its operation. Mr. Lloyd George said their patients saved by the fact that Scottish doctors did not drug their patients as thoroughly as English doctors did. He thought they deserved an extra fee for that. Did the 13s. represent the amount which the Minister of Health had decided should be paid to the doctors, or was it merely a maximum put into the bill for the purpose of calculation? Had the Ministry ever made an arrangement with the doctors on the basis of 13s.? and had they consulted the approved societies with regard to that figure? Mr. Chamberlain said the 13s. was a composite sum. It included the fee which was the subject of agreement with the doctors, and the present comparable amount was 10s. Of the 13s., 9s. went to the doctors for the subject of agreement with the doctors, and 3d. for the Minister of Health for Insurance Committees, and 3d. for the Minister of Health for regional medical officers and of central expenses of Health in respect of 14d. was put in because the cost of drugs had been rising in the past, and there was no certainty of the surpluses of the first and second valuations. He pointed out that they had reached finality in the cost of actual cost of the medical benefit, and strictly followed the recommendation of the Royal Commission. Mr. Wheatley said the House was entitled to know what the people who were receiving now. The clause was to receive above what they were receiving now. The clause was added to the bill by 188 to 114.

On Clause 3 Mr. Hybs Davies moved that provision should be made for continuing any additional benefits granted in respect of the surpluses of the first and second valuations. He pointed out that under the bill the Minister could assist any society which was in a deficiency to pay normal statutory benefit. He desired that they should also be entitled to pay such items as additional

maternity benefit, dental treatment and dentures, optical treatment and optical appliances. He calculated that 1,500,000 persons would suffer through a deficiency in their approved societies as a result of the bill's passage. Mr. Chamberlain said Mr. Rhys Davies was not correct in assuming that members of societies which were thrown into deficiency would be worse off. The amendment went far beyond the intention of the bill. Dr. Drummond Shiels said additional benefits were not in the nature of gifts or something outside and beyond the scope of the Insurance Fund. They were an attempt to come nearer the object of the insurance system. A full and complete medical service and adequate financial benefits were designed from the first. Restrictions on these were made by regulations under the Act, principally so that time might be given to test the financial soundness of the scheme. That had now been assured, but it was alarming to find the Minister of Health contemplated that not only might they not get additional benefits in many cases, but even that the benefits secured under the first two valuations might be reduced. Nothing would more tend to slackness of administration in the approved societies than the Government's action. The additional benefits mentioned by Mr. Rhys Davies were absolutely necessary. No medical scheme could be successful which did not provide for efficient dental treatment. In view of the complexity of diseases and the great increase in specialist treatment it was ridiculous to maintain a purely general practitioners' practice for panel patients. Yet it seemed that after the third valuation they would have no specialist medical benefit. They would be left with simply a dental benefit, an oculist benefit, and perhaps a little additional maternity benefit, and some of the more elementary things might even be taken away. Mr. Wheatley asked whether the Minister of Health could rise in the House and deny that the dental service which had been obtained by the insured people of the country had been one of the greatest national boons the country had ever received. It was impossible to have a decent standard of health in this country if the teeth of the people were not properly attended to, and for the first time they were able to obtain for the poorest section of the people through the National Health Insurance scheme what they knew to be one of the elementary necessities of health. Part of the outlet for the surpluses of approved societies had been the assistance of convalescent homes or hospitals in which their members obtained treatment. The whole nation would suffer if this assistance was withdrawn. Another additional benefit was optical treatment, and many members on that side of the House were short-sighted from lack of early provision of optical appliances. The provision for the industrial population, h. for the industrial population. gical appliances to their members made all the difference between great hardship and existence under ordinary standards of comfort. Mr. Chamberlain said that additional benefits were not declared for all time but for a quinquennial period. Mr. Buchanan said he had told a colleague, a doctor, that he was surprised at the medical profession in the House not making a greater fight on this amendment. They were going to make the task of the ordinary doctor in a poor district harder than ever. If the patient could not get decent food and medicine the doctor might as well not be there at all. The Minister of Health should at least secure after 1931 the surgical and dental treatment and the subscriptions to the convalescent homes.

The amendment was defeated by 106 to 163.

On Clause 4 Sir Kingsley Wood said that the Stamps Fund, which had been used for paying the extra amount to the medical men on the panel, would be practically exhausted. But stamps would be lost and cards destroyed again, and the actuaries calculated that sufficient would become available to prevent members of approved societies losing their benefits through prolonged unemployment and to meet the serious increase in the cost of drugs. It was estimated that the deficiency in the Drug Fund would be increased to £600,000 by December 1st.

On Clause 5, proposing the transfer of sums from the Navy, Army, and Air Force Insurance Fund to the Exchequer, Mr. Harney said every member of the House received letters which spoke of poor fellows who entered the army capable of maintaining themselves and those beholden to them, but were now wretchedly hobbling through life, while medical experts were unable definitely to say their condition was brought about through war service. These men were to be robbed. Dr. Vernon Davies hoped the Secretary of War would pass on to the Chancellor of the Exchequer the suggestion that there was a crying need in the service for some of this money. He referred particularly to the question of tuberculosis. The present state of tuberculosis in the Services was extremely unsatisfactory, and so far as he could make out there was no appeal from the decision of the medical authorities on the tuberculosis being attributable to service conditions. No doctor, whether in the Navy, Army, or Air Service, was able, when a man contracted consumption, to guarantee that it was attributable to the conditions of the Service or not.

Sir K. Wood said that the Committee had heard Dr. Davies with interest and sympathy. Under the proposals of the Government a certain section of the men in whom Dr. Davies was interested—the men who were unable to join approved societies—would receive better benefits and assistance. The Government proposed that £400,000 of the surplus from the Navy, Army, and Air Force Fund should be devoted to the interests of these men. The men would receive increased benefits, and, as recommended by the Royal Commission, treatments, such as dental treatment, on the lines of the approved societies' additional benefits. Clause 5 was added to the bill by 229 to 121, and discussion continued on other clauses not of direct medical importance.

During the subsequent debate, on April 20th, on the clause proposing to amend the Education Act and more strictly control

educational expenditure, Dr. Haden Guest said that even in the medical department it was exceedingly difficult to arrive at standards of comparison as between one area and another, or even between two parts of the same area. In London the cost of special services for the schools for blind, deaf, epileptic, and defective children was 15s. 11d. in 1920-21, while in Grimsby it was 1d. Such cases could be multiplied. How could they compare the expenditure of public authorities on the feeding of school children? Some years ago he was one of the medical inspectors of the London County Council, and it was one of his duties to make comparisons between the physical conditions of the children in different areas of London. All the inspectors were trained persons in that respect and all did the same work according to the same standards. Yet to bring their own work to a focus, and to ensure that they were not constantly using different standards in their work, they had to have periodical conferences to deal with one small subdivision of the work of the education authority.

Dr. Drummond Shiels spoke on a Labour amendment to ensure that only new expenditure by local education authorities might be refused grants by the Board of Education. Dr. Shiels said the health of the children ought to come first and their education second. School medical services were still very unsatisfactory, and it was a waste of time and money to provide extra items of education for children who, because of defects of the teeth and tonsils, were unable to profit by them.

The bill was reported to the House without amendment, the third reading debate to be on April 22nd.

Midwives and Maternity Homes.

On April 20th a Standing Committee, with Sir Richard Barnett in the chair, considered the Midwives and Maternity Homes Bill which had been introduced by Dr. Fremantle. Sir Kingsley Wood moved that the phrase in the bill "Any person, not being certified under this Act, who attends a woman in childbirth" be altered to "If any person, being either a male person or a woman not certified," etc. He said that the Ministry of Health desired to prevent any man, not being a medical man, practising in midwifery as had occurred in time past in Durham and had led to malpractices.

Dr. Vernon Davies asked how the amendment would affect medical students. Dr. Fremantle said that any attendance on childbirth by a medical student was under the direction and personal supervision of a duly qualified practitioner, and so the point raised by Dr. Davies would be met. Sir Richard Luce said it was recognized in all medical schools that even when a medical student attended a case alone he had behind him a qualified man at the hospital. Mr. Looker suggested that the courts might interpret the phrase "personal supervision" more strictly. Sir Kingsley Wood thought his amendment met the case, but he would reconsider the case again before the report stage.

A general discussion was permitted on the clause, and in the course of this the Committee debated an amendment by Major Hills, which proposed that no uncertified person should attend women in childbirth otherwise than under the direction and in the presence of a registered medical practitioner, and that any person so acting should be liable on summary conviction to a fine not exceeding ten pounds.

Dr. Fremantle said he had put down a similar amendment at the request of the Central Midwives Board. This would insist on personal direction by a medical practitioner. As a county medical officer he knew that the Act had worked very well, but even in his profession there were a few black sheep—"diehards" who had worked with "handy-women" and would attempt to continue to do so. His proposal was that "handy-women" should only work in the presence of the doctors. At what stage was the doctor to attend? In actual practice it was almost impossible to lay down a precise rule. He said the medical man should be made finally responsible in these cases. If the General Medical Council would tune up their doctors to observe this clause as originally drafted they would get over the difficulty. He offered to withdraw his amendment if the Minister of Health would promise to consult with the General Medical Council.

Sir K. Wood said the Government supported the bill because it was making for the time when every woman in confinement would be looked after by a qualified person. That could not be ensured immediately. The clause in the bill was a great advance on the Act of 1902. In many cases the phrase in the old Act "habitually and for gain" had been avoided. The old clause only enjoined that attendance should be under the direction of a doctor, which could be merely by instruction at the beginning of the case. The new phrase "personal supervision" meant that the medical man actually took charge. If they said "in the presence of" the doctor would have to stay throughout the whole of the confinement. Otherwise no doctor would feel safe. That would be unworkable in practice. He believed that the words in the bill would go sufficiently to ensure great reform. The Central Midwives Board had at one time preferred the phrase "in the presence of," but after consultation with Dr. Fremantle and the Minister of Health the Board was now content with the phrase in the bill. He welcomed Dr. Fremantle's suggestion that the Government should consult the General Medical Council about action to deal with the few medical men who could be said to be "covering" unqualified women. It was always better that a profession should discipline its own members, though he thought the clause in the bill would make such "covering" an offence. Major Hills thought that the courts would interpret "personal supervision" as being the same as general direction. If the courts held that, then a doctor could not be struck off the Medical Register or penalized for carrying out the law. Mr. Rhys Davies asked how the clause would apply.

in villages where there was no qualified midwife and the doctor was miles away. Major Hills said that was provided for as a case of emergency. Sir K. Wood said they need have no anxiety for the woman who attended a neighbour in an emergency in a remote village. They must not permit the odd case to divert them from the purpose of the bill, which was to ensure proper treatment under medical supervision. Sir K. Wood's first amendment was then carried, and the clause was added to the bill.

On Clause 2 Sir Kingsley Wood moved that where a midwife had been suspended from practice to prevent the spread of infection and not for default, the local supervising authority should be compelled to pay compensation. He said that most local authorities did this and he sought to enforce a uniform practice. Major Hills pointed out that the clause in the bill was wider, for it authorized compensation for any case of suspension without default. Dr. Vernon Davies said it was difficult to prove that a midwife was responsible in a case of infection, say by puerperal fever, and he suggested that to stay the spread of infection they should compensate all midwives suspended because of infection. Sir K. Wood said that would be far too wide. He added that the clause proposed that the midwife should appeal primarily to the Central Midwives Board, but that Board did not desire to deal with such appeals. The formula in the amendment followed existing practice and met the only case in which compensation was payable under the old Act. Mr. H. Williams asked if there was any provision to suspend the doctor who became infectious. Sir K. Wood said all that was already provided for by statute. The amendment was then accepted and the clause added to the bill.

Sir Kingsley Wood moved to omit Clause 3, which proposed an annual registration fee for midwives. He said that there were 70,000 names on the Midwives Roll, but that only some 14,000 were habitually practising. He sympathized with the desire to keep the Roll up to date, but many midwives had objected to the fee. Therefore he desired to withdraw the clause. Later he would move a new clause to provide that the Roll should be divided in two parts. The first, to be published annually, would include all the names furnished by the local supervising authorities. The larger list would be published at intervals not exceeding five years, and provision would be made for erasing names which could not be traced. Sir Richard Luce said that many women who practised did not do so in their own districts. A large proportion of nurses qualified as midwives with the intention of practising occasionally. Sir K. Wood said that no midwife could in fact practise unless she gave notice to the local authority, who would furnish her name for the active list. Mr. Rhys Davies said the proposed new clause would give the Midwives Board more power than it ever had before. Sir K. Wood denied this. He had never heard any objection to the constitution of the Board. The clause was deleted, as was the next clause, dealing with male midwives.

On Part II, dealing with the registration of nursing homes, Sir Douglas Newton moved amendments to secure that the authorities supervising maternity homes should be the councils of county boroughs, and such other councils as were authorities under the Maternity and Child Welfare Act, 1918. He suggested that the authority most conversant with local conditions was better suited than county councils to deal with applications for registration. Sir K. Wood opposed the suggestion. Under the Midwives Act the supervising authorities were the county councils and the county borough councils. Now they were proposing, for the first time, with the assent of all parties, the registration of maternity homes, and the bill threw heavy responsibilities on the registering authority. It would minimize the value of the maternity homes by one by minor authorities, but to double inspection, which would be of the country. The suggestion would prove extravagant and wasteful. The Ministry of Health attached great importance to the clause, and doubted whether it could continue to support the bill if the amendment were carried. He was authorized to say that the Central Midwives Board was anxious that the provisions of the bill should be maintained and that the other local authorities should not be introduced. In the debate which followed Dr. Fremantle and Sir K. Wood pointed out that any homes set up by the Government or by a local authority were excepted from the bill, as was any hospital and home for the conduct of which a duly qualified resident medical practitioner was responsible.

Discussion was adjourned until April 22nd.

Registration of Nursing Homes.

When the Select Committee on the Registration of Nursing Homes resumed the taking of evidence on April 20th, allegations of a most serious kind against a cheap nursing home at Wimbledon were made by the Rev. S. K. Anderson, formerly curate in charge of St. Matthew's, Wimbledon, and by Miss Cardross Grant, a registered nurse formerly engaged in parochial visiting at Wimbledon. The testimony of these two witnesses indicated deplorable neglect of patients in regard to overcrowding and defective sanitary arrangements. Mr. Anderson said that this place and other similar ones were advertised as "nursing homes." The same doctor visited four homes of this kind about which the witness knew. All the homes of this description charged between fifteen and twenty-five shillings a week, and in each of them there were about fifteen or twenty patients attended by two or three untrained persons. He brought the same complaint against other cheap nursing homes as against the one he instanced in particular, and in regard to which Miss Grant gave corroborative evidence.

Miss Stephenson, chairman of the Public Health Committee of the Wiltshire County Council, said that council was anxious to

have authority to register. There were practically no nursing homes in the county outside Swindon and Salisbury. She could not say that all the nursing homes in Swindon were satisfactory, but the council was most concerned to register "odd rooms" let habitually by midwives or nurses. There were these rooms all over the country, and some of them were unsatisfactory for midwifery. They only heard of these rooms through district nurses if they were not used for midwifery cases. In the rural areas there was not a great prejudice against sending senile cases to the workhouse infirmary. The cottage hospitals did good work, but she suggested that they should be included in registration. The smaller cottage hospitals would then take up nursing-home work with fees. Some did so now, but few put it in their rules. Such hospitals were now going through a difficult time. Dr. Davies asked whether witness recognized that it was necessary to have rooms in villages to which certain women could go to be confined. Witness said she did, but thought that midwives or others providing this accommodation should be registered. She did not regard the house as more important than the nurse. A doctor in the country would send a patient to confinement in a cottage hospital where the standard was not satisfactory. Many old-fashioned general practitioners were not exacting in such matters, and some cottage hospitals were unsuitable for maternity cases. The "homes" which were ill equipped or badly staffed were usually only for two or three cases, but were run by a qualified nurse or midwife. The chief nursing home in Salisbury charged 5 to 8 guineas a week, but the local doctors were trying to start one at 3 guineas a week. When nurses took patients into their houses the charge varied enormously. The nurse got as much as she could. There was a lack of homes for patients who could pay about 4 guineas a week. In reply to Sir Richard Luce, witness advocated the registration of cottage hospitals because it would raise the status of cottage hospitals which at present had great difficulty in obtaining trained nurses. Answering Dr. Shiels, witness said she knew of cases where a nurse took in a sick person but where there was no medical attention.

The Committee then sat *in camera* to take evidence from a nurse. At the previous sitting, on April 15th, evidence was taken in support of the claim that Christian Science nursing homes should be exempted from registration.

Obituary.

J. W. SMITH, M.B., C.M.Ed., F.R.C.S.Eng.,
Emeritus Professor of Surgery in the Victoria University
of Manchester.

WE regret to announce the death of Mr. John William Smith, which took place on April 13th at Ingleton, Carnforth, Yorkshire, where he went to live when he retired from active practice in 1922.

John William Smith, who was born at Lancaster on August 13th, 1864, the eldest son of Mr. T. D. Smith, belonged to a family which had been settled in the district for centuries. He received his early education at the Royal Grammar School, Lancaster, a foundation dating from the thirteenth century. There he was well grounded in classics, for which he retained a love throughout his life. Having decided to enter the medical profession rather than follow his father in business, he became a student at the University of Edinburgh in 1880. He was no doubt influenced in the choice of a school by the fact that many of his fellow townsmen were Edinburgh medical graduates; among them was the late Sir William Turner, who was born in Lancaster in 1832, and also received his early education at the Grammar School. As a student Mr. Smith attracted the attention of Sir William Turner, who appointed him to be one of his junior demonstrators of anatomy. After graduating with first class honours in 1886 Smith became resident house-surgeon to Mr. John Duncan in the Edinburgh Royal Infirmary. This was a piece of good fortune which profoundly influenced his future career, and never ceased to be a source of satisfaction to him. For John Duncan was a remarkable man and an illustration of the dictum of the late Sir William Dalby, given in his shrewd and witty *Dr. Chesterfield's Letters to his Son*, that the largest practices and widest influence are not necessarily in the hands of those men who are most in the public eye. While in Edinburgh Smith, among other honours, had the distinction of being elected a president of the Royal Medical Society.

In 1889 he went to Manchester as junior demonstrator of anatomy to the Victoria University under the late Professor A. H. Young, a former pupil of Sir William Turner. This appointment he occupied for two years, and published several papers on comparative and human anatomy; at this period he became a Fellow of the Royal College of

Surgeons of England (1890). In 1891 he was elected resident surgical officer to the Manchester Royal Infirmary. In this he followed the old-time tradition of the training for the practice of surgery—that a surgeon should first, above all things, be an anatomist. In former times this was almost a fetish, so that the connexion between the anatomy department and the hospital surgical staff was close. It is interesting, though perhaps futile, to speculate how far this alliance or mutual interdependence must have militated against the advance of surgery, for the dissecting room must have been a deadly neighbour to the operating theatre.

On the termination of his resident appointment in 1894 Mr. Smith began private practice as a surgeon. He held various junior non-resident appointments on the infirmary staff, among others that of junior anaesthetist. About this period he interested himself in the medical services of the army. This was years before the creation of the present Territorial Force, and the only outlet for such energies, and the only scope for civilians in this direction, was afforded by the old Volunteer Army Medical Service Corps, or Bearer Company, then under the command of Lieutenant-Colonel William Coates, C.B. In this Mr. Smith obtained a commission, and became an enthusiastic and useful officer. On the call for volunteers in the dark days of the South African war, in December, 1899, a detachment of seventy-two men went out, early in 1900, followed later by a contingent of thirty-four more. Mr. Smith went in command of the first, but on reaching the area of operations was separated from these his own men and detailed for service at Bloemfontein, where he was placed in charge of the surgical division of the famous No. 9 General Hospital (South African Field Force). He served in this capacity for six months, and published an interesting account of his experiences, under the title "Six months with a military hospital," in the *Manchester Medical Chronicle* (1901). During his absence a curious accident happened which might have had a serious effect on his future prospects. There being a chance of a vacancy on the honorary staff of the Royal Infirmary while he was abroad, he left with an intimate medical friend an application, with testimonials, for the appointment, ready to be handed in should the vacancy occur. His friend forgot all about the trust, failed to hand in the documents; and another candidate was duly elected. Happily there was another vacancy within a year, to which Mr. Smith was elected. He thus became honorary assistant surgeon in 1901, attaining the rank of full surgeon in 1910.

On returning from South Africa he continued his connexion with the Volunteer Bearer Company. On the formation of the Territorial Force in 1908 he was given a commission as major in the newly created Royal Army Medical Corps (T.F.), and had command of a field ambulance company. This work strongly appealed to him; he rarely if ever missed a camp, and his enthusiasm and experience on active service made him a most valuable officer. On the retirement of Mr. G. A. Wright from the command of the 2nd Western General Military Hospital, Mr. Smith succeeded him as commanding officer, with the rank of lieutenant-colonel, R.A.M.C. (T.F.). It thus fell to his lot, in conjunction with Mr. F. A. Westmacott, registrar, to mobilize the hospital early in August, 1914. At this period it is difficult to recall or imagine the strain and effort entailed in that task.

The hospital was originally equipped and designed to comprise 500 beds under one roof, and there was the bare nucleus of a trained military staff of officers and orderlies. Except that all contracts for equipment had long been made out and placed and a building ear-marked for the hospital, everything else had to be done *de novo*. A large school in the centre of the town near the Southern Railway centre, with a smaller one a few hundred yards distant, were taken over and rapidly transformed into hospitals. At a very early date patients were being admitted, first from training centres in the district, then direct from the front. The accommodation was rapidly extended again and again. These repeated extensions had to be made at a time when the pressure of work was greatest. The extension went on almost continuously until about 1917, by which time the original base hospital of 500 beds in two

buildings, with a few odd auxiliary hospitals, had increased to a base hospital with 5,000 to 6,000 beds, and some 120 auxiliary hospitals, making a total all told of upwards of 20,000 beds. Mr. Smith retained the command until late in 1915, when he relinquished it to devote himself entirely to surgical work as head of the surgical section of the hospital. These services were recognized by his being appointed deputy lieutenant of the county of Lancaster.

After demobilization he continued in practice till 1922, when, owing to failing health, he decided to retire from active work. Smith was a skilful surgeon, and his judgement and knowledge of human nature were quickly appreciated by his colleagues and patients. His shrewd common sense and his clearly expressed opinions were always recognized in matters of policy in connexion with the medical school. He was specially interested in medico-legal work, and was frequently seen in the witness-box in his capacity as consulting surgeon to the corporation tramways. He also acted as medical referee in the county court for several years.

Mr. Smith was a member of the British Medical Association, and was honorary local secretary of the Annual Meeting at Manchester in 1902. He had been President of the Manchester Medical and Pathological Societies. He published a number of papers in the medical journals, amongst which may be mentioned "Muscular anomalies in human anatomy" and "The surgical anatomy of the rectum," in the *Journal of Anatomy and Physiology*; and two papers in the *BRITISH MEDICAL JOURNAL*—one on excision of the rectum for carcinoma, a record of thirty-four cases from 1904 to 1910 (May 6th, 1911); and the other on atony and prolapse of the large intestine (1920), in which he advocated excision of the displaced colon.

He was married in 1910, and is survived by his widow and two children. The funeral took place quietly at Tatham Church, near Wennington, on April 16th.

SAMUEL BRAITHWAITE, M.R.C.S.,

Late of Egremont, Cumberland.

A FAMILY doctor of the good old-fashioned type, highly respected in his own country-side, passed away at Southbourne on January 26th last in the person of Samuel Braithwaite, late of Egremont, Cumberland. He was educated at St. Bees School, and was articled to Dr. Lawton of Egremont in 1870. Afterwards he studied at the Newcastle School of Medicine and at University College Hospital, London. He gained silver medals for anatomy, botany, dissection, and midwifery. He took the diploma of M.R.C.S. in 1876. He returned to Egremont in 1876, and continued in practice there till 1913, when he retired, and lived at Bournemouth and Southbourne; down to that time he had been for many years a member of the British Medical Association.

At Egremont he took an active part in all local affairs, being chairman of the local board in 1885 and for ten successive years; he was the first chairman of the Egremont Urban District Council, justice of the peace for Cumberland and Westmorland from 1897 onwards, and a prominent Freemason. He became lieutenant in the Egremont Rifle Volunteers in 1884, and was promoted captain in 1888. He was keenly interested in all country sports, and was Master of the Egremont Otter Hounds about 1886, and a member of the Hound Trailing Association. He was chairman of the West Cumberland Fishery Board for many years. In 1915 he won the Bournemouth bowls singles championship. During the war he returned to medical work, and held an appointment at a military hospital in Bournemouth. A life well lived, every day of it.

Dr. JAMES SHEPHERD, who died on March 29th at Aberdeen, in his 80th year, was widely known for his distinguished services in the Indian mission field. He graduated in arts at Aberdeen University in 1868, and obtained the degree of M.B., C.M. in 1871, proceeding M.D. in 1873. While working at Edinburgh for his medical degree he attended the theological hall of the United Presbyterian Church, since he had already determined to become a missionary. He spent the winter of 1871-72 in

Berlin in medical study, and in 1872 commenced medical missionary work at Deoli, in Rajputana. At the special request of the United Presbyterian Church of Scotland he then went to Udaipur, where he founded the celebrated Rajputana mission. His outstanding medical skill and organizing ability, particularly during epidemic outbreaks in this town, won for him the admiration of Rudyard Kipling, who wrote a tribute to him under the title of "A good man's works in the wilderness" (in *Letters of Marque*). In addition to founding the Rajputana Mission Hospital and church, he established a school for Bhils and an asylum for lepers. In 1898 Aberdeen University conferred upon him the honorary degree of D.D., to signalize the completion of twenty-five years' work as a missionary. In 1901 he received the Kaiser-i-Hind medal of the second class, for public service in India, and in 1914 the medal of the first class. He was a member of the British Medical Association.

Dr. JOHN EDGAR PERCIVAL SHERA, who died on April 1st, aged 52, received his medical education at Dublin; he obtained the diplomas L.R.C.P. and S.I. and L.M. in 1895, and the M.D.Brux. degree in 1903. His professional life was almost entirely devoted to mental diseases, and his appointments included those of assistant medical officer to the Kent County Asylum, senior medical officer to the Somerset and Bath Mental Hospital, and medical superintendent of the Bath and Wells Mental Hospital for the last six years. Dr. Shera was a visitor under the Lunacy and Mental Deficiency Acts, and a member of the Royal Medico-Psychological Association. During the war he held a commission in the R.A.M.C., and served in Salonica and North Russia. He was a member of the Somersetshire county panel from 1922 to the time of his death. Great sympathy is felt with his wife and other members of his family.

Dr. GEORGE KILWORTH SHERMAN BIGG, who died on April 4th, aged 71, was educated at Overslade, Rugby, and the Middlesex Hospital. He obtained the diplomas of L.S.A. in 1876, M.R.C.S.Eng. in 1887, and F.R.C.S.Ed. in 1888. He entered the army as surgeon in March, 1880, and served in the Egyptian war of 1882, receiving the medal and the Khedive's bronze star. From Egypt he went to India, where he was staff surgeon at Allahabad. At the expiration of his term of Indian service he served for a short time as staff surgeon at Dover, retiring with a gratuity in the spring of 1890. He then commenced practice in Westminster, and was a Fellow of the Royal Institute of Public Health, examiner to the St. John Ambulance Association, honorary medical officer to Queen Mary's Hostel for Nurses, and honorary surgeon to the Royal Society for the Prevention of Cruelty to Animals. He was the author of several medical and sanitary pamphlets, including *Baby's Health*, *The Anglo-Indian's Health*, *The Wife's Health*, *The Axioms of Diet*, *The Practical Treatment of Cholera*, and *Face and Figure*. He was a member of the Junior United Services Club, and was much respected and beloved by his many friends and patients. For some years past he had been in poor health, and was ultimately compelled to give up active practice in 1923.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following arrangements have been made for the third examination for medical and surgical degrees: Part I (surgery, midwifery, and gynaecology) will begin on June 15th and conclude on June 19th. Part II (principles and practice of physio. pathology, and anatomy) will begin on June 16th and conclude on June 20th. The examination will be held on June 15th, 16th, 17th, 18th, and 19th. The examination for the M.Chir. examinations should be sent to the Registry by April 27th.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council meeting was held on April 15th, when the President, Sir John Bland-Sutton, Bt., was in the chair. It was decided that the Museum in future shall be kept open till 5 p.m. all the year round, instead of being closed at 4 p.m. from November to February.

Subjects for Prize Essays.

The subject for the Jacksonian Prize essay for 1927, "The pathology, diagnosis, and treatment of bronchiectasis and abscess of the lung," was approved. The subject approved for the Cartwright Prize for 1926-30 is "The etiology, pathology, and treatment of chronic general periodontitis" (pyorrhoæa alveolaris).

Bradshaw Lecturer.

Mr. Ernest W. Hey Groves was appointed Bradshaw Lecturer for the ensuing year.

Fellowship.

The following Members of twenty years' standing were elected Fellows: Mr. George Buckston Browne (London), Mr. Thomas Herbert Bickerton (consulting ophthalmic surgeon, Liverpool Royal Infirmary).

Examiners in Dental Surgery.

Mr. Graham Simpson and Mr. Russell Howard were elected members of the surgical section of the Board of Examiners in Dental Surgery in the vacancies occasioned by the resignations of Mr. Raymond Johnson and Mr. Hugh Lett.

Cartwright Medal.

The Cartwright Medal, with an honorarium of £85, was awarded to James Sim Wallace, M.D., L.D.S.R.C.S., for his essay on "Variations in the form of the jaws, with special reference to their etiology and their relation to occlusion of the dental arches."

Walker Prize.

The Walker Prize of £100 was awarded to Dr. William Ewart Gye. The award was made in pursuance of the following report from the committee appointed to advise the Council in this matter:

"The work of Dr. Gye, which has been very materially assisted by the optical researches of Mr. J. E. Barnard, F.R.S., promises to throw light upon the hitherto unsolved problem of the causation of malignant disease. Taking as his starting-point the pioneer work of Peyton Rous upon fowl sarcoma, Dr. Gye produced from these tumours, by different methods, two fluids. Neither of these fluids when inoculated alone produced a tumour, but on inoculation of the mixed fluids in a healthy fowl, a sarcoma was produced. The experimenter produced a malignant growth two years which appears to be of extreme factor peculiar to each species of species. Dr. Gye has succeeded in this, by a series of substitution experiments obtained from human carcinoma he rat and mouse a virus capable of acting with the 'specific factor' of the fowl to cause fowl sarcoma."

to cancer
justify:

Diplomas.

Diplomas of membership were conferred upon the following candidates who had passed the requisite examinations and complied with the by-laws:

E. L. Fothergill, J. Gray, A. Hobson, M. M. Raouf, S. T. Seccombe, C. C. Ungley.

Licences in dental surgery were conferred upon two successful candidates.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following, having successfully passed the examination, have been admitted Fellows of the Faculty: P. V. Cherian, S. S. K. Hattinagadi.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—Medicine: C

T. MacL. Ormiston, Emma C

J. E. Mulholland.

Of 104 candidates entered, the following passed the Final Examination and have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S. Glasg.:

F. D. R. Wylie, H. Ellison, B. J. Hallion, D. J. Allan, J. L. Clark, R. W. Schuch, J. L. D'Silveira, W. C. Heslop, T. D. Gould, H. A. B. Leakey, W. L. P. Dassanayake, Minnie F. Varley, Cal, P. T. Mills, M. Camras, G. L. E. P. Sainatrasekara, C. E. Millen, D. Isaacs.

son, A. W. Dunn,
ang, E. P. Tulloh,
single, O. D. Bech-
rk, Ann J. Brown,

The Services.

I.M.S. DINNER.

THE annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant on Wednesday, June 16th. Major-General Sir R. C. Macwatt, C.I.E., has been invited to take the chair. Tickets and all particulars may be obtained from the joint honorary secretary, Colonel J. J. Pratt, I.M.S.(ret.), 18, Nevern Mansions, Warwick Road, London, S.W.5.

THE PARKES AND THE ALEXANDER MEMORIAL PRIZES.

THE Parkes Prize, open to officers of the Royal Navy, Army, and Indian Army of executive rank on full pay, other than professors and assistant professors at the Royal Naval Medical School and of the Royal Army Medical College, is of the value of seventy-five guineas in money and a gold medal; the subject for the next competition will be "The means of spread, and methods of control of bacillary dysentery." The Alexander Prize, consisting of £50 and a gold medal, is open to executive officers of the Royal Army Medical Corps on full pay, other than professors and assistant professors at the Royal Army Medical College. The subject for the forthcoming competition will be "The various aspects of inflammatory middle-ear diseases, with especial reference to their relation to military service." Essays should be sent to the honorary secretary of the prize committee for the respective competitions, Royal Army Medical College, Millbank, S.W.1, on or before December 31st, 1928. Each essay must have a motto, and be accompanied by a sealed envelope bearing the same motto and containing the name of the competitor.

DEATHS IN THE SERVICES.

Major George Pritchard Taylor, D.S.O., M.C., R.A.M.C., died on April 5th, aged 45, at Mhow, Central India, of wounds inflicted by a tiger, which he encountered when out duck-shooting. He was born on September 10th, 1880, educated at Edinburgh, where he graduated as M.B. and Ch.B. in 1908, and entered the army as lieutenant on January 30th, 1909, attaining the rank of major after twelve years' service. He served throughout the recent war, when he was four times mentioned in dispatches in the *London Gazette* of June 15th, 1916, May 29th, 1917, December 24th, 1917, and December 30th, 1918. He was awarded the Military Cross on January 1st, 1917, the D.S.O. on January 1st, 1918, and a bar to the D.S.O. on November 7th, 1918. At the time of his death he held the appointment of the D.A.D.M.S. (Sanitary), Mhow Division.

Medical News.

THE pharmacological laboratories of the Pharmaceutical Society of Great Britain will be opened by Mr. Neville Chamberlain, Minister of Health, on Wednesday, May 5th, at 3 p.m. As we have already taken occasion to explain, the laboratories have been established by the society for the testing of those therapeutic substances which will be scheduled under the Therapeutic Substances Act, 1925. They comprise, among other substances, such important medicinal agents as digitalis, strophanthus, ergot, and pituitary extract, the purity and potency of which cannot adequately be determined by chemical means. The laboratories are being carried on under the direction of the council of the society, with the assistance of an advisory committee, including, among others, Sir Humphry Rolleston, Sir Nestor Tirard, Dr. H. H. Dale, and Professor W. E. Dixon of Cambridge.

To commemorate the services of Dr. Edmund Ralph Sircorn, late medical officer under the West Ham Board of Guardians, who died on June 1st, 1925, aged 42, an inscribed marble tablet has been placed on a wall in the North-West Ham relief station, and was unveiled on April 8th. Eulogistic speeches were delivered on the services rendered by Dr. Sircorn, and special reference was made to his invariable courtesy and kindness and devotion to the welfare of his patients. The fund for the tablet was raised by a collection from the recipients of outdoor relief, who had particularly desired that some permanent memorial should be erected. Dr. Sircorn had been a member of the British Medical Association for many years, and during the war held the rank of surgeon lieutenant-commander, R.N.V.R.

THE presentation portrait of the late Sir Sydney Russell-Wells, M.D., F.R.C.P., painted by his nephew, Mr. John Wells, R.I., will be unveiled in the staff room of the Dreadnought Hospital, Greenwich, by Sir Humphry Rolleston, Bt., K.C.B., Regius Professor of Physic at Cambridge, on Tuesday, May 4th, at 3 o'clock. This portrait, which has been subscribed for by the friends and colleagues of Sir Sydney Russell-Wells, was on view at the Alpine Gallery in March; it represents him in his robes as Vice-Chancellor of the University of London. Any of his friends who desire to be present at the ceremony may obtain cards of invitation on application to Professor R. Tanner Hewlett, M.D., at the Seamen's Hospital, Greenwich, S.E.10.

THE fourth English-speaking Conference on Maternity and Child Welfare will be held at Caxton Hall, London, from July 5th to 7th inclusive, in connexion with the National Baby Week celebrations. The main subjects under discussion will be the care of the toddler, the care of the mother (expectant, at confinement, nursing, and post-natal), and the father's part in the child welfare movement. Lectures and film displays will be given during the evenings, and arrangements will be made for conducted motor tours to a number of maternity and child welfare institutions in London. A mothercraft exhibition organized by the Central Council for Infant and Child Welfare will be open daily. Further information and tickets for the conference may be obtained from Miss J. Halford, National Association for the Prevention of Infant Mortality, 117, Piccadilly, W.1.

AT a meeting of the Illuminating Engineering Society, to be held at the House of the Royal Society of Arts (John Street, Adelphi) at 7 p.m. on Thursday, April 29th, a discussion on school lighting (modern requirements and recent progress) will be opened by Dr. James Kerr (Chairman of the Joint Committee on School Lighting).

THE KING has confirmed the appointment of Dr. Lawson Gifford, District Medical Officer, Kingston, and Dr. David J. Williams as nominated members of the Legislative Council of the Island of Jamaica.

THE Fellowship of Medicine announces that Mr. Gwynne Williams will give a demonstration in clinical surgery at the Royal Northern Hospital on April 27th, at 2 p.m., to which members of the Fellowship and general course ticket-holders are invited. The last week of the course in urology at St. Peter's Hospital begins on April 26th. The Royal Waterloo Hospital will hold a three weeks' course in medicine, surgery, and gynaecology, beginning on May 3rd, on which date also a special course will start at the Central London Throat, Nose, and Ear Hospital. On May 9th the Infants Hospital will begin a two weeks' course with a morning visit on the Sunday to the Venereal Diseases Centre at Tavies Inn; on week-days the sessions begin at 2 p.m. at the hospital. The Royal Westminster Ophthalmic Hospital will hold a course during the first three weeks of May. On May 3rd a course in psychological medicine commences at the Maudsley Hospital and lasts until May 28th. Between the same dates the London Lock Hospital will hold a course in venereal diseases. Syllabuses and programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

UNDER the auspices of the British Institute of Philosophical Studies, Professor Leonard J. Russell will give a course of nine lectures on science and philosophy on Tuesdays, at 5.30 p.m., at Bedford College for Women, Regent's Park, beginning on April 27th. Particulars of the course can be obtained from the Director of the Institute, 88, Kingsway, W.C.2.

AT Bonn University 375 medical students, of whom 76 were women, were enrolled during the winter session.

THE late Dr. Henry Rayner, of whom an obituary notice was published in our issue of February 20th (p. 351), left estate valued at £41,334.

PROFESSOR ARTHUR HALL, M.D., F.R.C.P., has been appointed consulting physician to the South Yorkshire Mental Hospital, Sheffield.

DR. W. E. GREY will read a paper on the origin of tumours at the meeting of the Section of Surgery of the Royal Society of Medicine on Wednesday, May 5th, at 8.30 p.m. Afterwards Mr. J. E. Barnard, F.R.S., will give a demonstration on microscopical methods.

INVITATIONS have been issued by the Master and Wardens of the Society of Apothecaries to a dinner to meet the Lord Mayor and Sheriffs of London at Apothecaries' Hall, Blackfriars, on Wednesday, May 12th.

A THIRD edition of Sir StClair Thomson's textbook, *Diseases of the Nose and Throat*, will be published shortly by Messrs. Cassell and Co., Ltd. The work has been revised and considerably enlarged, and many new illustrations have been inserted.

PROFESSORS FIBIGER of Copenhagen and Marinesco of Bucarest have been elected honorary members of the Société Anatomique of Paris. Professor Léon Fédéricq of Liège has been elected successor to the late Professor Bergonié in the section of medicine and surgery of the Académie des Sciences.

THE annual provincial meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health will be held at the Medical Institute, Great Charles Street, Birmingham, on Friday next, April 30th, at 2.15 p.m., when Mr. F. Brayshaw Gillespy, assistant surgeon to the Birmingham and Midland Ear and Throat Hospital, will read a paper on ear and throat work in the acute infections.

THE KING has granted authority to Dr. Alexander Granville, C.M.G., C.B.E., late President of the Quarantine Board of Egypt, to wear the insignia of the Second Class of the Order of Ismail conferred upon him by the King of Egypt in recognition of valuable services rendered.

A CONFERENCE on mental welfare will be held, under the auspices of the Central Association for Mental Welfare, in the Central Hall, Westminster, on May 20th and 21st, under the presidency of Sir Leslie Scott, K.C., M.P. On the first day papers will be read by Mrs. Hugh Pinsent, Commissioner of the Board of Control, and Mr. J. Sandeman Allen, chairman of the West Lancashire Association for Mental Welfare, on the proper care of defectives outside institutions. In the afternoon papers on borderland cases will be read by Professor G. M. Robertson and Dr. W. R. Kemlo Watson. Under the presidency of Dr. H. B. Brackenbury the training of teachers for special schools will be discussed on the morning of the second day, when papers will be contributed by Miss M. M. Allan, Mr. G. B. Dodds, and Miss M. N. Russell. In the afternoon Dr. A. F. Tredgold and Dr. F. C. Shrubbsall will open a discussion on encephalitis lethargica and its after-effects. It is stated that the Minister of Health will be prepared to consider applications from local authorities, under the Mental Deficiency Act, 1913, whose accounts are subject to Government audit, and from boards of guardians, for sanction for the reasonable expenditure of two delegates. It is announced that a full report of the conference will be published at the cost of 3s. 6d., post free. A public lecture on moral imbeciles will be given by Dr. A. F. Tredgold, on May 20th, at Bessborough House, 1a, Lupus Street, S.W.1, at 5.45 p.m. Tickets for the conference and further information may be obtained from the honorary secretary, Central Association for Mental Welfare, 24, Buckingham Palace Road, S.W.1.

A MEETING of the Society of Superintendents of Tuberculosis Institutions will be held at 122, Harley Street, on Monday, April 26th, at 3 p.m., when papers will be read by Dr. F. R. Walters, on some needs and indications for treatment in pulmonary tuberculosis; by Dr. F. A. Lucas Hammond, on phthisical psychosis; and Dr. S. Roodhouse Gloyne, on the pathology of pleural adhesions in tuberculosis.

DR. C. VER HEYDEN DE LANCEY, L.M.S.S.A. and L.D.S.R.C.S. Edin., who is a British subject, has been appointed oral and dental surgeon to the King and Queen of Italy, the Royal Household, and the Prince of Hesse.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9561, 9562, 9563, and 9564** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Antiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4757 Dublin), and of the Scottish Office, 6, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

LETTERS, NOTES, ETC.

THE PROCEDURE OF THE GENERAL MEDICAL COUNCIL.

"HINDUSTAN," a British practitioner in India, writes: It seems to me that the present criticism of the General Medical Council in the public press at home is not due to any lack of appreciation by the public of the need of such a body to prevent the growth of abuses which would inevitably arise were the Council nonexistent; but it is one of our national characteristics to regard

with suspicion the decisions of tribunals empowered to pronounce summary judgements without appeal, and for this reason those of a professional tribunal like the General Medical Council, which can to all intents and purposes determine without appeal the career of a professional colleague, are particularly suspect. I have been in the habit for many years of reading the proceedings of the General Medical Council, as reported in the **BRITISH MEDICAL JOURNAL**, and am convinced that the decisions of the Council are almost invariably both just and tempered with mercy. Nevertheless, I am in agreement with those who resent the practical absence of appeal from the judgements of the Council. The General Medical Council being under the Privy Council, any practitioner struck off the *Register* has, it would appear, the right of appeal to the Privy Council itself. This being so, I would suggest that it should be arranged that in future such appeals should be referred for consideration by the Privy Council to its Judicial Committee, that very illustrious body which is the highest court of judicature in the Empire. Were this done public opinion would be reassured and much irrelevant criticism of the Council from time to time in the public press obviated.

"NATURE STUDIES IN OBSTETRICS."

DR. CHARLES J. HILL AITKEN (Kilnhurst, near Rotherham) writes: In your leading article of May 16th, 1925, "Medical education: two lay views," you quoted from Mr. Flexner—Students "enter the hospital schools and with rare exceptions soon settle down to clinical study at a level much below the level of their physiological training." Perhaps graduates approach their work in the same way. In obstetrics we apply forceps, clear out placentas after miscarriage, etc., forgetting that, as someone has said, the uterus is a very efficient organ and well able to do its own work. The following nature studies in obstetrics show what the uterus can do: (1) The second of twins not being born I was sent for. I advised delay, and two days later the second child was born without any complications. (2) A patient miscarried. The afterbirth was retained. I saw no indication for hurry, so we waited. Four days later the uterus contracted energetically and expelled a healthy placenta and membranes. The patient certainly lost some blood, but was up and about a week later. I was informed by the neighbour in attendance that on one occasion she had waited a week for the afterbirth. (3) Fourteen days after an incomplete miscarriage a patient sent for me because she had a foul-smelling discharge. Her temperature was 105°. Hesitating to take on myself the responsibility of leaving this case to the uterus, I arranged for the removal of the patient to hospital. While waiting for a conveyance labour pains set in and a putrid mass (placenta and membranes) was deposited on the bed. A year later there was a full-time normal birth. (4) A multipara fell in labour on the seventh month. Following a great discharge of liquor amnii the uterus rested. The presentation was head and cord. I judged I was in for turning; however, I decided to await uterine action before interfering. Ten hours later the uterus resumed its work and in four pains delivered foetus and afterbirth "in a mass." There was no haemorrhage.

TRIPLETS.

DR. FUKUSHIMA (Rangoon) sends us a note of a case of triplets, which occurred recently in her nursing home. A Madras Hindu lady of about 39 years of age (seventh pregnancy) was delivered of a male child on February 21st, 1926, at 7.5 p.m. with head presenting; at 8.10 p.m. she was delivered of a female child, also head presenting; and at 8.33 p.m. another female child was delivered with breech presenting. She suffered from no pains after the delivery of the first child. The respective weights of the infants were 5 lb. 3 oz., 5 lb., and 5 lb. The male child had a separate sac with its cord, and the females were in one sac with separate cords originating from one placenta. All three children look alike and well developed. An early diagnosis of more than one foetus was made from the physical signs.

ANTIMONYALL CUPPS.

DR. GEORGINA F. MALDEN (Ayr) writes: In connexion with Sir StClair Thomson's article on antimonyall cupps I think the following quotation may be of interest: In *Patronage*, a novel by Maria Edgeworth, published in 1813, occurs: "Mr. Panton seemed to be much struck with the account of bottles made of antimonyall glass, which continue, for years, to impregnate successive quantities of liquor with the same antimonyall virtues." The account is one of medical anecdotes told by a young physician to an elderly hypochondriac. Apparently antimonyall glass then existed, or was believed to do so.

MEDICAL GOLF.

THE final of the Medical Golfing Society's knock-out tournament will be played between Mr. Joseph Canning, who defeated Squadron Leader A. J. Brawn, and Dr. E. Ravensworth Hart, who defeated Dr. D. S. Gordon.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 100.

A Lecture

OF

THE PRINCIPLES OF TREATMENT OF PULMONARY TUBERCULOSIS.*

BY

CLIVE RIVIERE, M.D.LOND., F.R.C.P.,

PHYSICIAN, CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, AND EAST LONDON HOSPITAL FOR CHILDREN.

CONTRARY to common belief pulmonary tuberculosis is one of the most curable of infective diseases. Many of us sitting here have weathered it in its slighter forms, and even the more severe outbreaks are very amenable to proper treatment. Why, then, it must be asked, is the disease responsible for so large a death roll? The reasons for this lie far more in human nature and our social conditions than in any failure on the medical side. Neglect and ignorance delay the diagnosis, and impatience and lack of opportunity prevent treatment being carried through to a cure. It has been said by some that the sanatorium treatment of phthisis is a failure, but this is far from true. It is, in fact, a wonderful success; but on account of impatience and lack of opportunity it is rarely given a chance of carrying a case through to the stage of cure. Compare with it the institutional treatment of surgical tuberculosis—admittedly a triumphant success. Where does the difference mainly lie? Undoubtedly in this—that for these cases, mostly children, the average time of treatment runs into years, till, in fact, "arrest" is really carried into "cure." Among these children impatience and desire of change do not break off the cure at the critical time as too often happens in adults; nor does the need of wage-earning or lack of funds return the half-cured case to the unhealthy conditions out of which the disease arose. Pulmonary tuberculosis is a disease of slow progress and still slower retrogression; it needs for its cure the years that are given to the treatment of surgical tuberculosis, and without them failure must follow, however successful in itself the form of treatment employed. Remember, therefore, at the outset that time is one of the essential elements in its treatment, and that this must be measured in years.

Now, what is the first essential in the treatment of active inflammation in any organ? You will answer, without hesitation, "Rest." This is as true of the lung as elsewhere, but how are we to apply it? For movement is the essence of the lung's function, and we cannot prevent it. We can, however, damp it down by reducing the need for oxygen through general bodily rest, and this in many cases suffices. Let the patient be put at rest, preferably in bed, as soon as the disease is diagnosed, or even before; it is well that he be impressed at the outset with the fact that he has an inflamed lung, and that the treatment for this is general bodily rest. Having seen to this, the next question that will be asked is, Should he go into a sanatorium?

Sanatorium Treatment.

The modern sanatorium lays itself out to employ all or most forms of treatment applicable to pulmonary tubercle, and the principles of sanatorium treatment are roughly the principles of the treatment of phthisis. They are, in the main, twofold: first, to build up the body's natural resistance to disease by general hygienic measures, and towards this open air, abundant daylight, and good feeding especially contribute; and secondly, to increase the specific resistance to tuberculosis by all known measures, of which the proper application of rest and exercise are the most important. Let us consider open air first, so as to clear the ground for the more important subject of rest and its corollary, exercise.

Open Air.

The real father of the open-air treatment of tuberculosis was George Bodington, who published his book *On the Treatment and Cure of Pulmonary Consumption* as long ago as 1840. In it he advised the unstinted use of open air in all weathers, and insisted especially on the value of cold air, both indoors and out—a revolutionary doctrine in those days. He advocated the provision of institutions for this outdoor treatment, and himself took a house for this purpose at Sutton Coldfield. But, surprising as it may seem, the value of fresh air in sickness appears to have been recognized long before this. Recently there has been unearthed in America a precious morsel from the writings of Benjamin Franklin about the year 1786; it runs as follows:

"It is recorded of Methusalem, who, being the longest liver, may be supposed to have best preserved his health, that he slept always in the open air; for when he had lived 500 years an angel said to him, 'Arise, Methusalem, and build thee an house, for thou shalt live yet 500 years longer.' But Methusalem answered and said, 'If I am to live but 500 years longer it is not worth while to build me a house . . . I will sleep in the air as I have been used to.' Physicians, after having for ages contended that the sick should not be indulged with fresh air, have at length discovered that it may do them good. It is therefore to be hoped that they may, in time, discover likewise that it is not hurtful to those who are in health; and that we may then be cured of the aerophobia that at present distresses weak minds, and makes them chuse to be stifled and poisoned, rather than leave open the window of a bedchamber, or put down the glass of a coach."

Open air in the treatment of phthisis should be as complete as possible, and the patient must be inured to it gradually. In particular, it is to be insisted that the patient be exposed to full daylight, unobstructed by glass. This is a very important element in open-air treatment, but sun, unless the air is cold, is safest avoided by patients with active lung disease. A prolonged sunning may lead to undesirable congestion of the tuberculous areas. The effect of open air, and especially of cold air breathed, seems to be a stimulation of metabolism, leading to increased appetite and well-being. Climate is secondary to open air, but is, I think, of more value than is sometimes admitted in this country. Tuberculous patients do best in a dry climate, and in this country are best sent east or south-east, according to the time of year. But with active disease the regime is more important than climate—even more important than open air—and this brings us back to rest and exercise, the first essentials in treatment.

Rest and Exercise.

Now although the house at Sutton Coldfield already referred to may be considered the prototype of the sanatorium as we know it, it must be noted that the importance of rest and exercise was recognized much later. Bodington's patients got their open air for the most part by walking and driving. But some twenty years later there was founded by Hermann Brehmer, at Görbersdorf in Germany, the first sanatorium on anything like modern lines. To Brehmer and his assistant Dettweiler belongs the credit of recognizing the importance of the regulation of rest and exercise in the treatment of pulmonary tuberculosis. Brehmer enjoined gentle exercise up sloping paths with rests at intervals. Dettweiler at a later stage became impressed with the need and value of rest above all things, and about 1880, at Falkenstein, initiated the famous *Liegekur*. His patients, febrile and afebrile alike, spent their time in reclining chairs in the *Liegehalle*. Dettweiler was also the founder of "absolute rest," called by him "cadaver Ruhe," but in this country often referred to as "typhoid rest," for the control of troublesome fever. Since that day rest and exercise, pursued under open-air conditions, have formed the basis of sanatorium treatment the whole world over; only in the proportion and dosage of these has any difference of opinion obtained. There is universal agreement that cases decidedly febrile must be kept at rest as long as fever persists—beyond that point differences of opinion and practice exist. On the whole it may be said that Continental sanatoriums advocate rest, rather to the avoidance of exercise, while British institutions enforce less rest and make exercise a part of their routine.

* Delivered at King's College Hospital on March 8th, 1926.

The Control of Auto-inoculation.

Now where the Continental physician speaks of "the correct dosing of rest and exercise" (Dettweiler), here, thanks to spread of the ideas first initiated by Almroth Wright, we are apt to talk of "treatment by controlled auto-inoculation." For Wright has taught us the pleasant game of "antigen" and "antibody" on which the practice of vaccine therapy has been built up, and this has been of notable value in the rational application of rest and exercise in pulmonary tuberculosis. He showed us how the body's resisting power to chronic infections depends on a proper balance between them; how a suitable supply of bacterial products (antigen) is needed to produce an immunizing response (production of antibody), and how excessive and uncontrolled dosage may overcome antibody formation, with the result that symptoms appear and disease spreads; how, further, once the balance is upset it can only be recovered by control of the bacterial toxins let loose (control of auto-inoculation) by rest. For auto-inoculation may follow upon "all active and passive movements which affect the focus of infection, and upon all vascular changes which activate the lymph stream in such a focus." Now, at once it becomes clear that, for better or worse, our tuberculous patient is an unconscious vaccine therapist—nothing less, in fact, than an uncontrolled tuberculin factory whose products are at the mercy of his bodily activity. When he exercises he receives a dose of auto-tuberculin, and when he rests the dosage is reduced. Doubtless other tissue poisons and toxins from other bacteria also come into play, but these may here be neglected. Thus the treatment of tuberculosis demands above all some knowledge of the action of tuberculin and of the means whereby it can be turned to therapeutic use. This knowledge will be necessary, not only in the control of rest and exercise and the understanding of the patient's symptoms, but also in the use of many drugs, in addition to tuberculin itself, used in the treatment of pulmonary tuberculosis.

The Action of Tuberculin and Auto-tuberculin.

Now all vaccine therapists know the stages of an "immune reaction"—how dosage with antigen is followed by a "negative phase," during which resistance to disease is lowered, and later a "positive phase" with improvement; and how, also, if the dosage is excessive the negative phase may persist, and no positive phase of raised immunity follow. If an effective dose of tuberculin is given to a tuberculous patient it is followed, after an interval of eight to twenty-four hours, by a "reaction" corresponding to the negative phase. At the point of injection there may be a "local reaction," with redness and swelling; a "general reaction" is shown by fever, malaise, and perhaps headache; and a "focal reaction" occurs in every active tuberculous focus. It is this focal reaction which especially concerns us. Each area of disease becomes flooded with blood, and this leads to an increase of physical signs, and of symptoms such as increased cough and sputum. If the dose has not been excessive for the type of case all these symptoms may quickly clear and a positive phase of immunity may follow. If, however, the focal reaction has been severe, and has occurred in areas of very active disease, other phenomena may follow. Further toxins and bacilli washed out may lead to further "secondary" reactions, both general and focal, with corresponding prolongation of fever and illness, and these may continue and increase owing to further spread of disease and increased sensitiveness to tuberculin. This gives us the picture of autotoxic tuberculosis brought about by neglect of treatment.

Now if instead, the dose of tuberculin has been moderate and followed by a mild reaction, it will be found that a period of increased "tolerance" to tuberculin ensues. During this period a larger dose will be tolerated, and by giving a gradually increasing dose at the best interval, which is found to be about twice weekly, we can establish tolerance to very large doses. The same can be accomplished with auto-tuberculin on a system of graduated exercise. If, however, instead of raising the dose we continue the same small dose, or if we seriously overdose our patient, the opposite condition to tolerance may sometimes

be brought about—namely, a hypersensitiveness to tuberculin.

Now let us apply this to a case of pulmonary tuberculosis. If he is ill and febrile we know he is overdosed with tuberculin from the diseased lungs. He is suffering with "general reactions," shown in fever and symptoms, and at the same time with "focal reactions," leading to congestion of the tuberculous areas, further washing out of toxins and bacilli, leading to further "secondary" reactions, and to increased activity and spread of disease. This is a vicious circle which can only be broken by cutting down the supply of auto-tuberculin. This is achieved by complete bodily rest—the demands for oxygen are thereby reduced, and lung movements and lung circulation are damped down. After a time the auto-tuberculin reactions die down and the patient becomes afebrile and free from symptoms. But disease is still active—get the patient up again and fever again appears.

After an interval for the tissues to recover their lost balance it will be found possible by a graduated regime to bring the patient back stage by stage to active movements without any fever resulting and even with a steady-*ing* of temperature. With each step forward it may be found that the temperature shows a slight rise, or an increase of the diurnal fluctuation, but these after a short time again subside. These are evidences of "immune responses" to auto-tuberculin accompanied by a steady rise of tolerance. Finally the patient, with disease which is far from being arrested, may yet be following a vigorous regime without any untoward symptoms—thanks to this tolerance. But if tolerance is upset at any point by too rapid rise of dosage violent reactions may occur and a period of rest be again required.

This means of establishing tolerance has been pushed further by Paterson and others into a system of "graduated labour," whereby considerable physical exertions are undergone towards the end of treatment. The advocates of this have spoken of the "high tide of immunity" thereby achieved, but high tolerance of tuberculin is probably something quite other than increased immunity to tuberculosis, and recent evidence seems to show that the ultimate results of graduated labour are inferior to those obtained by systems where a more resting regime is followed.

Ought Auto-inoculation to be Employed?

And now, having seen that we can, once autotoxic symptoms have been controlled by rest, in many cases get our patients up again with disease still active, we may inquire whether we ought to do so. I may remark at once that, owing to lack of beds for pulmonary tuberculosis among the hospital class, and of nursing accommodation in sanatoriums, the establishment of tolerance at an early stage has become almost a routine of practice in this country, so I am putting to you no hypothetical case. The answer to the question must depend to a large extent on the type of disease from which our patient is suffering. In disease of chronic, fibroid, "proliferative," or "productive" type, mild reactions and a full blood supply seem in many cases to promote the healing of disease, though even in such cases it may be argued that increased movement may tend to spread the fibrosis and prevent the proper encapsulation of the tuberculous areas. But in cases of acute, caseous, or "exudative" type a very different result must be anticipated. Both reactions and congestion may lead to softening of caseous areas, and though in the neck glands this may be of little consequence or even convenient, in the lungs it is a serious matter, for it leads to cavitation. Now tolerance may prevent reactions during exercise, but yet all exercise means flushing of the lungs with blood, for the pulmonary circuit must hand on all blood which the systemic circulation puts into motion. Moreover, the lung movement, a serious bar to healing, must also increase. Therefore no patient with caseous areas of any extent should exercise till disease is fully quiescent; and since most cases of tuberculosis are of mixed type and contain some areas of caseous disease, exercise should be regarded as a somewhat dangerous measure in pulmonary tuberculosis until all evidence of activity is past.

Febrile Cases.

The patient should be put at rest as soon as the disease is suspected or diagnosed. If there is fever, rest in bed must be carried on, under open-air conditions, until all fever has gone, and as long after as symptoms and signs suggest that disease may still be active—for activity is not limited to the period of fever. Where fever continues in spite of rest in bed, this must be continued in the hope that eventually it will subside, which it may do after even three or four months or more of waiting. In such cases more complete rest must be aimed at—what is known as “typhoid rest” tried, talking forbidden, and possibly some means of “splinting” the inflamed lung attempted. The possible need of collapsing the lung in such a case by artificial pneumothorax must not be neglected till too late. As long as fever persists rest is the one essential of treatment, and such a patient may be better nursed in his own home, if conditions are suitable, than in a sanatorium. Sanatoriums do not provide nursing accommodation for many febrile cases, so the febrile stage is best arranged elsewhere. The same also applies to the hospital class; if these could receive bed treatment in their own homes, during the early stages, as has been so successfully done under the so-called “class method” in Boston and Montreal, the institutions now provided could be put to their proper purpose—namely, the establishment of tolerance when disease has become quiescent, not, as now, while it is still active. Many cases end fatally where, if rest could have been carried on for a year or more, recovery might have ensued. Six or more months’ rest is not a bit too much for a case of serious type.

Afebrile Cases.

Cases with little or no fever will require less in the way of strict rest, but at the outset a period of bed, and later bed and couch or lean-chair, will be needed. The symptoms which bring them under observation are an evidence of active disease, and active disease requires rest. There will come a time with these patients, however—and also, though later, in febrile cases that progress—when the question of movement and exercise will arise. At most Continental centres for the treatment of tuberculosis exercise is for the most part considered a mere necessary return to normal life and not as an element in treatment. I think this is the safest view to take of it, but with a somewhat liberal interpretation. When disease is arrested the patient should be got slowly but steadily back to normal exertions, and five to eight or ten miles’ walking exercise daily is not too much to end up with. But this must be slowly and steadily achieved, with an eye on the temperature chart; any rises of temperature must be met by a return to a more resting regime. It is especially during this stage that the sanatorium is of unique value, providing as it does the skill of a physician specially trained in this difficult work. At the same time that exercise is being steadily pushed to these moderate heights the patient must have some hours of complete rest on couch or lean-chair during the day, and for some part of this time should relax his muscles and do nothing, or sleep if he will. In British sanatoriums some two hours’ compulsory rest is usual, one hour of which is before lunch. On the Continent at least seven or eight hours’ daily rest is the rule. I think myself that in this country we do not carry rest far enough, and the rest between lunch and tea invariably practised abroad might be adopted here with advantage.

I have been careful to utter a warning about the possible dangers of exercise, even graduated exercise given therapeutically, in cases of pulmonary tuberculosis not fully quiescent. Nevertheless I have admitted that graduated exercise, or “controlled auto-inoculation,” is a method of treatment that can be pursued with advantage in certain quiet types of case. But “immune responses” may be obtained by other means than exercise, and these other means must now be considered—first, tuberculin treatment, and secondly, treatment by certain drugs which produce reactions.

Tuberculin Treatment.

I have already considered the effect of a tuberculin injection—how a large dose may lead to severe reactions,

local, general, and focal, and may, like auto-tuberculin, upset immunity, and start the patient in a vicious circle of reactions with serious results. I have also shown how, with a step-like increase of dose, the patient may receive a desirable “immune response” to each dose, and establish a growing tolerance. For localized tuberculosis, as in surgical cases, where there is little or no auto-inoculation, tuberculin can be used in small doses, repeated with the same response every two weeks, by which time tolerance will have dropped again. But in autotoxic tuberculosis, as in lung cases, where inoculation with auto-tuberculin already occurs, it is found better to raise the dosage steadily at a shorter interval and so establish tolerance. Otherwise it is impossible to find and keep the level of effective dosage, since this is interfered with by irregular additions of auto-tuberculin. Doses are started in the neighbourhood of a millionth to 100,000th of a cubic centimetre, and rise steadily, by geometric progression, to a final dose of 1 c.cm. Here again, as in “graduated labour,” we establish high tolerance to tuberculin, but we must not delude ourselves into the belief that this is the same as high immunity to tuberculosis. It is more probable that such good as arises from tuberculin treatment depends on the short immune response to each dose, rather than on any cumulative effect. There is, I think, no doubt that a well applied course of tuberculin does good in suitable cases, but the treatment has gone out of fashion here largely on account of the trouble involved to both doctor and patient. If it had been the remarkable remedy some have held this would certainly not have happened. If it is used, my advice is that large reactions should be avoided—that getting a minimum but definite response to each dose should be aimed at. Any marked reaction must be met by rest and the return to a lower dose at the next injection. But too timorous an advance is as bad in its effect as overboldness. The treatment is not suitable for febrile cases, nor for “exudative” types of disease. It is useful in those quiet chronic types for which graduated exercise may be employed with impunity or even with advantage. There are also cases of mild fever hanging fire where a minute dose of tuberculin (or auto-tuberculin) may sometimes start the body’s delayed effort at immunity.

The tuberculins on the market are very numerous, but their actions are very similar; the best known are Koch’s three preparations—old tuberculin, new tuberculin or T.R., and bacillus emulsion or B.E. Of recent years many preparations of split tubercle bacillus have appeared, among which may be mentioned Dreyer’s “defatted antigen,” which was introduced in 1923. My experience with this preparation is that it may do good in a certain class of case, just as do other tuberculins. It is no cure for tuberculosis.

Drugs causing Reactions.

I may now turn from tuberculins to certain drugs which cause “reactions” in patients suffering with active pulmonary tuberculosis. How these reactions are produced is not yet clear, but for some of the preparations recently introduced it is claimed that the tubercle bacillus is attacked and destroyed *in situ*. It has long been known to those treating cases of pulmonary tuberculosis that potassium iodide, arsenic, creosote, and some other drugs may cause “focal” reactions in certain cases, but it has been to the salts of the heavy metals that attention has been directed of recent years—those of copper and gold especially, and to a less extent of nickel and cobalt.

Copper.—Copper salts were used in very early days, and their use was revived in France by the Lutons, father and son, about 1880. They observed that they possessed a specific affinity for tuberculous tissues, just as did Ellis more recently with his “picric-brass paste,” and given internally they found that focal and general reactions followed. They gave for the most part copper acetate, and later workers have used copper chloride, a dimethyl glycol copper, and other preparations. Begun at first by the mouth and subcutaneously, they were finally employed intravenously. These experiments seemed to bring out two important facts: (1) a selective action possessed by copper for tuberculous tissues; (2) the apparent ability to get copper into contact with tuberculous tissues by general administration, and to cause reactions. These reactions

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were followed by improvement in some cases, but in others by none, and this no doubt depended on the class of case treated. Feldt of Frankfurt, working with gold salts, claimed that reactions following the use of these were, on the contrary, always beneficial.

Gold.—Gold therapy may be said to date from Koch, who in 1880 discovered that gold salts, especially the cyanides, possessed an inhibitory action on the growth of the tubercle bacillus *in vitro*. Gold potassium cyanide had been recommended for internal use in pulmonary tuberculosis by Chrestien as long as sixty years ago, and its use was revived about the year 1913. Later, about 1917, a gold-cantharidin preparation called "aurokantan" was introduced by Feldt, and this gave place to a body called "krysolgan," which was given intravenously in 10 per cent. solution. Reactions followed the use of these preparations and were said to lead to improvement. Feldt claimed that krysolgan "increases the production of normal and specific antibodies, brings the tubercle bacillus disease products to healing, renders the remaining body harmless, and that in doses which for the tubercle bacillus are not only harmless but exert a stimulating influence." Lydia de Witt of Chicago, however, testing it on tuberculous guinea-pigs, found that life was not prolonged and disease not checked. From an analysis of the organs of healthy and tuberculous animals so treated she concludes "that gold has shown no specific affinity for tuberculous tissues." Moreover, she found that tubercles flourished in organs containing large amounts of the metal. In 1924 Moellgaard of Copenhagen published a book on the chemotherapy of tuberculosis. He had produced a preparation named "sanocrysin," a double thio-sulphate of gold and sodium, which, he claimed, would diffuse through the non-vascular tuberculous tissues, penetrate the fatty capsule of the bacillus, and attack it *in situ*. Intravenous injections of this body in 4.5 to 5 per cent. solution lead to violent reactions, often with erythema and albuminuria, and in some cases "shock" symptoms, and these have been ascribed, as they may well be in part, to the mobilization of auto-tuberculin. A serum has been used with the hope of neutralizing these toxic effects, but it appears to be of doubtful utility. Various results, some good and some bad, have so far been attained, and the method is still under trial. Whether we are here dealing with a true chemotherapy, or only a treatment by reactions, still remains. I think, to be proved. It has, of course, always been foreseen that the difficulty which would be met, if chemotherapy could ever be applied to tuberculosis, would be the large and perhaps fatal reactions caused by the release of auto-tuberculin.

Before leaving the subject of treatment by reactions it will be well to mention one or two other subsidiary forms of treatment which probably act in similar manner and have had their advocates. The first of these was that by nascent iodine, which is, I think, no longer used. Then there is the sodium morrhuate treatment, introduced by Leonard Rogers, the substance injected being a sodium salt of the unsaturated fatty acids of cod-liver oil after extraction by ether. Lastly, there is colloidal calcium. It is curious that these substances should produce reactions very similar to those produced by tuberculin, but so it is, and in certain cases, as happens with other methods of auto-inoculation, a certain measure of improvement follows. Whether with any of these measures the results justify the means, or whether they present any definite advantage over the "controlled auto-inoculation" produced by suitable rest and exercise, is a question difficult to answer. Certain it is that no striking results, unobtainable by other means, have ever been demonstrated.

It will be clear from the consideration of the action of tuberculin or auto-tuberculin, that the treatment by reactions, however they are induced, is a treatment which must be pursued with caution, and not applied to cases of exudative or caseous type. Only it may be said, that if a true chemotherapy be proved for gold or others of the heavy metals, then some risks may, perhaps, be justifiably run during the destruction of bacilli in areas of active disease. But in a disease so treatable as pulmonary tuberculosis, in all but its later stages, there is a strict limit to this.

Excessive Auto-inoculation.

I will now turn away from the cases—mostly afebrile, or at least ambulant febrile—where artificial auto-inoculation might be considered, to the directly opposite condition where auto-inoculation is excessive, whether from the amount or type of disease, and must be controlled if the patient is to live. This will be the febrile case with disease progressing in spite of bodily rest, and with this I will consider the case where disease, whether febrile or not, has reached a stage where mechanical factors prevent healing. It will be found that a proportion of such cases are wholly or largely one-sided, and among these collapse of the lung by artificial pneumothorax or other means has been attended with notable success.

Artificial Pneumothorax or Lung Collapse Treatment.

As long ago as 1821—that is, as soon as the elastic recoil of the lung was an established fact—James Carson of Liverpool had recognized how serious a bar to healing were the elasticity, condition of extension, and constant movement of the lungs, and on these grounds urged lung collapse as a method of treatment. In abscess of the lung he noted how "the sides of the abscess are prevented from falling into a salutary contact, not by the matter which lodges between them, but by the powerful elasticity and retraction of the surrounding substance." By collapse of the lung, on the other hand, "the diseased part would be placed in a quiescent state, receiving little or no disturbance from the movement of respiration, which would be performed solely by the other lung, and the divided surfaces would be brought into close contact by the same resilient power which before had kept them asunder." With regard to "consumption," he remarked: "in those cases in which the disease is placed in one of the lungs only, the remedy would appear to be simple, safe, and complete." He also foresaw its value in pulmonary haemorrhage. Later on in the century the occasional improvement following spontaneous pneumothorax was noted by various observers, but pneumothorax as a form of treatment may be said to have seriously started with the publication of cases by Forlanini in 1894 and 1895. Now it is recognized as a most valuable measure all the world over. The cases for which it is suitable fall into two categories: (1) cases of active disease which strict recumbency has failed to arrest, and where more complete rest of the lung is needed, and (2) cases where cavitation and extensive disease have rendered healing impossible in the extended lung. To these may be added recurrent severe haemoptysis. Disease must be the main, one-sided, or if disease is present in the better lung it must be of quiet type and not too extensive. Much experience is needed to decide what is a suitable case, but in a doubtful case an artificial pneumothorax can be tried and its effects watched.

As a rule, under pneumothorax treatment the functioning lung improves rather than deteriorates. This might be almost expected, for by collapsing the bad lung we remove the source of auto-inoculation whereby severe focal reactions, tending to increased activity and spread of disease, were occurring in all tuberculous foci in the better lung.

Artificial pneumothorax is brought about by the injection of air or nitrogen gas into the pleural cavity, and for this all that is needed is a gas bottle, a pressure bottle containing liquid, a water manometer, rubber tubing connecting these, and continued through a cotton-wool filter to a suitable needle. The needle is passed through the chest wall under proper precautions, and its arrival in a free pleural space recorded by the manometer. As soon as it is clear that the needle end is in the pleural cavity gas is allowed to enter. The main risks during the operation are those of gas embolism if a vein is entered, or "pleural shock," a reflex disturbance which is occasionally countered. Gas is given every few days at first, in quantities varying from 300 or 400 to 800 c.cm., and full collapse of the lung becomes a small solid mass against the spine, and the heart and mediastinum are carried over towards the opposite side. This displacement must not go too far, and is controlled by the gas pressure. A lung full of disease collapses but slowly. After the first few fillings there is often an increase of fever, and as the lung collapses

its contents are squeezed out and appear as an increase of sputum. But in a short time, in a successful case, the sputum again diminishes or disappears, the fever wanes, and the patient rapidly reaches a condition of "clinical recovery." But the diseased lung, though removed from view and no longer, thanks to the stagnation of its lymph and blood supply, providing poisons, will need a long period to reach "anatomical recovery." This takes place by an active fibrosis throughout the organ, and treatment can generally be given up after some three or four years. The lung's re-expansion will then depend on the extent of disease, and is often pretty complete unless it is bound down by a thickened pleura resulting from pleural attacks during treatment. Pleurisy is a common complication of artificial pneumothorax, and attacks, generally in a slight form, fully 50 per cent. of cases at some time during treatment.

The main trouble in pneumothorax treatment is the very common presence of pleural adhesions, which tend to limit collapse. Sometimes only a few bands are present, which stretch or break under treatment. But in many cases part of the lung, often the most diseased part, is held out to the chest wall, and we have attained only a partial pneumothorax. This may, in some cases, suffice to arrest symptoms and eventually ensure a cure. But often the pneumothorax is thereby rendered useless. In a few of these cases adhesions holding the lung may be artificially divided, whether by thoracoscope and cautery or by open operation, but very few are suitable for these measures. In a proportion of cases, also, otherwise suitable for pneumothorax treatment, total adhesion of the pleural surfaces is found to exist.

Surgical Measures.

For those cases where pneumothorax treatment has failed owing to adhesions, there remains still the possibility that the diseased lung may be collapsed by suitable surgical measures. Many operations have been devised and have been more or less successful, but the operation which holds the field at the present time is that known as extrapleural thoracoplasty. Thoracoplastic operations with a view to collapsing cavities date from de Cereville of Lausanne in 1885, but their use as a substitute for failed pneumothorax was first pursued by Brauer and Friedrich about 1907. The modern form of operation—a paravertebral resection of ribs—is especially associated with the names of Sauerbruch, Wilms, Brauer, and to a less extent of Saugman. Portions of all the ribs, from the first to the tenth or eleventh inclusive, are resected through an incision running down the back over their angles. The aim is to obtain a satisfactory collapse of the hemithorax, and for this it is necessary to cut the ribs back to the transverse vertebral process, and especially to include the first rib so that the ribs may fall like the handle of a bucket. The shoulder girdle remains intact, and hence there is little deformity. The operation is done in one or two stages, according to the condition of the patient, the lower part first. Sometimes the operation is preceded by phrenicotomy to paralyse the diaphragm; the main danger is aspiration pneumonia, and this is thought to help in its avoidance. The results of these operations in skilled hands have been highly encouraging, but they can only be performed with advantage in carefully selected cases. In the main, cases suitable for pneumothorax are suitable for thoracoplasty, but the indications must be much more rigidly drawn. The other lung must be more severely scrutinized—it is all too likely to break down under a surgical operation. Also thoracoplasty is more suitable for the second class of case mentioned under indications—extensive chronic disease—than in the first class, where lung rest is desired in a case of active disease. It is claimed from large statistics that 35.8 per cent. of advanced disease are cured, and 24.4 per cent. improved as the result of thoracoplasty—no small success when the class of material is considered.

Principles of Treatment in certain Important Complications and Symptoms.

Haemoptysis is, to the patient, a very terrifying experience, and the first point is to allay anxiety and instil

confidence, since thus cardiac excitement is stilled, and restlessness mitigated. For this morphine, the usual panacea, should be avoided, especially if the haemoptysis is large, or at most given in small doses. Better is a large dose (30 to 60 grains) of sodium bromide. The danger of haemoptysis lies more in the retention of blood in the lungs, leading to pneumonia or further spread of tuberculosis, than in the quantity of blood expectorated; consequently it is of the utmost importance that the cough reflex be not abolished by drugs, such as morphine in large doses. The patient is best propped in the semi-upright position, so that coughing is easy, and told to restrain too violent or needless cough. Speaking should be avoided. Aspiration of blood and secretion will probably do no harm unless too long retained, and this is not likely to happen if the cough reflex is intact, or only slightly dulled, if too violent, by quite small doses of heroin or codeine.

To control the haemoptysis we should have three things in mind: (a) reducing the pulmonary blood flow; (b) increasing coagulability of blood; (c) contraction of the bleeding vessel.

(a) The first of these is best achieved by damping down the systemic circulation by rest, a cool surface, and avoidance of cardiac excitement. Vaso-dilators and vaso-constrictors should be avoided, for both increase pulmonary blood flow. Cardiac depressants, such as the depressant expectorants, are unpleasant remedies; but pituitrin, which is said to act as a depressant to the right heart only, may be used and has proved effective. In large haemorrhages binding the limbs and cupping the abdomen will hold up blood from the lungs for a period.

(b) Increased coagulability of the blood is best attained by "salt action," whereby tissue fluids carrying thrombokinase are drawn into the blood vessels. Sodium chloride may be given intravenously in hypertonic solution (5 c.cm. of 10 per cent. solution), or by the mouth—a teaspoonful in half a tumblerful of water; some of this may be replaced by sodium bromide, which has the same action. Binding the limbs probably adds thrombokinase to the blood when the pressure is released. These effects, though valuable, are apt to pass off quickly, though their application can be repeated. Other remedies which may have more lasting effects on blood clotting are calcium, given intravenously or intramuscularly, gelatin, horse serum, or such preparations as haemoplastin, coagulen, etc., but the action of all of them proves very doubtful in practice.

(c) Contraction of the bleeding vessel we can influence little or not at all. If the bleeding area is known an icebag may be applied; ice must not be given to suck, since this has been found to dilate the pulmonary vessels. Sandbags and strapping have been largely abandoned owing to the fear of retention of blood clots. Lastly, the bleeding-point may in many cases be closed by pneumothorax. In arranging the after-treatment it is useful to remember that it takes twenty-four to forty-eight hours for a vessel thrombus to fix, and many days or weeks for organization of the clot.

Fever.—Fever we must regard as evidence of toxæmia, to be treated by the reduction, by all means in our power, of auto-inoculation. Only in some subpyrexial cases it seems as if a mere hypersensitiveness exists, to be controlled in some cases by a careful increase of auto-inoculation or a minute dose of tuberculin. The use of antipyretics, especially of pyramidon and cryogenin in small doses, has been extolled by some in febrile cases of pulmonary tuberculosis. I do not think myself that by their use we break any vicious circle, as is claimed, nor improve the patient's well-being in any way.

Cough.—Cough is in some cases a troublesome symptom, in that it disturbs healing of the lung and increases auto-inoculation. The patient must learn to restrain it, and with practice may do much. Often it is easier if rendered looser, especially by that useful drug ammonium chloride. Opium preparations should be postponed as long as possible—they soon upset general well-being. Lozenges containing demulcents, as liquorice and perhaps some menthol, will often suffice, or for some patients an occasional inhalation containing menthol, creosote, and chloroform.

THE TREATMENT OF SPASTIC PARALYSIS IN CHILDREN.

BY

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It is generally agreed that a spastic condition of one or more limbs of a child can result from one of the three following causes: (1) prenatal damage to the brain, (2) intracranial haemorrhage at birth, and (3) inflammatory injury to the brain after birth—for example, poliomyelitis or syphilis. It is the relative frequency of the first two that is in dispute.

James Collier¹ has done much to convince medical opinion—including, we believe, the majority of the neurologists—that the damage in most cases is done before birth. He attributes the lesion to "primary neuronic degeneration." Some physicians, notably Hector Cameron,² are still unconvinced, and regard intracranial haemorrhage as being a common cause of this condition.

Fortunately this question is not of practical importance to the orthopaedic surgeon, as he is concerned with the results of the lesion rather than with the lesion itself. It is, however, important that he should be satisfied that the lesion is not progressive. In some non-syphilitic cases—both pre- and post-natal (Collier)—as well as in those in which syphilis is the cause, the case may become progressively worse; this is very rare in my experience. The surgeon should, however, exclude these cases by a careful history and the Wassermann reaction before considering surgical treatment. If we accept Collier's conclusions, and I think we must, we must necessarily doubt the possibility of doing any good by a decompression operation as practised by Sharpe.³ I have no experience of this method of treatment; it did not seem to me called for in any of my cases. We may take it, therefore, that in the majority of cases the lesion is not a progressive one, but, on the contrary, any case will in all probability tend to improve. The surgeon's business is to see whether he cannot hasten the improvement, or, indeed, make possible an improvement which otherwise would be out of the question. What, then, are the chief effects of the lesion or lesions, and how do these influence the question of surgical treatment?

SYMPTOMS.

Mental.—All grades of mental defect are met with: there may be gross idiocy or what appears to be normal intellect. The mental affection seems to go more or less hand in hand with the severity of the limb affections in the majority of cases. It is uncommon to see a case which is not more emotional than the average, but occasionally the child is quite normal. On the other hand, mental deficiency associated with very marked spasm or uncontrolled movements may even prevent the child from sitting up, while walking is, of course, impossible. Such a case is unsuitable for operative treatment, and should be re-examined after a lapse of from six to twelve months. There is no doubt, as Cameron and O-man⁴ have insisted, that most cases show a marked improvement, both mental and physical, as they grow older. It is noteworthy that every surgeon who advocates a particular line of surgical treatment, whatever this may be, states that the mental condition improves to a decided degree after his operations. Any treatment which lessens the difficulty in walking will undoubtedly lead to mental improvement, and for two reasons: the less the difficulty in walking the more can the child get about, mix with other children, see things for himself, and thus undergo normal unconscious education; while in addition his brain is freer to receive impressions instead of being concerned entirely with trying to move one leg in front of the other. Mental deficiency should not be considered by itself as a contraindication to operative treatment, provided there is a reasonable chance of this enabling such an imbecile to walk.

Fits.—Epilepsy is more commonly associated with hemiplegia than with the other forms of spastic paralysis (Batten⁵). If the fits are recurring with any frequency,

operative treatment should be delayed, but if no fit has occurred for a year or more a history of such is no bar to operative treatment. It is our custom to give bromides in all cases for a few days before and after operation, however small this may be, and whether fits have occurred or not.

Paralysis.—The paralysis is for the most part spastic in character, but not always or entirely so. Certain muscles or groups of muscles may, indeed, be flaccid and partially or completely paralysed. That is not uncommonly seen in the arm. Great weakness of a muscle group can undoubtedly result from overstretching caused by the spasm of their so-called opponents, but in the forearm both opposing groups may be equally affected by flaccid palsy in a case in which the leg or legs show a typical spastic condition. Nothing can be done for this flaccid hypotonia. The type of case here referred to is quite distinct from the "atonic" group of diplegias with general hypotonia of the limbs and which usually exhibit grave mental defects (Batten⁶). It is the spasm and deformity resulting from the cerebral lesion, whatever its nature, with which the surgeon has to deal. This spasm is increased by handling the limb, and more importantly by any attempt at voluntary movement on the part of the patient. There is yet another factor which may play a part in the child's disability. While in most cases it is obvious that the spasm—which involves certain muscles as soon as impulses are transmitted to the limbs to produce movements—are responsible for the failure to accomplish the desired movements, in others there seems to be a lack of power to originate the necessary impulses. This again is more frequently seen in the upper limb, and is most marked in those with the greatest amount of mental affection, but by no means confined to them. It is not always easy to estimate how much of the imperfect function of a limb should be attributed to spasm of certain muscles and how much to a want of voluntary initiation of impulses which should be transmitted to their opponents. A correct estimation of these various factors in any given case is of great importance in deciding the prognosis, and therefore has a distinct bearing on treatment.

Involuntary Movements.—There may be involuntary movements which interfere more or less with the use of the affected limb. These may be of the rhythmic athetoid type developing some time after birth, of the more explosive and erratic choreic type, or they may belong to the so-called "perverse movement" group. It is not always easy to classify a particular involuntary movement. For instance, a case was recently seen with a typical monoplegia of one leg with only a mild degree of mental affection. The child had the typical spastic equinus, but when she began to walk the tibiales muscles took complete charge of the foot till it rested on the outer border. After a few moments, during which the child stood with a self-conscious expression on her face, this spasm passed off and she was able to continue her progress with an equinus deformity only. Handling the foot would sometimes bring on this inversion spasm. The temporary nature of the spasm was the peculiar feature of the case. The presence of athetoid or other involuntary movements is generally considered to be an absolute contraindication to operative treatment. This is unquestionably sound in the vast majority of the cases displaying these complications, but occasionally in carefully selected cases operation is justifiable and is followed by definite improvement in the use of the affected limb. This was so in the case referred to above, where the varus spasm was completely cured by tenotomies.

DEFORMITIES.

The deformities which arise are the result of spasm of the stronger groups of muscles (for example, the gastrocnemius and soleus), or of those which act at a mechanical disadvantage (for example, hamstrings), aided in some cases by gravity (for example, drop-foot, etc.). It should be remembered, however, that in the ordinary case all the muscles of the affected limb are a potential source of spastic deformity, and that, as Stoffe⁷ has pointed out, a spastic deformity in any direction can be produced by fixing the limb in a particular position for a sufficient

time. This is a most important point to remember in the after-treatment of cases treated by operation. I have more than once seen spastic calcaneus result from injudicious after-treatment, where the tendo Achillis has been divided or lengthened, while similar overcorrection of other deformities has been met with occasionally. Once started, the want of balance between opposing groups of muscles tends to increase, the muscles which gain the battle and deform the limb tend to become stronger, while their stretched opponents tend to become weaker. At first these deformities can be fully overcorrected in a few moments by firm manual pressure—that is, the deformity is entirely due to spasm; but sooner or later a secondary contracture (anatomical shortening) occurs, so that the deformity can only be partially corrected by manual force. The time this secondary contracture takes to develop varies considerably: while in some it is surprisingly late in development, in others, for no apparent reason, it develops much earlier. For instance, an equinus may be accompanied by real contracture requiring lengthening of the tendo Achillis at the age of 3 years, whereas another case may reach the age of 6 and still the deformity be due to spasm only. With the anatomical contracture of the muscle also occur accommodative changes in the ligaments, fasciae, etc. In some cases, however, with an atypical deformity, the excessive spasm of the particular group of muscles involved would appear to result from an unusual distribution of the lesion. Otherwise how can we account for the occasional occurrence of internal rotation of the whole leg?

The usual deformities met with are the following. In the arm, flexion of the elbow, pronation of the forearm, flexion and ulnar deviation of the wrist, and flexion of the fingers and thumb. In the leg we see adduction of the thigh, flexion of the knee, and drop-foot. In addition a valgoid deformity is common, especially after correction of equinus, and in a few—particularly, I think, hemiplegias—internal rotation of the whole leg is seen. Less commonly is there a varus tendency which may or may not be corrected by correction of the drop-foot. Only once have I met with a primary bilateral calcaneus deformity, though this has been seen on a few occasions as a result of overcorrection of the equinus. The hips may show a flexion deformity, the extensors being weak and the child having great difficulty in maintaining the erect posture when standing.

I do not propose to discuss the difficult and much-disputed question of the nervous mechanism on which muscular tone depends, nor the neurological problems involved in the production of the spastic condition of the limbs. Reference must be made, however, to the experimental work of Hunter and Royle,⁸ as a new method of treatment was the outcome of it. To put it briefly, these workers came to the conclusion that, in part at any rate, muscular tone is under the control of the sympathetic system, and on this they founded a method of operative attack for spastic cases—namely, ramisection or division of the grey rami in the cervical and lumbar regions. The conclusions they drew from their experiments have met with severe criticism at the hands of the neurologists, while the results of the operation of ramisection for these cases have been universally disappointing both in this and other countries (Bankart,⁹ Lewin, etc.).

TREATMENT.

It may be said at once that I agree with those (Bankart, for instance) who say that massage, commonly ordered for prolonged periods at great expense, is absolutely valueless. Apart from operation, if such be necessary or advisable, treatment should be directed towards patient daily training in the movements which are performed with the greatest difficulty, and gentle but firm manipulation to stretch the muscles chiefly affected by spasm: this corrects the deformity and thus prevents secondary anatomical contractures. It is often surprising how much a child will improve under the above treatment. It is well known that these children learn to sit up later than the normal; they stand and walk late; they have to contend with difficulties unknown to the normal child. It may be that a patient never walks until by operation the chief obstacles to locomotion are removed. But whether operation is necessary

or not, in all but the less severe cases an immense amount of patience is required to make the child walk reasonably well. To return to the question of massage, while condemning its general and prolonged use as being waste of money, it must be admitted that it may be useful under certain conditions. For instance, applied to weak muscles after an operation designed to weaken their opponents, it is rational; while in hemiplegias, where an annoying amount of shortening of the affected leg may be found, massage to improve the nutrition of the limb, and thus limit the amount of increase of the deformity, is again rational. In both cases, however, massage falls far short of systematic exercises in usefulness. Fixation of the deformed limb in plaster-of-Paris is not advisable; in fact, plaster is not of much use in these cases except occasionally after operations, particularly those on the nerves or muscles of the forearm.

The aim of operative treatment is to reduce the excessive spasm in certain groups of muscles, and thus to correct deformity and restore as far as possible the balance of the opposing groups. We cannot make a spastic limb normal, but we can improve, often to an enormous extent, the patient's control over the limb in selected cases.

Three years is a suitable age for operation, though in the case of the upper limb it is probably wiser to wait until six years, as the co-operation of the child in the after-treatment is necessary. The patients must be able to sit up alone, and exhibit a definite desire to walk. If they can sit alone they almost invariably manage to put one leg in front of the other alternately when supported, however severe the adductor spasm may be. If the child cannot sit it is useless to try and make it walk, and operation should be delayed.

What operative methods are at our disposal? Only two methods are worth discussing in detail: (1) operations on the tendons and muscles themselves, and (2) excision of some of the motor nerve fibres passing to the spastic muscles. Förster's¹⁰ operation of division of the posterior spinal roots—that is, division of the afferent paths to the cord—has been given up for this class of case, even, I believe, by Professor Förster himself. It is a difficult operation which gave many disappointing and some fatal results. I have already referred to Royle's operation, or ramisection. My small experience of the results of this operation agrees with that of other surgeons; as a method of treatment in the cases under consideration it is unfortunately useless.

Operations on Tendons and Muscles.

The operations on the tendons and muscles include tenotomies and myotomies, tendon lengthenings, excision of portions of tendon and muscle, and tendon transplantations. The last has been used more for the upper limb, but in the few cases in which it was tried it has not been successful in my hands, possibly for the reasons which are given in discussing the treatment of the arm. Simple tenotomies and myotomies constitute the oldest method of treatment and are still used extensively by some surgeons. The method is of the greatest service in many cases, particularly an open tendon lengthening; when there is real anatomical contracture of a muscle an operation on the tendon or muscle is often imperative. Operation on the afferent paths (Stoffel's operation) is the other method which has proved of real value. In common with several other surgeons in this country, I am indebted to Mr. Blundell Bankart for my introduction to this method. Stoffel and others have done an immense amount of work in mapping out the various recognizable nerve bundles composing the main nerves of the limbs and in tracing them to their destinations. In some cases a knowledge of the arrangement of the nerve bundles in a main nerve is not necessary, as the branches after they have left the parent trunk are more easily attacked; while in others—the median, for example—a knowledge of the minute anatomy of the larger nerves is of distinct service. By excising a length of motor nerve fibres a spastic muscle or part of a muscle is permanently paralysed and the balance between an overacting group and its opponents is restored. The method has the advantage of lending itself to careful adjustment, with experience, the exact amount of paralysis

produced being varied to suit the particular case. There is, indeed, the theoretical objection that if too much is done there is no possibility of undoing it, except by attacking the nerves to the opponents, but as a matter of fact, as Bankart and others have stated—and the author's experience agrees with this—the error is practically always in the direction of doing too little rather than too much. Crushing a nerve, injecting a nerve with alcohol, or both, and intraneural division have all been advocated with the idea of producing only a temporary paralysis, yet by this means obtaining a balance of opposing muscle groups. It may, I think, be fairly stated that these methods are much more uncertain in their ultimate results; they have not been employed by us to any extent. It is claimed by some that the Stoffel operation produces the result immediately and does away with the necessity for apparatus afterwards. This is, I think, a mistake. It is true of some deformities—for example, adductor spasm, where no splintage is necessary after the wounds have healed—but it is certainly unwise to make it a general rule. In equinus deformity a night shoe to hold the foot in the neutral (that is, the right angle) position is essential for some months after correction, by whatever operative method this be done. The deformity can, and does, relapse after a Stoffel operation on the internal popliteal nerve if care is not exercised. It is our experience that while one deformity is best dealt with by the Stoffel method, another is corrected with greater certainty by tenotomy or an open lengthening of a tendon. In older children with severe deformities neither method yields such good results as a combination of the two.

Drop-foot.

The first essential is to see whether this is due only to spasm which can be entirely overcome by firm pressure against the ball of the foot or whether anatomical shortening of the calf (real contracture) has supervened. If the muscles are short, the tendo Achillis should be lengthened by the open method; if the deformity is due to spasm only, a Stoffel operation on the internal popliteal to paralyse a portion of, and thus weaken, the gastrocnemius and soleus may be done. If the amount of nerve fibres to be excised is judged correctly a very pretty result may be obtained, but not, I think, superior to that obtained by a carefully performed tendon lengthening. After an extended trial of both methods (over 60 operations on the internal popliteal nerve in the last 130 cases operated upon) the author is still unconvinced that the Stoffel method for this particular deformity has any advantages over tendon lengthening. The tendon lengthening is the better operation, but it should be done with care.

After the tendon has been divided by the "Z" method through an incision to the inner side of it and the upper end allowed to retract, the two portions are stitched together in such a position that the upper end is pulled on by the lower just before the foot reaches the right angle as the foot is raised towards dorsiflexion. Before the tendon is sutured the other tight structures—for example, posterior ligaments of the ankle-joint, etc.—should be thoroughly stretched. The foot is held in slight equinus by a malleable iron splint for five or six days and then gradually brought to a right angle and retained in this position till the end of the sixth week. Walking with a shoe wedged up on the inner side, to check the valgus tendency which is usually seen after correction of the equinus, is now permitted, while a rectangular tin shoe is worn at night for several months. A few simple exercises with the object of training the child to control the foot more perfectly and carry it through its full range of movement, particularly dorsiflexion and plantar flexion, are useful.

The Stoffel operation is performed through a vertical incision exposing the internal popliteal and its branches. On the superficial aspect of the nerve are two columns of fibres, lying close together and fusing above. The inner divides into the cutaneous (ramus communicans tibialis), running on in the mid-line, and the branch to the inner head of the gastrocnemius. The outer divides into a large soleus branch (this muscle receives another branch lower down) which runs down in the mid-line deep to the

cutaneous branch, to disappear between the two heads of the gastrocnemius, and a branch to the outer head of the gastrocnemius. The fibres resected depend on the degree of spasm present, and consist of the whole of the soleus branch and a half to two-thirds of the branches to each head of the gastrocnemius. In small children these nerves are difficult to split, and some surgeons prefer to excise them completely and vary the amount removed of the soleus supply. The knee should be kept extended on a splint with the foot at a right angle for three weeks to allow healing of the wound to be complete and the wound free from scabs before flexion is permitted. The scar has shown a curious tendency to crack and become thickened in a few cases, so that eventually a keloid scar develops with ulceration at the flexure.

Varus and Valgus.

As already stated, valgus is commonly seen after correction of equinus though not present before operation, but in some it is obvious when the case is first seen, even without any marked equinus being present. Varus is much less common. These are difficult deformities to correct with nicety, and the feet require careful watching to guard against over- or under-correction. The varus may disappear when the equinus is corrected, but tenotomy of the tibials may be necessary. This is best done by the open method, as in these cases the tibial tendons fail to unite after simple division. Valgus may be corrected by either method—the nerve operation or tenotomy of the peronei—and the author has had occasional pleasing results with both. Further experience is necessary before deciding which is the better. As considerable variation is met with in the exact distribution of the peroneal nerve and its branches, the musculo-cutaneous nerve should be followed down in the substance of the peroneus longus till the last muscular branch, to the brevis, is reached.

Knee Flexion.

In most cases a Stoffel operation on the sciatic nerve, or rather its branches to the hamstrings, gives better results than division or resection of a portion of the hamstrings. When anatomical contracture is present these tendons must be divided, but even then, particularly in older children (10 to 14 years of age), a Stoffel operation should be performed in addition. The nerves usually resected are the whole of the branch to the long head of the biceps, the whole of the branch to the semi-membranosus, and a portion, varying with the degree of spasm, of the branch to the semitendinosus. The knee is kept extended on a splint until the wound is healed; walking apparatus to prevent flexion of the knees is necessary only in quite exceptional cases. Exercises to improve the power in the extensors of the knee are useful.

Adduction of the Hip.

Here the nerve operations are unquestionably better than division of the adductors or resection of portions of them. Stoffel tackles the obturator nerve in the thigh, just above the upper border of the adductor longus. This approach is necessary when it is desired to excise only the anterior branch, but when the spasm is severe and the whole nerve is to be divided the abdominal extraperitoneal route is to be preferred. This approach I learnt from my colleague Mr. Tyrrell Gray, who was, I believe, the first to use it in spastic cases. The wound is less likely to become contaminated than one on the thigh by a child with dirty habits, and the whole nerve can be removed with greater certainty. The presence of an accessory obturator is the only possible source of error; this was met with twice—in a unilateral case and on one side of a bilateral case. It is an easy matter to isolate the nerve on the lateral wall of the pelvis as it approaches the obturator foramen. After the operation the thighs should be held in moderate abduction, just sufficient for nursing purposes, until the wound is healed. The two sides can be reached through a single paramedian incision, the peritoneum being stripped from the parietes in a downward and outward direction till the pelvic brim has been reached and passed. The results of this operation are extremely satisfactory and much more certain than after division of the muscles. Very rarely is there any suggestion of overcorrection.

Internal Rotation of the Leg.

Operation on the Stöffel principle would seem to have advantages over detachment of the muscles from the ilium as originally suggested and practised by Sir Robert Jones. The object of the former of these two procedures is to paralyse the internal rotators of the hip—namely, the tensor fasciae femoris and anterior fibres of the gluteus medius and minimus. Some surgeons excise the superior gluteal nerve as it enters the buttock, but I prefer to limit the paralysis to the portions of the muscles named, and thus avoid weakening the abductors unnecessarily. A vertical incision is made from the iliac crest to the great trochanter down to the periosteum. The terminal part of the superior gluteal nerve is found between the muscles, and a portion excised. The incision in the muscles must necessarily divide any other twigs of the nerve passing to the anterior parts of the glutei muscles. The result is entirely successful. There may be internal rotation of the tibia below the knee due to spasm of the popliteus muscles. The obturator nerve should always be resected when the superior gluteal is divided.

Flexion of the Thigh.

At present we only have division of the muscles—namely, the tensor fasciae femoris and psoas—as a possible means of dealing with the deformity.

The Arm.

The arm, as already stated, is much more difficult to deal with than the leg, for various reasons. The movements of the hand and arm are more specialized and finer; we more often find a diminution of the power of initiating impulses to the hand, and, more important still, the patient has little incentive to use the limb, being able to do almost everything with the other hand. A child cannot walk without using both legs, but can do most things with only one hand. A comparatively mild case, in which the voluntary control of the fingers is fairly good but in which the pronation spasm is a distinct drawback, can be considerably improved by dividing the tendon of the pronator radii teres, but an even better result can be achieved by following Stöffel. He attacks the median nerve and excises the branches given off to the pronator radii teres, the flexor carpi radialis and palmaris, all of which are pronators to some degree. It is not necessary here to enter into details of the operation, which can be read by those who wish for further information,¹ but we would emphasize the importance of using a battery to test the nerves isolated by dissection, as the bundles in the median nerve and the arrangement of the branches are extremely variable. While the internal popliteal is extraordinarily constant in its minute anatomy, the median, in our experience, cannot be relied upon in the least to conform to textbook description. Where the ulnar deviation with flexion of the wrist is marked we have, in addition, attacked the nerve supply of the flexor carpi ulnaris through a separate incision. If the flexor spasm of the fingers and thumb is marked, the column in the median nerve passing to the muscles concerned can be isolated and a fraction of it excised with benefit. The column is situated on the side opposite to the column going to the pronators—namely, on the postero-internal aspect of the trunk. There is no doubt that, as in the leg, the most satisfactory results are obtained in the milder cases. When the control of the hand is not too bad, though the pronator spasm is marked, the results more than justify the operation. Plaster may be used with advantage for holding the forearm in full supination for three or four weeks after operation, the wrist, of course, being dorsiflexed.

After-Treatment and Results.

As already stated, massage by itself is not of any material benefit except possibly, and then only to a small extent, in cases with one leg affected, and this leg showing signs of diminished growth, and perhaps to aid recovery in overstretched muscles after an operation on their opponents. The only thing of real benefit is patient and persevering training in walking and using the affected arm. A rectangular night shoe, with the sole plate inverted to check valgus, or everted if varus is present, should be used for several months after correction of the equinus. A splint to hold the knee extended is also useful in bad cases,

while a removable supination splint of plaster for the arm is also of benefit at times. Walking-irons extending up to the hips are only necessary in quite exceptional cases, usually in older children in whom the deformities have been of long standing; and occasionally a short outside iron and valgus "T" strap are of use. In the vast majority of cases the rectangular night shoe is the only apparatus necessary. The results in the milder cases are most gratifying to the parents and surgeon. In the worst cases the patient may be enabled to walk in some sort of fashion—a thing quite impossible before operation. In the majority that are worth operating upon at all—and most cases fall within this category—a decided improvement, at any rate in walking capacity, can be achieved, and this is usually accompanied by general improvement in the child's mentality.

These cases exhibit a quite extraordinary tendency to the development of a keloid condition of the scars resulting from operations. I am not prepared to state exactly the percentage which show this complication, but that this is unduly high I have no doubt. A scar may be affected in part only or in the whole of its length. In a child in whom some six or more incisions have been made every scar may be more or less affected. As a rule the condition is of moderate severity and gives rise to no trouble of any kind; but in certain situations—for example, the bend of the elbow or back of the knee—cracking and ulceration may occur. Even more rarely the scar is said to be sensitive or painful. Special care in splinting after operation is necessary in these situations. The cause of this curious incidence of keloid is difficult to find. The presence of a low-grade infection seems probable, but sepsis in the ordinary meaning of the word was certainly not the cause in my cases. The habits of these children are far from clean, and they are difficult cases to nurse and keep at rest, but even so one very rarely experiences any trouble as regards the healing of a wound.

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HYOSCINE IN POST-ENCEPHALITIS LETHARGICA;

WITH SPECIAL REFERENCE TO ITS INFLUENCE ON CARBOHYDRATE METABOLISM.

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INTRODUCTION.

THERE is little doubt that investigations into encephalitis lethargica will, as prophesied by von Economo, lead to a better understanding of the neuroses and psychoses, for this recently recognized disease affords us an unexpected insight into the psychological and physiological mysteries of mental mechanisms. This paper is based on clinical and laboratory work carried out at West Park Mental Hospital and the Maudsley Hospital. Being convinced, as the result of clinical experience, that hyoscine is in the nature of a specific in the treatment of post-encephalitic Parkinsonism, it was considered an interesting line of research to try and find objective proof of its action on the bodily mechanisms in such cases. We chose carbohydrate metabolism as represented by the blood sugar curve, and our investigations show how this is influenced by hyoscine.

CLINICAL EFFECTS FOLLOWING THE INJECTION OF HYOSCINE.

(A) In the Normal Person.

The subcutaneous injection of 1/100 grain of hyoscine hydrobromide is followed in from ten to fifteen minutes in the normal person by dryness of the mouth and throat;

a sensation of giddiness and a slight degree of mental confusion; some inco-ordination resulting in slight slurring of the speech and inability to walk straight; marked impairment of accommodation, with consequent difficulty in reading any but the largest print. These unpleasant early phenomena are followed by a feeling of laziness or fatigue; a great effort is required to perform the simplest of movements, and if left to himself the individual will settle down in a chair and soon fall asleep, remaining in this state for three to six hours. To what cause this remote effect (sleep) can be attributed is a question difficult to answer, and no very definite statement can be made. In view of the well known sedative effect which hyoscine exerts in acute mania it would seem probable that it acts on the motor side of the neuro-muscular arc, causing a marked diminution in muscular excitability and movement, with a consequent decrease in the number of stimuli reaching the higher centres from this source. In any case the action of hyoscine in the normal person is definitely depressant in character, and hence is quite different from that produced in a person suffering from post-encephalitic Parkinsonism.

(B) In Post-encephalitic Parkinsonism.

The immediate effects of hyoscine in the encephalitic are indistinguishable from those met with in the normal person—namely, dryness of the mouth, interference with accommodation, inco-ordination, etc. The later or remote effects in the amyostatic post-encephalitic patient with Parkinsonism, however, present a marked divergence from those found in the normal person. A short period of drowsiness, lasting for about two hours, is often noticed, and is followed by signs of physical and mental improvement. In some cases these beneficial results are more marked than in others, but in practically every case, given the correct dose, some improvement is obtained. On the physical side there is diminution of the generalized muscular rigidity, lessening of the tremors of the face and extremities, and disappearance of the excessive salivation and lacrymation which are such frequent and distressing features of this condition. The patient becomes more alert, and instead of being content to sit huddled up in a chair will occupy himself with light tasks; his gait is much freer, and shuffling less pronounced; some faint expression creeps into his mask-like countenance, and he begins to exhibit some interest in things outside himself. His articulation, though lacking in timbre, is less slurring and hesitant, he speaks much more freely, and his speech, like all his actions, shows a diminution of the retardation which is such a prominent feature of the disease. Since the action of hyoscine is probably entirely on the motor side, it follows that in this action must lie the explanation of the increased sense of well-being, the diminution of the apathy, and the brighter outlook of those who benefit by its administration. It supports the thesis that, though the brain is the seat of the psyche, the functions of the mind are dependent upon the whole body and the harmonious interaction of all its parts, as implied in the time-worn dictum *Mens sana in corpore sano*.

In the encephalitic it is always difficult to discount the element of suggestion in the appraisalment of the benefits derived from any particular form of treatment, but extended experience of the administration of hyoscine in this disease leaves no doubt that in many cases it is, quite apart from suggestion, of profound benefit. The following cases illustrate this.

1. A girl, aged 17, who suffered from Parkinsonism with excessive salivation, marked general rigidity, and who was completely dependent, requiring hand-feeding, washing, etc., immediately improved on hyoscine 1/1000 grain daily, and after three days was up and about, able to dress and feed herself, was alert and cheerful, and by the end of a week was entering into the social life of the ward, including dancing.

2. A man, aged 50, suffering from well marked Parkinsonism, with rigidity and mask-like features, excessive salivation, being entirely dependent and depressed, on hyoscine 1/75 grain daily became quite active and cheerful, and his rigidity, tremors, salivation, etc., disappeared. In this case, in order to eliminate the element of suggestion, sterile water was repeatedly substituted for the hyoscine, and though quite unaware of this he invariably failed to respond by any improvement.

It must be more than coincidence that the hysterical element is here found to an extent not approached in any

other group of patients found in a mental hospital. We would suggest that the site of the lesion in these cases is all-important, and that a clue may here be found to the discovery of an organic basis for the so-called functional disorders or psychoneuroses. No gross material change is to be looked for, but subtle biochemical or biophysical abnormalities may be present. The site referred to is the basal ganglia. Certain it is that this area is affected in encephalitis lethargica, with its hysterical aura, and in addition there is little doubt that the same area is of prime importance in the instinctive and emotional life of man which composes the mental mechanisms that are at fault in the neuroses. Support is lent to this hypothesis by the fact that in chorea and Wilson's disease we have two other diseases which, like encephalitis lethargica, have lesions of the basal ganglia and psychic manifestations of an hysterical nature.

The hyoscine may be administered either subcutaneously or by the mouth. When given subcutaneously it seems to act more powerfully and its effects continue for a longer period than when the oral method is employed. The question of dosage is of some importance. It is best to commence with fairly small amounts and increase until the required effects are obtained. If given hypodermically a start can be made with 1/150 grain once a day, and this amount can if necessary be increased until as much as 1/50 grain is being given once a day. When administered by the mouth larger doses may be given thrice daily, preferably just after meals, since if given before food the dryness of the mouth and throat makes mastication and deglutition somewhat difficult and unpleasant.

EFFECT OF HYOSCINE ON THE BLOOD SUGAR CURVE.

Method Employed.

In order to discover the effect of the injection of 1/100 grain of hyoscine hydrobromide on the blood sugar curve in the normal person and in the post-encephalitic the following precautions were taken: The person whose blood sugar curve was about to be investigated was starved for about twelve hours (from 8 p.m. till about 9 a.m.). He was kept in bed or seated comfortably in a chair, and the temperature of the room was maintained at about 65° F. A specimen of blood was taken to ascertain the fasting blood sugar level, and then 50 grams of glucose in 6 oz. of water were given by the mouth, and at the same time 1/100 grain of hyoscine hydrobromide was injected subcutaneously into the arm. Thereafter specimens of blood were taken at fixed intervals (3/4 hour, 1 1/4 hours, 1 3/4 hours, 2 1/4 hours) from the time when the glucose and hyoscine had been administered. In post-encephalitic patients it was necessary first of all to establish blood sugar curves by giving glucose only; the effect of hyoscine was investigated the following morning.

The Effect of Hyoscine on the Blood Sugar Curve of the Normal Person.

Eight nurses and three medical colleagues were selected in order to establish the effect of the normal blood sugar curve, and they were all in good health. Below are tabulated the blood sugar readings at the fixed intervals of time.

No.	Sex.	Fasting Level.	50 Grams Glucose + 1/100 Grain Hyoscine.			
			After 45 Mins.	After 75 Mins.	After 105 Mins.	After 150 Mins.
1	F.	.09	.128	.108	.122	.120
2	F.	.102	.125	.108	.135	.105
3	F.	.10	.12	.13	.115	.13
4	F.	.104	.15	.115	.138	.125
5	M.	.095	.11	.096	.112	.106
6	M.	.12	.156	.144	.164	.122
7	M.	.10	.112	.117	.103	.118
8	F.	.10	.15	.136	.13	.098
9	F.	.114	.125	.143	.143	.103
10	F.	.106	.12	.13	.128	.09
11	F.	.098	.1	.116	.136	.125

Reference to the table will show that the effect of 1/100 grain of hyoscine hydrobromide on the blood sugar curve following the ingestion of 50 grams of glucose in the normal individual is a general depression of blood sugar values. These lowered values may be associated with a sluggish rise and fall of the curve, and it is not unusual to find a secondary rise of the blood sugar curve resulting in

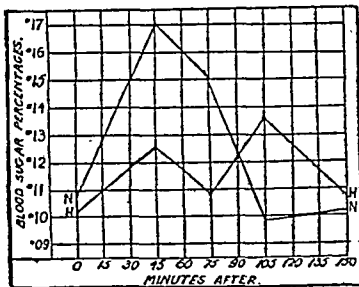


FIG. 1.—Blood sugar curves of normal person. N, After 50 grams glucose. H, After 50 grams glucose plus 1/100 grain hyoscine.

some degree of hyperglycaemia after two hours following the glucose meal and drug injection (Fig. 1). At first sight it would appear that hyoscine has an inhibiting action on the factors governing both the rise and the fall of the blood sugar curve, but, as will be seen later, the results obtained with the cases of post-encephalitis

lethargica in general show the same depression of blood sugar values with acceleration of the fall of the curve (Fig. 2). The main effect of hyoscine on the blood sugar curve is, then, a depression of the glycogenolytic reaction and a variable glycogenetic response. Atropine gives a similar result, both as regards depression of the blood sugar values and the accelerated fall of the curve in cases showing a sustained hyperglycaemia after glucose ingestion. The pharmacological action of these parasympatheticomimetic drugs gives rise to inhibition of the external secretion of the pancreas and general arrest of the secretions of the alimentary tract. Inhibition of the internal secretion of the pancreas would lead to impaired glycogenesis and a blood sugar curve showing sustained hyperglycaemia; this is not evident in the blood sugar curves with hyoscine (or atropine). But with the general arrest of alimentary secretions the alteration in the blood sugar curve may find explanation either in diminished or retarded rate of absorption of the sugar from the intestines, or on the lines of Allen's theories regarding treatment in diabetes; with arrest of the external secretion of the pancreas there may be increased activity of the internal secretion with corresponding glycogenesis.

Effect of Hyoscine on the Blood Sugar Curve of the Post-encephalitic.

The majority of the blood sugar curves after glucose alone are abnormal in type; some show high blood sugar values, and sustained hyperglycaemia is the rule.¹ The results of the injection of hyoscine simultaneously with the glucose ingestion make it possible to classify the cases

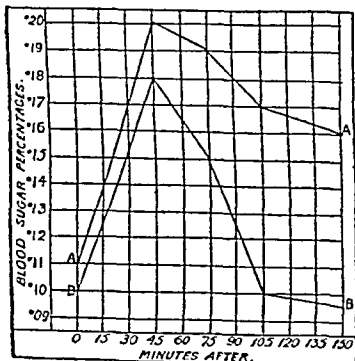


FIG. 2.—Blood sugar curves of post-encephalitic Parkinsonian. A, After 50 grams glucose. B, After 50 grams glucose plus 1/100 grain hyoscine.

Case 13 was the only instance in which this reaction was indefinite. All these cases showing an "improved"

Table showing the Blood Sugar Percentages in Post-encephalitic Patients—

First, after a meal of 50 grams of glucose, and, secondly, after a similar meal plus the injection of 1/100 grain of hyoscine.

No.	Type of Case.	Fasting Level.	Glucose Only.				Fasting Level.	Glucose + 1/100 gr. Hyoscine.			
			Minutes After—					Minutes After—			
			45	75	105	150		45	75	105	150
1	Parkinsonian ...	.11	.2	.19	.17	.16	.1	.18	.15	.1	.095
2	Parkinsonian (slight)	.1	.18	.15	.135	.126	.095	.178	.15	.11	.094
3	Parkinsonian ...	.118	.145	.20	.19	.18	.115	.165	.235	.23	.135
4	"	.115	.252	.254	.22	.156	.12	.18	.235	.21	.115
5	"	.093	.17	.11	.138	.162	.095	.15	.165	.128	.10
6	"	.115	.138	.19	.155	.15	.11	.10	.12	.17	.11
7	"	.097	.14	.184	.20	.17	.10	.166	.187	.150	.11
8	"	.1	.142	.130	.16	.13	.11	.186	.135	.106	.11
9	"	.094	.167	.23	.2	.187	.092	.125	.187	.15	.12
10	"	.104	.176	.176	.15	.13	.093	.11	.152	.126	.10
11	Parkinsonian + Apache	.11	.185	.176	.15	.144	.1	.17	.15	.13	.11
12	Parkinsonian ...	.09	.16	.136	.125	.112	.095	.10	.131	.103	.095
13	"	.104	.166	.152	.150	.12	.102	.134	.150	.116	.130
14	Deluded (no Parkinsonism)	.10	.165	.18	.235	.21	.102	.155	.12	.135	.162
15	" "	.105	.15	.126	.11	.09	.10	.17	.15	.115	.123
16	" "	.09	.138	.13	.112	.108	.1	.114	.09	.11	.125
17	Difficult (no Parkinsonism)	.11	.15	.14	.12	.103	.12	.125	.15	.1	.17
18	" "	.12	.18	.155	.15	.135	.13	.18	.15	.174	.135
19	Apache (no Parkinsonism)	.10	.102	.108	.125	.10	.102	.103	.102	.102	.115
20	Depressed (no Parkinsonism)	.11	.22	.225	.25	.25	.115	.17	.22	.155	.21

blood sugar curve benefited clinically from the administration of hyoscine.

The second group consists of cases (14 to 20) which did not exhibit Parkinsonism and in whom this "improved" blood sugar curve following hyoscine was not evident. There is a variable depression of blood sugar levels, many of the cases showing a secondary blood sugar rise, giving blood sugar curves of the type shown to occur after hyoscine injection in the normal individual. In these cases the administration of hyoscine was not associated with clinical benefit.

The above results show that in patients with post-encephalitis lethargica, those with Parkinsonian symptoms receive most benefit from hyoscine therapy, and that this clinical improvement is coincident with an "improved" blood sugar curve.

CONCLUSIONS.

1. Hyoscine is of undoubted value in the Parkinsonism following encephalitis lethargica.
2. This value is objectively demonstrated by its effect on the blood sugar curve, which is made to approximate to the normal type.
3. This improvement is due to a specific action of the drug, though suggestion may be a subsidiary factor.
4. This action of hyoscine is only temporary, but the prolonged use of the drug does not lead to tolerance or any deleterious effects.
5. The hysterical element in this disease is probably due to lesion of the basal ganglia, and it is suggested that an analogous lesion may account for similar symptoms in hysteria, chorea, etc.
6. Though in the majority of cases the full benefit of hyoscine can only be obtained by hypodermic administration, there is no doubt that in many cases considerable benefit follows its oral exhibition.

In conclusion we would like to thank Dr. Golla, the Director of the Pathological Laboratory of the Maudsley Hospital, at whose suggestion these investigations were undertaken, for his unflinching interest. To Dr. Roberts, the medical superintendent of West Park Mental Hospital, we are indebted for the permission to publish the particulars of certain cases.

¹ McCowan, Harris, and Mann, *Lancet*, 1926, 1, 802.

RHEUMATIC AFFECTIONS: SOME OBSERVATIONS ON THEIR TREATMENT.

BY

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So much has been written on "rheumatism" that it is not without a little hesitation that I attempt to add to that mass of literature; I feel, however, that the findings set forth below, in one section especially, are worthy of note.

The greater part of the investigation was made in Manchester, a city noted for its humid climate. The conditions which I wish to discuss are: acute rheumatism or rheumatic fever; rheumatoid arthritis; osteo-arthritis; fibrositis; and Still's disease. It is in connexion with the first mentioned condition that most of the work has been done.

Acute Rheumatism.

Rheumatic fever is typically an acute febrile disease, characterized by polyarthritis and liable to be complicated by endocardial disease or hyperpyrexia. In a very large proportion of cases treatment, including keeping the patient in bed between blankets and the administration of sodium salicylate, is most effective; but there are patients who for some reason or other do not respond to this kind of treatment, or who respond up to a point and then continue in a state of irregular pyrexia for many days or weeks. Whether this failure to clear up is due to there being a more virulent strain of streptococcus, a less robust patient, or a superimposed infection, I shall not venture to say definitely. It seems quite certain, however, that most people who suffer from the effects of permanent damage to the heart belong to the "non-clearing up" group. It was with a view to promoting the prevention of cardiac damage and subsequent disability that the present investigation was commenced.

In all cases of acute rheumatism an examination of the lungs, throat, teeth, and urine was made. Fluid was removed from joints which were swollen on admission, or which remained swollen and in a state of subacute inflammation. An attempt was made to isolate an organism from these various situations, and the greatest number of positive cultures was made from the throat and teeth. A long type of streptococcus was found, and this organism was also found in fluid removed from joints, most frequently the knee-joint. Negative cultures resulted from all examinations of the urine.

An autogenous vaccine of the residual type was prepared and given subcutaneously; salicylate treatment was stopped. The first dose was 3 minims of a suspension containing 500 organisms in the minim, and thereafter injections were given every third or fourth day, increasing the dose, when possible, by 3 minims on each occasion.

In all cases a reaction followed the first injection; headache, pyrexia, sweating, and pain in the affected joints were the chief symptoms, and usually lasted for twelve to twenty-four hours. In some cases marked reaction was noted in the second and subsequent doses, but in the majority of cases only a slight reaction was perceived after that following the second dose.

A definite improvement in the patients' condition resulted, and as a rule by the end of a fortnight the patients were able to sit up in comfort, and the swelling of the joints had either completely or considerably subsided. In those cases where cardiac murmurs had been noted earlier in the illness no abnormality was noted when the patient was ultimately discharged.

The following cases have been selected from the series:

CASE I.

A man, aged 42, admitted January 26th, 1924, complained of severe pain and swelling in both knees, the left ankle, and both elbows. The throat was sore and acutely congested; the temperature was 102.4°, the pulse 104, and the respirations 28.

Treatment with sodium salicylate in large doses internally, and the application of methyl salicylate to the affected joints, was commenced immediately after admission. A few hours later the patient was very delirious and this continued through the first night. The specific gravity of the urine was 1028, albumin was present, but no other abnormal constituents. On January 29th most of the joints had improved. On examination of the heart on this date an apical systolic murmur was noted. A small amount of

fluid was removed from the right knee-joint, which did not show any improvement, and sent for bacteriological examination; a throat swab was also sent, and in each case a pure culture of a streptococcus was obtained. A vaccine was prepared and treatment with this commenced. The first dose of this autogenous vaccine was 3 minims (equivalent to 1,500 streptococci), given subcutaneously; a severe reaction followed, the temperature rising to 102.3°. Owing to the marked reaction further administration of the vaccine was withheld for one week, when 6 minims were given; again there was a reaction, but this time less severe. The third and fourth doses, each of 6 minims, were given at weekly intervals; thereafter increased doses were given every third day. The vaccine was discontinued on March 18th; by this time all pain and swelling had completely disappeared, and the heart presented no abnormality in the nature of a murmur. Hydrotherapy and massage, which had been employed for a few days, were continued, and the patient was gradually able to get up and about, and soon became his normal self.

Four months later the patient looked and felt well. He was at work and made no complaints which would suggest cardiac trouble; his heart was examined and no abnormality found. He is now in the South of England and enjoys good health.

CASE II.

A man, aged 49, was admitted on February 13th, 1924, complaining of pain and swelling in both ankles and the left wrist. Examination of the heart revealed the presence of endocarditis, and there was a systolic murmur at the apex. Sodium salicylate and methyl salicylate treatment was commenced, and on February 15th the upper left molar tooth was extracted. Above the level of the gum the tooth appeared quite normal, but the root exhibited disease; from it a streptococcus was recovered and a vaccine prepared. On February 20th 3 minims of the vaccine (equivalent to 1,500 streptococci) were given, and a few hours later a moderate reaction followed. However, when 6 minims of the vaccine were given a week later there was a very marked reaction, the temperature rising to 103.2° and the pulse to 128. Within a few hours the patient complained of sore throat and pain in the submaxillary region of the right side, and a day or two later he developed a right-sided quinsy which required incision. It is just possible that the 6-minim dose was given too soon, and it either coincided with or precipitated the quinsy. On March 20th the 6-minim dose was repeated, and a slight reaction followed. On April 12th a 12-minim dose was given and no reaction followed.

This patient was discharged on May 17th; there was slight stiffness in the right foot, but the heart was sound. Four months later he was back at work, made no complaints, and his general condition was very satisfactory. Just recently I heard that he was still working as a carter and exposed to the elements daily; he made no complaints.

Only a summary of the observations on the other conditions will be given.

Rheumatoid Arthritis.

Protein shock with *B. coli* vaccine given intravenously was the method adopted in this disease, and about 60 per cent. of the cases treated were undoubtedly benefited. On no occasion was an autogenous vaccine obtainable. Throughout the whole of the treatment of this affection only one accident occurred. This was a case of anaphylaxis, and after a few hours the patient completely recovered. No history of previous vaccine or serum treatment was elicited.

Osteo-arthritis.

Vaccines and protein shock were tried without the slightest improvement. Massage with active and passive movements were the only methods of treatment which relieved the intense suffering, and, with the exception of anodynes, drugs, given internally or externally, proved useless.

Fibrositis.

Treatment with collosol sulphur and iodine was tried. The result was indefinite, and equally good results followed the prolonged administration of potassium iodide with potassium citrate in the form of a mixture. Massage and hydrotherapy aided recovery.

Still's Disease (Children).

Salicylate treatment was first tried, but proved useless, and protein shock failed. An attempt was then made to isolate an organism and prepare a vaccine. An autogenous streptococcal vaccine was made, but its administration failed to produce any reaction at the time or any improvement, even after prolonged administration.

Conclusions.

It may appear that in many cases ordinary sodium salicylate treatment in acute rheumatism is sufficient, but I would point out that the heart is a highly specialized organ, and, once it has been damaged, repair in most cases,

perhaps all, is impossible. Treatment of acute rheumatism with an autogenous vaccine at the beginning of the illness has a definite effect in decreasing the tendency towards cardiac and other complications, and hastens recovery in other cases which might lapse into chronic deformity or tend towards hyperpyrexia.

Protein shock treatment is limited to rheumatoid arthritis; massage, hydrotherapy, and electrical treatment may be utilized in all rheumatic affections, but are usually only required after the acute stage is past.

I am indebted to Dr. C. E. Jenkins (pathologist to Salford Royal Hospital) for the preparation of the vaccines, and would refer those who desire further information about the dosage to articles by him in the *BRITISH MEDICAL JOURNAL* (1921, ii, p. 846; 1922, i, p. 596) and the *Lancet* (1922). I have also to thank Dr. J. Dudgeon Giles, medical superintendent of Hope Hospital, Pendleton, and Dr. Henry Carre, medical superintendent of Woodilee Mental Hospital, Lenzie, for permission to make the experiments and publish the results.

PRESSURE BY THE MESENTERIC ROOT UPON THE DUODENUM WITH ABSENCE OF "DUODENAL ILEUS."

BY

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The following case is instructive in view of the mechanical pressure theory of duodenal ileus held by some surgeons, and which I at much length have already attempted to disprove.¹

A multipara on the fourth day following the birth of her last full-time child got out of bed and soon felt giddy. A severe headache followed, and was accompanied by severe vomiting. No pyrexia existed. These symptoms continued for four weeks. Her doctor, who visited her daily, was at a loss to understand her condition. Vomiting was "propulsive" in type, of daily occurrence, was usually accompanied by headache, seldom by nausea. The vomit was partly digested food, and was occasionally bilious in character. By the end of a month the patient became very emaciated, and fits of a cerebellar type developed and became frequent. At this stage I saw her in consultation with her doctor. She was then considered too enfeebled for operation, and very soon she died. During the course of the illness only slight rises of temperature (the highest being 99.6° F.), and at many days' interval, were noted. As a rule the temperature was normal or subnormal, and the pulse rate very slow.

Autopsy showed (1) a tuberculoma, the size of a walnut, of the left cerebellum; (2) extensive tuberculous disease of the abdominal lymph glands. There was not a lymphatic area unaffected. Many of these caseous glands were as large as a small hen's egg, most were somewhat smaller. The mesenteric root was very thick and heavy with large caseous glands. There was not even a suggestion of "duodenal ileus."

The main factors that have been emphasized as capable of producing this mechanical obstruction were certainly present in this case—namely: (a) A very heavy and gross thickening of the mesenteric root where it crosses the duodenum. (b) A severe downward drag of the mesentery as a whole, the mesenteric lymphadenitis being very extensive. (c) A general visceroptosis. The intestines had been suddenly relieved from pressure by the birth of the child. The feeble lax abdominal wall of this multipara, nearing death from extensive tuberculosis, could furnish little support to the viscera.

Had the cerebral symptoms not supervened a surgical enthusiast might have been tempted to anastomose the duodenum to the jejunum. Here much dexterity would have been necessary to perform this operation *secundum artem* and still surmount the almost neoplastic mesenteric root.

Had an autopsy not been made a case showing all the main elements of production of duodenal ileus (obstructive) might have been lost.

The *British Journal of Surgery* for October, 1925, contains a very excellent article by H. P. Winsbury White (London), entitled "The pathology of hydronephrosis." In this contribution a careful and experienced observer has summarily disposed of the attractive but none the less fantastic theory of dilatation of the renal pelvis by the

normal and "abnormal" renal vessels—artery and vein. In the production of duodenal ileus the superior mesenteric vessels have an even smaller part to play than those renal vessels have in causing a hydronephrosis, for so far as I am aware nobody has claimed anatomical abnormality of origin for the superior mesenteric vessels when they are supposed to obstruct the duodenal lumen.

REFERENCE.

¹ Acute Dilatation of the Stomach and Intestinal Tube with a Consideration of: "Chronic Duodenal Ileus," *Surg., Gynecol. and Obstet.*, February, 1925, p. 206.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTESTINAL OBSTRUCTION BY GALL STONE.

THE following report may be of interest in connexion with the series of cases of obstruction of the small intestine due to gall stones recorded by Mr. Bennett in your issue of March 27th (p. 565).

On March 10th I was asked to see a lady, aged 66, suffering from abdominal pain and vomiting. The history was as follows: For some months she had been treated from time to time by her doctor for gall stones; owing to her general condition being very poor no operation had been advised. She had had typical attacks of gall-stone colic, clay-coloured stools, and dark urine. On March 3rd she noticed that her motions were black, and she was suffering from generalized abdominal discomfort not severe enough to call her doctor. On March 8th she vomited, and had intermittent attacks of colicky pain centred round the umbilicus; the pains lasted about five minutes and recurred about every fifteen minutes. On the morning of March 8th she had a good action of the bowels.

The vomiting became more frequent, and I saw her on March 10th; the vomitus consisted of foul small intestine contents, and her bowels had not been open since March 8th. An enema gave no result. The abdomen was distended and was tender all over. A diagnosis of acute intestinal obstruction was made, and she was admitted under my care in the West Cornwall Miners' and Women's Hospital, Redruth, for an immediate operation. When I arrived at the hospital I found that only five minutes before she had passed a small motion, formed and somewhat pale. Her general condition being very bad, and as she had not vomited since admission, it was decided to wait.

At 4 a.m. on March 11th, after a fairly comfortable night, she passed by the rectum a huge gall stone, 2 inches long and just over 1 inch through, and barrel-shaped. After passing this she felt very fit; there was no sickness and no pain. She was discharged from hospital two days later, and is now perfectly well.

This case is interesting in that, although a positive diagnosis was impossible, yet she had definite symptoms of gall-stone trouble, and also because of the fact that she escaped operation by passing a small motion five minutes before she would have gone on the table.

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B.S.Lond.

ARTHRITIC PURPURA AND PANCREATITIS FOLLOWING MUMPS.

THE following case seems to be of interest on account of the unusual symptoms following an attack of mumps.

On January 29th, during the recent epidemic, a school teacher, aged 26, contracted mumps. The parotid and submaxillary glands of both sides were affected, and there was rather severe and persistent gingivitis round the lower molars lasting for fifteen days. On the eighteenth day she sat up for an hour for the first time without any untoward results, but on the following evening, after sitting up for a short time, she was seized with severe pains in the neck and limbs, and almost simultaneously noticed a heavy petechial rash on both feet. The rash extended from the ankles over the dorsum of the feet and under the arch of the foot, and was followed briefly by fine scaling of the skin. There was no urticaria or rash elsewhere. No swelling of the joints was manifest, but pressure over either shoulder-joint, or raising the arms, caused considerable pain. The patient was kept in bed for four days, during which time the joint pains disappeared and the rash faded. On the next day she was up for about half an hour and felt quite well, but on the following day there was a faint purpuric rash on the feet, which, however, soon faded, and there were no joint pains.

On February 26th, just four weeks from the onset of the illness, on waking up she was suddenly seized with intense pain in the left loin. She vomited, and became very restless with pain and seemed to be rather collapsed. The attack seemed very similar to renal colic; the urine contained a heavy cloud of albumin, and on palpation there was great tenderness in the left loin, and

general tenderness over the left side of the abdomen. The tongue soon became very furred, the breath heavy, and all food was vomited at once, including water. The bowels, hitherto regular, were not opened during that day nor during the next three days. On February 27th there were two more attacks of pain in the back and in the left iliac fossa; the temperature rose to 99° F., and the vomiting continued. In the evening an area in the left flank where the pain had been most intense was seen to be covered with a bright petechial rash. In a later attack the pain was even more severe and radiated into the left groin. When it subsided a quantity of smoky urine was passed with a sediment of blood and several small tubular clots.

On the next day, March 1st, the patient seemed to be decidedly better. The urine was clearer. A catheter specimen was examined and found to contain blood cells, together with many uric acid crystals, a few hyaline and granular casts, and a few detached renal cells. An enema was given with a normal result.

As the abdominal pain and discomfort cleared up an area remained over the tail of the pancreas, which was tender on deep palpation, and this persisted for about ten days in some degree.

Examination of the faeces afforded some evidence of mild pancreatitis. There was no evidence of bleeding into the bowel.

The subsequent history of the case has been uneventful, except for the brief appearance of two quite faint purpuric rashes on the arms just above the elbows.

It should be added that the patient gives no history of rheumatism, or of previous liability to purpura, and that she was not taking any of the drugs which are liable to cause this disorder. The blood condition is normal.

St. Albans.

R. E. WILSON, M.B., B.Ch.

MALDEVELOPMENT OF OESOPHAGUS.

DR. THERON'S case of maldevelopment of the oesophagus (April 10th, p. 652) reminds me of a similar one which I met with about five years ago.

A very healthy looking infant, 2 days old, was brought to me by the district nurse, who had attended the mother, a multipara, in a normal confinement. She said the child took the breast strongly, but could not swallow, and I found that a soft catheter did not pass much below the level of the larynx. I sent the child into hospital, where it died two or three days later, and the surgeon agreed that there was a developmental occlusion, but unfortunately there was no autopsy.

By a curious coincidence the next issue of the *BRITISH MEDICAL JOURNAL* contained an editorial reference to a report on the comparative anatomy and development of the trachea and oesophagus, and remarked upon the rarity of this particular malformation. The investigator had found only a few specimens in the European museums.

Dr. Theron writes that luckily it is rarely met with in practice, although Professor Sir Arthur Keith says it is not uncommon.

Certainly the gross abnormality we encountered cannot very well be mistaken, and the children only survive a few days, but the lesser degrees, where the oesophagus is more or less patent, and opens into the trachea above the bifurcation, might be overlooked even by the pathologist, in an infantile death from respiratory disease, unless the condition were kept in mind. The termination in these cases would be death by suppurative pneumonia.

Hungerford, Berks.

WALTER DICKSON.

BROW PRESENTATION.

IN view of the recent request to medical practitioners to record cases of brow presentation, I think the following clinical details may be of interest.

1. A Chinese multipara had been in labour and the membranes had been ruptured, many hours before being seen by me. The case was one of twin pregnancy. The first child presented brow (left occipito-posterior) and the head of the second child lay behind the shoulders of the first. I was unable to change the presentation either to face or to vertex, and as I was very doubtful whether delivery was possible, even after perforation, the patient was transferred to hospital for Caesarean section. The mother and the second child survived, but the first child had died.

2. A Chinese primipara had been in labour for over forty-eight hours: a small loss of fluid had occurred twenty-four hours, and a much larger loss six hours, before the patient was seen by me. Foetal heart sounds could not be detected. The head was not fixed. On vaginal examination the cervix was half dilated and a brow presentation (right occipito-anterior) was found. Under chloroform anaesthesia an attempt was made to change the presentation to a vertex, but it failed; the change to full face was easy. As the presentation quickly reverted to brow, and as,

during these manipulations, the cervix had dilated fully, the face presentation was maintained by means of a forefinger hooked under the foetal chin while an assistant applied and locked the forceps. The head descended with moderate traction without difficulty. As the foetus was clearly dead, the head was perforated, with a view to minimizing maternal injury, and the mother made an uneventful recovery.

The cause of this brow presentation was not ascertained. Pelvic flattening, if present at all, was very slight. There was no uterine obliquity.

Penang, Straits Settlements.

JAMES GOSSIP, M.D.

Reports of Societies.

INCIDENCE AND SPREAD OF CHOLERA IN INDIA.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on April 23rd, Dr. E. W. GOODALL in the chair, Sir LEONARD ROGERS read a paper on the conditions influencing the incidence and spread of cholera in India. The paper embodied the results of the monthly mortality returns for the last fifty years, together with an examination of the coincident meteorological data and of the views of previous writers on the subject.

In the cholera epidemics in India in 1817-19, and subsequently down to those in 1859-71, described by Bryden and Cornish, the disease appeared to have spread from its home in Lower Bengal over North-Western, Central, and Southern India in a series of waves of two to four years' duration at somewhat irregular intervals, the endemic area, according to Bryden, being limited to Bengal and West Assam.

Since 1877 the monthly cholera mortality for every district in India had been recorded, furnishing far more detailed information than the army and jail figures of Bryden's time, but they had not hitherto been utilized for a comprehensive study of the incidence and spread of cholera in India such as was here attempted.

A study of the average monthly cholera incidence and its comparison with the rainfall, temperature, and humidity in forty-five divisions of India showed (a) no uniformity of incidence, as the disease during the south-west monsoon was common in most parts of India, but at its minimum in the north and (b) a regular great increase in the incidence of the disease in all parts of India when the humidity rose to or below 0.400, such dryness of the atmosphere being an epidemic prevalence of the disease. The months in which cholera showed a great increase after the winter quiescent period in North-West and Central India were those in which the absolute humidity first rose to over 0.400, the seasonal increase in the epidemic areas being thus explained quite irrespectively of any spread from Bengal.

The average annual incidence of cholera was found to be highest in Assam, Lower Bengal, Bihar, and the eastern sub-Himalayan divisions of the United Provinces in Northern India, and in South-East Madras, all of which were areas with few or no months of absolute humidity below 0.400 and consequent continued prevalence of the disease throughout the year.

The present endemic areas—that is, areas in which the disease had never been absent for a single year in three recent decades—included the areas of high incidence already mentioned of Bengal, the United Provinces, and Madras, together with the low-lying west coast of Bombay, all with a constant absolute humidity of over 0.400, so the endemic areas were now far more extensive and scattered than the parts of Assam and Bengal indicated by Bryden in 1869.

The epidemic areas—that is, areas in which severe outbreaks occurred frequently after a year or two of complete absence of the disease—included the south and west of the United Provinces, all the Punjab, the Sind, Gujerat, and Deccan divisions of Bombay, and the whole of the Central Provinces.

Study of the figures showed a larger number of epidemics in the United Provinces than in Lower Bengal, and demonstrated that a number of the outbreaks spread from the endemic area of the United Provinces towards the Punjab, decreasing in intensity in proportion to the distance of the divisions from the United Provinces and the dryness of their climate. Similarly it was shown that the Central Provinces in recent decades were sometimes invaded from the east from the southern Orissa division of Bengal, occasionally from the north from the United Provinces, and frequently also from the west from the Deccan divisions, contrary to Bryden's conclusion that cholera always spreads from Bengal to the north-west over the United Provinces, or to the south-west over the Central Provinces to Bombay with the monsoon winds, the facts on which he based his theory being now explained by the effect of low absolute humidity in inhibiting epidemics.

The three most severe epidemics of modern times were next considered in the light of the foregoing data and in connexion with the meteorological conditions associated with them: the spread of the 1875-77 epidemic was mapped out and shown to have spread largely through pilgrims from separate endemic foci north-west from Bengal and the United Provinces, east and south from Bombay, and north from Ceylon or Southern Madras, and in each area of very high incidence the epidemic was shown to be associated with great deficiency of the previous rainfall, accompanied by drought with bad water supplies, and often with famine. That of 1891-92 was spread mainly in the first year by a rarely occurring great Ganges pilgrimage, aided by deficient rains, and in the second year by continued deficient rainfall, but especially by the Hardwar pilgrims; and the most severe epidemic of all, in 1900, was once more associated with very exceptional failure of both the monsoon and the succeeding winter rains over very large areas of India. A table was exhibited showing the epidemic prevalence in each of the forty-five years in which the total cholera mortality in India was much over the average, and out of twenty-five infected areas, in no fewer than twenty-four previous greater or less deficiency of the rains preceded the cholera exacerbations, and in the one exception in the United Provinces, in 1894, very exceptionally high humidity throughout the winter months was followed by unique early recrudescence increase of the disease culminating in an epidemic.

By watching the climatic conditions influencing the seasonal and annual incidence of cholera in any area to which attention had now been drawn, increased or epidemic prevalence could usually be foreseen in time to take steps to lessen its spread, especially by pilgrims, by inoculating them against the disease before attending religious and other gatherings in cholera infected districts. The Punjab, Sind, Gujarat, and Deccan divisions of Bombay, and the Central Provinces, so liable to invasion by epidemics, should especially endeavour to secure a wider application of this simple means of lessening the cholera mortality. The sanitation, and especially the provision of a pure water supply, in all important pilgrim centres should be a first charge on Imperial and provincial revenues under reliable sanitary administration.

In the subsequent discussion, Sir HAVELOCK CHARLES described the professional opinion on the causation of cholera when he first entered the Indian Medical Service in 1882, and gave some interesting examples from his personal experience to illustrate the importance of a pure food and water supply.

Colonel GILL, after paying personal tribute to the value of the Rogers treatment in cholera, referred to the gradual development of the view that cholera in India had some relation with meteorological conditions, and he recalled by way of comparison the work of the Plague Commission, which showed that the tension of aqueous vapour must be at least 0.36 or thereabouts before an epidemic could occur. In plague, and also, as he himself had recently shown, in malaria, the absolute humidity exercised its effect on the insect vector, but he confessed he saw some difficulty in explaining the observed correlation in cholera, unless it could be shown that the susceptibility of the human being responded in some way to changes in the humidity of the atmosphere. He strongly urged that further inquiry should be made into this question.

Colonel GRAHAM said that inquiries were now in progress in three districts of India with a view to elucidating the question of the endemicity of cholera. He referred to the interesting work which had recently been done in Manila on the non-agglutinating vibrios and their role in the causation of true cholera epidemics. He emphasized the difficulty of inducing the ryots to consent to inoculation when cholera was absent. Trials were now being made, however, with Besredka's oral vaccine in Madras under the supervision of the Director of Health, and the results would be studied with great interest.

Dr. WHEATON and Fleet Surgeon HOME also contributed to the discussion, and Sir LEONARD ROGERS briefly replied.

CERVICAL CARCINOMA AND VENEREAL DISEASE.

At a meeting of the North of England Obstetrical and Gynaecological Society held in Liverpool on March 19th, the President, Mr. W. GOUCH (Leeds), in the chair, Miss RUTH NICHOLSON (Liverpool) showed three cases of carcinoma of the cervix occurring in women under treatment for syphilis and gonorrhoea.

Miss Nicholson said that during the seven years in which she had had charge of two clinics for venereal diseases these three cases of carcinoma of the cervix had occurred among some 1,500 patients. Arthur Helme had reported in 1902 a case associated with double pyosalpinx in a young nullipara, aged 23, married one year; the husband was known to have suffered from gonorrhoea and syphilis. Gordon Luker had described in the *Proceedings of the Royal Society of Medicine* for 1922 a case of squamous-celled carcinoma of the cervix in a young 2-para, aged 28, under treatment for gonorrhoea in the London Hospital venereal department. He remarked that no other case of a similar nature had arisen during the seven years the clinic had been in existence, emphasizing the fact that the local treatment might have acted as an irritant. Herbert Spencer, in his *Lettsomian Lectures* in 1920, expressed the opinion that the relation of syphilis, soft sores, and gonorrhoea to cancer of the cervix was close; he had twice seen carcinoma of the cervix develop in patients who had previously had chancre of the cervix. These were the only cases and references she had found recorded. The notes of her three cases were as follows:

CASE I.

A single woman, aged 25, known to be a prostitute; no pregnancies had occurred. Miss Nicholson first saw her in 1919, when she was being treated for syphilis; there were no notes relating to her condition on admission to the home. She was also suffering from a chronic urethritis and endocervicitis, and though at the time gonococci could not be demonstrated in the discharge, later she developed salpingitis, and gonococci were then definitely shown in vaginal smears. The treatment for syphilis was continued, and local applications of protargol and glycerin were used for the cervix for a period of five months. She came again in 1921, with a recurrence of vaginal discharge; there were then no signs or symptoms of carcinoma. Two and a half years later, in December, 1923, she came complaining of intermenstrual haemorrhage of one year's duration. She was transferred to the Stanley Hospital, where Miss Ivins performed hysterectomy. The pathological report was "a squamous-celled carcinoma." She was still alive, two and a quarter years later, but the malignancy had recurred.

CASE II.

A woman, aged 40, married for twenty years, five pregnancies, all full-time living children. Forceps delivery was necessary in the first labour, but the others were normal; the youngest child was 8 years of age. The patient was first seen in 1921, with well marked signs of secondary syphilis and a positive Wassermann reaction. No primary chancre was discovered. There were no signs of gonorrhoea at that time, and smears from the cervix and vagina were negative. She had gone to Germany five months previously to join her husband, who was with the army of occupation, and had apparently been infected there. She was treated for syphilis, and had had a negative Wassermann reaction and no clinical signs for two and a half years. In February, 1924, three and a half years after infection, and two months after her last visit to the clinic, she returned complaining of slight frequency of micturition. Vaginal examination revealed an irregular growth of the cervix, which bled readily. She was admitted into hospital, and Miss Nicholson operated a few days later. There was a warty growth arising in the cervical canal, and the microscopical section showed a luxuriant papillomatous growth originating from the columnar epithelium, which did not invade the stroma of the cervix, and therefore might be considered benign. The cells, however, were multi-layered, actively proliferating, and irregular in shape. These facts, in conjunction with the microscopical appearances, were in favour of malignancy. The closed adherent tubes showed that a gonorrhoeal infection was also present, and an interesting fact was that a year afterwards, on resuming marital relations, she developed acute urethritis and vaginitis, gonococci being demonstrated in smears from both orifices. She was at present, two years after operation, alive and well, and apparently free from recurrence.

CASE III.

A woman, aged 50, married for twenty-nine years, had borne one full-time living child twenty-eight years ago, and had had no further pregnancies. She was sent to the venereal department in June, 1925, suffering from tertiary syphilitic ulcers of the thighs, and the Wassermann reaction was positive. Urethritis, vaginitis, and endocervicitis were also discovered, and gonococci were found in the urethral and cervical smears. A subtotal hysterectomy had been performed four years previously. This

patient had had intravenous injections of neokharsivan and local treatment for the gonorrhoeal infection two and a half months. She had ceased to attend the clinic last September, and returned in February, stating she had been suffering from neuritis of the left arm, but had noticed no discharge or haemorrhage. On inserting the speculum to examine the cervix Miss Nicholson saw a small cauliflower-like mass, which bled readily; the microscopical section showed a squamous-celled carcinoma.

Miss Nicholson said that in each of these cases the presence of the gonorrhoeal infection with its accompanying cervical discharge might have been a predisposing factor in the production of cancer. In Cases I and III local treatment might have caused further irritation. It was, of course, a possibility that the primary chancre occurred upon the cervix in these cases, as it was not seen anywhere else. The youth and nulliparity of Case I were unusual with carcinoma, and so made it more probable that venereal infection might have been a factor in this patient.

Hydatid Cyst of Cervix.

Dr. H. LEITH MURRAY (Liverpool) showed a case of hydatid cyst of the cervix uteri. He said that hydatid cysts of the internal genitalia appeared to be very rare. Some, if not most, of the cases recorded were undoubtedly a direct extension to the uterus, Fallopian tubes, or ovaries of an adjacent hydatid tumour. The present case was of interest by reason of its unusual situation, and in its history of a retroperitoneal hydatid cyst removed from the region between the right kidney and the liver eleven years and eight months previously.

The patient was aged 32, married for thirteen years, but without family. She had spent the whole of her life in a village on the estuary of the Dee, and had never been even one night away from home. She did not keep dogs, and had no particular liking for uncooked vegetables. Menstruation was regular at twenty-eight-day intervals, and with a duration of three to four days; the quantity was moderate, but clots were occasionally present. Her symptom in November, 1925, was pain radiating from the left of the umbilicus across the right side to the back. This pain had troubled her for at least ten years, and for the last few years she had felt, when walking, that there was a "big lump" in the pelvis. The pain was less severe now than previously, but the feeling of weight and fullness in the pelvis was increasing. Her previous history of hydatid cyst was as follows. She was admitted to the Hospital for Women, Liverpool, in January, 1914, under Dr. Briggs. Her abdomen was full of ascitic fluid of an opaque shreds kind, which was tested by inoculation of a guinea-pig and found not to be tuberculous. The explanation came later, after her return home, when a retroperitoneal cyst formed between the right kidney and the liver; this Dr. Briggs had opened from the right loin on March 4th, after her readmission to hospital. The urine was normal, so it was hoped that there was no serious disease in the kidney. The cyst was then found to be hydatid, and whenever a hydatid cyst has burst into the peritoneum, in Dr. Briggs's experience, the daughter cysts had grown all over the abdomen. It never occurred to him that the "ascitic" fluid might be due to the leakage of a hydatid cyst. The experience had been unique. Dr. Briggs also reported that the uterus, tubes, and ovaries were then normal.

Examination of the abdomen in November, 1925, showed a large swelling, the size of a sixteen weeks' pregnancy, extending rather more to the left side than the right. The swelling was dull to percussion; it felt solid and rather fixed. Vaginal examination showed the lower pole of this tumour depressing the vault of the vagina, and rotating the os upwards and forwards so that it lay quite beyond reach behind and above the symphysis pubis. There was a doubtfully cystic area posteriorly, but the main mass of the tumour felt as solid as at abdominal examination. A provisional diagnosis of hydatid cyst in the pelvis was made.

As there appeared no possibility of reasonable access from below, abdominal operation was performed on November 11th; it was at once obvious that the swelling was wholly in the cervix. Kelly's method of approach, by bissection of the small uterine body lying on the top of the swelling, was adopted, and after the abdomen had been thoroughly packed an incision into the cervix was made. A cystic swelling with a thick capsule was at once exposed and opened; it was judged to be rather larger than a full-term foetal head. Very numerous daughter cysts, varying in size from a hen's egg downwards, escaped, and the cyst wall was then, with difficulty, shelled out from the surrounding cervix. Rather to his surprise, after a troublesome dissection, mainly by finger pressure, he succeeded in removing the whole of the capsule in a single piece. There was no sign of any other cyst in the pelvis, abdomen, or kidney regions. It would have been impossible to remove the remaining thin shell of cervix, and the cavity, therefore, was reduced by sutures and a subtotal hysterectomy; both appendages were removed. There could be no doubt that the cyst lay wholly within the substance of the cervix, for a most definite and intact capsule of cervix was visible at the end of the enucleation. Its situation appeared to be in the posterior wall, but the cervical canal was not seen. There were no peritoneal adhesions whatsoever. The patient made an uninterrupted recovery. When seen in a routine way on March 15th, 1926, she complained of some dis-

comfort in the pelvis, and at examination a little thickening, apparently in the recto-vaginal space, was felt; this appeared likely to be inflammatory.

Dr. Leith Murray said that Giles¹ appeared to have recorded the first genuine case of primary hydatid tumour of the uterus occurring in this country. The cyst was the size of a foetal head, and lay definitely in the substance of the anterior uterine wall. He was able to record very few cases from foreign literature. De Vries, who recorded a case in 1904, found at that time only seven genuine cases in the literature. Tittell² described a uterus the size of an eight months' pregnancy with ovaries each the size of a child's head; all three organs contained an enormous quantity of cysts and hooklets, without evidence of hydatid cyst elsewhere. The present case could not, of course, be compared with those just quoted, except in its suggestion of infection of the uterus through the blood stream rather than the digestive tract.

Cervical Carcinoma of a Prolapsed Uterus.

Dr. Leith Murray also described a case of carcinoma of the cervix of a prolapsed uterus, and said this condition appeared to be surprisingly infrequent. The case now recorded was the only one he had had under his own care, and was the second he had ever seen.

A married woman, aged 43, gave a history of moderate and not very troublesome prolapse for some years. She had had a family of four; the last birth was eight years previously. She had been under treatment for pulmonary tuberculosis for two years, and was considered to be holding her own; she had not recently lost weight. Her cough, however, was troublesome, and to this was attributed an aggravation of the prolapse which had occurred a few weeks before Dr. Murray saw her. During those weeks there became apparent for the first time, so she stated, a protrusion at the vulva, which bled readily and almost continuously, and was associated with considerable pain in the pelvis and a tendency to retention of urine. She asserted that menstruation had been regular, but scanty, until two months previously; since that time there had been a good deal of blood-stained discharge, with latterly an objectionable odour. Examination showed the patient to be thin, but in no sense wasted. At the vulva there was protrusion, about 2½ inches long, of sloughing, infected, friable carcinoma; it bled readily to the touch, and appeared to be freely movable. In view of her tuberculosis and the grossly infected condition of the cervix, it was considered best to recommend a quick amputation of the cervix, followed by radium. On October 20th, 1924, Dr. Leith Murray proceeded to amputate the cervix. The bladder was separated with some difficulty, but was not definitely invaded by the growth; the difficulty appeared to be due to cellulitis resulting from secondary infection. During the operation the peritoneum was accidentally opened, and a vaginal hysterectomy was substituted for the original intention. The patient made a good recovery from the operation, and underwent prophylactic radium treatment. There was no recurrence of vaginal bleeding, but, as Dr. Leith Murray did not have an opportunity of examining the patient after the operation, he was unable to state whether symptomless recurrence developed. She died twenty-one months later, apparently from the lung condition. Sections even of the deepest part of the growth showed intense infection of a very active squamous carcinoma of rather unusual type. Clumps of cells appeared to lie in pseudo-acini, and had in places a margin that might almost be described as "palisade." There was, however, no further resemblance to rodent ulcer, and the type of cell was very different from that found in this disease.

Dr. Leith Murray added that it was interesting that the only case of carcinoma of a prolapsed uterus recorded in the *Journal of Obstetrics and Gynaecology of the British Empire* (Russell Andrews, 1910, vol. 17, p. 234) had a similarly short history of protrusion, although the length of the uterus in that case made it certain that there had been a visible prolapse for some considerable time. In the present case the specimen clearly showed that the cervix itself lay beyond the vulva, and that the protrusion was not merely a proliferative "cauliflower" carcinoma.

Atresia of the Vagina.

Dr. ARTHUR A. GEMMELL (Liverpool) showed a case of congenital absence of the vagina in view of the rarity of the condition in association with full development of the uterus and appendages.

The patient, aged 18, complained that she had never menstruated, but had had periodic attacks of abdominal pain for the past fourteen months. The attacks lasted a fortnight and occurred at monthly intervals. The pain was felt in the sacral and hypogastric regions; it was so severe that it caused vomiting, but

¹ *Proc. Roy. Soc. Med. (Obst. and Gyn., April 6th, 1911).*

² *Arch. f. Gynak., Bd 82, 1927, p. 180.*

was relieved by hot applications and brandy. The attack in which the patient was seen had lasted two weeks. On examination, she was found to be poorly developed for her age. There were six digits on the right hand and each foot. The secondary sex characteristics were well developed. There was a mass in the abdomen extending from the symphysis pubis to the umbilicus, and the upper part of this felt like the body of the uterus. The external genitals were normal, but what was at first taken to be a vaginal orifice with a hymen proved to be a patulous urethral orifice situated in a more posterior position than normal; there was no vagina. Rectal examination confirmed the absence of vagina, and showed that the lower pole of the mass was cystic and extended to within about 2½ inches of the perineum. It was considered wiser to attempt to reach the retained menstrual fluid from below, and after it had drained away to determine exactly what parts of the sexual apparatus were present before deciding on a final course. Accordingly, a transverse incision was made in the perineum below the urethral orifice, but anterior to the fourchette. Blunt dissection was cautiously performed through moderately firm tissue, the direction being guided by keeping a sound in the urethra and a large dilator in the rectum. Finally, the lower pole of the mass was reached and opened, and menstrual fluid escaped; at this point it was noted that pus escaped from the urethra. A tube was passed along the track formed by dissection, and stitched to the vulva. The patient had been having rises of temperature before the operation, and continued to have them afterwards. A dilator was passed along the track daily, and menstrual fluid escaped with pus on one or two occasions. Five weeks later discharge from the track had ceased; there was still an abdominal swelling half-way up to the umbilicus, but nothing suggestive of a uterine body, and the whole mass was fixed. During this time there had been no menstruation and no attack of pain. On opening the abdomen, the bowels and omentum were found adherent to the abdominal wall and to one another, evidently shutting off the retained blood. These were separated with considerable difficulty, and during the process about an ounce of pus escaped from a pocket in the region of the right appendage. By further dissection the appendages were freed, the right from its normal position, the left from the bottom of the pouch of Douglas. The tubes were found to be distended with blood, and the left open at its fimbrial end. The uterus was enlarged, soft, and retroverted, and below ended abruptly in a firm boss embedded in soft connective tissue. Hysterectomy was performed, but in attempting to enucleate what was thought to be the lower pole of the cervix from its bed it was accidentally cut through, and as the patient was suffering from shock, and all secreting tissue had been removed, no time was lost in completing the operation. Peritonization was carried out in the usual way, but with some difficulty. The dissection from the perineum was found to have opened into the pouch of Douglas, and this was kept open as a drain. On examining the specimen it was found that there was actually a small cap of vagina attached to the uterus. The patient had a somewhat stormy convalescence. Fairly large quantities of pus were discharged from time to time from the perineal sinus which was kept irrigated regularly, but there was never any suggestion of peritonitis. On examination almost four weeks after the abdominal operation, the perineal track was healed and there was a little thickening on the right side of the pelvis. The patient was well and free from pain.

Dr. Gemmell said that absence of the vagina associated with haematometra, with or without haematosalpinges, was a rare condition, and he had been able to trace only fourteen cases in the literature; four of these had been reported by members of the North of England Obstetrical and Gynaecological Society. The commoner condition was complete absence of the genital tract or its presence in such rudimentary form as to preclude menstruation. In seven of these cases hysterectomy was performed immediately; five had an artificial vagina formed, as some part of the vagina persisted; and no post-operative complication was mentioned in any of the twelve. In the remaining two cases perineal drainage was resorted to; one patient died, and the other recovered with suppuration.

Toxaemias of Pregnancy.

Dr. G. W. THOROLD (Leeds) reported several cases of toxæmia associated with pregnancy, presenting unusual features. Four of these patients had suffered from severe hyperemesis gravidarum; two died, one delivered herself of triplets at about the sixteenth week of pregnancy, while the fourth improved after induction of labour. He then discussed hyperemesis gravidarum from the theoretical and practical points of view. He argued that every physiological process was for the immediate good of the body, whereas pregnancy, with the eroding action of the trophoblast, the extreme hypertrophy of the uterus, the presence of syncytium in the blood stream, and its many concomitants which were not to the good of the body, could hardly fall within the limits of the physiological. It seemed to him unfair that the vomiting of pregnancy should be considered as a nervous phenomenon, and claimed that

although the vast majority of patients, especially in the early months of pregnancy, could be cured by suitable treatment, yet the underlying cause of all vomiting was the toxin circulating in the pregnant woman's blood. There was apparently no chemical test which was of any value in discriminating between the various cases. From the point of view of treatment, a great difference existed between those cases of excessive vomiting occurring before and those cases occurring after the twenty-eighth week of pregnancy. In the latter group excessive vomiting was usually only one of several manifestations of a toxæmia. He held that menstruation, pregnancy, and labour were normal and natural, but not physiological, and they represented a sacrifice on the part of the woman for the good of the race. Pregnancy lowered the threshold of vomiting, and such occurrences as home worries and constipation precipitated the attack, which of itself set up a vicious circle, both mentally and physically.

Dr. J. E. GEMMELL (Liverpool) showed a specimen of carcinoma of the body of the uterus, Mr. A. LEXLAND ROBINSON (Liverpool) showed a specimen of a sessile fibroid polyp causing inversion, and Dr. J. W. A. HUNTER (Derby) a case of acute post-partum oedema of the cervix.

ACUTE PHLEGMONOUS GASTRITIS.

At a pathological meeting of the Liverpool Medical Institution on March 25th, Dr. J. C. M. GIVEN, the President, in the chair, Mr. D. R. OWEN read a paper on acute phlegmonous gastritis.

Mr. Owen commenced with a short review of the literature of the subject, including the writings of Rixford, Norak, Sundburg, MacAuley, Berkeley Moynihan, and others. He then described two cases of this disease which he had seen at the David Lewis Northern Hospital, Liverpool, within a few weeks of each other. The first patient, a married woman aged 60, gave a long history of "indigestion." She was operated on for perforated ulcer; the true condition was diagnosed at operation and confirmed at the necropsy, twenty-four hours later. An anterior gastro-enterostomy was performed at the operation with a view to draining the stomach, and abdominal drainage was also provided. The second case was in a male sent in as a perforation case and operated upon for an "acute abdomen." The speaker referred to the presence of a "stomach dullness" area, not previously described; it might be expected in these cases, considering the pathological findings. The condition was recognized at the operation, and, as there was pus in the pelvis, all that was done was to place a drainage tube in the recto-vesical pouch. The abdomen was then closed. At the necropsies a similar condition was found in each case. The stomach was greatly thickened and showed signs of acute inflammation; its cut walls oozed pus. There was an acute cellulitis of the stomach in each case, although there was no sign of recent ulceration, and no cause of the cellulitis was found: In the first case a bacteriological examination was not made, but in the second case a mixed infection of *B. coli* and streptococci was found. Mr. Owen then described the localized and the diffuse types of the disease, showing that his cases belonged to the latter, the so-called "idiopathic" or primary phlegmon of the stomach. He proceeded to discuss the possible sequels—intra- and extra-gastric perforation, peritonitis, and septicaemia—and then, in considering the etiology, mentioned the American experiments of feeding animals on ground glass and on a mixture of ground glass and streptococci. He also referred to recent work, showing that the normal amount of hydrochloric acid in the stomach was of value in rendering innocuous any germs which might ordinarily enter the stomach with food. Supposing that natural cure took place in some cases, Mr. Owen suggested that a very considerable amount of fibrosis would be found, and he therefore suggested that some of Alexis Thomson's cases of "fibromatosis" of the stomach might have been cases of cured phlegmon of the stomach.

Mr. Owen considered that the ideal treatment of this condition was gastrectomy, but, when seen, his

patients could not have endured such an operation. He therefore advocated the application of general surgical principles, when the condition was recognized after mid-line or right abdominal section, which would be the usual operation performed. The two essentials were to feed the patient and to deal with the cellulitis. He therefore believed in performing a jejunostomy through a new incision to the left—in order to feed the patient and to relieve any distension which might occur—and then proceeding to open the stomach and incising its thick walls to let out the pus. Before opening the stomach it should be fixed to the abdominal wall to prevent infection of the peritoneal cavity. In this situation it could be treated as any other cellulitis would be treated. If serious haemorrhage were feared, Mr. Owen suggested that the main vessels of the stomach could be secured before making incisions into its walls. In favour of this he argued that further operation would almost certainly be necessary, if the patient recovered, for the removal of adhesions or of a fibrotic stomach, and therefore the cutting off of the gastric blood supply would not be very dangerous. Moreover, as in the past only one or two patients had ever been known to recover, he considered that new, even if heroic, measures were needed.

STERILITY.

At a meeting of the Nottingham Medico-Chirurgical Society held on March 31st, the President, Mr. H. BELL TAWSE, in the chair, Mr. VICTOR BONNEY read a paper on the causes of sterility and their treatment.

Speaking of cases of sterility generally, Mr. Bonney said that there were factors which could not be accurately assessed, and others which could. In regard to the former group he quoted the findings of Professor Arthur Robinson, which showed that in animals certainly, and in human beings in all probability, there was a wastage of the ova shed by the ovary, in circumstances favourable for fertilization, of as much as between 40 and 50 per cent. This wastage was brought about in several ways. Some ova never reached the tubes, but were lost in the peritoneal cavity; others, though they reached the tubes, did not blend with a sperm though sperms were there; and others again, though blending with the sperm, perished within a few days of the union, apparently as a result of an inherent deficiency of vitality. There were at present no means of diagnosing such happenings in the case of a sterile woman, nor, indeed, of being sure whether she ever passed fertilizable egg-cells out of her ovary. The factors of the second group comprised the patency of the genital canal from top to bottom, the healthiness of the sperm, its deposition in the vagina, and its ascent therefrom. The patency of the female genital canal was essential, and the recent introduction of tubal inflation had greatly extended their diagnostic capabilities in this connexion. Every woman being examined under an anaesthetic to find out the cause of her sterility should have her tubes inflated, and he was of opinion that if they were found blocked the best course in the majority of cases was immediately to proceed to open the abdomen and to endeavour to overcome the obstruction. This could often be successfully achieved, the most favourable class of case being that in which the abdominal ostia alone were closed as a result of pre-existent inflammation. He demonstrated to the meeting the apparatus he himself had been using. Absolute blockage in the uterine and vaginal segments of the canal was rare, but stenoses were not uncommon in the cervix and at the vaginal orifice. He referred to the good results which so often followed operative dilatation of the cervix. The two upper segments of the genital canal comprised the follicle itself and the space between it and the abdominal ostium, this latter being the peritoneal segment of the canal. Obstructions could occur from non-detachment of the follicle, or from the intervention of omental or other adhesions in the peritoneal segment. Non-detachment of the follicle and the abdominal ostium might be cleared away. Mr. Bonney referred to the conservative surgery of the uterus, the tubes, and ovaries as a means of maintaining the capability of pregnancy already existent, or making possible pregnancy which had hitherto

been impossible. He emphasized the propriety of examining the man as well as the woman, and spoke of the phenomenon of *profluvium seminis*, and also of the possibility of the sperms being killed by the vaginal discharge. Nothing much of scientific value was known about this last, and the subject needed investigation, but it was difficult to get anyone to undertake it. In regard to artificial insemination, his own experience had been uniformly disappointing, but where on account of physical deformity the sperm could not be deposited in the upper vagina it was the logical treatment.

The address was discussed by the President and Drs. BUCKLEY, ROBINSON, WATSON, W. R. SMITH, LOCHRANE, and ALLEN.

RADIOTHERAPY.

At a meeting of the Leeds and West Riding Medico-Chirurgical Society on April 9th, the President (Mr. A. L. WHITEHEAD) in the chair, Dr. GEORGE COOPER (Leeds) read a paper on radiotherapy.

Dr. Cooper referred to the rapid progress recently made in this form of treatment, and the importance of the position it now occupied in hospital practice. He defined the position in the spectrum of the various wave-lengths employed—infra-red, ultra-violet, and x-rays—and briefly described the apparatus employed for the production of

the various conditions that responded to the light. He spoke of the striking results obtained in lupus by combined treatment by artificial sunlight and local applications of the Kromayer lamp. He claimed that lupus could now be regarded as a curable disease, and confirmed the reports of other workers as to the very favourable results obtained in the treatment of rickets and of tuberculous lesions by artificial sunlight. Artificial sunlight baths were now being used successfully to hasten recovery in cases of chronic infection. With regard to x-ray treatment, Dr. Cooper claimed that this was still the only agency which exercised a controlling influence over the growth of the cancer cell, and he considered that as only hopeless and inoperable cases were sent to the radiotherapeutic department it could be said that a very fair proportion of cases yielded favourable results. Further progress in x-ray therapy would probably come by the use of some sensitizing agent before, during, or after the x-ray treatment. Dr. Cooper showed a number of cases that had been treated by radiotherapy, including rickets, lupus, tuberculous arthritis, carcinoma of the parotid, thyroid, and mammary glands, carcinoma of the cervix and of the stomach, and sarcoma of the ilium and femur.

Later in the evening Dr. Cooper demonstrated the work of the light department, and various cases were shown being treated by deep x-ray therapy, artificial sunlight, diathermy, and ionization.

Radiography.

Dr. H. B. SCARFILL (Leeds) exhibited a large number of radiographs and lantern slides from the radiographic department of the Leeds General Infirmary representative of the work of the department, and indicated the great increase in the radiographic work of the institution during the last seven years. More than four times the number of patients were radiographed last year as in 1919, and the expansion was still rapidly continuing.

Dr. L. A. ROWDEN (Leeds) demonstrated x-ray photographs of hour-glass stomach, and expressed the opinion that the condition was much less frequently met with than fifteen years previously. In his opinion the condition was sometimes congenital. In the acquired case he had seen a completely healed ulcer, although the opinion generally held was that complete healing was rarely if ever found.

Dr. J. A. THOMSON (Harrogate) demonstrated radiographs in connexion with diseases of the hip-joint met with in spa practice. He also exhibited a series of radiographs of a case of aerophagia in a child of 8 years. The child had chronic intermittent abdominal distension, and the photographs appeared to indicate that the distension was due to swallowed air, which finally passed into the bowel and caused distension of the small and large intestine.

Reviews.

DIGESTION AND GASTRIC DISEASE.

PROFESSOR HUGH MACLEAN, Director of the Clinical Medical Unit at St. Thomas's Hospital, London, who is the editor of the Modern Medical Monographs series, has himself contributed a volume entitled *Modern Views on Digestion and Gastric Disease*.¹ It is a useful unit in this series, and is written in the clear and decisive style which has made Dr. Maclean's former writings so popular. But, compared with his books on renal disease and on diabetes, this monograph on digestion and gastric disease has less to add to what the standard medical textbooks say. In it we have the old wine in slightly renovated wine-skins. The ferment of new knowledge has not so greatly disturbed our views on digestion and gastric disease, and the modern views which Dr. Maclean lucidly expounds do not vary greatly from those of a previous decade. In some particulars, however, the teaching of to-day differs from that received by earlier generations of students, notably on certain phases of the digestive process. Thus, duodenal regurgitation has been found to be a most important event in the course of digestion, and any interference with this backward flow of alkaline fluid into the stomach is known to lead to serious disturbance of health.

Dr. Maclean holds strong views on the subject of the supposed relationship between gastric ulcer and cancer. He regards as totally without foundation the statement that gastric ulcers often undergo malignant changes and are a predisposing cause of cancer. The four tables accompanying these pages which compare the duration of symptoms of patients suffering from cancer with the duration of symptoms of cases of gastric ulcer prove conclusively that in ordinary hospital practice patients with gastric ulcer usually give a history of many months or years of invalidism, whereas patients with gastric cancer have often been ill only for a few weeks, and declare that until lately their digestion has never given them a moment's thought. Dr. Maclean has strong views also on the interpretation of the results of test meals in stomach cancer. Absence of hydrochloric acid and the presence of appreciable amounts of lactic acid in the test meal are, he maintains, an almost invariable rule in carcinoma of the stomach.

The general scope of the book is as follows. The earlier chapters deal with the physiology of digestion and the fractional test meal. These are followed by a chapter on the chief gastric diseases and their symptoms, after which the author deals in turn with gastric and duodenal ulcer, gastritis, and cancer. The chapter on the chemical examination of gastric contents and faeces seems rather misplaced at this stage in the book, but it serves to recapitulate many of the preceding opinions. The ninth chapter, on the radiological examination of the alimentary tract, is excellently illustrated with x-ray photographs, and the last chapter, on the treatment of gastric diseases, gives a fairly complete account of both medicinal and dietetic treatment.

A HANDBOOK OF MIDWIFERY AND GYNAECOLOGY.

DR. THEODORE HAULTAIN has published a *Practical Handbook of Midwifery and Gynaecology*² which, so far as the obstetrical section is concerned, follows the lines of a similar handbook, originally written by his father, the late Dr. Haultain, which attained in its day considerable popularity. In the present volume a synopsis of gynaecology on the same lines has been added, and this certainly tends to make it of greater use for the student public to which it is mainly addressed. Books of this kind must be judged according to the standards of their own class, for which there is unquestionably a definite if small place, mainly in the undergraduate's library. In our view this present volume compares very favourably with other books of its

kind, and will prove of value to students reading for examinations, and more occasionally to practitioners who wish to make a rapid survey of the main facts of any subject.

In looking through the book we have noted one or two points, which may be remarked upon. For example, in connexion with hyperemesis gravidarum, we observe that Dr. Haultain gives considerable space to the reflex variety. This is scarcely in keeping with modern teaching on the subject, and it seems a pity to continue it. Under the symptoms of pre-eclamptic toxæmia there is no mention of epigastric pain, but the treatment of eclampsia is as well described as is possible in such brief space. In regard to the estimation of the date of confinement, it seems unnecessary to complicate the ordinary method with qualifications based on whether or not the month of February is included, or upon whether the year is a leap year or not. The calculation is at the best an approximate one, and the day or two's difference which these points involve is of little practical importance. In the mechanism of labour Dr. Haultain mentions the lever theory as the sole explanation of the increased flexion of the head, regardless of the objections to that theory whilst the membranes are intact. Where the number of illustrations is limited to thirty-six, it seems rather a waste to illustrate Robert's pelvis, which is rarely if ever seen outside a museum, and two pages devoted to the obsolete operations of symphysiotomy and pubiotomy are also extravagant. The discussion of puerperal infection leads the author naturally to the subject of gynaecological infections, and from that he goes right on with the other gynaecological matter. Six and a half pages are devoted to tuberculosis, which, in view of its comparative rarity, seems rather out of proportion.

All these, however, are relatively small matters, and do not affect the general excellence of the subject-matter. The proof-reading might have been a little more carefully done, as the arrangement of headings, and the enumeration of causes, etc., under them are not infrequently confusing. But we can most cordially recommend this little volume to students who require a condensed synopsis for a rapid survey of the subjects.

THE EVOLUTION OF ORTHOPAEDIC SURGERY.

IN 1922 the Detroit Orthopaedic Lectureship was established to "foster orthopaedic surgery at large and in our midst. The lecture is to be delivered under the auspices of the Wayne County Medical Society, by a man, not necessarily an orthopaedic surgeon"; the subject is to be "cognate to orthopaedic surgery and of broad importance."

Under these conditions the society could not have chosen a better qualified or more appropriate orator for the first lecture than Dr. R. B. OSGOOD of Boston, who is so well known and respected in this country as well as in the United States. Dr. Osgood has printed his lecture in a small book entitled *The Evolution of Orthopaedic Surgery*.³ Dr. Osgood begins by declining the difficult task, which has baffled many others, of defining orthopaedic surgery, and is satisfied to accept the broad limits given by Sir Arthur Keith which ascribes to the speciality the task of effecting "the repair of the mechanical framework of the human body by all operations and appliances which have that aim in view." If we attempt to particularize from this generalization we shall find that it is too wide in some directions and too narrow in others, and we may be driven to the conclusion that orthopaedic surgery can only be defined by stating what it is not—that is to say, that it includes the whole of surgery with the exception of that of the special senses and of the cavities of the body. Even such a definition as Sir Arthur Keith's would have shocked the older generations alike of orthopaedic and of general surgeons.

It is scarcely necessary to say that Dr. Professor Osgood has produced as masterly and complete an account as the space at his disposal would allow. If he has thrown a rather fine net too widely it is an error in the right direction, although some of those surgeons he has included

¹ *Modern Views on Digestion and Gastric Disease*. By Hugh Maclean, M.D., D.Sc., M.R.C.P. Modern Medical Monographs. London: Constable and Co., Ltd. 1925. (Demy 8vo, pp. x + 170; 23 figures, 14 charts. 12s. net.)

² *A Practical Handbook of Midwifery and Gynaecology*. By W. F. Theodore Haultain, O.B.E., M.C., B.A., M.B. Cantab., F.R.C.S.E. London: The Scientific Press (Faber and Gwyer, Ltd.). 1925. (Demy 8vo, pp. xiii + 315; 35 figures. 10s. 6d. net.)

³ *The Evolution of Orthopaedic Surgery*. By Robert Bayley Osgood, A.B., M.D. St. Louis: The C. V. Mosby Company. 1925. (Extra post 8vo, pp. 70; 49 figures.)

would probably have been much surprised to learn that they were orthopaedic. Quite naturally the orator has given full space to the claims of Americans, and perhaps not quite enough to Europeans, but in this matter the relative standpoints of the author and his readers will affect opinions. The omission of the name of William Adams is, however, remarkable. His writings on orthopaedic surgery had a considerable reputation, and his pathological work on the process of repair in tendons after division is of permanent value.

The book is well printed, but, to be candid, we cannot accept the reproductions of portraits as fairly representative of the high standard reached by American photo-engravers and of the country where the half-tone process originated. The portraits of Sir Robert Jones and of Professor Putti are particularly poorly reproduced.

We are inclined to question the claim, which has often been made for Delpach, and often contested, that he originated the method of subcutaneous tenotomy for contracted muscles. His one and only operation, upon which the claim is based, involved two incisions of an inch in length and was followed by months of suppuration and sloughing.

Perceival Pott is not only included among orthopaedic surgeons, but Dr. Osgood has conferred the title of "Sir" upon him. He deserved titular honours far more than many recipients of peerages in his day, but the hard fact remains that he died plain "Mr." and not even Professor or Doctor. Further, we are very much surprised to find it stated (on page 47) of another St. Bartholomew's surgeon, Sir James Paget, that he was assistant surgeon to W. J. Little at the Royal Orthopaedic Hospital. They were contemporaries and in later years professional friends, but during the few years of Little's connexion with the Orthopaedic Dispensary (afterwards the Royal Orthopaedic Hospital) Paget was surgeon to the Finsbury Dispensary, but was giving most of his time and energies to morbid anatomy in the medical school of St. Bartholomew's Hospital.

NERVOUS AND MENTAL DISEASES.

We have received Volumes 39 to 42 of the Nervous and Mental Disease Monograph Series.⁴

The Emotions, Morality, and the Brain, by the veteran neurologist C. von MONAKOW, is, as the translators observe, a "fascinating monograph," and it well repays careful study, though the fact that the translation is more or less literal makes it difficult reading. In successive chapters the author discusses the reciprocal influence of sensations and emotions on each other, and the increasing complexity of their organization; the development of the emotions, instincts, and morality; the anatomico-physiological components of the emotions; the pathology of the emotions and the dissolution and resolution of morality. In a brief but interesting concluding chapter he makes some final observations on the struggle to preserve psychic equilibrium and to attain emotional contentment. The philosophic views Professor von Monakow develops at the end of his essay are not new, but they are full of wisdom. He points out that man can never attain a state of permanent satisfaction; full security of position and life, complete peace and contentment, are only possible for brief moments. The prospects of the future which we strive to endow with the emotions of perfection and complete satisfaction are in reality only phantoms. Man strives untiringly but vainly to realize this dream, to which he gives the name of permanent happiness; but at each advance in these successive stages of "happiness in the immediate present" new difficulties arise. An example of this is found in the ceaseless effort of the cultured man to attain a permanent and entirely satisfactory position in life—to conquer a

situation of contentment and the prospect of a peaceful future—often followed by a sudden disillusionment at the very moment when plans long dreamed of have been brought to a happy realization. Persons often find only a small part of the satisfaction they anticipated from a quiet life, and they usually arrive at the conclusion that the real pleasures of a passive and monotonous existence are incomparably less than those of a life of endeavour, even though the latter be filled with cares and anxieties. Thus, the author concludes, the goal which we strive unceasingly to reach as a reward of our endeavours is illusory. It is not the final arrival at this goal which brings true happiness, but the toil and striving toward this goal. The joy of life, the peace of the soul, happiness, do not reside in us as an independent quality; such emotions are only attained by the rational use of our powers, by the wise satisfaction of the instincts and feelings, by the observation of the requirements of morality. The benefits thus arrived at must, however, be conquered anew every day and every hour. It is natural that such philosophic conclusions should arrest the attention of the reader, since they are the outcome of a life of strenuous research in the sphere of neuro-biology and of a wide knowledge of human nature in all its types, both normal and morbid.

The Development of Psycho-analysis, by Drs. S. FERENCZI and OTTO RANK, is a monograph intended primarily for practising psycho-analysts, and is only expected to appeal to those having a knowledge of the subject with which it deals. The authors express the view that there has grown up in psycho-analytic circles an excessive interest in theorizing, and urge the necessity for increased emphasis being laid on its practical or therapeutic aspects. In view of the fact that a complete analysis is only possible for a limited number of patients, the writers suggest the desirability of some simplification of the analytic technique. They feel that a point may be finally reached when other psychotherapeutic methods which have proved themselves useful, such as suggestion and hypnosis, might be combined with psycho-analysis.

Studies in Psychiatry, vol. ii, contains twelve papers read at the New York Psychiatric Society, the contributors being Drs. L. Pierce Clark, Adolph Meyer, P. C. Knapp, C. Macfie Campbell, Charles L. Lambert, M. C. Ashley, and Smith Ely Jelliffe. The work of many of these writers is well known to psychiatrists in this country, and the papers as a whole will be found suggestive and stimulating.

In a monograph on *Psycho-analysis and the Psychic Disorder of General Paresis*, Drs. S. HOLLOS and S. FERENCZI aim to show that many psychotic manifestations of this disease, as well as the entire course of this disease, prove themselves not inaccessible to psycho-analytic explanation. That the content of the psychosis in this disorder, as in all other forms of mental disturbance, reflects the personal wishes, hopes, fears, and past experiences of its subject is a matter beyond dispute, and no doubt the constitutional make-up exerts an influence on the clinical picture, but we do not feel that the interpretation of the psychotic productions from the psycho-analytic standpoint materially adds to our understanding of the disease. Frankly, we find the arguments of the authors elusive and unconvincing.

PRICE'S "PRACTICE OF MEDICINE."

A Textbook of the Practice of Medicine, by numerous authors, and edited by Dr. FREDERICK W. PRICE, first appeared in September, 1922. A review of this excellent and comprehensive textbook appeared in our columns of February 17th, 1923. Since then five impressions have been called for, and the work now appears in its second edition.⁵ There have been a few transpositions of articles, and a number of additions. New articles appear on tularaemia, botulism, apical dental infection, clystous diarrhoea, chronic duodenal ileus, and tuberculosis of the kidney. Articles have been also added on the Schick test in diphtheria and the method of producing active immunity, on the Dick test

⁵ *A Textbook of the Practice of Medicine*. By Various Authors. Edited by Frederick W. Price, M.D., F.R.S.E. Second edition. Oxford Medical Publications, London: J. H. Ballantyne, Oxford University Press, 1925. (Med. 8vo, pp. xxxv + 1226; 110 figures. 35s. net.)

⁴ Nervous and Mental Disease Monograph Series. Washington and New York: Nervous and Mental Disease Publishing Company, 1925. No. 39—*The Emotions, Morality, and the Brain*. By C. von Monakow. Translated by Gertrude Barnes, A.B., A.M., and Smith Ely Jelliffe, M.D., Ph.D. (Med. 8vo, pp. 95. 2 dollars.) No. 40—*The Development of Psycho-analysis*. By Dr. S. Ferenczi and Dr. Otto Rank. Authorized English translation by Dr. J. E. Newton. (Med. 8vo, pp. 68. 2 dollars.) No. 41—*Studies in Psychiatry*. Vol. II. By Members of the New York Psychiatric Society. (Med. 8vo, pp. 233. 3 dollars.) No. 42—*Psycho-analysis and the Psychic Disorder of General Paresis*. By Stefan Ferenczi and S. Ferenczi. Authorized English translation by Gertrude Barnes and Gunther Keil. (Med. 8vo, pp. 48. 1.50 dollars.)

in scarlet fever, on the investigation of diseases of the liver and pancreas, on quinidine therapy, on the pathology of auricular fibrillation and auricular flutter, on mental sequelae of encephalitis lethargica, and on paraphrenia. Many articles have been entirely or largely rewritten. These include: the pathology of scarlet fever, diabetes mellitus, secretory disorders of the stomach, diverticulosis, Hirschsprung's disease, cholecystitis, aphasia and other speech defects, epilepsy, hysteria, neurasthenia, and dystrophia myotonica.

The whole book has been brought thoroughly up to date, and we can again cordially recommend it. The publishers are to be congratulated on the way in which they have produced it; the type is clear and the thin paper selected quite good. Although the volume contains nearly 2,000 pages, including the index, it is not unwieldy.

ANNALS OF MEDICAL HISTORY.

THE first or spring number of the eighth volume of the *Annals of Medical History*⁶ bears on the outside of the cover, which alters with each issue and is related to the subject of one of the contained articles, a portrait of Galen to illustrate a revised version of Dr. Archibald Malloch's essay—written at McGill fifteen years ago, and read two years ago to the Ottawa Medico-Chirurgical Society—on Claudius Galen. In an attractive article entitled "Some humble workers in the cause of anatomy a hundred years ago," Dr. W. B. Howell recalls the doings of the resurrectionists, body snatchers, or "resurgam homos," whom Sir Astley Cooper described as "belonging to the lowest dregs of degradation." The by-paths of medical men in two rather different directions—namely, as pirates and buccaneers and as writers of verse—are dealt with in separate articles by Dr. Leo Eloesser of San Francisco and Sir Humphry Rolleston; among the pirate and buccaneer doctors one of the gentlest, most whimsical and engaging was Lionel Wafer at the end of the seventeenth century; the account of him given by John Masefield in his appendix to the edition of *Dampier's Voyages* is reproduced in full. His colleague Esquemeling has left an admirable account of *The Buccaneers of America* (1684), from which much of the article is illustrated; he is described as "a quiet, kindly man, speaking ill of no one," and was obviously a contrast to other surgeons on buccaneer voyages. Three studies on "palaeopathology" from Dr. Roy L. Moodie of Chicago deal with a prehistoric surgical bandage from Peru, excessive callus following fracture of the forefoot in a cretaceous dinosaur, and spondylitis deformans in a crocodile from the Pleistocene period. In a brief note Dr. Bernard E. Read gleams from Chinese medicine some queer details on pulse feeling and methods of treatment. Among the editor's reviews, that of *Monumenta Medica*, containing contributions of a notable character from Dr. Charles Singer, may be mentioned as adding to the value of this instalment of the *Annals*.

NOTES ON BOOKS.

THE fifth of the statistical handbooks issued by the Health Section of the League of Nations contains the official vital statistics of the Republic of Austria,⁷ which occupies 32,396 English square miles and contains six and a half million people. This handbook has been prepared by Dr. Major Greenwood and Major P. Granville Edge, and includes, in particular, valuable information about infantile mortality and tuberculosis. Since the end of the eighteenth century Austrian official statistical reports have been of a high standard, owing to their recognition as a branch of university education, and also to their study being regarded as a section of statecraft. The statistics of the old empire covered a wide diversity of conditions related to the etiology of tuberculosis; and the effects of war conditions upon its incidence have been more fully reported in Austria than in any other Central European country. Other handbooks are

to be published dealing with the States formed out of the old empire, and the present volume has a special value in that it contains tables of the vital statistics of these States before they commenced independent existence. In the preparation of the handbook the files of the official journal, *Statistische Monatsschrift*, from 1884 to 1914, and 1919-20, have been examined, and notes of memoirs of special interest to the medical statistician are included. The present publication will be found very useful by all students of public health conditions in Central Europe.

*Chininum: Scriptioes Collectae Anno MCMXXIV editae*⁸ is a collection of translations of papers published about quinine in the year 1924. It is issued by the Bureau for Increasing the Use of Quinine, Amsterdam, and is distributed free to pharmacologists and others thought likely by the bureau to further its aim. A collection of the papers which appeared in 1923 and the interest which this first volume aroused encouraged the bureau to publish a second collection. This contains English translations and abstracts of about fifty papers describing the use of quinine for the most varied purposes. Certain of the papers which give an account of the use of quinine in combating malaria epidemics are of interest. Thus Professor Swellengrebel recalls the work of the Malaria Commission of the League of Nations, which travelled through Italy and Eastern Europe and studied the local conditions with a view to determining the most profitable methods of combating the malaria epidemic which has swept over many countries since the war. Their object was to determine the best and cheapest methods for combating epidemics and for eradicating the disease in its chronic endemic form. The latter problem is particularly complex, for the reasons which have caused malaria to disappear from certain districts, such as the Fens in England, have not been fully ascertained. The author suggests that numerous causes must have been at work. The value of prophylactic quinine and of drainage is of course recognized, but in addition he holds that the prevalence of malaria is influenced by the condition of housing and of nutrition of the inhabitants. Apparently when a population becomes rich and well fed and not overcrowded malaria tends to decrease. Emphasis is laid on the fact that there is no single sovereign remedy for malaria, but that the local conditions in each country must be studied and that the preventive measures chosen must be adapted to these local conditions. Dr. van der Spek, who contributes an article on the antimalarial campaign during recent years, quotes figures showing the post-war incidence of malaria. The worst figures are from Russia, where five and a half million cases were reported in both 1923 and 1924, a figure which is double the pre-war rate. This article is illustrated with numerous excellent photographs and concludes with full-page reproductions of twelve posters used in antimalarial campaigns in Europe, America, and Asia. Besides the papers dealing with the action of quinine in malaria the volume contains others describing its use in a large variety of conditions. Several papers deal with the action of quinine in inducing or hastening labour and others describe its use in surgery both as a local anaesthetic and for the treatment of varicose veins and haemorrhoids. The volume will be found useful by all specially interested in quinine; the excellent illustrations, which show many phases of antimalarial work in different countries, deserve special mention.

The Department of Pathology of Columbia University, New York, publishes at regular intervals bound volumes of reprints of scientific articles contributed to various scientific journals by investigators holding official appointments in the university, and also by volunteer workers in its laboratories. This plan of collecting and publishing in one volume the research of an institution is useful, particularly in such a case as this, where a large proportion of the research work is focused on one subject. The twenty-six articles in vol. xviii were mostly devoted to rickets, and many of the forty-nine articles in vol. xix deal with the same disease.⁹ Drs. J. W. Jobling, A. F. Hess, and A. M. Pappenheim have contributed numerous papers to each volume. The scope of this research is very extensive, and includes experimental work on laboratory animals, biochemical investigations, dietary studies, and experiments in protective radiation. Dr. Hess's work on the chemical changes which take place in the blood of irradiated animals and the remarkable effect of radiation of certain foods in bestowing on them antirachitic factors is well known in this country. We have drawn attention to many of the new ideas which have emanated from the Columbia school in annotations and

⁶ *Annals of Medical History*. (Spring Number, 1925.) Vol. VIII, No. 1. Edited by Francis R. Packard, M.D. New York City: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. 1925. (8 1/2 x 12 1/2, pp. 94; illustrated. Subscription in Great Britain, £2 2s. per volume of four numbers.)

⁷ League of Nations Health Organization. Statistical Handbooks Series: No. 5. *The Official Vital Statistics of the Republic of Austria*. Geneva, 1925. Price 2s. 6d.

⁸ *Chininum: Scriptioes Collectae Anno MCMXXIV editae*. Amsterdam: Bureau for Increasing the Use of Quinine. 1925. (Roy. 8vo, pp. xii + 262; illustrated.)
⁹ *Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, N.Y.* Vol. xviii, 1921-1922, and vol. xix, 1923-1925. Reprints.

reviews of published work. The subject was fully discussed in two of the sectional meetings at Bath and reported in this JOURNAL (September 12th, 1925, pp. 470-477; September 19th, pp. 499-503). Therefore it is not necessary to do more than announce that these original papers have been received and placed in the Association Library, where they are available for consultation in the handy form which this system of binding together the writings of one school ensures. Papers on other pathological problems are included in both volumes, these also being reprints from scientific journals.

MEDICAL AND SURGICAL APPLIANCES.

A Manometric Lumbar Puncture Needle.

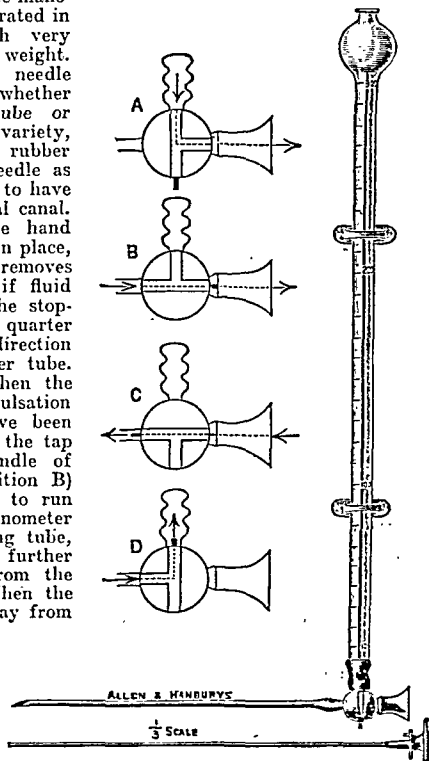
DR. J. G. GREENFIELD (Pathologist to the National Hospital, Queen Square, for the relief and cure of diseases of the nervous system, including paralysis and epilepsy) writes:

That the pressure of the cerebro-spinal fluid is not measured in this country as often as it should be appears to be due chiefly to the difficulty of doing this single-handed with the apparatus at present on the market. These all consist of attachments which are fitted into the lumbar puncture needle after the fluid has begun to flow. This has several disadvantages. One is the fact that only one hand is available to withdraw the stylet and pick up and attach the manometer, the other hand being engaged in steadying the lumbar puncture needle and holding a tube to collect the fluid that escapes in the interval. Another disadvantage is that slight movement of the needle in or out during the process of attaching the manometer may displace the point so that the flow of fluid ceases. To obviate these disadvantages I have had a lumbar puncture needle made for me in which a three-way cock and a side tube for the manometer are incorporated in the handle with very little increase in weight.

In using this needle the manometer, whether of the glass tube or the aneroid variety, is attached by rubber tubing to the needle as soon as it is felt to have entered the spinal canal. Then, while one hand holds the needle in place, the other simply removes the stylet and, if fluid appears, turns the stop-cock through a quarter circle in the direction of the manometer tube. (Position A.) When the pressure and pulsation of the fluid have been noted a turn of the tap towards the handle of the needle (Position B) allows the fluid to run out of the manometer into the collecting tube, and also allows further flow of fluid from the spinal canal. When the tap is turned away from the manometer (Position C) the manometer empties itself but the spinal canal is shut off. If it is desired to inject anything into the spinal canal the tap may be turned towards the point of the needle, so that the manometer is shut off (Position D), but it may be thought better to leave the manometer tube open, so that the injection pressure may be gauged and controlled. The forward position of the tap may also be used for replacing fluid with air.

It is advisable to sterilize the needle with the stylet out and with the tap turned towards the handle (Position B), as in that position water passes freely into the manometer tube from the inside of the needle. In the figure a glass manometer is shown, provided with two sliding clips, by which the initial and final levels of the fluid can be marked and read after the operation is completed.

Messrs. Allen and Hanburys, Ltd., of 48, Wigmore Street, London, W.1, are the makers.



SMALL-POX IN AUSTRALIA.

DR. J. H. L. CUMPTON, Director-General of Health and Director of Quarantine, and Dr. F. MacCallum, Quarantine Officer, Commonwealth Department of Health, have written a history of small-pox in Australia from 1909 to 1923, and the work has been issued under the authority of the Minister of Health.¹ The book is a sequel to a volume dealing with the same subject for the period 1788 to 1908. Dr. Cumpston is of opinion that the special aspects of the epidemiology of the disease as it has shown itself in recent years in Australia and in small-pox infected vessels on their way to Australia are the short range of infection, the comparatively low degree of infectivity, the irregular incidence of attack under equal exposure, and anomalies as to vaccination immunity. The scheme of the book includes a history in considerable detail of successive outbreaks in each State within the Commonwealth, and gives the story of its introduction by individual vessels, and of quarantine and vaccination measures adopted for its control. The record is, indeed, so full that the reader can in large measure study for himself the epidemiology of variola both on board ship and in the various provinces.

As to the amount of vaccination in Australia as a whole, it was approximately estimated in 1910 that some 30 per cent. of all persons had been vaccinated, and the authors think that, taking account of troops returned from war service, the same rough estimate of 30 per cent. may still apply, the community being normally free from small-pox and largely without compulsory infantile vaccination. As now in this country, the amount of vaccination done from year to year seems to depend largely on the prevalence of small-pox. In New South Wales only 11 of 43,782 births in 1909 were vaccinated, but in 1913 there was a small-pox outbreak, and the public vaccinators recorded over 10,000 vaccinations, while the authors, in a footnote, explain (pp. 78 and 99) that probably 500,000 were really vaccinated in New South Wales itself, and the same outbreak resulted in the adjoining State of Victoria having 130,000 vaccinations of adults. It is observed that no attack occurred in a vaccinated person under 20 years of age, or in any person vaccinated within thirteen years previous to attack. No case occurred in the New South Wales outbreak among any of the staff of the Commonwealth Quarantine Service or the State Health Department, excepting one disinfectant on the staff of the latter who by some means evaded vaccination. Regarding the value of vaccination as a community measure in Australia, it had been suggested in the previous report that the conditions essential for an epidemic were (1) the virus, (2) susceptible population, and (3) a third factor or factors not understood. Hypothetically the third factor was regarded as a short range of infectivity in a community not sufficiently aggregated to let the disease spread so rapidly as to become uncontrollable. The authors hold that the experience of the past fifteen years supports this interesting hypothesis. In the course of the volume much detailed information is given as to variation in the duration of the incubation period, the invasion period, and the escape of exposed persons from infection even on shipboard with limited accommodation. Voyages to Australia from many ports are accomplished well within the incubation period of small-pox, and in the time under review eighty-nine vessels had to be quarantined, as against fifty vessels in the fifteen years 1879-93, and the same number in the next fifteen years, 1894-1908.

It is regrettable that a work whose value for reference largely depends on the detailed information with which it is packed should have been issued without a reference index. Also the table of contents at the beginning is irritatingly inaccurate. The book has fifteen chapters, and for thirteen of the fifteen the page reference is incorrectly stated, so that a reviewer has to start by making a paging of his own. Notwithstanding this slip in passing the sheets through the press, the report is an important and valuable contribution to the literature of small-pox, and will no doubt be studied by the committees set up by the League of Nations and by our own Government.

¹ Service Publication No. 29. Melbourne: H. J. Green, Government Printer. 1925. (9½ x 6, pp. 243. Paper covers.)

Nova et Vetera.

DR. DAVID KINLOCH (KYNALOCCHUS), 1559-1617.

By the courtesy of Mrs. Lingard-Guthrie, Carnoustie House, Forfarshire, the portrait of Dr. Kinloch has been made available for publication, and since to Sir Norman Moore and Dr. Charles L. Dana little seems to have been



DAVID KINLOCH (KYNALOCCHUS), M.D., DUNDEE, 1559-1617.
1614 portrait in Carnoustie House (Mrs. Lingard-Guthrie).

known about Kinloch save his authorship of Latin verse, it may be of interest to add a few notes. The verses were published in Paris in 1596, and reprinted in *Delitiae Poetarum Scotorum* in 1637, and the first book, *De Hominis Procreatione*, makes Kinloch the first Scottish writer on obstetrics. He was born in Dundee, where his tomb is still extant. He was "incorporated" at the university in St. Andrews in 1576, but did not graduate. In 1596 he was M.D., probably of Paris, where he was well known as devoted to the study of anatomy, and tradition has it that he was called to give medical service at the Court.

In 1602 he was entered as Burgess of Dundee by right of his father John, and in the Roll he is described as "Medicinae doctor Regius." This, or a synonymous term, is used in most of the official records up to an entry in the Registry of the Great Seal in 1616, when he was granted the right of barony in the estate of Aberbothrie, which he had purchased. Sir George Kinloch, Bt., of that ilk is a direct descendant in the eighth generation. Kinloch travelled much, and even two months before his death in 1617 received permission to go out of the kingdom. On one journey in Spain he was seized by the Inquisition and condemned to auto-da-fé. Tradition again has it that when the execution was delayed he made inquiry and was informed that the Grand Inquisitor was ill and he must wait. Making use of a friendly black cat to bear his message he made known his status and offered his service. This was accepted, the Grand Inquisitor recovered, and Kinloch was sent home to illuminate his native land.

In Dundee he married Grizel Hay of Gourdie, and the records show them to have been a high-minded and

humorous pair. There is some suggestion of an attempted encroachment in these entries. At the town council on July 17th, 1610, three masons appeared and confessed "that before sunrising at the command of Griseld Hay, the spouse of Dr. David" they built a pillar of stone work. They were ordered to pay a fine of five pounds and to be punished in their persons in the sight of the bailies and "to demolish the said pillar to the ground and restore the common gait and passage to the auld estate." On August 16th William Ferguson and Walter Rollok, bailies of Dundee, appeared before the Privy Council to answer the complaint of Dr. Kinloch touching their "allegit convocating of his Majesties leis and casting down of a prettie piller of stone work" which had been erected by the said Mr. David on his own heritage "for setting thairon of his banefire" on August 5th and November 5th in token of his exceeding joy for his Majesteis preservation on the said days, and touching the pursuing of the said Mr. David's spouse for her life and the holding of a "whinger" to her breast. Dr. David was present but did not pursue his complaint. In 1613 James Baldavie complained to the Privy Council that his ward had been abducted by Johnne Ramsay, but Margaret gave evidence that of "hir awne propir will and motive" she left James and came directlie to Doctor Kinlocho in Dundee "her friend," and that she intended to marry Johnne, and the lords decided in favour of the said Margaret.

Of Kinloch's verse it is enough here to say that the text of the two books is in excellent hexameters which are so closely modelled after Lucretius that phrases or more are borrowed. That Kinloch was not only learned but witty is shown by the epigram dedicating his second book to the Senate of Armoric Gaul which is thus Englished:

Through Eunomis and Panace
Whom Jupiter and Apollo sway
Judge Themis governs judges two
Who all men's rights and weal review;
One judges pleas and one disease
Each measuring in her own degrees:
In function Law and Leech agree
And in the public need unite;
To fortunes you, to bodies we,
Restore their pristine health and might.
So Senators, from Kinloch's hand,
Take these few sprays from Med'cine's field,
Which knowledge of our inner ills,
Their sites, signs, causes briefly yield.
Our Faculty's unhonoured till
It be illustred with your skill.
A green old age, Fate grant us each,
Me, without law, you, without leech!

The portrait, dated 1614, precedes by six years the work of George Jameson, the first known Scottish portrait painter. It may not have been painted in Scotland. Some



TOMB OF DR. DAVID KINLOCH IN THE HOWFF, DUNDEE.

of the details are curiously accurate. The text of the first aphorism is legible, and the Latin version is unusual. Perhaps some scholar may identify the edition. Verification of Kinloch's graduation and of his Court appointments in France and Scotland would be useful.

R. C. BUIST.

British Medical Journal.

SATURDAY, MAY 1ST, 1926.

SYPHILIS AND PAROXYSMAL HAEMOGLOBINURIA.

UNTIL the middle of the first decade of this century paroxysmal haemoglobinuria was held to be due to a condition of abnormal vulnerability of the red blood corpuscles to mechanical injury. This fragility, it was supposed, rendered the red corpuscles unable to withstand the vascular commotion which occurred in the peripheral vessels as a characteristically extreme response when the affected individual was exposed to a low external temperature or to severe physical strain. Thus the "attack" of haemoglobinuria and the "interval" were respectively explained by the presence or absence of causes of abnormally severe vasomotor disturbance, capable, it was supposed, of bringing about mechanical injury to the red corpuscles. This alleged vulnerability to mechanical injury, in some instances, appeared to develop in the wake of various infectious diseases, and it was recognized that the initial attack occurred with special frequency after luetic infection. Reasons connected with alleged causes and with apparent differences in nature of attacks suggested, however, that the term "paroxysmal haemoglobinuria" included various clinical and possibly pathological forms that were not sharply differentiated.

The literature of paroxysmal haemoglobinuria during the past twenty years shows that we have during this period discarded the theory of undue fragility of the red blood corpuscles to mechanical injury. This theory vanished because it became superfluous precisely for that form of paroxysmal haemoglobinuria to which Chrostek had specially applied it. As the theory and methods of Ehrlich in the domain of experimental immunology and haemolysis became more widely known, the hypothesis that a haemolytic agent was present in the blood plasma of a haemoglobinuric was evolved and put to the test of adequately controlled investigations. By appropriate adaptation of the Ehrlich technique, the presence of a haemolytic amboceptor in the blood of individuals suffering from paroxysmal haemoglobinuria *a frigore* was proved independently by workers in Vienna and this country. The unique character of this haemolytic amboceptor was shown to be that its function of sensitizing either healthy red cells or those obtained from an affected individual was performed only during a period when the mixture of cells and serum containing the amboceptor was kept below blood temperature. Thereafter the haemolytic action rapidly occurred at blood temperature in the presence of complement. These observations, constituting the Eason-Donath-Landsteiner reaction, became the fundamental basis of the pathology of paroxysmal haemoglobinuria *a frigore* (Kältehämolysine); the reaction, moreover, was shown to be applicable as a clinical method by which this type could be sharply and certainly differentiated from other forms of haemoglobinuria. The application of this test made possible for the first time a precise diagnosis of the *a frigore* cases, and has thus given a reliability to published records from which a more exact picture of the nature of the "attack" can be drawn.

Briefly stated, the attack is an abnormal reaction towards cold characterized by a haemoclastic crisis in the form of a high grade short-lived leucopenia, by a fall in the blood pressure and body temperature, and by changes in the mode of blood coagulation; secondary to this, and approximately simultaneous with the haemoglobinuric attack, came leucocytosis, and rise of blood pressure, pulse rate, and body temperature. While the haemolysin reaction *in vitro* is the decisive diagnostic fact, it was soon learned that in not a few metallic cases of paralysis this haemolysin reaction was obtained although such individuals had not suffered from attacks of paroxysmal haemoglobinuria *a frigore*. These individuals have been designated "haemolysin carriers," and their conditional exposure as latent haemoglobinuria, and experimental exposure to severe chilling has actually provoked a characteristic attack of haemoglobinuria.

In both "manifest" haemoglobinurics and in latent carriers, blood dissolution is the function of the haemolysin (Kältehämolysin), although in the carriers the clinical symptoms of haemoglobinuria have not occurred spontaneously. Many authors, nevertheless, cited the existence of haemolysin carriers as a bar to the acceptance of the haemolytic amboceptor theory of the pathology of manifest paroxysmal haemoglobinuria *a frigore*. Complete confusion thus arose both as to the genesis of the manifest disease and as to its definition as a clinical entity. The difficulty, such as it was, has been bridged in recent articles¹ by Salén of Stockholm, as he finds that in haemolysin carriers an insignificant drop of the blood temperature actually causes the intravital sensitizing mechanism to function, although there are neither external symptoms nor haemolytic and haemoclastic crises. The evidence of the blood-dissolving function in these is the demonstrable reduction in the number of red cells and the prolonged increase of the urobilin of the urine after exposure of a carrier to chilling. This is not altogether a new fact, but Salén goes further, and asserts that the usual method of function of the haemolysin, both in manifest cases and in carriers, is by the extravascular destruction of the red cells already sensitized in the blood stream, as in haemolytic and haemoclastic crises, as well as the clinical symptoms of an attack, are the expression of a less regular method of function completed intravascularly. It is not our intention to express any definite approval or rejection of this conception, though there are many reasons for accepting it as a probable, though incomplete, explanation for the presence or absence of external evidence of blood dissolution in the form of haemoglobinuria. At all events, it is known that the manifest case may become a latent carrier, and that excessive chilling of a carrier may provoke in him a typical haemoglobinuric attack. Thus Salén comes to believe that the manifest cases and the latent haemolysin carriers can be grouped as a pathological unity.

What is the relationship of syphilis to this group? In one respect the answer is not in dispute, haemolysin carriers being found in about 10 per cent. of individuals showing evidence of tertiary syphilis or suffering from metasymphilitic disease. In many of these, especially metasymphilitic, the haemolysin is a cause of anaemia, although Salén expresses no opinion either regarding this or the relationship of the haemolysin to the various forms of anaemia occurring in syphilis. Reference may be made to the discussion on

¹ Acta Medica Scandinavica, vol. lxi, p. 521 et seq.

visceral syphilis in the Section of Medicine at the Annual Meeting of the British Medical Association at Newcastle in 1921, and especially to the paper on the anaemias of syphilis by Dr. John Eason of Edinburgh (BRITISH MEDICAL JOURNAL, August 6th, 1921, p. 186).

With regard to manifest paroxysmal haemoglobinuria *a frigore*, most authors since 1904 reckon syphilis either as a very frequent cause or the usual cause. That it is a frequent cause has been recognized since the early eighties of last century, and the anti-syphilitic treatment then available was apparently the means of causing disappearance of attacks for as many as seven and eight years. The expectation that more constant good results would be obtained from the new antisiphilitic methods of treatment has been in great measure unfulfilled. Energetic treatment may convert the manifest haemoglobinuria into the latent carrier, but no proof has been obtained that the auto-sensitizing power of the blood, characteristic of this disease, can be abolished by such treatment. The haemolysin reaction remains positive, and definite cure is therefore so far unknown. If, therefore, paroxysmal haemoglobinuria *a frigore* is a post-syphilitic disease, it behaves towards treatment like metallic affections, while the symptoms of tertiary syphilis present are banished.

In his effort to make clear the etiological relationship between syphilis and paroxysmal haemoglobinuria *a frigore*, Salén has wisely restricted his most careful study to the period beginning after 1904. It is not here possible to follow step by step his searching analysis of the cases, 116 in number, collected by him. His final decision that 97 per cent. have had lues or hereditary lues is a valuable contribution to our knowledge, although the close approximation of his finding to 100 is well expected by those familiar with English writings on the subject. Salén seems, indeed, to be overcautious in concluding that it is for the future to decide if manifest haemoglobinuria *a frigore* is to be enrolled among the syphilogenic diseases. In the small percentage of cases which he has not included as luetic no other acceptable etiology can be deduced from the recorded facts, and Salén refers to the difficulty of excluding with certainty a diagnosis of syphilis by clinical means. There are many important facts bearing on the etiological relationship of syphilis to paroxysmal haemoglobinuria *a frigore* which are brought out in Salén's analysis, but we will only mention that in all cases in which evidence of syphilis is found the haemoglobinuria is never primary. Salén reveals in detail the errors of Burmeister's statistical methods which led him in 1921 to conclude that only about 30 per cent. of the cases were syphilitic from the anamnetic and clinical facts, excluding the Wassermann test. Burmeister had explained the discrepancy between this figure and the 90 per cent. which gave a positive Wassermann reaction by assuming that the Wassermann reaction in this disease was usually not caused by syphilis, and was, in fact, a non-specific reaction probably due to the "Kälte-amboceptors" in the blood. In support of this hypothesis Burmeister cited certain experiments made by him, which he believed gave proof that the Wassermann reaction was a more sensitive indicator for the presence of the haemolytic amboceptors than the haemolysin reaction. Salén now gives the results of a most elaborately controlled series of experiments in which he has avoided certain defects in Burmeister's work, and the conclusions to which he has come seem to be as completely proved as is within the capacity of a single observer. Salén finds that the haemolytic

amboceptor content of the blood serum has no influence on the Wassermann reaction, and normal salt solution containing amboceptors dissociated at blood temperature does not give a positive Wassermann reaction. Such experimental results are in full agreement with the facts concerning many cases in the literature, in which a strong positive Eason-Donath-Landsteiner reaction has been obtained while the Wassermann reaction of the blood has been entirely negative, or others in which a strongly positive Wassermann reaction has been given by both blood and cerebro-spinal fluid while only the blood gave the haemolysin reaction; and lastly, that in several cases antiluetic treatment has changed the positive Wassermann reaction to a negative without any demonstrable change in the intensity of the haemolysin reaction.

THE COLONIAL MEDICAL SERVICE.

In a leading article on April 10th we called attention to the withdrawal from the BRITISH MEDICAL JOURNAL of the "Important Notice" covering appointments throughout the Colonial Medical Service. In doing so we expressed the hope that certain grave issues raised in the course of conversations between the Colonial Office and the British Medical Association might be brought to a satisfactory settlement before the general efficiency of the service as a whole had in any way suffered from the existing state of affairs. To-day we are glad to announce that such a settlement has been secured. Mr. Amery has, as we have already pointed out, amply vindicated the sanctity of service agreements by the action he has taken in East Africa to safeguard the rights of the existing personnel of the Medical Service under the new Code of Regulations. Beyond this, he has met the several requests contained in a memorial presented by the medical officers of Kenya in a manner which shows a very real desire to satisfy the wishes of the officers concerned as to the conditions under which they are required to work, and encourages the belief that grievances thus indicated and requests made will be accorded full consideration.

Finally, as may be seen from the terms of the correspondence between the Colonial Office and the Dominions Committee, which is published in the SUPPLEMENT this week (p. 175), the Secretary of State has cordially welcomed the prospect of discussions between the Association and his department, and, in addition, while reserving the principle that Colonial medical officers, like others, should in the first place make use of the ordinary official means of making representations to the Secretary of State, he has recognized the claim of the Association to represent the interests of its members throughout the Colonial Medical Services. In a letter from the Colonial Office, to which, fortunately, no further reference need now be made, that claim seemed to be called in question. Experience shows that such discussions, conducted informally and confidentially, and whenever possible before the final promulgation of orders involving substantial adjustments in service conditions, are the best means of avoiding difficulties and friction. An opportunity to deal with the East African Medical Service Regulations in this manner might well, as Mr. Strachey's letter suggests, have prevented the creation of the difficulties and misunderstandings now happily at an end.

Mr. Amery, by strengthening confidence in the sanctity of service agreements, has now cleared the way to that advance throughout the Colonial Medical Service which we believe it to be his sincere desire to

promote by every means in his power. We already owe to him the fine conception of the Colonial Office as an Imperial Ministry of Health. In the task of bringing that idea to fruition he may depend, as we have already pointed out, on the cordial co-operation of the Association, which has consistently laboured to establish such conditions as shall make for the efficiency of the Colonial Medical Service in general, and to that end is prepared, now as in the past, to place at the Minister's disposal experience derived from a membership which covers the whole of the Dependencies for the health of which he is ultimately responsible.

Not the least of the difficulties with which a Secretary of State has to contend in this connexion is involved in the constitutional and economic position of the various Colonial administrations. It would perhaps be true to say that where the need for an efficient medical service—adequately staffed, well organized, and with generous material resources at its disposal—is to-day most clamant, it is too often least realized. For this reason a service which should offer to a medical practitioner of energy and imagination a particularly attractive career is in many Colonies understaffed and not fully effective, whether because the health policy of the individual Colonial administration concerned is not yet adequately developed, or because sufficient funds are not available for putting into effect a policy already agreed upon, or again because for some other reason service conditions are not conducive to efficiency or to economic well-being. Our criticism in this respect is not based upon any academic standard of perfection. It arises from consideration of the actual achievements of the Colonial Medical Service where it has worked or is working under relatively favourable conditions, and a keen desire to secure the removal of the defects which make it impossible at present to recommend certain branches of the service—notably those in the Windward Islands and Malaya—as offering adequate prospects to the potential candidate for appointment. We are convinced that once the necessities of the situation are realized by the Colonial administrations the means to secure the desired end will not long be lacking.

THE BUDGET.

In the years which immediately followed the close of the war financial critics used to refer more or less optimistically to the time when we could return to a "normal" Budget. There seems to be good ground for thinking that we reached the post-war "normal" state of affairs without recognizing the fact, for with a total national expenditure which offers a most obstinate resistance to any reduction below the £800,000,000 standard it looks as if the supernormal has become the normal, and few critics are so sanguine as to expect any considerable reduction in taxation during the next few years. Hopes of a further decline in expenditure have been so often deferred that such expectations of relief as may have survived are centred rather on the possibilities of receipts from our national debtors on the Continent or of the discovery of new forms of taxation which will not cause undue hardship or irritation. The task of a Chancellor of the Exchequer in such circumstances is obviously one of extreme difficulty—certainly one which does not need the additional complication arising out of the £19,000,000 coal subsidy; it requires the employment of the best brains and the greatest industry and zeal at the command of the nation. Fortunately that necessity has been realized

in this country for generations, and few nations, if any, can boast of so able a line of financial ministers as our own.

A brief report of Mr. Churchill's statement is published elsewhere in this issue; here it must suffice to comment on one or two of the outstanding features of this, his second, Budget. On the important question of trade prospects Mr. Churchill sounded a note of subdued hope; the basic industries which provide employment for large masses of workers are still depressed, but he claimed that the country as a whole is better off than it was twelve months ago. That the present Chancellor has a penchant for the striking or even the spectacular has passed into general acceptance; on this occasion he showed that he is not above emphasizing the obvious if he thinks it necessary. The importance he attaches to the settlement of the coal dispute could be seen throughout his speech. He referred to it in his opening remarks, it was the background of his presentment of the need for cautious finance and the exercise of self-denial in the face of any surplus that might be anticipated for the forthcoming year, and before he closed he had proposed to increase this year's sinking fund contribution to repair the effect of last year's raid, and had stated that a prolonged paralysis in industry would necessitate an increase both in direct and in indirect taxation.

On the whole the lines of the Budget follow general anticipation. The betting tax is to be 5 per cent. on all legal bets, to be collected from the bookmaker, who is expected to recoup himself at the backer's expense. It is not unlikely that this proposal will arouse opposition from very different quarters, and until practical experience is available its probable yield must be distinctly speculative; the official estimate is £1,500,000 for the period November to April, and £6,000,000 in 1927-28. The treatment of the motor taxation receipts is undoubtedly a very debatable matter, though evidently in the mind of the Cabinet the present plight of the taxpayer and the great change in circumstances which has taken place since the existing arrangement with regard to the Road Fund have carried the day. Under the Budget proposal the Road Fund will take in future all the yield from commercial motors and hackney traffic and two-thirds of that from private cars. Probably most of our readers will agree that this is all that the country can at present afford to apply to road expenditure from that source. At the same time, the importance of improving the roads can hardly be overrated, and the allotment of £500,000, in addition to the £750,000 already promised for rural "unclassified" roads—welcome as, of course, it is—will leave many of them, as rural practitioners know only too well, far below the proper standard. Some receipts in respect of the French debt make a welcome, though somewhat belated, appearance in the anticipated revenue of 1926-27; the £4,000,000 on which Mr. Churchill relies is, however, not enough to make any real impression on the burden of the British taxpayer, and the payments of £12,500,000 will not begin until 1930.

Of considerable interest to the medical practitioner is the announcement that the Government proposes to abolish the three years' average system of income-tax assessment after the current financial year, and to substitute for 1927-28 the basis of the preceding year's profits. The change will be in accordance with the expressed views of many classes of taxpayers—particularly, perhaps, those whose incomes fluctuate within wide limits—and with the recommendations of the Royal Commission. If this year proves to be a bad one

for the professions and trade generally the Treasury will, of course, stand to lose over the change—unless, of course, the Government finds itself compelled to reconsider the proposal; but so far as can be seen at the moment the year is likely to prove a suitable pivot for the swing-over to the new arrangement. Whatever may be the result in individual cases, in general it will undoubtedly be found less unpleasant to be faced with a heavier demand for tax than usual when recent earnings have been high than it is—as sometimes happens now—when recent earnings have been low, or in the case of some trades non-existent. Relief is to be given for hard cases occurring during the period of transition, presumably those where an individual, having paid on average assessments during lean years, will lose the benefit of those years in future averages; steps will apparently also be taken to deal with the legal evasion which now occurs in the more speculative businesses, where a firm, having had an abnormally profitable year, goes out of business rather than face the effect on future averages, and restarts in conditions to which no liability to bring in the profits attaches.

We are disposed to think that this Budget will add quite as much to Mr. Churchill's reputation as his previous one did; it strikes the eye less forcibly, but it stands on a firmer basis, it contains fewer references to the benefits it will confer on posterity, but it deals effectively with the more urgent demands of the next few years; it may arouse less enthusiasm in some quarters, but it will give more general satisfaction.

RECENT WORK ON THE ROUS TUMOUR.

In the recent number of the *British Journal of Experimental Pathology* Dr. W. E. Gye and Dr. C. H. Andrewes record some important observations on the so-called "Rous sarcoma" of the fowl. It will be remembered that this is the tumour on which the work of Gye and Barnard is based. It is histologically a typical spindle-celled sarcoma. It differs from most other transplantable animal tumours in the fact that it can be transmitted from one bird to another by a cell-free filtrate of the tumour, while most other neoplasms can only be transmitted by living cells. This difference has been regarded by nearly all pathologists as constituting a fundamental distinction. For it was argued that a neoplasm that can be transmitted by a cell-free filtrate is clearly caused by a filterable agent or agents, and such a tumour has therefore been designated by some as an infective granuloma, by others as an infective sarcoma. It seemed to follow with equal force that a neoplasm that can only be transmitted by living cells was not caused by a filterable agent, and that only such neoplasms were true malignant new growths. It may be added that Rous himself looked upon these filterable fowl tumours which he discovered as true malignant new growths. Gye has added two new facts of fundamental importance to our knowledge of these tumours. He showed first that in the transmission by a cell-free filtrate two factors are involved: one is particulate and a living thing—the virus; the other is non-particulate, and is called by him the "specific factor." Both these factors must be injected together in order to produce a sarcoma. Gye's second observation was that he could substitute for the virus of the Rous tumour a virus obtained from true malignant new growths of the mouse, the rat, and of man, so that this substituted virus together with the specific factor for the Rous tumour again produced a sarcoma in the fowl. This second observation links up the Rous tumour with the true malignant new growths by showing that they have one factor in common. The paper just published adduces new evidence, obtained accidentally,

so to speak, in support of the view that the Rous tumour is a true malignant growth. This tumour, as described by Rous and by subsequent workers also, grows with extreme rapidity, and forms metastases so rapidly that it kills the host within a few weeks. This was also its behaviour in Gye's hands during the first three years of his investigations. Suddenly it changed its clinical character: its growth became slow, metastasis was not rapid, and at the same time it could no longer be transmitted by a cell-free filtrate, but only by living cells. Histologically it remained a spindle-celled sarcoma. It therefore showed now the behaviour of an ordinary malignant new growth. It persisted in this behaviour for six months, and then as rapidly reverted to its original character—rapid growth with extensive metastasis and transmissibility by a cell-free filtrate. The filterability of the Rous sarcoma is therefore a variable and not a fixed unalterable property of the tumour. It varies with the clinical behaviour of the tumour without affecting the essential microscopic structure, filterability being associated with rapid growth and a high degree of malignancy. Such fluctuations in the rate of growth are not a new phenomenon; they were, in fact, recorded by Bashford, Murray, and Cramer twenty years ago as one of the first observations on the behaviour of transplantable mouse tumours on continued propagation. These new observations, by showing that filterability does not constitute a fundamental difference between the Rous fowl sarcoma and other transplantable tumours, furnish additional evidence that the Rous tumours of the fowl are true malignant new growths, and support the contention that it is legitimate to argue from the etiology of these tumours to the etiology of malignant new growths generally.

THE POLISH INSTITUTE OF HYGIENE.

THE new Polish School of Public Health, which forms part of the Institute of Hygiene in Warsaw, was formally opened on April 20th by Count Skrzynski, Prime Minister of Poland, and we are indebted to Dr. Andrew Balfour, director of the London School of Hygiene and Tropical Medicine, who was present, for an account of the ceremony and a description of the buildings. One of the first acts of the newly constituted Polish Government was to bring together towards the end of 1919 some small laboratories in Warsaw, and so to establish a central epidemiological institute. At first it was entirely concerned with urgent matters, such as diagnosis and the production of vaccines and serums, arising out of the epidemics by which the country was then being devastated; since 1922 it has gradually undergone development, and now consists of four autonomous departments: (1) bacteriology and experimental medicine, including parasitology; (2) serums and vaccines (which has a farm of its own); (3) chemistry, pharmacology, and pharmacy; (4) a school of hygiene. This new school, which is under the general direction of Dr. Chodzko, formerly Minister of Health, and a member of the Health Committee of the League of Nations, was opened on April 20th; it consists of five sections—statistics and epidemiology, social hygiene, industrial hygiene, biochemistry and food, and sanitary engineering. The establishment of this school, which has owed much to the Rockefeller Foundation, is not yet complete; ample provision has been made for a museum, not only for teaching purposes, but for housing models and drawings likely to assist the municipal authorities; since 1924 it has given courses to candidates for appointments, both medical and engineering. "I do not think," Dr. Balfour says, "that a better expression of nationality could be found than in the establishment of these institutions." There was a large gathering at the opening ceremony, including representatives from a great many European nationalities,

and also from the United States and Japan. After the Premier had spoken Dr. Wroczyński, General Director of the Public Health Service of Poland, gave an account of the organization of the institution as now nearly completed. It owed its origin, he said, to Dr. L. Rajchman, director-general of the original epidemiological institute, and now Director of the Health Section of the League of Nations. The Institute of Hygiene had developed rapidly, and with its five or six provincial branches was a complete unit, providing the public health service of Poland with the machinery for technical researches which form the basis of measures for administrative action. The School of Public Health represented a logical development, its object being to train officers for the service of the State and municipalities. The law since the beginning of 1925 required that all candidates for public health offices of the first grade should take a special course of one year, including both practical and technical work. In connexion with the school was a series of model sanitary districts for the instruction of candidates. The Polish State had willingly provided the funds necessary for the maintenance of the institute and of its school; it was felt that at this time of grave economic crises in Europe it was necessary to increase the efficiency of the individual to as high a level as possible by safeguarding him from ill health. The speaker concluded by thanking the representatives of foreign Governments, and especially those present from the Rockefeller Foundation, whose generous assistance had to so large a degree made the creation of the school possible. The reply on behalf of the institution was made by Dr. L. Rajchman, to whose energy, enthusiasm, and far-sightedness, Dr. Balfour says, the new school owes its being, for it was he who was able to enlist the sympathy and help of the International Board of Health of the Rockefeller Foundation in the foundation of the school. The new school (Dr. Balfour continues) is a large building, excellently adapted for the various purposes which it is intended to serve. It is a fine solid rectangular block of five stories. In the basement are the electrical installations, a staff dining room, and other offices. On the ground floor is a bacteriological laboratory for students, a library and reading room, and the director's offices. On the first floor is the department of physiology and industrial hygiene and the museum of public health; on the second floor is a lecture room, the department of epidemiology and statistics, and of social hygiene and public health administration; on the third floor is the students' chemical laboratory and the department of biochemistry; on the fourth floor, which is in mansard, are dwelling rooms for the staff. The new school is not yet fully equipped, but a good beginning has been made. As will be noted, it combines both research and teaching, and will before long prove a useful ally to the older Institute of Hygiene, where already much good work has been accomplished in relation especially to typhus fever, epidemic jaundice, cerebro-spinal fever, the paratyphoid fevers, and blood grouping.

SOCIAL INSURANCE.

UNDER the title *Social Insurance*¹ there is published an extremely valuable report of a conference organized by the League of Nations Union in November last. The book, as was the conference, is divided into seven sections. They deal with the newly established scheme for contributory, widows', orphans', and old age pensions; the unification of schemes of insurance, especially as to administration; national health insurance; workmen's compensation; unemployment insurance; international aspects of social insurance; and family endowment. An appendix contains a bibliography of publications of the International Labour

¹ *Social Insurance*. London: Faber and Gwyer, Ltd. 1926. (Roy. 8vo, pp. x + 228. 5s. net.)

Office relating to social insurance. The whole volume is interesting and its publication opportune. Much of the information it contains—for example, that contained in the address of Mr. H. B. Butler (deputy director of the International Labour Office) on the international aspects of social insurance—cannot easily be obtained elsewhere. Most of the report is, of course, argumentative and controversial, but the discussions are temperate, reasonable, and informative. This is eminently so in the section dealing with the very difficult subject of family endowment—a subject which, though no practical national scheme will probably emerge for a considerable time, is bound to call for increasing attention during the next few years, and in connexion with which the points for consideration should clearly be in the minds of social workers, parliamentarians, and economists. They are well brought out here, and are of distinct importance in connexion with medical and public health problems. In other sections, particularly the first two of those enumerated above, it is interesting to note how the prejudice of a general political theory or of a vested interest can prevent certain minds from considering a subject on its merits. Any insurance scheme on a contributory basis (without which, of course, it would not properly be an insurance scheme at all) has no virtues for Miss Wilkinson; and Sir Thomas Neill can see no value in unification of health administration as it might interfere with the privileged position of approved societies, thereby giving Mr. Kershaw (National Association of Trade Union Approved Societies) the opportunity of asking him “to approach this question from the point of view of what was best for the people, and not from that of the best means of preserving any existing form of machinery.” In the section on health insurance Mr. Kershaw again, and Mr. Alban Gordon even more fully, present very faithfully and fairly the weaknesses of approved societies, and the case for seriously modifying their position in relation to health and social insurance. These addresses are well worth the attention of all insurance practitioners and of all those who are engaged in administrative work in connexion with either Insurance Committees or public health authorities. This is true also of a very interesting, practical, and effective address by Dr. Harry Roberts on insurance medical practice, and his short reply on national mortality which concludes the discussion in this section. Altogether this volume is a storehouse of information and of opinion on the various aspects of the subject with which it deals.

THE BLOOD CHEMISTRY IN WHOOPING-COUGH.

STUDY of the blood chemistry of whooping-cough has brought to light the existence of certain definite variations, which, if found to be of general occurrence, will have an important therapeutic significance. In the *Journal of the American Medical Association* for April 10th (p. 1116) Drs. J. C. Regan and A. Tolstouhor of Brooklyn describe investigations into the chemical changes of the blood during whooping-cough of different degrees of severity in a series of over 100 patients, aged from 4 months to 12 years, 78 per cent. being more than 3 years of age. Estimations, with the usual precautions, were made of the hydrogen ion concentration, and the blood contents of inorganic phosphorus, calcium, carbon dioxide, urea, uric acid, creatinine, and sugar. It was found that a normal range of the carbon dioxide content of the plasma was associated with a lowering of the hydrogen ion concentration and of the inorganic phosphorus. The authors, therefore, believe that in whooping-cough there occurs an acidosis of an uncompensated type (Type 6, Van Slyke classification) in which there is an increased concentration of free carbon dioxide in the blood. These conditions appear early in the disease, the change in phosphorus existing in the catarrhal

stage, and being well marked during the first few weeks of the paroxysms; parallelism in their course was demonstrable, and was held to signify a close relation. The authors think that the characteristic symptoms of whooping-cough thus receive some measure of explanation. The paroxysms interfere considerably with the ventilation of the lungs, and are probably associated with increased alveolar air tension, the amount of carbon dioxide in the blood being thus increased. The vomiting may be a compensatory process aimed at maintenance of the normal acid base balance by elimination of the very acid gastric contents. The deduction was drawn that the administration of alkaline salts might assist the restoration of this balance, and it was found that in moderate and severe cases treated with various combinations of sodium bicarbonate, calcium carbonate, and magnesium oxide, the inorganic phosphorus rose steadily from the third week, whereas in untreated cases the rise did not commence until the sixth week. Similar results as regards the hydrogen ion concentration followed this treatment, which, if applied early, appeared usually to abort the disease; if the treatment was given in the later stages progress to cure was accelerated. The distress produced by the symptoms was rapidly diminished; vomiting ceased, as a rule, in four or five days, and the whooping in about eight to ten days. The patient's general condition improved also, and there was a gain in weight. The authors suggest that alkalis may have a prophylactic value in whooping-cough. They have not employed the treatment when bronchopneumonic complications were present, but good results were obtained from the use of the mercury vapour lamp. There were no constant alterations of a distinct type in the calcium content of the blood, which showed very little change. The authors doubt, therefore, whether the convulsions in whooping-cough are of a similar origin to those of tetany, which are associated with a lowered calcium content. The use of calcium in treatment appears, therefore, to be unnecessary, but they add that in cases of gastric intolerance lime water may be added to the food with benefit, while in neglected cases of severe pertussis in which starvation has complicated the condition, glucose may be combined advantageously with the alkalis. The authors' general conclusions are that in whooping-cough an uncompensated acidosis occurs, which is intimately connected with the pathogenesis of the paroxysms, and that if the acid base unbalance is corrected the clinical symptoms are quickly ameliorated.

HEALTH AND EDUCATION.

PROFESSOR P. M. LELEAN, who was recently appointed to the chair of public health in the University of Edinburgh, devoted his inaugural address at a meeting on April 20th, over which the Principal, Sir Alfred Ewing, presided, to a discussion of the effect of the education system on the health of children. Professor Lelean began by saying that in taking his bearings for a future course in public health he had turned to the lessons of the great war, which had forced us to take stock of our available man power and to classify men of military age. It was found that out of every nine men of military age in Great Britain on the average three were fit, two were on a definitely infirm plane of health, three could almost be described as physical wrecks, and the remaining man was a chronic invalid with a precarious hold on life. That revelation had been a shock to national complacency, and had resulted in an outburst of remedial energy. This had included maternity and child welfare work, to which already the nation owed much. It was only necessary to watch a stream of workers at the close of a working day, or other crowds of people, to realize the extent to which the nation was still C3. It was not possible to unmake

C3's, but an endeavour could be made to place expectant mothers and growing children under conditions so favourable that the next generation might be A1. It was a bad doctrine for the race that 95 per cent. of available funds should be spent in tinkering with a C3-ridden generation, while only 5 per cent. was expended upon the evolution of a new generation so fit that it would defy disease. When the war broke out it had been firmly believed that no soldier could be trained in less than twelve months, but at the end of the war the men were being sent to the front as useful infantrymen in less than two months, while the German training period fell to one month. It was of the utmost importance for the future of the nation that this lesson, the force of which was already waning, should be revived. Professor Lelean believed that some of the younger children were being pressed beyond their mental powers, while of the older children a large proportion were being very seriously overworked. Children's working hours often mounted up to ten hours a day. The *joie de vivre* was crushed out of them by overwork. The result of what he described as a pernicious system was that towards the end of every term children were pallid, irritable, "temperamental," and obviously played out, and parents watched them with growing anxiety lest they should break down before the holidays came. At the end of their school life they came to the higher educational centres like saturated sponges. It had been said by a recent authority that examinations were ruining the intelligence of the nation for all practical purposes. He thought a "Save the Children League" might do good work nearer home than in the Near East. He suggested that the support of parents might be gained for a three-plank platform: (1) to get 30 per cent. knocked off every examination standard and every secondary education curriculum in the country; (2) to ensure that the amount of homework was adequately supervised; (3) to secure for some physiological expert a seat on every educational committee in the country. The family doctor, social worker, and district nurse needed to be conversant with all factors affecting the maternal, industrial, and communal efficiency of the family—the feeding budget, clothing problem, light and fuel bills, recreation facilities, and mental needs. It was by these workers and means that the initial stages of a great advance could most effectually be hastened.

THE FREQUENCY OF BOTULISM.

Of the two forms of bacterial food poisoning, botulism, the more severe variety, is extremely rare in this country, whereas the milder variety, caused by bacteria of the salmonella group, is relatively frequent. In fact, there has only been one authentic outbreak of botulism in this island—that at Loch Maree in the summer of 1922. The disease is commoner in America and on the Continent, and most of our knowledge of this infection has been gained from the experience of the United States. An article in the *Journal of the American Medical Association* for February 13th gives a summary of fifty-six outbreaks of botulism in the United States concerning which information is now available. Twenty-one of these occurred in 1922, twelve in 1923, eight in 1924, eight in 1925, and the remainder in previous years. A total of 159 cases with 124 deaths, or a case mortality of 78 per cent., has been recorded. The preserved food products concerned, so far as known, were vegetables in thirty-eight outbreaks, meat in four, fish in four, fruit in one, pickles one. In thirty-six outbreaks the food was home canned, and in eleven commercially canned. Home-canned string beans has been much the commonest vegetable responsible for outbreaks of botulism. It will be remembered that in the Loch Maree outbreak very little if any alteration in the appearance or taste of the incriminated food was detected. But this

appears to have been exceptional, for in the majority of outbreaks of botulism the preserved foods responsible have been noted to be visibly spoiled. But this spoilage is not a trustworthy indication, for often containers have been normal in appearance and the disintegration of the contents so slight that no abnormal odour or taste was detected. In the fifty-six outbreaks of botulism previously referred to, information as to spoilage is available in forty-one. Eighteen of the foods implicated were stated to be normal in odour and taste, and there was nothing unusual in the appearance of the container. In the remaining twenty-three the preserved food and its containers appeared abnormal, though it was tasted and served as food. The disease botulism is, of course, produced by the toxin of *Bacillus botulinus*, and two types of this microbe have been differentiated—A and B. The type of toxin present has an important bearing should treatment with antitoxin be instituted. In the outbreaks included in this American series information is available as to type in twenty-four. Of these twenty were Type A and four were Type B.

A PRIMITIVE AUSTRALIAN SKULL.

At a recent meeting of the Victorian Branch of the British Medical Association Dr. W. Colin Mackenzie gave an account of a human skull recently found at Cohuma, on the Murray River. Dr. Mackenzie is well known to orthopaedic surgeons on account of the contributions he has made to the treatment and re-education of muscles in paralysed children, and has of late years devoted himself to anatomical and allied inquiries. In his address to the Victorian Branch Dr. Mackenzie claimed that the Cohuma skull was of great antiquity, and was of a very primitive kind. Unfortunately, no facts have come home which will permit anthropologists to form an opinion as to whether or not Dr. Mackenzie's claims are well founded, and until such data are supplied this latest discovery of ancient man must be placed to the "suspense account."

ARCHIVES OF DISEASE IN CHILDHOOD."

The second number of the *Archives of Disease in Childhood*, published by the British Medical Association—that for April, 1926—has appeared. The first and probably the most important paper is a report by Dr. J. W. McNee, of the Medical Unit, University College Hospital, London, and Dr. G. A. Harrison, biochemist to the Hospital for Sick Children, Great Ormond Street, on an investigation of sclerema neonatorum, with special reference to the chemistry of the subcutaneous tissues. As only the first part of the paper, which is long and illustrated by coloured plates, is published, we postpone notice of the conclusions reached, which are likely to be of very considerable interest. The second paper is by Dr. F. C. Shrubbsall, of the Maudsley Hospital, who deals with the special schools of London, including those for the blind and myopic, the deaf, the physically defective, the mentally defective, epileptic children, and open-air schools. The third paper is an account of lamblasis by Dr. Reginald Miller, of the Paddington Green Children's Hospital. Intestinal infections due to the flagellate *Lamblia intestinalis* attracted attention in England in the early years of the war, when the disease first reached this country from the eastern fronts. Dr. Miller's paper is founded on twenty-three cases in children, and his conclusions are that the infection is now by no means rare in hospital practice amongst children; that it produces chronic enteritis; that the resultant diarrhoea causes a child to fall considerably below weight, and occasionally retards development and diminishes growth; and finally, that even in children true "carriers" may be found, infected with lamblia but without symptoms. The next paper is from the Birmingham Children's

Hospital, and in it Dr. J. M. Smellie discusses the remote prognosis of empyema in children. The examination of thirty-six children after operation for empyema leads him to the opinion that the remote prognosis is good. Nephritis in children and its prognosis is the subject of a paper by Drs. Donald Paterson and W. G. Wyllie, from the Hospital for Sick Children, Great Ormond Street. The general conclusion seems to be that the prognosis is not very good, but this statement is subject to many qualifications, and the paper itself should be studied. The last paper is by Dr. Alan Moncrieff, now medical registrar of the Middlesex Hospital; it deals with current problems in the tuberculosis of childhood, and is of the nature of a general review.

INFLUENZA.

Last week the number of deaths in the great towns again increased—from 294 to 302—but the increase was small. In London there was a decline—from 74 to 59. Four cities other than London returned 10 or more deaths—Birmingham (21), Liverpool (16), Manchester (14), and Oldham (10). The notifications of pneumonia decreased from 2,074 to 1,876. The indications are that the recrudescence is not far from its maximum, and is of a mild type. It seems very improbable that the total casualties will equal those of 1924.

PUBLIC HEALTH IN POPULOUS COUNTIES.

ONE of the suggestions made by the Ministry of Health in connexion with the proposals for the reform of the Poor Law was that county councils should be given supervisory powers over and responsibility for health administration within the whole of their area. In the evidence which is to be given on behalf of the British Medical Association before the Royal Commission on Local Government objection is taken to this suggestion in the case of counties containing populous urban areas. It is interesting to note that at the annual meeting of the Association of Municipal Corporations held last week this same objection was unanimously endorsed. To have a superior and a minor health authority dealing with health problems within the same area is bound in such circumstances as those indicated to lead to confusion, overlapping, and even disagreements.

THE KING has appointed Sir Harry Baldwin, C.V.O., M.R.C.S., L.D.S., to be Honorary Surgeon-Dentist to His Majesty, and Mr. Guy Capper Birt, M.R.C.S., L.R.C.P., L.D.S., to be Surgeon-Dentist.

THE Linaere Lecture will be delivered at St. John's College, Cambridge, by Sir Frederick Andrewes, M.D., F.R.C.P., F.R.S., professor of pathology at St. Bartholomew's Hospital, on Thursday, May 6th, at 5.15 p.m., in the Lecture Room of Anatomy and Physiology, New Museums. The title of the lecture will be "Disease in the light of evolution."

By an Order of the Committee of the Privy Council, Lieut.-General Sir William B. Leishman, K.C.B., K.C.M.G., F.R.C.P., F.R.S., Director-General Army Medical Services, has been appointed a member of the Medical Research Council, of which he had ceased to be a member in 1922. The vacancy thus filled was consequent upon the recent approval of amendments to the Royal Charter of the Medical Research Council, which provide, *inter alia*, for an increase in the number of members from ten to eleven. Under the amended charter, two of the eight scientific members will retire in each year, and one of the three other members in each second year, the scientific members being not eligible for reappointment before the end of one year after retirement.

Union of South Africa.

[FROM OUR CORRESPONDENT IN JOHANNESBURG.]

MEDICAL EDUCATION FOR NATIVES.

THE Committee of Inquiry on Public Hospitals and Kindred Institutions last year drew attention to the demand for native doctors. It was pointed out that the medical schools at Capetown and Johannesburg did not admit native students; and persons who represent native interests had urged that provision be made elsewhere in the Union for training them. Overseas training of these students was not looked on with favour. Attention was drawn to the fact that there were "hordes of natives in many centres who had little chance of medical treatment," and that such untreated sick became a menace to the rest of the community.

Acting on this report the Minister for Native Affairs has now appointed a committee to "inquire into the training of natives in medicine and public health," and some very interesting information has been laid before it. It consists of four doctors and two laymen, and is representative of the Government Departments of Native Affairs and Public Health, of the Universities of Capetown and Johannesburg, and of the medical profession.

There can be no doubt that the provision of more medical services to the vast native population of this country is urgently necessary. In round figures there are in the Union of South Africa one and a half million Europeans and five million natives, and there are fewer than two thousand medical practitioners on the *Register*. European practitioners find little inducement at present to practise in the kraals, and very few do it for long. The need for additional medical services is felt particularly in the native reserves, where the proportion of medical men to natives is not infrequently in the neighbourhood of one to fifty thousand. Witnesses estimated that to provide reasonably efficient medical services there should be approximately one doctor for every five thousand natives.

Since there is an obvious demand, and since it appears to be impossible to supply it with European doctors, the training of native doctors who would be content to work among their own people is the evident solution. Such practice is never lucrative, but more important deterrent factors for Europeans are the lack of social amenities and unfamiliarity with the language and customs of the people. Locally trained native doctors would better understand the patients; there would be the common bond of race and language; and they can be expected to show considerable enthusiasm about the work of uplifting the people. But the question of training such students raises difficulties which can hardly be appreciated by persons unaware of the conditions obtaining in this country.

Colour prejudice in any country where the blacks very greatly outnumber the whites is apparently unavoidable. It is developed remarkably quickly in Europeans who arrive here as settlers, and with hardly an exception it is present in the psychic make-up of every South African-born European. It is most clearly revealed in the lower, labouring grades of white society, where the danger from native competition is most insistent. But it is not absent from the skilled and intellectual grades. In these circumstances the solution of the problem by the admission of natives to the two medical schools in the country with exactly the same privileges as the European students is generally considered to be out of the question. Promising native students might, with support from the Government, be sent overseas to qualify in medical schools, where they would be admitted on terms of absolute equality with their fellow students. This would probably be the most immediately economical way of training them. The danger, however, is that a lengthy stay in a large European town would tend to detribalize such students. The probabilities are that on their return to South Africa such men would not be content to work entirely among their own people in the kraals, for which their training was intended. Principal Kerr of the South African Native College did indeed submit to the Government last year a scheme for

training native medical students overseas. The first, or pre-medical year, would be done at the Native College. The remainder of the course would be done overseas at an annual cost per student of £200. Of this the guardian would be called upon to provide £50 and the Government £150, of which £50 would be a scholarship and the remaining £100 a loan. The loan of £100 per annum for five years would be repayable with interest when the student commenced practice, in accordance with a scheme already drafted regulating loans to native students. But overseas training is very strongly opposed by many educated natives. It results in the students getting out of touch with their own people; they adopt European habits and methods of living, and they become "infected with ideas unsuited to South Africa." In the long run it will probably be cheaper to train the large and increasing number of native students in this country.

It has been strongly urged that natives should be trained at a medical school of their own, to be established at some large centre such as Durban, in Natal. But this would involve an enormous initial expenditure, and would necessarily divert funds from the two existing medical schools. Some have suggested that a shorter course might be provided at small expense; but it is very unlikely that such a suggestion would be favourably received. The general feeling appears to be that if the native is to be trained at all he should attend the full course, and, on qualification, be admitted to the *Register* with full privileges. Some method might be devised whereby the facilities already available at Johannesburg and Capetown might be utilized for the training of natives. Classes might be conducted in duplicate; or there might be partial segregation in the classes. This would be quite simple in the laboratory and the lecture room, the natives working at a separate bench and sitting in a reserved portion of the theatre. Their clinical instruction could be given entirely in the native wards. Some solution must be found soon; and the report of the committee inquiring into the matter is awaited with interest. Meanwhile there has been raging in the daily press a discussion in which clerical, medical, and university men are taking part as to whether the mentality of the South African native or Bantu is potentially equal to that of the European. As affecting the question of the professional training of natives, it is of interest to note that there are already practising in the Union six Bantu doctors, and their practice is by no means confined to natives.

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG.

The 1926 session commenced on March 11th. Sixty-five new medical students were enrolled. Of these, sixty entered on the first year of study and five entered on the second year, having completed the first year at one of the other universities. Altogether there are this year 230 students spread over the six years of the course. This is an increase of fourteen over the number of medical students at the beginning of 1925. This year there has been provided for the first time a course leading to the Diploma in Public Health. Seven students have commenced on Part I of the course. The new regulations adopted by the British General Medical Council, which came into force in Great Britain on January 1st, 1924, have been adopted almost unchanged by this university.

The fifth annual graduation ceremony of the university was held in the Town Hall, Johannesburg, on March 27th, the Vice-Chancellor (the Hon. J. H. Hofmeyr, Administrator of the Transvaal, and former Principal of the University) conferring the degrees. The degrees of M.B., Ch.B. were conferred on L. D. Adler, B.Sc., M. Adler, B. Bessarabia, Susanna Blake, B.Sc., I. Carpel, W. A. Dodds, C. Duthie, I. Effren, Esther Franks, F. P. Grobbelaar, S. Javett, I. Liknaitzky, M.Sc., A. Lomiansky, A. Miller, J. S. J. van Rensburg, I. Frack, N. Garber.

M.O.H. JOHANNESBURG.

Dr. Charles Porter retired on March 12th from the post of medical officer of health for Johannesburg, which he has occupied since 1902. Actually Dr. Porter ceased to serve as medical officer of health last August, when he went on

long leave, his leave being coterminous with his period of office. He has been succeeded by Dr. A. J. Milne, a medical graduate of Aberdeen, who has for some years been assistant medical officer of health, and since last August acting medical officer of health, for Johannesburg.

Dr. Porter was born at Cork in 1864, and educated there, in Dublin, and at University College, London. He graduated M.D. and B.Ch. (with honours) at the Royal University of Ireland in 1889, and took the D.P.H. at Cambridge in 1890. He was called to the Bar at Gray's Inn in 1893, and was thereafter, till he left England, frequently retained as a witness in local government and parliamentary inquiries, especially in reference to water supply and sewage purification schemes. In 1900 he was appointed county medical officer of health for Shropshire, one of the most desirable posts at that time in the English public health service. In 1901 he was invited by the chief medical officers of the Local Government Board and of the London County Council, who were entrusted by Lord Milner with power of nomination, to apply for the post of M.O.H. Johannesburg. He at first declined to do so, but eventually accepted the position on certain conditions, including a similar fixity of tenure to that attaching to his post in England. For his temerity in insisting upon the same terms in South Africa as those he had enjoyed in England Dr. Porter was for many years subjected to continual personal baiting in Johannesburg. However, his action in this matter laid the foundation for the fixity of tenure which all health officers in the Union now enjoy under the Public Health Act.

His earliest work (during the last few months of the Anglo-Boer war) included the drafting of the code of public health regulations; the condemnation of the very dangerous old Indian Location and of the Burghersdorp insanitary area, at a cost of £1,300,000; and the introduction of a much needed system of surface and underground mining hygiene and sanitation such as had not then been attempted elsewhere. Since then the public health organization and progress of Johannesburg has steadily progressed till, as regards its white inhabitants, it stands in the first rank of the healthy cities of the world, with a general death rate of 10 per 1,000, representing a decrease of 31 per cent. in the last twenty years. During the same period recurrences of enteric fever have decreased by 87 per cent., and deaths from that disease by 82 per cent. A material share in this very notable achievement may reasonably be attributed to Dr. Porter's advice and enlightened administration (often in the face of acute hostility), especially in safeguarding water and milk supplies and controlling disease carriers. He has been consulting adviser to the Rand Water Board since its inception, and a member of the Public Health Council of the Union of South Africa for the past six years. A year ago he received from the University of the Witwatersrand, in which he holds the position of senior lecturer and head of the department of public health, the honorary degree of LL.D., in recognition of his services to the university and to the city. He has been president of the Transvaal Town Planning Association, and has sat on numerous Government commissions. He is at present concluding a tour of Southern Asia, and is due to return to Johannesburg shortly to resume his duties at the university.

England and Wales.

THE SPÄHLINGER TREATMENT IN WALES.

A MEETING of the council of the King Edward VII Welsh National Memorial Association was held in Llandrindod on April 23rd, with the president, Mr. David Davies, M.P., in the chair. The medical committee reported that it had held a special meeting to consider the question of the Spählinger treatment, and that at that meeting Dr. Roeyn Jones moved that as a *prima-facio* case for a complete clinical investigation of the Spählinger remedies under competent and unprejudiced medical supervision had been made out, those remedies should be given a trial under these conditions in one or other of the institutions of the Memorial Association in Wales as soon as the remedies were available. This motion was seconded by Professor

E. L. Collis, but an amendment was moved by Dr. J. W. Miller, and seconded by Dr. Ralph Picken, to the effect that as M. Spählinger had promised supplies of his remedy to the Ministry of Health for investigation and the Ministry had promised to make a full investigation, it would be well for the association to await the promised inquiry. The amendment was carried by 15 votes to 1. Another motion, that pending the Ministry's tests, the medical committee should carry out the fullest inquiry possible, was adopted, and the offer of the president to defray the expenses of a visit of selected members of the medical staff to Geneva was gratefully accepted. During the discussion in the council Dr. Roeyn Jones expressed the opinion that as the Ministry of Health had, through unofficial channels, intimated to M. Spählinger in 1922 that he would not be required to divulge the technique by which his vaccines and serums were prepared in the event of a trial of his remedies by the Ministry, the clinical investigations should proceed, and that, if asked, the association should take part in these investigations. He moved an amendment to the effect that in the event of the association being invited it should accept the invitation on the terms and conditions of the Ministry with regard to such an inquiry. The amendment was opposed by Dr. John Jones of Dolgelly; and Dr. Enoch Moss of Wrexham said that the medical committee were simply seekers after truth and facts, and wanted to know exactly where they stood with regard to the whole question. In reply to questions by several members, the president said that the document before the meeting was only an interim report, and the medical committee must have time for full investigation before presenting a final report. The amendment moved by Dr. Roeyn Jones was carried. The principal medical officer (Professor S. L. Cummins) said that this decision affected his position in so far as he was directly responsible for the action of the medical staff, and on the motion of the president the following rider was adopted: "Provided that full information of the nature and strength of the remedies be given in confidence to the medical staff."

CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH AT BRISTOL.

The Royal Institute of Public Health will hold its annual congress this year at Bristol from Wednesday, May 19th, until Monday, May 24th, inclusive. The five sections will meet each day at the university, and the following is an outline of the business to be transacted.

Section I—State Medicine and Municipal Hygiene (President, Dr. S. Monckton Copeman, F.R.S.).—Papers: "Random recollections of forty years' service," by Dr. D. S. Davies; "The production and distribution of Grade A (tuberculin tested) milk," by Lieut.-Colonel C. Maddock, M.D., and Dr. R. King Brown; "Periodical health examinations," by R. A. Fisher, M.A.; "How to get a smokeless atmosphere—and make it pay," by W. Brownhill Smith; and "Cancer—the need for a wider range of biological research," by Dr. John Brown.

Section II—Naval, Military, Air, and Tropical Diseases (President, Surgeon Rear-Admiral Sir Percy Bassett-Smith, K.C.B., F.R.C.S.).—Papers: "The standard of public health of the British Isles, as revealed by the navy personnel of to-day, with suggestions for improvement," by Surgeon Captain R. J. Mackown; "The incidence and prevention of venereal disease in the Royal Navy," by Surgeon Commander Percy F. Alderson; "The relative connexion between chemical warfare, physics, chemistry, meteorology, and public health," by Major H. S. Blackmore; "The interdependence of military hygiene and defence against gas," by Major W. R. Galwey; "Aerial transport of service casualties" (with epidiascope illustrations), by Wing Commander H. A. Treadgold; "Flying in tropical climates, with particular reference to sun glare," by Wing Commander T. S. Rippon; "Cerebro-spinal meningitis in the Sudan," by Dr. V. S. Hodson.

Section III—Industrial Hygiene (President, Professor Edgar L. Collis).—Papers: Three papers on silicosis by Professor Collis, Dr. Tattersall, and Professor E. H. Kettle respectively; three papers on vocational selection by Dr. Angus MacRae, Dr. W. Salisbury Sharpe, and Mr. J. B. Longmuir respectively; "The ventilation and heating of factories and their influence on health," by Dr. H. M. Vernon. A visit to Messrs. W. D. and H. O. Wills's tobacco factory has been arranged for the benefit of this section.

Section IV—Pathology, Bacteriology, and Biochemistry (President, Dr. J. G. Adams, C.B.E., F.R.S., who will open a discussion on cancer).—Papers: "Cerebro-spinal fluid in meningitis," by Dr. Henry Cohen; "The pathology of cardiac infections," by Dr. Geoffrey Hadfield; "Primary pulmonary tuberculosis in children," by Dr. R. G. Canti; "The pathology of endemic goitre," by Dr. G. Scott Williamson.

Section V—Women and the Public Health (President, the Duchess of Beaufort).—Papers: "Some defects of reading and,

writing in children, their association with congenital word-blindness and mirror writing," by Dr. Macdonald Critchley. Papers dealing with the care of the crippled child will be read by Sir Henry Gauvain and Drs. R. Owen Morris, A. P. Thomson, and C. W. Saleeby. The advance lines in maternity and child welfare will be included in papers by Lady Barrett, Dr. D. H. Geffen, and Mrs. H. A. L. Fisher. Papers on racial progress will be read by Drs. Innes Pearce, Mabel Brodie, Stella Churchill, Letitia Fairfield, and Mrs. C. S. Hodson. Finally, the health of women workers will be the subject of papers by Miss M. Smith, Miss D. Porteous, Dr. Christine Murrell, and Mr. R. F. Lyne.

A good amusements programme has been arranged for the times not devoted to meetings. There will be a whole-day excursion to Bath and an alternative one to Cheddar, Wells, and Glastonbury. There will also be a visit to the Duke of Beaufort's seat at Badminton, where the party will be shown the grounds and the famous hounds and stables of the Beaufort Hunt. Two evening receptions are being held—one by the Council of the University and the other by the Lord Mayor and Lady Mayoress of Bristol. Any person interested in the work of the congress may become a member on payment of a fee of one guinea. Arrangements for hotel or boarding-house accommodation are being made by the Secretary, the Royal Institute of Public Health, 40, Prince Street, Bristol, from whom a list can be obtained on application.

LEICESTER ROYAL INFIRMARY X-RAY DEPARTMENT.

Largely as the result of a gift of £3,000 by Mr. S. T. Bunning, the x-ray department at the Leicester Royal Infirmary has been reconstructed and equipped with new apparatus of the most modern type. The ceremony of reopening it was performed on April 22nd by the Mayoress of Leicester, and speeches were delivered by Dr. A. E. Barclay, president of the British Institute of Radiology, Mr. W. I. Cumberland, F.R.C.S., chairman of the Leicester and Rutland Division of the British Medical Association, and others. The department occupies two floors at the north-east corner of the infirmary, existing buildings having been specially adapted. The standards of protection of the National Physical Laboratory have been secured, and its regulations complied with as regards apparatus. In the dark-room an automatic electrical device has been installed for maintaining the developing tank at a constant temperature, and there is a special table with a moving grid for sweeping up x-ray fog and thus providing better definition in pictures of dense structures. Arrangements for surface and deep electrical treatment, and the production of a continuous current of 200,000 volts, are special features of the improvements which have been effected. Five different types of lamp have been installed for the ultra-violet ray therapy.

CLINICAL PSYCHIATRY AT CARDIFF.

At a large meeting in Cardiff Town Hall, on April 16th, it was decided to form a local branch of the National Council for Mental Disease, to correlate the work of the clinic for incipient mental cases at the Royal Infirmary and other agencies concerned with mental disease. Sir Maurice Craig paid a high tribute to the pioneer work in psychiatry in Cardiff, a sum of over £2,000 being spent annually in research work; he referred to the close co-operation of the Whitchurch Mental Hospital and Cardiff Royal Infirmary. Reciprocity had also been established in the training of nurses by the two institutions. Dr. Edwin Goodall, superintendent of the Whitchurch Mental Hospital, explained how the clinic was the rallying-point for the voluntary treatment of patients in the earliest stage of mental trouble, without stigma of any kind or legal encumbrance. A closer association would now be obtained between those concerned with the education of medical students and persons interested in psychiatry, sociology, criminology, and education. In the evening Sir Maurice Craig addressed a meeting, under the auspices of the Cardiff Teachers' Association, on mental hygiene in relation to child training and education.

A NEW CONVALESCENT HOME FOR THE CARDIFF ROYAL INFIRMARY.

A convalescent home for the benefit of patients from the Cardiff Royal Infirmary has been presented by Sir William E. Nicholls in memory of his uncle, the late Mr. Richard Allen. The house, hitherto known as Ty-to-Maen but now

to be called the William Nicholls Convalescent Home, is situated in a large garden at St. Mellons, about five miles from Cardiff. It will eventually take 60 patients, but only 35 are at present accommodated there. Lady Nicholls, who opened the home formally on April 24th, has further added to the amenities of convalescence by presenting a wireless installation. A large gathering assembled at the opening ceremony, including many members of the staff of the hospital and medical school.

Scotland.

EDINBURGH POST-GRADUATE COURSES IN MEDICINE.

A COMMITTEE of the University and of the school of medicine of the Royal Colleges, which organizes the Edinburgh post-graduate courses in medicine, has just issued a programme of the courses to be held during the summer of 1926. These courses were given annually until the outbreak of war. They were resumed after the cessation of hostilities, and with each succeeding year greater facilities for post-graduate study and instruction have become available. In addition to the specified courses, graduates who desire to study in Edinburgh at times other than that specified in the syllabus, or who wish instruction in other branches of medicine or surgery, can arrange for this by communicating with the secretary of the courses. The courses are open to both men and women graduates, and application for enrolment should be made to the Secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh. The courses specially arranged include a course in obstetrics and gynaecology, a course on diseases of children, a general medical course, and a general surgical course.

The course in obstetrics and gynaecology will commence on July 12th, and last for four weeks, comprising clinical midwifery and clinical gynaecology, obstetrical and gynaecological anatomy, physiology, and pathology, child welfare and ante-natal clinics. It will be held daily at the Maternity Hospital and in the gynaecological wards of the Royal Infirmary. The course on diseases of children will commence on August 2nd and last for one week; it will consist of clinical demonstrations and systematic lectures, and will comprise about twenty meetings; the diagnosis and treatment of the common and important diseases encountered in medical practice will be dealt with, and the dieting of infants and children will be included. The general medical course will begin on August 9th and will run for four weeks. It will assemble daily at 9 a.m. and continue with intervals until 6 p.m. There will be a daily demonstration of applied anatomy, and a series of meetings for the clinical examination of the different systems; the respiratory system, the ductless glands, the renal and alimentary systems, the nervous system, and the circulatory system will be taken up in turn for one week each. There will also be clinical meetings in special hospitals and departments for infectious diseases, dermatology, venereal diseases, diseases of children, diseases of the eye, tropical diseases, and diseases of the blood. The subjects of biochemistry, morbid anatomy, bacteriology, radiology, and tuberculosis will be treated by lecturers on these subjects in a series of demonstrations. The general surgical course runs concurrently with that on general medicine, and certain of the demonstrations will be attended by members of both courses, such as applied anatomy and a series of special lectures on subjects of general medical and surgical interest. The surgical course will include, in addition to clinical meetings on general surgery, the surgical diagnosis and treatment of renal disease, abdominal surgery, and gynaecological operations. There will also be demonstrations on venereal disease, surgical pathology, physiotherapeutic methods of treatment, and surgical physiology. In both the general medical and general surgical courses appropriate medical and surgical clinics will be held in the Royal Infirmary and in the wards of the Royal Hospital for Sick Children.

During the period of the general courses, special courses on vaccine therapy, medical chemistry, and diseases of the blood will be available for those graduates who desire to

engage in special study of these subjects. At other periods than during the special post-graduate term from July to September, courses will be held also on tuberculosis, clinical therapeutics, insulin therapy, venereal diseases, surgical pathology, diseases of the nose, ear, and throat, and ophthalmoscopy. The following post-graduate courses are regularly provided by the University in the ordinary university terms and are suitable for graduates: medical entomology and parasitology, diseases of tropical climates, psychology and experimental psychology, bacteriology, chemical physiology, and methods of clinical investigation.

SCOTLAND'S HOUSING PROBLEM.

A two-days' conference on Scottish housing was opened in the City Chambers, Edinburgh, on April 22nd, under the auspices of the Scottish National Housing and Town Planning Committee. The conference, which was attended by about 200 members representing local authorities throughout Scotland, was opened by Lord Provost Sir William Sleigh, who said that the object and purpose of the new Scottish Housing and Town Planning Committee was to enlist the interest and support of local authorities in securing adequate housing provision of good standards throughout the whole of Scotland, and to represent Scottish opinion in relation to Government proposals dealing with housing and town planning. Sir Henry Ballantyne, honorary president of the committee, said that houses were being put up for miners and other sections of the community, but ploughmen's houses in rural areas were in a state as bad as or worse than they were when they were visited by the Royal Commission between 1912 and 1917. The housing condition would never be got into proper order until part of the burden of rates and taxes was removed from houses. The present system was a vicious circle, taxing one section of the community to provide subsidies for a certain class. Mr. W. E. Whyte, in submitting a survey of the housing situation in Scotland, mentioned that tenders for the erection of two- and three-apartment houses had disclosed the fact that three-apartment houses cost only £25 or £30 more than two-apartment houses. On the score of cost, therefore, local authorities should carefully consider whether it was desirable to add to the number of two-apartment houses in their areas. Scotland was oversupplied with small houses, and there was a certain stigma attaching to the statement that every second person in Scotland lived either in a one- or a two-roomed house. There were too many one-roomed houses in Scotland, and nothing should be done to encourage the extension of that type of dwelling.

A discussion ensued on housing in the larger towns, in the course of which Councillor George D. Brown of Edinburgh mentioned that the problem of housing a single person in a house of his or her own had been exercising the minds of authorities. In Edinburgh no one-roomed houses were being erected, but in areas of the slums which were being cleared there were many single persons who desired a one-roomed house, having no need for more than one room and not being able to pay for two. It was suggested that many of these might be persuaded to give up their own homes and go to reside in a hostel. Councillor Morton (Glasgow) expressed regret that the housing problem should have been mixed up with politics. It was difficult, he said, to define what a slum really was, but the word might be taken to mean buildings which had outlived their usefulness, being the relics of a less civilized age, without the sanitary conveniences which were a *sine qua non* of present-day civilization. The Glasgow slums consisted of properties which dated back 100 or 150 years, and had from time to time been extended without regard to either light or air. Various conditions combined to make a dismal, squalid neighbourhood, in which to live was only existence. Reports from caretakers of rehousing schemes showed that 80 per cent. of the tenants made an attempt to live up to their better surroundings, and the medical officer of health reported that the health of the children was improved beyond measure, so that alone fully justified the efforts of the corporation.

A discussion on rural housing, introduced by Lord Polwarth, showed that there must be about 100,000 families regularly employed on the land in Scotland whose houses

required consideration because they fell below modern standards. The problem was complicated by the system of having farm workers living on the farms where they worked, instead of in the villages. It was impossible for local authorities to put up houses for the farm workers unless the workers lived in the villages. Most of the best cottages had been built in the seventies, when agriculture was booming, but the standard of fifty years ago was below the standard of to-day. While it was said that the coal-mining industry barely supported itself, the arable farm of to-day was living on its past, and nothing could be done by the farmers towards putting up buildings unless State assistance was available in the form of a subsidy and a loan at low rates. A resolution was passed by the conference urging upon the Government the necessity for improving the housing of farm servants in Scotland, and for this purpose making an inquiry into the whole situation at the earliest possible date.

BLINDNESS IN GLASGOW.

Since the report by the Departmental Committee on the Causes and Prevention of Blindness, and the coming into effect of the Blind Persons Act, there has been a growing keenness in ascertaining the condition of the blind. A report has now been issued by the Joint Committee of the South-West of Scotland for the administration of the Blind Persons Act dealing with conditions ascertained in Glasgow and its neighbourhood. This report deals with the city group, and covers 1,206 adult blind persons out of a known total of 1,587 persons over 16 years of age. The work has been done under the supervision of Dr. J. L. Halliday, the medical officer in the public health department, who carried out the analysis in collaboration with Dr. Freeland Fergus, who conducted the routine examination of the blind. Mr. William Jones, secretary to the department, gives a statistical review of the data collected. The largest group of blind persons owe their condition to the effect of congenital or acquired venereal disease. These number 17 per cent. (or if doubtful cases of syphilis be included 24.9 per cent.). Of the 17 per cent., syphilis accounted for 12.7 and gonorrhoea 4.8. These figures are compared with those recently published by Bishop Harman for 5,000 London blind persons of all ages; he found blindness in 11.5 per cent. from syphilis and 2.5 from gonorrhoea. The report discusses these affections fully, and points out that the prevention of blindness from these causes is bound up with the prevention and treatment of the original disease. Local authorities have, since 1917, been authorized to provide facilities for treatment, and there is evidence that diminution in the incidence of syphilis is taking place from year to year. Among the measures for the prevention of congenital syphilis facilities for ante-natal treatment take a prominent place. Much depends upon the assiduity with which individual patients attend for treatment; and although some improvement in this respect is taking place there still remain some 30 per cent. whose attendances at the clinics cease prematurely. This is a feature which has received serious consideration, and is one of the arguments in favour of some form of notification. As regards gonorrhoeal ophthalmia, an affection which has been notifiable since 1912, an instructive description and chart is given, showing the sharp increase in the incidence which took place during the war and the very considerable decline which has followed since 1919. Prevention is closely bound up with the adequacy of the arrangements for treating ophthalmia in the newborn, the supervision of midwives, prompt notification, and especially institutional treatment, such as has been established at the Glasgow Baird Street Reception House. Injuries as a cause of blindness were found to be responsible for 16 per cent. of the cases, and inquiry showed the unexpected result that the accidents of civilian life, to which children are specially liable, caused twice as many cases of blindness as did occupational injuries. There is reason to believe that the public are not sufficiently aware of the importance of early and prompt treatment where the eye is involved in injury, especially in children, and there

¹ Report on Blindness in Glasgow, by the Joint Committee for the South-West of Scotland for the Administration of the Blind Persons Act, 1920. Glasgow: Robert Anderson. 1925. Pp. 57.

is held to be room for propaganda along these lines as regards both prevention and treatment. Senile cataract appears third among the causes of blindness. In dealing with the economic status of the blind the report states that of 2,903 blind persons in the south-western counties 177 are of school age; 227 are employed in institutions and 414 are otherwise employed; 198 are returned as untrained but employable; the large residual group of 1,703 (742 males and 961 females) are included under the heading "unemployable," and form about two-thirds of the whole number of blind. Many of these are middle-aged and elderly persons, dependent upon poor relief, charitable agencies, insurance societies, old age pensions, and the like; but there is still too little direct knowledge of the conditions of this class of blind persons. Dr. Freeland Fergus found some cases on the register of the blind who did not, in his judgement, come within the definition of the Act. It is advised that, in future, admission should be controlled by medical examination, and that in cases of doubt a specialist should be consulted. The report is well worth the study of those interested in the blind, whether from the medical standpoint or the administrative; and the authors are to be congratulated upon the clearness with which they state the facts and draw the proper conclusions.

THE DEAF AND DUMB.

The annual report of the Edinburgh Deaf and Dumb Benevolent Society stated that during the year the society had distributed an increased amount of relief to deserving cases. Assistance had been given in the form of rent relief, monetary help, provision of medical attention and medicine, of clothing, and in some cases of dental and optical treatment. Under the society's care there were a number of old men and women without homes and often without friends, because the handicap of deafness tended towards isolation, which was accentuated in old age. The committee of the society was seeking to secure a home where these lonely persons might end their days in comfort under the care of people who could converse with them and interpret their needs. The society found it increasingly difficult to obtain work for young people leaving school. This was unfortunate because the boys and girls had been trained to habits of punctuality, order, and concentration, and many of the older deaf and dumb men and women engaged in large factories had in the past been found to give complete satisfaction to their employers.

EDINBURGH FOOT CLINIC.

The annual report of the Edinburgh Foot Clinic for the past year shows that the number of patients attending was 1,211, who received a total number of 3,994 treatments. At the end of February, 1926, there was a waiting list of 2,029, of whom 423 were new patients. It was stated that the work of the clinic was much hampered by inadequacy of premises, and that a sum of £3,000 was required to complete the purchase of suitable premises and to adapt them for the purposes of the clinic and a school of chiropody. At present no further engagements with patients could be made except for a period of six months in advance.

Ireland.

SALARIES OF DISPENSARY MEDICAL OFFICERS.

A DEPUTATION from co. Mayo, consisting of Dr. A. McBride, Dr. Coughlan, Dr. Conor Maguire, and the Irish Medical Secretary, waited on Mr. S. Burke, Minister for Local Government and Public Health, who was accompanied by Dr. E. F. Stephenson, chief medical officer, and placed before him figures which showed relatively and comparatively with adjoining counties the marked inadequacy of the salaries of the Mayo doctors. The Minister admitted the inadequacy of the salaries, but stated that at the present time he was not prepared to take such a drastic step as to issue a sealed order over the heads of the local authority fixing a scale of salaries. The members of the deputation expressed their disappointment at this decision,

and handed the Minister the following statement for his further consideration with regard to the position of the co. Mayo doctors:

1. That there is no uniformity in the salaries nor any graded scale in force, such as prevails in the county of Galway and other neighbouring counties.
2. That the medical officers have made several appeals without any effects to the county board of health for increases of salary, and a graded scale similar to the scale in force in the adjoining county of Galway.
3. That the medical officers asked the board of health to meet a committee of the medical officers in conference, in the hope that a friendly conversation would lead to a satisfactory settlement, but the board of health refused to meet the doctors, and deferred consideration of the question indefinitely.
4. That the medical officers have appealed to the Minister of Local Government, both by letter and deputations, asking him to exercise his powers in the matter and to fix a graded scale to salaries with pay and promotion on the same scale as the medical officers in the county of Galway have at present.
5. That the Minister of Local Government admitted that the salaries of the Mayo doctors were inadequate and urged the board of health to settle the matter, yet nothing has since been done.
6. That they have been smarting under a gross injustice for years, and they feel that they are entitled to receive a wage at least equal to the doctors in Galway and the other counties in Saorstát Éireann. The Mayo doctors have now reluctantly decided that they must in self-defence withdraw their services as stated above, unless some arrangement is made to give them a graded scale of salary.

Correspondence.

THE SPAHLINGER TREATMENT.

SIR,—I have read the report of the Spahlinger treatment with interest, and I may say that it repays close reading. The bulk of it is an incomplete résumé of what is already known, and it is obviously drawn up with the object of discrediting the whole matter.

It is stated that the only evidence existent "rests upon the observations of some clinical observers who have been favourably impressed by the results which they are obtaining." Might one ask what more is desired on the clinical side?

The strictures upon the secrecy of the laboratory side have been debated *ad nauseam*. I have heard both sides; and on the balance of evidence I think that Spahlinger has some show of reason on his side. But in any case it is a minor question.

The Salford Division has recently undertaken an independent investigation of the present state of affairs. I would call your particular attention to the fact that the Division has examined the position, and has wisely refrained from passing an absolute opinion on the efficacy of the treatment.

It was necessary to examine published records and to consider the professional character of the medical men who were responsible for them. To any honest mind it was obvious that the results of over 400 cases were remarkable, provided one was satisfied that the clinical observers were not all engaged in one huge conspiracy of lying. There was no evidence of such a conspiracy, and the Division then considered the position which arose. It was felt that there was sufficient evidence to warrant an extensive trial in this country, and the supply of the necessary vaccine was then discussed. The financial position of Spahlinger was explained, and it was stated that about £60,000, vested in British trustees, was required to pay off the debts on Spahlinger's estate and to start a branch institute in England. It was further stated that a supply of vaccine sufficient for an extensive test could be produced within twelve months, provided that the institute in Geneva could be put upon its financial legs.

The Salford Corporation has appointed an Executive Committee, composed of members nominated by the corporation and the Panel Committee and some co-opted members from the local Division of the Association, to report upon the treatment and upon the possibility of obtaining a supply of the remedies.

The Division has refrained from comment upon the financial questions involved, but since the matter has been raised by your Science Committee I will take leave to point out some aspects of the question. If Spahlinger publishes

his methods now and is unable to supply the complete range of his antigens, then the person who will obtain the credit, supposing the treatment is a success, will be the man who first prepares them, publishes his results, and makes the antigens available to every practitioner who requires them. That man will be looked upon as the research worker to whom credit is chiefly due. There are other instances of such a happening.

Another point is that Spahlinger may possibly feel that he is at least entitled to his expenses. I hope I am not unduly cynical, but it appears to me that most of the financial gain accruing from a successful discovery is reaped by the clinician, and the research worker who originally published it can rot for all anybody cares.

I note the requirements laid down for the test and for the standing of the men supervising it. If the test should be undertaken in this area I have no doubt that we shall be able to satisfy both requirements without assistance. The Salford Division has some knowledge of the activities of the Ministry of Health, and it is conceivable that past experience has made "dear old Spahlinger" somewhat wary of entering that particular fly-trap.

The attitude of the Division is utterly impartial; it is concerned solely with arranging a test to settle the whole affair, and has expressed itself quite clearly in its resolution passed on March 9th last:

"... that the evidence of the efficacy of the Spahlinger treatment of tuberculosis is such as to justify (1) its recommendation to the public for favourable consideration, and (2) a request for a complete clinical investigation in Britain under medical supervision."

It will be observed that the Division supports an appeal for funds for a test in Britain, and therefore your committee's criticisms upon "money for the dissemination of a 'cure'" are beside the point.

I submit that the Salford Division's attitude is eminently reasonable and that we have done all that can fairly be asked of us. On the ultimate success or failure of the remedy we have no opinion to offer: we merely state that as far as we can ascertain at present there is sufficient bona-fide evidence to warrant the trouble and expense of a lengthy and rigorous test in this country.—I am, etc.,

C. E. JENKINS,

Manchester, April 26th. Honorary Secretary of the Salford Division.

PHYSIOLOGICAL, ORTHOSTATIC, AND NEURO-PATHIC ADOLESCENT ALBUMINURIA.

SIR,—It must have surprised many of my generation to find that a "cure" is now sought for orthostatic adolescent albuminuria, a condition which, thirty years ago, we thought was established as innocent. There can be no doubt that, after severe exercise, it is physiological. "Collier found it present in every one of the Oxford crew of 1906 after rowing a course;" and there can be but little doubt that the ordinary orthostatic albuminuria of the young merely represents an exaggerated tendency of the same kind. As in the case of the sinus arrhythmia of the heart, nervous systemic control has not attained full balance. Neither condition can be "cured." As a rule, both are negligible.

The condition is, in my experience, very common, and in girls not less so than in boys; and the management of the case should, in my opinion, depend upon the general state of health, which may be excellent, though this condition is seldom discovered—because not sought—except in states of ill health, or in the course of a general investigation such as has been sometimes undertaken in boys' schools. To "treat" the condition itself is, I believe, as mischievous as it is to "treat" sinus arrhythmia. The idea of ill health is suggested, parents are alarmed, wholesome exercise is banned, and the prospects of a healthy life are prejudiced at the start.

As to neuropathic (or psychopathic) albuminuria, little, I think, has been recorded, and, though my recollection is that, thirty years ago, it was "recognized," the condition seemed to be regarded as a moot point when raised at a

meeting of the Association of Physicians a few years ago. May I quote a case?

A young married lady, aged 22, the mother of a child a year old, underwent what was, to her, a severe nervous strain. She had, for the first time in her life, to sing in public, at a village concert. Next day she felt "spent," and I was asked to see her. I found the urine loaded with albumin (no casts or blood). There had been no albuminuria during pregnancy; and, though she has had illnesses and operations since then, it has never again been found. She is now, at the age of 60, healthy, active, and full of interest in her travels, her house, her garden, and her grandchildren.

This should tend to confirm the view stated many years ago by Sir James Goodhart, and noted in several editions of Osler's *Medicine*, that, "from a study of the after-history of more than 250 cases, albuminuria of the adolescent has no sinister effect on health or the duration of life."

The question, When does adolescence end? suggests itself. Are young men and women in the twenties "adolescent"? I certainly think that during, at any rate, the first half of this decade, many of them are. The question is that of the early or late development of fully balanced nervous systemic control, and this is probably influenced by many considerations—heredity, individual variation, diet, and environment, among others.

In the article already quoted Drs. Langdon Brown and G. Evans say that: "The condition soon rectifies itself when adolescence is past, and any case of proteinuria" (as it is there called) "in a patient approaching 30 probably does not fall into this category." I have only seen one case of this kind—a man, who had been subject to orthostatic albuminuria in his teens, and in whom I detected the condition, in the course of an insurance examination, at the age of 32. He had been seen by Goodhart when a youth, and had been assured that the condition was of no moment, and that it would disappear. He was much disconcerted, but Sir James, on seeing him again with me, and on referring to his previous notes, reaffirmed the opinion that it was innocent, and relieved the patient's mind. He certainly continued in good health for some years after that, but I have long since lost sight of him. Some people—like Peter Pan—"never grow up," though their lack of maturity may be localized.—I am, etc.,

CLAUDE WILSON, M.D., M.R.C.P.

Tunbridge Wells, April 16th.

THE "SPECIAL REPORT SERIES" OF THE MEDICAL RESEARCH COUNCIL.

SIR,—The first three paragraphs of Professor Blair Bell's letter of April 17th need no comment. I dare say that in time he will be slightly ashamed of the distinction drawn between the "position of the Council-aided, really independent worker" and that of the staff of the National Institute for Medical Research.

In his last paragraph Professor Bell addresses me personally, so, as an individual, I will endeavour to give him satisfaction. On March 6th Professor Bell filled nearly two of your columns with the dicta of gentlemen who had experience of, in one case, "a huge number" of chemical plumbers, and added approving comments. The suggestion was that chemical plumbers did not suffer from cancer, while other plumbers did. The only statistical matter provided related to undefined plumbers. Professor Bell noted that the data were dilute, but was "tempted to give them because they accord with the other evidence to be adduced." The argument, statistically speaking, stood thus. A certain subclass of plumbers are immune from cancer, the others not; such advantage as the whole group possesses is due to the subgroup. Professor Bell did not say how many chemical plumbers were included, but there was a hint that huge numbers of chemical plumbers existed. In the census of 1921 "lead burners, chemical plumbers" and "plumbers (not chemical plumbers)" are shown separately. The former numbered 1,021, the latter 49,119. So that even if no other occupational groups (for example, "plumbers' labourers") are included in Professor Bell's statistics, chemical plumbers would form no more than 2.03 per cent. of the combined group, and could therefore make no sensible contribution whatever to the combined experience.

¹ As noted, under the signatures of Drs. Langdon Brown and Geoffrey Evans, in *Price's Medicine* (1922).

It may be noted that if chemical plumbers were treated separately, on the lines of the official assessment of occupational mortality—that is, by taking the experience of three years centred on the census year—we should have approximately 3,000 years of life at risk. Were these subject to the normal rate of mortality from cancer in 1910-12 ("all males") we should expect 3.9 deaths, the expectation being subject to a standard error of at least 1.97. Hence if no deaths at all occurred the divergence from expectation would be well within the ordinary fluctuations of "chance." Professor Bell, who will use for, let us say, illustrative purposes an experience apparently diluted to the extent of 98 per cent., has no use for an experience diluted to the extent of 80 per cent. But if there were really so many as 20 per cent. of potters exposed to lead, and if these did not suffer appreciably from cancer, then, since the mortality from cancer of the whole group is sensibly equal to that of all males, those potters not exposed to lead must have had a mortality rate sensibly above the average.

Professor Bell concluded his exposition of illustrative statistical methods by demanding three things:

"All statistics concerning the matter under discussion must, then, show:

- "(a) Inevitability of lead poisoning.
- "(b) Existence of lead poisoning.
- "(c) The coexistence of one of these conditions with the onset of cancer."

From these I infer that Professor Bell will not be really happy until we can obtain statistics of an industry every employee in which suffers from lead poisoning and some employee in which suffers from both lead poisoning and cancer. I should have thought that if condition (a) were fulfilled, condition (b) must be, but, as it is perfectly certain that we shall never be able to fulfil either condition (a) or condition (c) under existing conditions of life, it does not much matter; I fear Professor Bell will never be really happy.

All the medical statistician can do is to determine whether there is any correlation between index (b), which is available, and mortality from cancer for the existing occupational groups. Dr. Young and Mr. Russell carried out such an investigation and showed that the official data lent no support whatever to Professor Bell's speculations. Professor Bell complains that Dr. Young and Mr. Russell have overlooked the matter of proper standardization (I preserve the italics which rejoice the soul of Professor Bell). He claims, indeed, to have indicated how to standardize figures properly. But, as the only figures in his memorandum which were standardized, properly or improperly, had been standardized by the Registrar-General's department, the arithmetically proper, or Bellian, method of standardization remains obscure.

The conclusion I reach is that, upon the point at issue, Dr. Young and Mr. Russell on the one hand, and Professor Blair Bell upon the other, illustrate two different statistical techniques. The former have examined, not some of the available facts, but all of them, have set them out fairly and have drawn no conclusion which the data will not sustain. The latter exhibits the usual defects of the propagandist statistician, the manner of those who, like a deceased politician, use figures as illustrations. Table 2, which, even on Professor Bell's principles, is nonsense, is allowed to stand because it illustrates something.

It is not necessary to inquire very closely whether all the file-makers of Table 3 were really exposed to the risk of lead because they so well illustrate the increase of cancer with the decrease of plumbism. Potters, however, showing an increase of both cancer and plumbism, are suspect; there the risk is not equally distributed. The method is familiar to all politicians.

I sympathize with the investigator who says frankly that available statistics can neither prove nor disprove his hypothesis and absolutely refuses to have anything to do with them. I have no sympathy with the man who would make the best of both worlds, who uses slovenly statistical reasoning to support his case, and abuses those who, reasoning accurately and taking account of the whole of the available data, state that the case is not proved, nor even plausible.—I am, etc.,

Loughton, April 24th.

MAJOR GREENWOOD.

ACCIDENTAL HAEMORRHAGE AND PLACENTAL INFARCTION.

SIR,—In the BRITISH MEDICAL JOURNAL of April 17th (p. 683) a brilliant piece of research work on the above affections is recorded by Dr. Francis J. Browne. Towards the end of his article he points out several important investigations which are required in the elucidation of his thesis: (a) Special tests for the diagnosis of nephritis in the absence of albuminuria. (b) The same for determination of disturbed liver function. (c) The ascertaining of the source and nature of the toxins whether chemical or bacterial (the italics are mine), and "to trace the connexion which undoubtedly exists between accidental haemorrhage and eclampsia. This will involve a carefully co-ordinated and prolonged clinical and experimental study."

In my recent letter in the BRITISH MEDICAL JOURNAL (March 13th, p. 507) entitled "Leucin crystals in urine," a number of points are mentioned, from the clinician's point of view, bordering and touching on several raised in Dr. Browne's article from the experimental side. In that letter (as also in a more detailed article with diagrams of these bodies—not yet published) I point out that the underlying condition of a varied number of illnesses was an intestinal toxæmia with disturbed hepatic function. The general urinary findings were: indican, oxalates, *B. coli*, bile, and bodies resembling impure leucin crystals; the various elements were not all present in every case. I mentioned how these were present in cases of haemorrhage—namely, epistaxis, gastrostaxis, cerebral haemorrhage, menorrhagia. Since then I have found the same condition in two cases of idiopathic retinal haemorrhage in apparently young healthy adults.

Dr. C. O. Hawthorne postulates in these idiopathic haemorrhages an initial thrombosis, mostly following trauma. Dr. Browne says that trauma occurred in some of his cases, but he regards it as coincidental. There was no history of trauma in the two cases of retinal haemorrhage of mine, but the blood pressure was raised. In my article I point out the evidences of increased intestinal bacterial activity with defective liver function; and also the fact of raised blood pressures without any evidence of renal involvement, as judged by the absence of albumin and casts. That the latter is unnecessary for the diagnosis of nephritis is shown conclusively by Dr. Browne in his experiments. I mentioned two types of raised blood pressure:

(a) A case set at a high level, which got periodic exacerbations, at which time the urinary findings were as above. After watching this case for several years there were only two occasions on which albumin was present in the urine.

(b) A case of a young boy of 13 with a systolic blood pressure of 140, and whose urine showed acid ++, bile +, oxalates +++, indican ++, and leucin, but never any albumin or casts. Some four years ago, however, there was what seemed to be a post-scarlatinal nephritis.

Dr. Browne has been fortunate in having used the oxalate method of producing experimental nephritis. It is probably as near to what is likely to occur in nature as could be, as is also the use of coliform organisms. I think it is Sir William Willcox who says that oxaluria is an expression of intestinal toxæmia. Recent writers from Egypt describe a form of nephritis due to *B. coli* which responds to a *B. coli* vaccine administered by the mouth.

The detoxicating influence of the liver is probably in abeyance, and it seems certain that imperfectly metabolized products which act as toxins enter the circulation. Saville talks of uræmia of hepatic origin. This is probably akin to Dr. Browne's nephritis cases with raised blood urea, but no albuminuria.

In Dr. Browne's series of cases there is the record of changes in the liver of only one of the rabbits—namely, round-celled infiltration of the portal tracts in rabbit (September, 1923) after an injection of *B. pyocyaneus*. It would be interesting to know whether these injections of oxalate or coliform germs alters the structure of the liver as well as the kidney, or whether it is only the chemistry of the liver which is disturbed.

One feature which I have found clinically in a large number of cases is the disturbance of the hydrogen-ion concentration of the blood towards an acidæmia; often

no amount of alkali will turn an excessively acid urine alkaline.

In children suffering from acidosis and aceto-næmia, which Mellanby believes is due to intestinal auto-intoxication, the aceto-næmia is said to arise from the liver. Clinically I have suspected the liver as the source of the lysin which produces the hæmorrhages in these cases.—I am, etc.,

Darlington, April 20th. R. CHALMERS, M.D., F.R.C.S.Ed.

DR. YOUNG'S CANCER PARASITE.

SIR,—At a time when Dr. James Young had the grievance that the pathologists who had condemned his "cancer parasite" would not give it an actual trial, I undertook to provide this on as large a scale as he desired. For the trouble we took and the expense to which our laboratory was put in so doing we have heard no profound expression of gratitude from Dr. Young. It was agreed that he be given an opportunity of producing cancer—not anything else, but just straightforward cancer, for the common lymphoid hyperplasia of mice, to which he has been devoting the full strength of his rhetoric, is no more to be regarded as a malignant tumour than are enlarged tonsils in the human subject. He failed in his attempt: not a single cancer, nor anything in the remotest degree suspicious of a cancer, developed in the animals into which his "parasite" had been injected. That was the conclusive verdict of the trial as far as we, or the committee that asked us to undertake it, were concerned; and I imagine most people will accept it. It was hardly to be expected that Dr. Young would take the adverse result as a sportsman should. The referee, who tried to do his best, was unfitted for the job, says he in effect, because he was prejudiced, narrow-minded, ignorant, inexperienced, incredibly careless, stupid, and untruthful. To bolster up this wholesale condemnation Dr. Young does not refrain from grossly inaccurate statements.

Like many of my fellow countrymen, I love an argument or a fight, but there are certain rules in the game which Dr. Young would do well to learn. I am not, as he suggests, sheltering myself behind the opinions of distinguished pathologists who had previously decided against him, nor am I taking refuge behind the two members of the Pathological Section who later complained that his communication was an insult to the intelligence of the society. I merely agree with them.—I am, etc.,

London, S.W.3, April 24th.

ARCHIBALD LEITCH.

* * We cannot continue this correspondence, which began with a letter from Dr. Young published in our columns on April 10th (p. 675), but are prepared to receive any brief correction which may seem necessary of any matter of fact.

THE KASTLE-MEYER TEST FOR BLOOD.

SIR,—From Dr. Kerr's letter (April 17th, p. 721) it would appear that he has failed to appreciate some of the subject-matter contained in my recent article based on personal research. No mention was made by me of the point whether a positive result would be given with faeces of a patient on a red meat diet, as it was shown that the test was so delicate as to render this conclusion obvious. In medico-legal laboratory work one does not, as a rule, deal with patients on a red meat diet or with those suffering from melaena, although it must not be forgotten that faecal stains may contain traces of blood on this account. In such cases, however, it will be found that a maximum amount of faecal matter is present and only a minimum amount of blood. Again, piles not infrequently produce blood stains upon garments.

Dr. Kerr, I fear, is forgetting that in medico-legal work all the circumstances attending each specific case must be considered carefully before a definite opinion can be arrived at. I disagree with his statement that "it is this extreme delicacy that prevents its use as a medico-legal proof of blood." Before an examiner should arrive at the definite opinion that a stain is composed of blood, not one, but several, tests should be applied, as was pointed out by me in the concluding paragraph of my recent article. The Kastle-Meyer test, as I prefer to call it, was found

by personal experience to be infinitely superior to Day's test, for reasons previously submitted, and as a corroborative test it can be accepted in a court of law with more reliance than the latter test, which possesses very many fallacies, but has been accepted by courts for many years as a corroborative test. I note that Dr. Kerr writes, not from personal experience, but from matter gleaned from but a few sources. Having regard to the many hundreds of tests made by me, using the Kastle-Meyer reagent as a corroborative test, I should not care to associate myself with the sweeping assertion, "It cannot be accepted as a test for blood in a court of law"; but would agree with the statement were it to read, "It should not be accepted as a test for blood in a court of law unless corroborated by other tests," which corroboration is regarded by jurists as the present-day rule.—I am, etc.,

JOHN GLAISTER, JUN., M.D.

Forensic Medicine Department, University
of Glasgow, April 19th.

SIR,—The Kastle-Meyer test for blood, better known as the "phenolphthalein test" of Boas, is certainly one of great delicacy, as I have obtained a strong reaction with a blood dilution of over 1 in 1,000,000.

There is a great difference of opinion as regards the delicacy of this test. Langdon Brown, for instance, states in his *Physiological Principles in Treatment* that he believes it to be less delicate than the benzidine test but more reliable; while, according to Ruttan and Hardisty, it is the most delicate of all the tests for blood, being sensitive to the extent of showing the presence of blood in a dilution of 1 in 10,000,000.

I agree with Dr. Kerr when he states that a positive reaction may be obtained with the benzidine and phenolphthalein tests when applied to healthy faeces. In my experience, positive reactions are not nearly so likely to be got, in such cases, with the benzidine as with the phenolphthalein test. In carrying out the phenolphthalein test it has been recommended that the distilled water used should be prepared in an all-glass apparatus, as the slightest trace of copper in the distilled water may cause a positive reaction in the absence of blood. I have not found this to be necessary. With reference to the reaction got with substances other than blood, I may say I have obtained positive reactions with ferric chloride (10 per cent.) and copper sulphate. Mucus I have found to cause a doubtful reaction on some, but not all, occasions.

I am of opinion that, owing to its extreme delicacy, the results of the phenolphthalein test, for medico-legal purposes or for the examination of stools for "occult" blood, should not be relied on alone but should be used in conjunction with some of the other tests for blood.—I am, etc.,

R. OGILVIE GIRDWOOD, M.B., Ch.B.

Aberdeen, April 20th.

PHTHISIS A DISAPPEARING DISEASE?

SIR,—With Dr. Baskett's main thesis (April 17th, p. 722), of the dependence of phthisis on poverty, and therefore its fluctuation in the opposite direction to the variation in the value of real wages, I am in agreement, qualified by the recognition of other factors of importance. My criticism referred to one of Dr. Baskett's statements (March 6th, p. 449), that "the decline [in phthisis mortality] is not nearly half so fast after 1896 as before it." To warrant this statement Dr. Baskett must express the rate of decline as the average annual decline in the rate, and the point of my objection was that this is a method of estimation liable to lead to erroneous deductions, since a cause of constant potency would, when thus measured, produce a rate of decline steadily diminishing in proportion to the diminution in the quantity on which the cause was acting, and this lessening in the rate of decline might falsely be held to show a slackening in the causes making for improvement. If, on the other hand, the rate of decline is expressed as the average annual percentage decline in the rate, then such a uniform cause would be found to produce a constant rate of decline, and, conversely, any change in the rate of decline could legitimately be held to indicate a corresponding change in the causes influencing the fall.—I am, etc.,

Guisborough, Yorks, April 20th.

C. R. GIBSON.

Obituary.

COLONEL C. A. JOHNSTON, C.B., I.M.S.(RET.).

WE regret to have to announce that Colonel Charles Arthur Johnston, C.B., D.S.O., Madras Medical Service (ret.), died of encephalitis lethargica in a nursing home in London on April 23rd, aged 59. He was the son of the late Mr. John William Johnston, deputy collector of Salem, and received his medical education at Edinburgh, where he graduated M.B. and C.M. in 1888. He subsequently took the D.P.H. of the London Colleges in 1896. He entered the I.M.S. as surgeon in March, 1890, attained the rank of lieutenant-colonel after twenty years' service, and was granted the rank of colonel on his retirement in October, 1920. Most of his service was spent in military employment, during which he saw a great deal of war service: the Manipur campaign on the North-East frontier of India in 1891, medal with clasp; Burma, 1891-92, clasp; North-West frontier, Tirah, 1897-98, medal with clasp; China, 1900, medal. During the recent war he served in East Africa, was mentioned in dispatches in the *London Gazette* of June 30th, 1916, and was granted the D.S.O. on January 1st, 1917, and the C.B. on June 4th, 1917. During this campaign he was severely injured by the blowing up of a train in which he was travelling. He was a noted athlete, having been a Rugby international in his younger days, and later in India a good shot, and a polo and tennis player. In 1912 he married Isabel, daughter of the late Dr. J. H. Honeyman of Auckland, New Zealand, and of Lady Bruce-Porter, and leaves a widow and one son.

Dr. T. M. KIMPSTER of Gateshead-on-Tyne died on March 27th. He was a native of Gateshead, and received his medical education at the University of Durham, where he graduated M.B., B.S. in 1888. After holding house appointments at the Newcastle Royal Victoria Infirmary he commenced practice in Gateshead. For thirty-one years he had been honorary surgeon to the Gateshead Children's Hospital, and in 1924 was presented by Princess Marie Louise with a silver salver in appreciation of his devoted labours to that institution. He was honorary medical officer to the Gateshead Dispensary and public vaccinator for the East District of Gateshead. Dr. Kimpster, who had been a magistrate for the borough since 1920, was widely esteemed by a large circle of friends. He was a member of the Gateshead Division of the British Medical Association. He is survived by his widow and four daughters.

Dr. PETER MACLUSKIE, who has died at the early age of 33, was a native of Paisley, and received his medical education in Glasgow. His student work was interrupted by the outbreak of war, and he obtained a commission in the North Staffordshire Regiment in 1914. He resumed his medical study in 1918, and graduated M.B., Ch.B. Glasg. in 1920, obtaining the D.P.M. two years later. After holding the appointment of house-surgeon to the Royal Infirmary of Glasgow he practised in Liverpool for a short time, and then obtained the appointment of assistant medical officer in the mental hospital service of the London County Council, which he held until his death. Both in the army and in his medical practice he won great popularity for his devotion to duty and his loyalty to friends and patients. He married in 1923, and leaves a widow and a young son, with whom much sympathy is felt.

By the death of Dr. H. WICKLIFFE FISHER, at the age of 60, Liverpool has been bereft of one of its well known practitioners. He passed away after a few days' illness, to the grief of many friends, patients, and medical men alike, among whom he was held deservedly in the highest esteem. Dr. Fisher was a member of an old Wesleyan family, received his general education at the Wesleyan College, Sheffield, and studied medicine at the University College of Liverpool. He took the triple diploma of Edinburgh and Glasgow in 1889, and settled down in general practice in the district of Sefton Park. Dr. Fisher speedily evinced those qualities which make for

success. Unremitting in attention, prompt to answer calls, painstaking, sympathetic, especially with children, and temperamentally cheerful, he endeared himself to those with whom he came into contact. Some years ago Dr. Fisher was afflicted with deafness, and at the time he seriously considered whether he would not be obliged to retire from medical practice and take up dentistry. But his indomitable perseverance and cheerfulness came to his aid and he remained in practice, much to the satisfaction of his patients. Dr. Fisher was remarkable in the way he gathered friends around him. He took a keen interest in sports, and was for many years an active member of the Sefton Cricket Club. His funeral was attended by a large number of friends and medical men, a striking witness to the esteem and affection in which he was held. Dr. Fisher leaves a widow and three daughters, to whom we desire to express our sincere regret in the irreparable loss they have sustained.

We regret to announce the sudden death of Mr. THOMAS WATSON HANCOCK, which took place while he was on holiday at Torquay on April 3rd. He was the only son of Mr. and Mrs. John Hallett Hancock of Bracondale, Norwich. He was educated at Bracondale School and at the London Hospital Medical College. He took the diplomas of the London Conjoint Board in 1914 and that of F.R.C.S.Ed. in 1920. After serving for a short time as assistant house-surgeon to the Norfolk and Norwich Hospital he proceeded on active service to France, where he served during the whole of the war, becoming surgical specialist to the 47th Casualty Clearing Station, B.E.F.; for his services he was awarded the O.B.E. At the end of the war he returned to Norwich and became partner to Dr. Basil Nutman. He was senior surgeon to the Jenny Lind Hospital for Children, Norwich, where he inaugurated an ear, nose, and throat department, and was also medical officer to the Norwich municipal ante-natal clinic. Dr. Hancock was a member of the Norwich Division of the British Medical Association. He is survived by his widow and three young children.

We regret to intimate the death, on April 25th, of Dr. MATTHEW FERGUSON ANDERSON of Dundee, from pneumonia, while on holiday at Pitlochry. Dr. Anderson was born at Avonbridge, Stirlingshire, and after being a chemist transferred to medicine, and graduated at Aberdeen in 1885. The subsequent forty years he spent in general practice in Dundee with much acceptance to his patients and to his colleagues. He was a loyal supporter of the British Medical Association and had served the Dundee Branch as a member of its council.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE Budget was introduced on April 26th, and discussion on it continued till the evening of April 28th, when debate arose on a motion regarding the lack of facilities for recreation in urban industrial areas. The Midwives and Maternity Homes Bill, which was reported from a Grand Committee during the week, received a third reading with unusual promptness, and its passage into law seems secure. During the week there have been constant negotiations at the House of Commons concerning the threatened stoppage of the coal-mining industry.

The Parliamentary Medical Committee met on April 21st, and in the course of a general discussion decided that there was no need at present for the suggested deputation of ophthalmologists to the committee with regard to the registration of opticians. The committee considered the possibility of the suggested alterations in the Charter of the Royal College of Surgeons of England being raised in Parliament, and Dr. Fremantle agreed to investigate whether this could be done. It would, it was thought, be desirable that a discussion on medical research should be initiated on the floor of the House, and the members of the committee are ascertaining whether this and other medical subjects can best be raised during debates on the Estimates for Health or Education or on a vote for the Privy Council. The Medical Committee decided that at its next meeting it would, at Sir Walter Fletcher's invitation, visit the Medical Research Institute at Mount Vernon, Hampstead.

MEDICAL NOTES IN PARLIAMENT.

The Budget.

The Budget, which Mr. Churchill introduced on April 26th, provides for the raising of a revenue of £820,750,000 in 1926-27, with a prospective surplus of £4,109,000 after increasing the Sinking Fund to £60,000,000. Apart from remission of the excise duty on chicory there is no reduction in taxation. The income tax is unchanged, but the Chancellor of the Exchequer gave notice that in twelve months' time the three years' average would be abolished, and that all assessments under Schedule D would be made on the profits of the period of transition, and the right to carry forward losses for six years would be granted. The key industries to hard cases for ten years, that on optical glass being raised to 50 per cent., and other small additions being made to the duties. The Chancellor has not abandoned the hope of collecting the bulk of the motor duties and passenger vehicles are fixed for this year the motor duties continue on the existing basis. The duties for commercial goods and passenger vehicles are fixed at a new and generally higher scale. The Exchequer takes for general purposes one-third of the duties on private motor cars and motor cycles, but these duties remain unchanged. A Customs duty is imposed on imported commercial vehicles. The Budget also contains proposals for the taxation of imported wrapping paper, and for a tax from November 1st on course and credit betting. Tea, sugar, wine, spirits, beer, and patent medicine duties remain unchanged.

In his introductory remarks Mr. Churchill said the attempt to help the coal industry to put its affairs on an economic basis had overshadowed all other interests and claims. The consuming power of the people was increasing faster than the population, but not remarkably so. The consumption of beer had slightly increased during 1925-26 over the previous year, but that of spirits had again fallen, and he must due in part to high taxation, but year now beginning. This was due in part to high taxation, but in part to changing national habits. The population consumed cocoa, and sugar was expanding, and the population consumed last year for the first time a larger quantity of sugar per head than before the war. Tobacco held its own, and it would seem that the immense sums expended by the National Exchequer on social services for the mass of the people tended to average the effect of good and bad times.

The Spahlinger Treatment.

On April 27th Mr. Briant asked the Minister of Health if any steps were being taken to make further investigation, if this was necessary, into the results obtained in the cure of phthisis by the Spahlinger treatment; and, in view of the importance of the question to the health of the community, if Government assistance would be given in order to make it available to the large number of persons suffering from this disease.

Sir Kingsley Wood replied that the Minister of Health had offered to send competent medical inspectors to study M. Spahlinger's work at Geneva and to facilitate scientific investigation in this country if M. Spahlinger would supply his materials and method of use, but up to the present neither invitation had been accepted. The second part of the question did not, therefore, arise.

Dr. A. V. Davies asked if it was not the fact that M. Spahlinger had not got the money. Sir K. Wood replied that that might be so. Directly the Ministry received the necessary information and materials they would be glad to go into the matter. Mr. T. Jones inquired if the Ministry of Health had already contributed a certain amount of discretionary power to give financial assistance in such a case. Was the hon. gentleman had already contributed that a large number of trade unions had been taken in substantially in order to try to make this work a success? Sir K. Wood: No. I think the right course has been taken in these cases; or to ask, on the other hand, that this gentleman should send the material here, when we shall be glad to investigate it. Mr. Clynes asked if these offers of investigation had been made quite recently. Sir K. Wood replied in the affirmative. They had been made repeatedly during the last three years.

Insurance.

Answering Mr. H. Williams, Mr. Chamberlain said the number of persons insured under the National Health Insurance Act in Great Britain on March 31st, 1926, was about 15,750,000, including persons still within the "free year" of insurance and married women still entitled to special benefits. The number of persons over 70 who were employed so far as medical benefit was concerned, at 290,000, all still insured so far as medical benefit was concerned. On April 26th Sir Kingsley Wood, in reply to Colonel Woodcock, said that no regional medical officers were employed in 1918. The present number and salaries of officers on this staff were: four divisional officers at £1,400; sixteen regional medical officers at £1,000, increasing by £50 to £1,100; and the posts were pensionable except for those officers who entered the service at 50 or over (twenty-one in number). The duties were concerned chiefly with the insurance medical service, and national health insurance funds bore the appropriate share of their emoluments. The officers acted as medical referees regarding the incapacity of insured persons for work, and as consultants in giving second opinions in questions of diagnosis. In addition, they were required to carry out certain inspections under the Dangerous Drugs Act, 1920, and the Blind Persons Act, 1920, and, as needed, to inspect Poor Law institutions.

Hospitals and the Economy Bill.

In moving the third reading of the Economy Bill, Sir Kingsley Wood said there had been misapprehension of the bill's effect on hospitals; he had received letters from various hospitals alleging that the passing of the clause withdrawing a portion of the subsidy from approved societies would mean a big slice off the income of the hospitals. Anyone who put forward that statement was under a wrong impression. When the first valuation of approved societies was made in 1921 the societies were able to set aside over £300,000 a year for the treatment of members in hospitals and convalescent homes. Of that sum upwards of £200,000 was available for hospitals, so far as the Ministry could expended. On the second valuation, £500,000 and £600,000 a year would be between the approved societies liked—and the Ministry would not interfere—in the next few years they could give two and a half times as much as they did before. Mr. Lloyd George said 15,000,000 men and women had been promised a few extra shillings a week in time of sickness after certain valuations. That promise had matured, and a Royal Commission had recommended that 8s. should be given with a special medical benefit in cases of very painful illness. The people had been deprived of that by the Economy Bill. Mr. Blundell said that since the bill was discussed in Committee the fears of the consequences it would have on national health insurance had been diminished because it had become known that in the third valuation period £20,000,000 of surplus had already accrued. The bill was read a third time by 328 to 133.

Midwives and Maternity Homes.

The Standing Committee of the House of Commons resumed consideration of the Midwives and Maternity Homes Bill on April 22nd, and negatively by 25 votes to 8 an amendment (see April 24th, p. 765), moved at the previous sitting, to give the councils of non-county boroughs and of urban districts powers to register and inspect maternity homes. Mr. Trevelyan Thomson contended that the bill would establish in one area two sets of authorities and two medical officers controlling maternity homes. Mr. Peto declared that the local medical officer was far more likely to find out malpractices in back streets. Dr. Fremantle said the promoters of the bill wanted to get at the bad midwife, there were not many of them now—or at the thoughtless, perhaps kind-hearted midwife, who took into her spare room a single girl to see her through her trouble. Eventually such a midwife got two or three women into her home, and that was the sort of home where a shocking loss of life occurred. In a case reported from the South of England "a practising midwife lives in a small house, three bedrooms upstairs, two sitting rooms and kitchen downstairs. She took in three maternity cases, and in addition to these there were three adults and two children in the house. One child had a septic condition of the face. Here there existed overcrowding and a septic focus—result (two) cases of puerperal infection. The registration and inspection of maternity homes must apply to cases of this kind." The inspector of such a home. Unless the Midwives Act were altered the local medical officer would not have authority to go to know of such a home. Dr. Fremantle cited other cases of midwives who had broken out or a death occurred. Dr. Kingsley Wood said it would be a great waste of time and money to make the minor authorities responsible, as they had not facilities for doing maternity work as efficiently as the larger authorities. There were 312 maternity and child welfare authorities which were neither county nor county borough councils, and only twenty-nine had provided their own maternity homes, and only fifty-two made use of maternity homes situated in their own districts. He thought the bill struck a balance very fairly. Mr. Broad said the great improvement in infant mortality since the war was chiefly due to the efforts of the boroughs, not of the counties. If the local medical officer was not the most competent man to do the work, then the county medical officer fifty miles off would be absolutely ineffective. The amendment, as stated above, was rejected.

On the motion of Dr. Fremantle amendments were made giving the applicant or person registered fourteen days' notice of intention to refuse or to cancel registration as a midwife, and giving either side an appeal for quarter sessions. A further amendment was adopted to provide for the keeping of records of the removal of infants from a nursing home, save to the custody of a parent, guardian, or relative. On an amendment enjoining that the notification of a death in a nursing home should include the cause of death, Sir Richard Luce suggested that this would clash with the statutory certificate of the cause of death, but the amendment was adopted. The provision that the motion of Sir Kingsley Wood in nursing homes was deleted, on the motion of the provisions of the bill "any hospital or institution home which may be exempted from the provisions of Part II of this Act by the local supervising authority." He said it had been represented to the department that there were a large number of small cottage hospitals which had no resident doctor, but were staffed by local doctors who continued to attend their own patients in the hospital. It would be the desire of the Committee that they should be exempted if the local supervising authority were satisfied that they were conducted on the lines indicated. This amendment was for the purpose of meeting the wishes of the medical men in question, who were no doubt doing very useful work. The Committee agreed to the amendment.

On the motion of Dr. Fremantle the Committee added to the bill a new clause giving an officer duly authorized by the super-

visiting authorities power to inspect maternity homes. The Committee also agreed, at Dr. Fremantle's suggestion, that the Central Midwives Board should be authorized to issue a badge to certified midwives. The bill was then reported by the Committee to the House. On April 27th the bill was read a third time without discussion.

Registration of Nursing Homes.

Giving evidence, on April 27th, before the Select Committee of the House of Commons on the registration of nursing homes, Mr. M. D. Thakore, ophthalmic surgeon at Doncaster General Hospital, said he knew homes with charges at five or six guineas a week which were understaffed and where the patients were left alone too long. Patients were chary of making complaints, so doctors and surgeons seldom became aware of these deficiencies. He suggested that as a condition of registration nursing homes should be in quiet streets, and that they should be structurally suitable. There were homes where patients had to be moved from one floor to another after an operation without a lift, and were liable to be jolted when being carried round corners. He himself would not object to registration if, as a medical man, he kept a nursing home. In his view nursing homes should not be allowed to train probationers; every nurse in a home should be trained. Young girls went into these homes in the belief that they would be trained as nurses. After three years such girls were sometimes sent out to private cases. He knew of a case where a child in a nursing home was left in a room by itself, and the staff, to save trouble, took away the bell. Of the six or seven nursing homes he knew, three being in Doncaster, with twelve to twenty-four patients in each, none was thoroughly satisfactory. Answering Dr. Davies, he said he operated in these homes, and had found the operating theatres uniformly satisfactory. He held that where patients had separate rooms no nurse should have more than three or four to attend. Answering Captain Ernest Evans, witness said he knew of no instance where a doctor having a patient in a nursing home was impeded in access to that patient. Replying to Dr. Shiels, he said he knew many instances where patients had been neglected because the staff was overworked.

Evidence was then given by a witness who had been a patient in a nursing home, and the room was then cleared for the taking of evidence *in camera*, after which the Committee adjourned.

At a previous sitting, on April 22nd, evidence in favour of the registration and inspection of nursing homes was given by Miss K. Scott, matron (Bournemouth); by Miss C. C. Crookenden, owner of a nursing home at Hove; and by Miss F. Potts, chairman of the Birmingham Hostel for Unmarried Mothers.

I.M.S.—On April 19th Earl Winterton, Under Secretary for India, stated, in reply to Colonel Applin, that admission to the Indian Medical Service of members of the Indian Medical Department was one of the matters raised by the recent Anglo-Indian deputation. Colonel Applin's suggestion that the age limit should be extended to 34 years in the case of medical officers who had been prevented from qualifying before reaching 32 by reason of war service would be considered when the views of the Government of India had been ascertained.

Medicated Wines.—On April 19th Mr. Scrymgeour asked the Minister of Health if he was aware that many of the meat and tonic wines, widely advertised as containing no drugs, contained, according to the British Medical Association, from 15 to 20 per cent. of alcohol; and if he would take into consideration the advisability of compulsory notification as to such particulars on the bottles. Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, replied that this question was considered by the Select Committee on Patent Medicines, which reported in 1914. The hon. member's suggestion, which was in accordance with the Committee's recommendation, would be considered in connexion with any legislation for the purpose of regulating the sale of secret or patent medicines. Mr. Scrymgeour further asked if Sir K. Wood was aware that a declaration had been made by Mr. W. McAdam Eccles, the eminent surgeon, to the effect that "The public should not be deluded by, but protected from, specious advertisements of these so-called medicated meat or food wines." Sir K. Wood said he was not aware of that statement, but he knew the Committee came to the conclusion summarized in the question. It was a matter which would need legislation.

Hospitals for Coal-Miners.—Answering Mr. T. Williams, Colonel Lane-Fox said that thirty-one allocations had been made from the Miners' Welfare Fund towards the erection or extension of hospitals in Life, Northumberland, Durham, North Wales, West Yorkshire, South Yorkshire, and Lancashire, and in the Forest of Dean, and South Wales. The total amount was £1,250,000.

Chief Medical Adviser to the Colonial Office.—On April 26th, Mr. Amery (Secretary for the Colonies), replying to Captain Crookshank, who asked what were the functions of the recently appointed chief medical officer in his department, said that the post to which the hon. gentleman no doubt referred was that of chief medical adviser, whose functions, as the title indicated, would be to advise the Secretary of State generally on all medical and sanitary matters arising in connexion with the Colonies and Protectorates, including measures to ensure continuity of policy and co-ordination of progressive action between different administrations. The post was a new appointment, the creation of which had been authorized in the first instance for a period of three years. In reply to supplementary questions, Mr. Amery said that this was a whole-time appointment, and the salary was £1,500 a year. The appointment was one which the Secretary of State made on his discretion after carefully considering the merits of the different candidates. Dr. Fremantle asked if the officer was

to be in constant touch with the Medical Advisory Committee. Mr. Amery: Yes; he will certainly be in touch with them.

Maternity and Child Welfare.—Sir K. Wood informed Mr. Briant, on April 27th, that he was not aware that there was uncertainty among county authorities as to the powers of a county authority in connexion with maternity and child welfare when the local sanitary authority was responsible for the administration of the Notification of Births Act. The exercise of powers by local authorities under the Maternity and Child Welfare Act was subject to the sanction of his department, which was consequently in a position to delimit the functions of any authorities with concurrent powers.

Crown Members of the General Medical Council.—In an answer to Viscount Sandon, Major Hennessy said no vacancy had yet arisen on the General Medical Council among the members appointed by the Crown, and therefore there had been no occasion for the Lord President of the Council to come to any decision about the appointment of non-professional persons.

After-Effects of Encephalitis Lethargica.—The Minister of Education states that provision has been made by the Metropolitan Asylums Board for a hundred children suffering from the after-effects of encephalitis lethargica, and that the possibility of making similar provision in the North of England is being explored. Asked whether he was prepared to provide accommodation for adults suffering from the after-effects of this disease in London, Mr. Chamberlain said the best means of providing for such cases was receiving careful consideration from the departments concerned.

Notes in Brief.

Mr. Chamberlain states that the number of sanitary officers who have obtained a special qualification in meat inspection is rapidly increasing.

The Prime Minister hopes to find time this session for passing the Public Health (Smoke Abatement) Bill.

Between September 1st and December 31st last, 7,151 cattle were slaughtered by local authorities under the Tuberculosis Order, 1925.

The Home Secretary cannot fix a date for the introduction of the Factories Bill.

The Treasury authorizes small contributions to hospitals from Government departments in recognition of emergency services to the staffs of the departments.

The number of houses that have been authorized for erection in rural districts in connexion with subsidy schemes under the Housing (Financial Provisions) Act, 1924, is 16,002.

Medico-Legal.

LUNACY CERTIFICATION.

HARNETT v. FISHER.

MR. JUSTICE HORRIDGE, in the King's Bench Division on April 27th, 1926, decided that the action brought by Mr. William Smart Harnett, farmer and fruit grower, of Newington, near Sittingbourne, Kent, against Dr. Henry Holdrich Fisher of Sittingbourne, for damages for alleged negligence in certifying Mr. Harnett insane on November 10th, 1912, and a proper person to be detained under care and treatment, was barred by the Statute of Limitations.

This action against one of the two doctors (the other, Dr. Penfold, having since died) who signed the original certificate upon which Mr. Harnett was received into a private mental home superintended by Dr. G. H. Adam at West Malling, Kent, was heard before Mr. Justice Horridge and a special jury, and the proceedings, which lasted four days, were reported in the last issue of the BRITISH MEDICAL JOURNAL at page 762.

The jury found that Dr. Fisher did not exercise reasonable care in certifying Mr. Harnett to be a lunatic at a time when Mr. Harnett was sane, and awarded Mr. Harnett £500 damages.

On the fifth day legal argument was heard on the question whether the plaintiff's right of action was barred because he had not issued his writ within six years of the date on which Dr. Fisher certified him, as required by the Statute of Limitations, 1623 (21 Jac. 1 cap. 16). The material sections are Sections 6 and 7, which read "... all actions for trespass ... and upon the case ... (other than for slander) shall be commenced ... within six years next after the cause of such actions or suit and not after ... provided ... that if any person or persons that is and shall be entitled to any such action of trespass ... actions on the case ... be or shall be at the time of any such cause of action given or accrued fallen or come within the age of 21 years, *non compos mentis* ... then such person or persons shall be at liberty to bring the same actions so as they take the same within such times as are before limited after their coming to or being of full age ... or sane memory at large ... as other persons having no such impediments should have done."

Mr. J. W. J. Cremllyn and Mr. N. L. C. Macaskie (instructed by Mr. H. Coulson) appeared for the plaintiff; and Mr. A. Neilson, K.C., and Mr. T. Carthew (instructed by Messrs. Le Brasseur and Oakley, for the London and Counties Medical Protection Society) appeared for the defendant.

Mr. Neilson argued that the plaintiff's contention and the jury's finding that Mr. Harnett was sane on November 10th, 1912, showed that Mr. Harnett was in no sense under the protection of the proviso of Section 7. Being a sane man, he might at any time within the period when he was under the charge of Dr. Adam have instructed his advisers and have brought his action, but he took no steps at all to assert his right until the issue of his writ on May 31st, 1922. If it were suggested that the imprisonment had anything to do with it, even that was answered because imprisonment had been removed as a disability by Section 10 of the Mercantile Law Amendment Act, 1856. Secondly, Mr. Neilson argued that it was not the act of Dr. Fisher which brought about

PROFESSOR RICHLT has been nominated Grand Officer of the Legion of Honour.

THE annual provincial meeting of the Section of Balneology and Climatology of the Royal Society of Medicine will be held this year at Llandrindod Wells on Saturday and Sunday, May 8th and 9th. Inclusive terms have been arranged with the Pump House Hotel, and the Great Western Railway will issue week-end tickets available for particular trains. Motor trips and golf have been arranged for Saturday, and there will be a motor tour through the Wye Valley to Hereford on Sunday afternoon. Fellows and members wishing to join the party should communicate with Dr. Ackerley, Llandrindod Wells, before May 6th.

A JOINT meeting of the South-West London Medical Society and the South-West London Chemists' Association will be held at the Balham Constitutional Club, 221, Balham High Road, S.W., on Wednesday, May 5th, at 9 p.m., when Sir William Willcox will give an address on the Dangerous Drugs Acts, their application by the physician and the pharmacist.

A MEETING of the School Medical Group of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, Russell Square, W.C., this day (Saturday, May 1st), at 3 p.m., when Dr. Edgar H. Wilkins, now an assistant school medical officer at Birmingham, and formerly Director of School Hygiene, New Zealand Public Health Department, will read a paper on school medical work in New Zealand. The meeting will be open to all interested in school medical work.

A SESSIONAL meeting of the Royal Sanitary Institute will be held at the Town Hall, Dover, on Friday, May 7th, at 7.30 p.m. The chair will be taken by Professor A. Bostock Hill. A discussion on experiences in diphtheria immunization will be opened by Dr. Joseph Gates, County M.O.H. Surrey, followed by Major Roberts, R.A.M.C. Dr. A. B. McMaster, M.O.H. Dover, will open a discussion on port sanitary administration.

AT a medical mission social evening on April 21st, arranged by the Society for the Propagation of the Gospel in Foreign Parts, short addresses were given by Dr. Minnie Bazely, from St. Stephen's Hospital, Delhi; Dr. H. J. Smyly, from Peking Union Medical College; Nursing Sister Mary Simpson, of St. Catherine's Hospital, Cawnpore; and the Rev. K. W. S. Kennedy, M.B. It was stated that the society required twenty-eight additional medical men and women; one in holy orders is also required for an island in the Nassau diocese.

THE two weeks' special course in cardiology at the National Hospital for Diseases of the Heart, Westmoreland Street, W.1, will commence on Monday, July 5th, instead of July 12th, as previously arranged.

A COURSE of lectures on physic will be given by Sir Robert Armstrong-Jones, M.D., at Gresham College, Basinghall Street, E.C.2, on May 4th and three following days. The lectures, which will be given at 6 p.m. on each day, will be on tumours and cancer, arthritis and rheumatism, venereal diseases, and encephalitis lethargica. They are open free to the public.

THE Fellowship of Medicine announces that on May 5th, at 2.30 p.m., Mr. L. E. C. Norbury will give a special afternoon demonstration at St. Mark's Hospital for Diseases of the Rectum, to which all members of the medical profession are invited. The Royal Waterloo Hospital will begin a three weeks' course in diseases of women and children on May 3rd, and an intensive course starts on the same date at the Central London Throat, Nose, and Ear Hospital, lasting until May 22nd. The course comprises clinical and operative parts, which may be taken separately. The Maudsley Hospital will give a series of lectures and demonstrations in psychological medicine during May, and another course continuing throughout the month is to be held at the London Lock Hospital. The Royal Westminster Ophthalmic Hospital will hold a course in ophthalmology from May 3rd to 22nd. Dr. Eric Pritchard has arranged at the Infants Hospital an afternoon course from May 9th to 22nd. There will be an intensive course in medicine, surgery, and the specialties at the Royal Northern Hospital from May 31st to June 12th. Other courses in June relate to diseases of children, bacteriology, diseases of the chest, gynaecology, urology, and there will be a general practitioners' course. Copies of all syllabuses and of the general course programme may be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE British Institute of Philosophical Studies has arranged a course of lectures on aesthetics by Professor E. F. Carritt, M.A., during the summer term. The first, on contemporary data for aesthetics, will be given at the Royal Anthropological Institute, 52, Upper Bedford Place, W.C., on Friday, May 7th, at 5.30 p.m. Full information can be obtained from the Director of the Institute, 88, Kingsway, W.C.2.

A SERIES of debates, organized for the benefit of King Edward's Hospital Fund, is in progress on Tuesday afternoons, at 5.30, in the Great Hall of the London School of Economics. The following questions are to be discussed: On May 4th, by Miss Sheila Kaye-Smith and Captain P. P. Eckersley, "Is there too much broadcasting?" On May 11th, by Sir Ernest Benn and Mr. James Maxton, "Are capitalists overpaid?" On May 18th, by Dr. Walter Elliot and Miss Ellen Wilkinson, "Is woman becoming too obtrusive?" On June 1st, by the Right Hon. J. H. Thomas and Mr. G. K. Chesterton, "Is the House of Commons of any use?" Tickets and further information may be obtained from the Secretary, London School of Economics, Houghton Street, Aldwych, W.C.2.

THE nineteenth Voyage d'études médicales, postponed from last year, will begin next August. It is organized by Dr. Maurice Gerst, under the scientific direction of Dr. Paul Carnot, professor of therapeutics in the Faculty of Medicine of Paris, and Dr. Harvier, professor agrégé in the same faculty. The party will visit Alsace, Lorraine, and the Vosges. It will assemble at Nancy on the morning of August 29th, and after visiting the antituberculous and thermal establishments, the hospitals and the Faculty of Medicine there, will go on by Morsbronn and Niederbronn to Strasbourg, where the third day will be spent. Leaving there on September 1st it will visit various institutions on the way to Ribeauville and Colmar. On September 4th, after again visiting various institutions on the way, it will reach Plombières in the evening. On September 5th it will go by Bains-les-Bains to Bourbonne-les-Bains. On the ninth day, September 6th, it will reach Contrexéville, and the tenth day will be spent at Vittel, where the party will disband. The cost of the trip, including all expenses from Nancy to Vittel, will be 1,050 francs. British doctors desiring to take part in the voyage should communicate without delay with Madame M. C. Juppé-Blaise, at the Office Français du Tourisme, 56, Haymarket, London, S.W.1. Participants who wish to visit the battlefields of Lorraine and Verdun can do so on August 28th, but must arrive at Nancy on the evening of August 27th.

THE eighteenth Congress of Russian Surgeons will be held at Moscow from May 27th to 30th, when the following subjects will be discussed: (1) Radical operation for inguinal and femoral hernia, and its remote results, introduced by Professor Martynoff. (2) Affections of the spleen, indications for splenectomy and its remote results, introduced by Professor Herzen of Moscow. (3) Surgical treatment of jaundice from retention, introduced by Professor Fédoroff of Leningrad.

THE annual dinner of the Metropolitan Police Surgeons' Association took place at the Holborn Restaurant on April 22nd. The president, Dr. Percy B. Spurgin, received the guests and presided at the dinner. Among the numerous company who attended were the Commissioner, Sir William Horwood; the Assistant Commissioner, Colonel Laurie; the Chief Surgeon, Sir Charles Ballance; the Chief Physician, Dr. Cassidy; Mr. H. W. Wilberforce, Deputy Chairman London Sessions; and the Mayor of Croydon. The speeches were well received, and the company much enjoyed an excellent musical programme. About a hundred divisional surgeons and their friends were present, and the evening was a great success.

THE dinner of the St. Andrews University Former Students' Club will be held at the Royal Hotel, Princes Street, Edinburgh, on Friday, May 21st, at 7.30 p.m. The charge for the dinner is 6s. 6d., and any former students desiring to be present, or to join the club, are requested to communicate with the Rev. G. Christie, B.D., 2, Heriot Row, Edinburgh.

THE Home Secretary gives notice that he has withdrawn from Dr. Samuel Grahame Connor, of 21, Dryden Chambers, Oxford Street, London, the authorizations granted by the Regulations made under the Dangerous Drugs Act, 1920, to duly qualified medical practitioners to be in possession of and supply raw opium and the drugs to which Part III of the Act applies. Any person supplying Dr. Connor with raw opium or any of the drugs to which Part III of the Dangerous Drugs Act, 1920, applies will be committing an offence against the Act.

MR. P. G. DOYNE, F.R.C.S., assistant surgeon Royal London Ophthalmic Hospital, sailed for America on April 24th with a team of British fencers chosen to represent Great Britain in the competition for the trophy presented by Colonel Robert Thompson, which is fought for alternately in England and America. Mr. Doyno has twice won the British Amateur Foils Championship.

A REVISED edition of his *Stellar Songs and other Poems* has been issued by Dr. Herbert A. Smith. The main poem is a metrical study of stellar evolution based on the nebular hypothesis; the other contents include sonnets, miscellaneous verses, and an essay on science and poetry.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS.

SACRO-ILIAC PAIN.

DR. S. W. RHODES (Scarborough) asks for help in the following case: A man aged 29, who has been suffering from acute rheumatism for three months, has severe pain in the sacro-iliac joint, and relief can only be got by the use of Dover's powder (75 grains a day). He has had treatment of all kinds—from salicylates to electric massage and radiant heat; x-ray examinations, both of the sacro-iliac joint and sigmoid colon, are negative.

VULCANITE.

"J. S." asks: What industrial diseases, if any, arise in workers at vulcanite works? Is it likely that any form of paralysis is contracted in the course of this occupation?

"* We have referred this question to an authority on industrial medicine, who, however, is unable to give a reply from personal experience. Since the introduction of wireless and its widespread use, the output of vulcanite has much increased. During the boring of vulcanite a most unpleasant odour is emitted, and as the smell may be due to dust some of this may be inhaled, but our adviser has not hitherto heard of any ill effects to the workers arising therefrom.

WHAT IS A "MORPHINE ADDICT"?

DR. G. WASHINGTON ISAACS (London, W.C.) asks for a definition of a "morphine addict," and adds: I have a patient who suffers from asthma and who can generally control his attacks with adrenaline, but every few weeks he comes to me for heroin and I give him three or four tablets 1/2 gr. in each. I have another patient who suffers from tabes dorsalis, and occasionally gets a severe attack of lightning pains. On one occasion he shouted loudly and disturbed his neighbours at intervals of less than a minute for about sixty consecutive hours. This man requires morphine, and two tubes of twenty tablets 1/4 gr. last him five or six months. He will not take morphine if he can avoid it, as it invariably makes him vomit. Are these cases morphine addicts and am I liable to punishment by law and subsequently to the wrath of the General Medical Council? Must I keep a record of the heroin supplied and the morphine prescribed? May I take my hypodermic case and morphine tablets with me if I am called out to a case which seems likely to require a sedative? Or, if called to a case of acute mania, may I take it even though it contains morphine as well as hyoscine? I ask these questions in all seriousness.

"* A careful study of the report of the Departmental Committee on Morphine and Heroin Addiction, 1926, will at once remove our correspondent's fears. A fairly full analysis of the report was published in the **BRITISH MEDICAL JOURNAL** of February 27th (p. 391), but the report itself can be obtained from H.M. Stationery Office, Adelphi House, Kingsway, London, W.C.2, price 1s. An addict is defined in the report as—

"A person who, not requiring the continued use of a drug for the relief of the symptoms of organic disease, has acquired, as a result of repeated administration, an overpowering desire for its continuance, and in whom withdrawal of the drug leads to definite symptoms of mental or physical distress or disorder."

Neither of the patients mentioned is an addict, so there is no

risk of any censure or penalty from either the law courts or the General Medical Council. It is quite safe to take—and to use if necessary—a hypodermic case to a patient with acute mania or to anyone likely to need a sedative. Section III of the report sets out in detail the circumstances in which it may be medically advisable to administer morphine or heroin to persons known to be suffering from addiction to these drugs, and Section IV deals with the precautions to be observed in the administration of morphine or heroin. For his own guidance and protection every practising physician should make himself familiar with these very important matters. The regulations issued under the Dangerous Drugs Act make it compulsory to keep a record of any of the scheduled drugs, including heroin, supplied, but there is no obligation to keep any record of morphine or the other drugs if they are prescribed or personally administered.

INCOME TAX.

Motor Car Expenses: Irish Free State.

"J. C." writes from the Irish Free State explaining that his son has given him a motor car because his old car is worn out, and asking what allowance he can claim.

"* We fear that at present he cannot claim any allowance. He has not incurred expenditure in replacing his old car—apart from the fact that the new car was a gift, he still retains the old one—and the Free State has not yet followed the example of the British Parliament in providing for a depreciation allowance in respect of cars used for professional purposes. "J. C." might perhaps keep the latter possibility in mind as regards 1926-27.

Partnership: Car Expenses.

"LEX."—A and B hold half shares in a practice, and the income tax authorities insist on deducting the combined expenses of running their cars from the total receipts of the practice. Is this correct?

"* Yes. The firm is assessable as such, and the partners are not entitled to be assessed separately. The result is inconvenient, and the Association represented that fact some years ago to the Royal Commission on the Income Tax. We advise "Lex" to enlist the assistance of his inspector of taxes, if possible—if the detailed figures have been supplied to him—or, alternatively, to recalculate the three years' average for each partner separately agreeing the aggregate with the actual assessment.

LETTERS, NOTES, ETC.

A WARNING.

The Secretary of the Medical Defence Union asks us to state that he has been informed by a member of the Union residing in Birmingham that recently a man brought a parcel of books, stating that the member had ordered them from W. H. Smith and Sons. At his request he was paid £1. The parcel contained some novels which had not been ordered. The member was informed by the Birmingham police that a man had been working this trick in various parts of the country and that a warrant was out in several towns for his arrest. He is described as about 30 years of age, medium height, slight dark moustache, fairly well dressed, and wearing a brown overcoat.

POISONING BY THE PRODUCTS OF COMBUSTION OF TOBACCO.

DR. HOWARD B. GLADSTONE (London, S.E.) writes: The case of a child poisoned by the juice of an old pipe rubbed into the skin, reported in the **BRITISH MEDICAL JOURNAL** of April 24th (p. 739), can be matched by that of a little boy of 16 months I saw recently, who got the poison in by his mouth. He was allowed to put a dirty old pipe in his mouth and pretend to smoke it for the amusement of his parents. This was at 6.30 p.m., and after half an hour he was put to bed apparently in good health. At about 7.30 he was seen to be uneasy and to be very pale, and shortly after he began to vomit. He looked very bad and the vomiting was persistent; by the time I saw him, about 10.30 p.m., he had vomited mucus seven times. He was then beginning to revive, and as his temperature was normal, his abdomen and muscles generally relaxed, it was evidently a case of nicotine poisoning, from which he was just recovering. I saw him next morning and heard that he had not been ill after I left, and he was playing about as if nothing had happened.

ERRATUM.

We regret the error on page 758 of last week's issue of the **JOURNAL**, in which a tuberculosis hospital scheme was attributed to "Portsmouth," instead of "Plymouth."

VACANCIES.

NOTIFICATIONS of officers vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 39, 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement column appears in the *Supplement* at page 172.

A Lecture

ON

THE PRINCIPLES INVOLVED IN PROPHYLAXIS
AND THERAPY BY MEANS OF VACCINES.*

BY

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HAD my subject been merely that of prophylaxis by means of vaccines, I should have felt myself in a fairly strong position in coming before you, as prophylaxis rests on strong scientific foundations, and has in practice proved its merit. I must, however, claim your indulgence in my discussion of vaccine therapy because my clinical experience of it has been strictly limited and my interest in it has been largely confined to the immunological problems it offers. On the other hand, I take refuge in the reflection that, though vaccines have been exploited in treatment for, I should say, over twenty years, the accumulated clinical data as to their efficacy or otherwise have not yet supplied that decisive link in the evidence which would raise vaccine therapy from the level of a purely empirical practice. What I mean is that any scientific basis on which specific vaccine therapy may rest has not been enlarged and built upon by decisive experiment on man or animals, and the consequence has been that vaccine therapy continues on its hapless way, exploiting now this, now that purely technical modification, but really in no way consolidating its position as the form of specific therapy which it has been believed to be.

I would explain how the matter appeals to me, regarding the introduction of bacterial vaccines solely as a means calculated to raise the natural defences of the body, and really based on immunological experiment, but gone somewhat astray in its application to therapy. I propose, therefore, to disentangle from the ravelled accumulation of data on vaccines just those elements which rest on experimental fact. I do so in the hope that the practitioner may be constrained also to test his vaccines and interpret his results in such wise that he will gain comparative knowledge from the experience. I freely admit that in general practice conditions are far from suitable for procuring reliable comparative statistics with regard to the efficacy of vaccines, or in fact of drugs generally. Only few have the time or inclination to amass comparative statistics that may mean real additions to knowledge, but I believe much may be gained by frank discussion of the effects which vaccines are claimed to produce in therapy, and this I propose to do. Let me, then, trace briefly the origin and development of the use of vaccines in prophylaxis and therapy, confining myself solely to experimentally ascertained facts. I start naturally with prophylaxis, and may probably end with prophylaxis, because I hope to show that much of what is called specific vaccine therapy is simply a form of prophylaxis, and what is not prophylaxis is simply a form of non-specific protein therapy—bacterial protein therapy if you like, it is immaterial.

PROPHYLAXIS BY VACCINES.

Prophylaxis of infectious disease by means of vaccines I must deal with only shortly, as, apart from vaccination against small-pox, the method does not enter largely into the sphere of the general practitioner, at least in this country. The use of the living attenuated virus remains with us only in the prophylactic methods developed by Jenner and Pasteur against small-pox and hydrophobia. In certain veterinary diseases, however, the methods of Pasteur, or modifications of them, still find practical application, and there would seem to be little doubt that only by means of the attenuated live viruses is it possible

to secure solid immunity against certain highly virulent infections in highly susceptible animals. The axiom that the live virus is the one most calculated to give solid immunity as tested experimentally by a lethal dose method is not to be lost sight of in the prophylaxis by dead vaccines of human bacterial infections. In a recent Harben lecture I have discussed the position of enteric fever prophylaxis, which was worked out almost solely on data concerning antibody production in animals (especially bactericidins) elicited by typhoid antigen. We now know that immunity, as measured by capacity to withstand an otherwise lethal dose of infection, is not necessarily correlated with the antibody content titratable *in vitro*. The fundamental difference between an immunized animal whose antibody content has fallen to normal levels and an untreated normal animal is that in the former the injection of a minute dose of antigen elicits a prompt and massive response of the antibody mechanism, whereas in the latter the response is 'slow' and meagre. Some doubt has been expressed of late as to whether we can hope with dead vaccines to secure that degree of immunity which the attenuated virus can afford. The question can be answered only by animal experiment. Even though the causative agents of human disease, such as the enteric and paratyphoid fevers, cholera and dysentery, cannot reproduce with any exactness the symptom-complex of the human disease, they possess sufficient pathogenicity to make the lethal dose test of immunity a valuable criterion of the immunizing capacity of antigen. It is believed by some workers that the defects of the killed antigen can be made good by increase of dose. This may prove to be so, but at the present time new ground is being opened by advances in our knowledge of bacterial variation, and the choice of a suitable variant as the source of antigen may become the all-important factor in securing solid immunity with killed vaccine.

VACCINE THERAPY.

Vaccine therapy was in its origin really a development of vaccine prophylaxis applied to the more chronic types of infection. We must go back a little more than twenty years to find bacteriologists and clinicians eagerly investigating the claims of opsonic index determinations as guides to the state of immunity of the individual, whether normal or infected. It had been known that while certain organisms like the typhoid bacillus or the cholera vibrio were susceptible to lysis in the presence of immune serums, such organisms as the staphylococcus or the streptococcus, and many others, were not killed in the presence of serum prepared from animals immunized with these organisms. Denys and Leclef, however, found that when organisms like the staphylococcus or streptococcus were placed in contact with leucocytes and immune serum they were eagerly phagocyted. Some substance in the immune serum, to which the name "tropin" or "*substance sensibilisatrice*" was given, prepared the organism for phagocytosis by the leucocyte.

Opsonins.

Later Wright and Douglas showed that normal serum contained a body having the same property, and though the new name of opsonin was coined for it, it was demonstrated, as the result of much experiment devoted to the question, that the normal opsonin was in no way separable from the immune opsonin in structure and function. The name, however, has stuck, and it is quite a good name. Wright decided that the estimation of opsonin in the infected individual might afford an index of the degree of immunity in staphylococcal infections just as the bactericidal power of the serum had been used as a guide in estimating the development of immunity to *B. typhosus*. The method failed as a practical guide in immunization, and, I think, has been entirely given up. Its failure was largely due to the fact that it was overexploited as a practical guide and scientific claims were made for it as a quantitative index of immunity which were not merited. Moreover, at the time, it was not realized that non-specific factors entered largely into the matter, leading either to rise or depression of the opsonin content. I shall come to this presently.

* Delivered to the Croydon Division of the British Medical Association, February, 1926.

One point on which great stress was laid was the occurrence of a negative phase after the injection of a vaccine, and much was made of the alleged dangers of producing too severe negative phases by overdosage and of the alleged lowered resistance of the individual during these phases. It was noted that after a dose of vaccine there was a primary fall in the index followed by a rise, reaching its acme about the end of the first week. Now we know that a temporary fall in antibody follows regularly the introduction of a dose of antigen. It is probably to be explained on physico-chemical grounds as one of the effects following the injection of a colloid. It cannot be adequately explained as the result of abstraction of antibody by the antigen injected. This fall in the opsonic titre Sir Almroth Wright brought into relation with certain focal or general reactions liable to occur at early periods after the administration of a vaccine. Thus, to take an example from his *Studies in Immunisation*: A patient suffering from boils was given a dose of staphylococcal vaccine. On the following day the patient's phagocytic power was found to be reduced. "Contemporaneously with the development of this 'negative phase' an irritable pimple developed on the neck. We may see in this, for it is a phenomenon which has manifested itself again and again in connexion with our inoculations, an indication that the negative phase is associated with a diminished resisting power to invasion by the staphylococcus." I dare say the phenomenon of focal reaction is well known to all of you.

From such considerations as these was built up a practice of immunization which was regarded as applicable with safety to the patient only when the system of dosage was controlled by periodical estimations of the opsonic index. Only the trained immunizer was to be entrusted with the task. Now we know, of course, that fearful things did not happen when the opsonic control was left out. Further, it came to be realized that variations in opsonic content bore little or no relation to the clinical state which is all we have to depend on for an estimate of the host's reaction to an existing infection. However, I may say that for a good many years now therapeutic immunization has proceeded on certain fairly stereotyped lines, commencement being made with doses of a killed organism which experience has shown to be relatively innocuous and passing on at fairly uniform intervals to larger doses, the only guide to treatment being the patient's responses and common sense.

I do not propose to discuss the value and results of this alleged specific therapy. I can only repeat what I have been credibly informed—namely, that in certain more or less acute infections like furunculosis, where the effect of any treatment can be very correctly estimated, vaccine treatment has in the main made good. Vaccine treatment of furunculosis might probably rank as a specific therapy, but not as a specific staphylococcal therapy seeing that vaccines of *B. coli* or of *B. typhosus* have been shown to act similarly on furunculosis. In other types of chronic infection—for example, chronic gonococcal infection or bacillary cystitis—vaccine therapy may claim to exert specific action, but it is doubtful whether there is any unanimity among clinicians on the point, and we have no other source of precise information.

When we consider, further, the many other forms of chronic infection, such as the respiratory and arthritic affections, in which vaccine therapy is widely used, we feel ourselves to be almost entirely in the realm of pure empiricism because we have no certain knowledge of the etiology of these infections. In the respiratory group recourse is had to vaccines prepared from the mixed flora multiplying and presumably doing harm in the affected region. In arthritic affections, again, it may be expedient to prepare vaccines from organisms vegetating in situations still more remote from the clinical side of the trouble—for example, from faecal streptococci—on the chance that they may be concerned with so-called intestinal intoxication, which again may be associated with, shall we say, rheumatoid arthritis. In fact, all we can really say about such vaccines is that they consist of bacterial protein. Now we know that, apart from antibody response, the introduction of bacterial protein into the body is followed by a chain of intensely

interesting physiological phenomena; some of these I propose to discuss, so that we may get back to really basic principles. The first point I must make is that vaccine therapy does not lend itself readily to experimental investigation in the laboratory. Chronic infections which would afford scope for therapeutic treatment by vaccines are not easily induced, with the notable exception of tuberculosis. Acute infections in laboratory animals are usually too acute and of too short duration to render vaccine trials possible. We have therefore to resort to experiment on normal man and animal, determining the effects exercised by bacterial protein injections on antibody content, the fluid and cellular constituents of the blood, body temperature, blood pressure, etc.

Non-specific Protein Therapy.

On these points a mass of data is now available which helps us to understand something of the mechanism of action of bacterial protein when introduced into human beings. Let me go back to the days of the opsonic index. An investigation I then undertook, in collaboration with Professor W. Bulloch, was on the influence of experimental leucocytosis on opsonic content. Of various substances employed to produce a leucocytosis experimentally, such as nuclein, sodium cinnamate, tallianine, etc., the first mentioned was the only one which in addition produced a very notable temporary increase in opsonin (50 to 100 per cent.). This increase made its appearance within an hour of injection, and was generally gone by twenty-four hours. It was entirely a non-specific rise, and quite irrespective of the organism employed to demonstrate it. Also autolysed bacterial protein had the same effect as nuclein. The phenomenon was later investigated by Bedson, but it was found impossible to explain it in terms of increased amboceptor or of complement. It is highly probable, in the light of later work with colloids, that this prompt variation in normal antibody following the introduction of substances like nuclein, or any autolysed bacterial protein, comes into the category of those purely physiological phenomena which the injection of a colloid can induce. In any case, it was this apparently non-specific early variation in antibody induced by nuclein and autolysed bacterial protein which led me to believe that many of the immediate effects of vaccines, such as the early euphoria, the sometimes startling clinical improvement, and the focal and general reactions, were disturbances which had their source in the colloidal nature of the vaccine.

I may say that while this view has long been held by many immunologists it will have been observed that only recently Sir Almroth Wright has thrown overboard the principle of specific vaccine therapy in the old sense, at least so far as the treatment of acute septicaemic infections by vaccines is concerned. His method of immunisation-transfusion is, in part at least, an attempt to administer passively to the patient the antibodies which the injection of substances like nuclein or bacterial protein can rapidly induce in a normal person. We have, however, a large body of evidence on the point. It was noted many years ago that an intravenous injection of typhoid vaccine in typhoid fever frequently brought the temperature down promptly and the febrile state ceased, leading to rapid convalescence. Soon, however, came the demonstration that an injection of *B. coli* vaccine, or indeed of substances like casein or deuto-albumose, could do precisely the same thing in typhoid fever. The exact mechanism is not yet understood. We know that in the normal animal a pyrogenic effect is produced by the intravenous injection of a minute quantity of bacterial protein. It is suggested that when a similar injection is made in a case of typhoid fever already febrile, the heat centre is paralysed and the temperature falls. Why it does not again rise is not clear, and doubtless there are other physiological effects apart from that on temperature which follow the injection of colloids in the infected subject. In any case, we now know that focal reactions are not produced by the specific antigen only. In chronic gonococcal infections precisely similar focal reactions can be induced by other antigens than the gonococcal, and by still less specific agents such as casein or milk. Similar considerations apply to the

treatment of rheumatoid arthritis by injection of non-specific proteins.

We have no precise knowledge of the actual mechanism of these focal reactions in the infected subject, though many hypotheses have been put forward. It is generally believed that the ultimate effect in any case is to produce a greater flow of blood through any indolent inflammatory foci that may be present, with the result that the normal cellular and humoral defences are allowed to come into play. Possibly it accomplishes for the unseen indolent lesion what the surgeon's bistoury does for the visible carbuncle.

Non-specific protein therapy has really a very long history if all the phenomena provisionally assigned to this category do rightly belong to it. We have the mutual interaction of concurrent infections with the ousting of the more chronic by the more acute as evidenced by observations on erysipelas supervening on more chronic processes. The use of Coley's fluid was an attempt to apply this principle to the treatment of sarcoma. The experimental induction of malaria for the amelioration or cure of general paralysis is another instance of prolonged and repeated protein shock therapy. So also is the Schiötz treatment for diphtheria carriers which would seem to depend for any attendant success on the inflammatory reaction produced by the staphylococci sprayed on the throat. Many other phenomena, such as the occasional dramatic effect of normal horse serum in septicaemias, the use of auto-serotherapy and of multiple bleedings, come probably into the same category.

I conclude, therefore, that so far as the early effects (euphoria, focal and general reactions, etc.) following an injection of vaccine are concerned, the action is entirely non-specific. There is no warrant for assuming that the organism, a vaccine of which happens to give a focal reaction in a particular case, is etiologically related to the case. One bacterial colloid can be more potent than another in the production of immediate physiological effects.

In many cases it is the action of the non-specific element of the vaccine that we wish to elicit with a view to cure. This is certainly so in the acute infections and in the more chronic infections (for example, the arthritic) also; we gather that the object now usually aimed at is to produce focal and general reactions by repeated administration of non-specific substances in appropriate dose.

Vaccine therapy, however, as ordinarily practised, involves the repeated injection of a vaccine with a view, not only to cure of an existing infection, but also to prevention of subsequent infection, and here vaccine therapy and vaccine prophylaxis meet on common ground.

Theoretically, therefore, as in ordinary vaccine prophylaxis, specificity of antigen must, at least in our present state of knowledge, be the highest possible if we are to expect the best results. The difficulty arises in preparing a vaccine that can be regarded as specific in many of the affections for which vaccines are used. Valuable information on this point may be expected from those recently organized attempts to control the prevalence of respiratory affections in boarding-schools and institutions by prophylactic vaccines. It is greatly to be hoped that these efforts will be so directed that comparative knowledge may be gained on many important particulars—such, for example, as the qualitative and quantitative vaccine formulae.

SUMMARY.

To sum up briefly what I have put before you, I have emphasized the importance of the non-specific element in vaccine therapy in its purely curative aspect, without ignoring the possible benefits that may accrue from repeated vaccine administration with a view to prophylaxis. I should like to say, however, that in giving my impressions of the rationale of vaccine therapy I have merely been elaborating views that have long been entertained by immunologists but have, I believe, not been adequately ventilated among those who daily practise the method. My object has been achieved if what I have said may help the practitioner to view his aims and achievements in vaccine therapy from a somewhat less conventional angle.

ON THE CONTROL OF HEART DISEASE IN CHILDHOOD.

BY

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ONE of the most serious issues presented to practical medicine to-day is the problem of cardiac disease in the young. By the estimate of Dr. Carey Coombs¹ the onset of two-thirds of our adult cardiac morbidity occurs during the period of life from 5 to 15 years of age. Dr. Askins states that we are losing 18,962 lives per annum from this cause alone, and there must not be forgotten in this connexion "long periods of illness, the misery of repeated breakdowns, and the immense industrial loss involved during the years which elapse between the time when the patient develops the disease and when he is ultimately killed by it,"² if we are to gain an idea of the magnitude of the problem involved.

It is now generally admitted that carditis in childhood is for all practical purposes a rheumatic manifestation; the problem of carditis is thus synonymous with the problem of rheumatism, and in practice the control of heart disease in childhood means the control of the rheumatic child. For this outlook on the question the British Medical Association is in no small measure responsible, and from the illuminating discussions of the whole question arranged by its Sections of Medicine, Diseases of Children, and Public Health in 1923 and 1925, a very considerable body of information has emerged relating to the manifestations of the disease itself and the available agencies for coping with it. A consideration of these discussions brings out clearly that rheumatism is an exceedingly long-drawn-out and chronic infection, which in all its forms should be considered as passing through three stages—the acute, the convalescent, and the quiescent. To be effective, therefore, any attempt at control of the disease must take cognizance of each of these, and be directed along three definite lines.

1. The Acute Stage.

That a very significant diminution in the incidence of carditis can apparently result from efficient handling of this stage has recently been brought out by Dr. Bertram³ in a survey of the after-history of cases treated at the Royal Hospital for Sick Children, Glasgow. She showed that whereas only 24 per cent. of those treated in hospital for their first attack of acute rheumatism or chorea subsequently developed carditis, this sequel occurred in 88 per cent. of those who were treated at home. This is the stage most easily reached by our present organization, and there seems no valid reason why the children's hospitals and the children's departments of the general hospitals at present existent could not satisfactorily cope with it so long as provision can be made to ensure a sufficient length of residence.

2. The Convalescent Stage.

Upon a satisfactory convalescence depends the child's chance of recovery from rheumatic fever or chorea without damage to his heart. The two essentials are: an adequate period of rest and a graduated return to ordinary conditions of living. Treatment of this stage of the disease, therefore, entails the adequate provision of convalescent homes or rest hospitals in sunny and dry areas, where children can receive medical supervision, graduated exercise, and suitable education.

3. The Quiescent Stage.

After the acute and convalescent stages have passed there is a further phase of the disease, extending over many years, and during which the possibilities of recurrences are always present. The very essence of the rheumatic infection is its chronicity and great tendency to relapse, and this third stage, which may be called the "quiescent stage," since no active manifestations are present, is of the greatest significance in any scheme for prevention. It will be readily understood that it is neither feasible nor desirable that this period should be passed in

hospital, yet it is during this time that need for watchfulness is greatest if the tendency to relapse is to be controlled.

It is here that the failure of our machinery is most apparent. While exhaustive and skilful care is expended upon the acute cases in our wards, and while public opinion is wakening to the need for further facilities for convalescents, no adequate provision exists for the vaguely rheumatic child, the child in the pre-rheumatic stage, and the child between his definite acute attacks.

In America a serious attempt has been made to tackle this side of the problem, and through the initiative of the Society for the Prevention and Relief of Heart Disease special classes (called cardiac clinics) have been created for the purpose. These provide continuous supervision for the rheumatic child during the whole of his pre-puberty life. American results show that by means of this kind of supervision the work of hospitals and convalescent homes can be conserved and so supplemented that a very large number of children and young persons can be rescued from the ranks of invalidism and returned to normal life.

An organized attempt to carry out such a scheme was inaugurated by William St. Lawrence⁴ of St. Luke's Hospital, New York, in 1915. Stimulated by his record of the results obtained, an experimental clinic on the same lines was instituted at the Royal Hospital for Sick Children, Glasgow, as part of the medical department, in December, 1923. The aim of the clinic was to find out how far such supervision was practicable under British conditions, to what degree and by what means carditis in the children supervised could be prevented, and to devise a system of registration which should provide material for further study of the disease. The children attending the clinic had all been at one time resident in the Royal Hospital for Sick Children for attacks of acute rheumatic fever, chorea, or carditis, and formed part of the material used for an etiological and sociological survey carried out by Dr. Sutherland and myself, under the auspices of the Medical Research Council, in 1923-24.

CLASSIFICATION OF CASES.

For the proper conduct of such a clinic a satisfactory and practicable classification of the children supervised is a fundamental requirement. St. Lawrence classified his cases according to their cardiac efficiency, which he held could be satisfactorily estimated by means of the child's tolerance to exercise, and in his description of the clinic he details the special exercises adopted. Such a method of measuring cardiac efficiency we found, at least in the children coming under our care, not to be practicable, and we entertain grave doubts if any exercise can be performed by every child with sufficient concentration and uniformity to render it an adequate basis for classification. Before deciding, however, to abandon St. Lawrence's procedure a number of experiments were carried out, not only with the "Lewis class exercises" recommended by St. Lawrence, and with other similar tests, but also by means of an ergograph and the spirometer. In the case of the latter two methods, the reactions of both normal and cardiac children were investigated. The results of these demonstrated to us the inadvisability of placing reliance upon any such tests for general use with young children. We therefore devised in its stead the following simpler classification embracing seven groups, based on the past histories of the children and the present cardiac findings by ordinary clinical methods. Upon this classification the whole work of the clinic depends. It is as follows:

CLASS P. Potential heart cases—that is, cases with definite rheumatic history who have never had cardiac involvement and are now well.

CLASS A. Cases with a history of definite rheumatism with cardiac involvement, which has now disappeared.

CLASS B. Cases with a definite rheumatic history and present signs of cardiac involvement but no symptoms referable to the heart.

CLASS C. Cases with a definite rheumatic history and present signs and symptoms of cardiac involvement but no disability for ordinary life.

CLASS D 1. Cases with a definite rheumatic history, present signs and symptoms of cardiac involvement, and definite disability for ordinary life.

CLASS D 2. Cases without a rheumatic history, but showing

signs of a cardiac lesion, and with some definite disability for ordinary life (fainting, dyspnoea, precordial pain, etc.).

MISCELLANEOUS. Cardiac irregularities, effort syndrome, erythema nodosum, and cutaneous eruptions supposed to be of rheumatic origin.

The actual carrying out of the work is as follows. The clinic meets once a week, at a time which does not interfere with the children's school attendance, in an ordinary room of the hospital. No special apparatus beyond a weighing scale is used. Upon the arrival of a new child at the clinic he is stripped and his weight, temperature, and pulse are taken; these are entered on a slip of paper, with which, still undressed, he approaches the doctor. For each child there is a complete clinical sheet, on which an abstract of his previous health and his hospital record have already been entered, with due note taken of the method by which he was treated in the wards. Complementary to this is a social record kept by the lady almoner which deals with the whole of the social side of the case. For convenience of reference these two are printed in different colours but filed together.

A complete examination of the child follows, with special attention to teeth, tonsils, stance, presence or absence of anaemia, state of the bowels, and general health. The mother is then interviewed, and points with regard to habits, etc., considered. Consultation with the almoner disposes of such matters as efficiency of clothing, holidays, trouble with school teachers, etc. The child is now graded, the degree for the present provisional, and treatment is begun. This is directed towards the clearing up of all septic foci in the body, the establishing of satisfactory and regular bowel actions, and where possible the rectification of unsatisfactory habits. Arrangements with the throat department make possible the prompt care of all suspect throats, and every throat not entirely normal is passed to this department for examination. All carious teeth, irrespective of dentition, are attended to, and no child of whatever age is allowed to retain a spot of caries in its mouth. All bowel irregularities are supervised and the child kept under observation until action has become satisfactory. If desirable and possible a holiday in the country is arranged for. Clothing is inspected, particularly boots, and where possible rectified. Home conditions are uncontrollable, but what modifications are possible are attempted, and pressure brought to bear with regard to regular meals, sleep, exposure, etc. Relations with school teachers are inquired into and where—as for example, in the case of those children suffering from chorea—these are unfortunate, co-operation with the school board can often bring about an improvement in affairs.

As regards drugs, a consideration of the relative efficiency of the different remedies from the standpoint of carditis has already been made by Dr. Bertram, and the superiority of salicylates, in our opinion, definitely shown. Sodium salicylate, therefore, forms the basis of all medicinal treatment in the clinic, and upon the reappearance of any rheumatic manifestations whatever a course of sodium salicylate is instituted. Even young children, it is found, can bear courses of 60 grains per diem with ease, provided it is combined with double the amount of sodium bicarbonate and precautions are taken against constipation. The mother of any child on sodium salicylate is advised as to the appearance of symptoms of intolerance, and instructed to suspend the drug for forty-eight hours on their occurrence. During the carrying out of all these procedures the child attends at the clinic when necessary. As soon as everything has been done that can be done, a further careful cardiac examination is made and a definite class assigned to the child. Under this letter he is registered, and on this his future attendance at the clinic depends. The intervals at which children attend the clinic are as follows:

Class P children at intervals of	4 months
Class A children	3 "
Class B children	6 weeks
Class C children	4 "
Class D 1 and D 2 children	2 "

Attendance of Classes C, D 1, and D 2 vary greatly according to their condition, but upon a uniform basis of four and two weeks. Having once been graded the child attends according to his class, and at each subsequent

attendance the same procedure obtains. To facilitate the routine a rubber stamp has been prepared, giving the essential headings under which examination of the child is made. The use of this outline standardizes the record and ensures no point being forgotten.

It is the work of the almoner attached to the clinic to keep the attendance record in order and to notify the mothers, since the whole basis of the work rests upon systematic and regular attendance. No effort is spared to impress this fact upon the mothers and to secure their co-operation. A careful explanation of the importance of this point is always given at the clinic to each mother, and the reasons for the exact interval of attendance required for her particular child explained to her. Any mother has the right to bring her child to the clinic, whether in or out of her turn, if she fears the recurrence of trouble. After a time it has been found possible with nearly all mothers to gain their warm co-operation. Specially marked is the effect of this upon the general welfare of the children. Feeling that an interest is being taken in the child, as a rule the mother responds with an all-round improvement in care, as much in the points which have not been commented on as in those that have, and it is to this that a good deal of the results of the clinic can be attributed. In cases where prolonged effort has failed to secure the co-operation of the mother, either in the matter of attendance or in any of the procedures recommended by the clinic, the child's name is erased from the list.

To carry out the work of the clinic the staff for 1923 to 1924 consisted of one doctor, a lady almoner delegated to the clinic from the almoner's department, and a nurse. An assistant doctor and a voluntary visitor have since been added.

RESULTS OF THE CLINIC.

As the clinic has only been in existence for two years it is impossible to draw any far-reaching conclusions, but the following brief analysis of the first year's work is of interest and shows the value of such a department.

Total number of cases dealt with (57 girls, 36 boys)	93
Number discharged through lack of co-operation...	9
Number discharged as being too old	3*
Number transferred to home for chronic cases (since recovered)	1
Number transferred to other clinics	1
Number remaining on register	79
Number of meetings of clinic	43
Average attendance at clinic	8.2

* No children over 13 years are admitted to the Royal Hospital for Sick Children, Glasgow.

The cardiac condition of the children according to the above classification on their admission to the clinic was as follows: P, 26; A, 30; B, 23; C, 9; D 1, 1; D 2, 2; Miscellaneous, 2.

The fate of these children during the period under review was as follows: Recovered 5, improved 1, developed cardiac lesion 2 (moved to Class B), disabled 1 (since recovered), *in statu quo* 70. These changes in classification of the children are shown in detail in the following table.

Improved.

Cases moved from Class C to A ...	...	...	1
Cases " " Class B to A ...	...	...	4
Cases " " Class C to B ...	...	...	1

Worse.

Cases moved from Class P to B ...	...	...	1
Cases " " Class A to B ...	...	...	1

It is interesting to compare these facts with the figures for rheumatic recurrences, which are as follows: Arthritis 3, chorea 8, indefinite manifestations (myalgia and erythema nodosum) 2. The distribution of these recurrences among the children is shown in the following table.

Rheumatic Recurrences.	Class of Child.						
	P.	A.	B.	C.	D 1.	D 2.	Misc.
Acute arthritis ...	—	3	—	—	—	—	—
Chorea ...	—	5	3	—	—	—	—
Indefinite rheumatism ...	1	—	—	—	—	—	—
Erythema nodosum ...	—	1	—	—	—	—	—

It is worthy of note that 70 per cent. of the recurrences took place among Class A. In only one of these did a subsequent cardiac lesion occur, a result that can most probably be attributed to the thorough care and treatment accorded while in hospital.

During the second year of the clinic the fate of the same group of children was as follows: Died 2, disabled completely 1, developed cardiac signs 3, improved 1, and recovered 2. The changes in classification were as follows:

Improved.

Cases moved from Class D 2 to B...	...	...	1
Cases " " Class C to A ...	...	...	1
Cases " " Class B to A ...	...	...	1

Worse.

Cases moved from Class P to B ...	...	...	1
Cases " " Class A to B ...	...	...	2

The incidence of rheumatic recurrence during this year was as follows: Arthritis 4 (1 acute, 3 subacute), chorea 10 (6 severe, 4 slight), chorea and arthritis 1, indefinite rheumatism 3. All these cases of acute arthritis were treated at home. The distribution of these recurrences according to the classification of the children is as follows:

Rheumatic Recurrences.	Class of Child.						
	P.	A.	B.	C.	D 1.	D 2.	Misc.
Acute arthritis ...	—	—	—	—	1	—	—
Subacute arthritis ...	1	—	2	—	—	—	—
Chorea ...	3	2	5	—	—	—	—
Chorea and arthritis ...	—	1	—	—	—	—	—
Indefinite rheumatism ...	1	2	—	—	—	—	—

A summary of the two years' work of the clinic is contained in the following table.

Class of Case.	Total.	First Year.		Second Year.		Improved.		Apparently Recovered.*	
		Died or Disabled.	Worse.	Died or Disabled.	Worse.	First Year.	Second Year.	First Year.	Second Year.
P. Rh.—Carditis ...	26	—	1	3	1	—	—	—	—
A. (Rh., old + Card.)—Card.	30	—	1	—	2	—	—	—	—
B. Rh.+Card.—Symps.	23	—	—	—	—	—	—	4	1
C. Rh.+Card.+Symps.	9	—	—	—	—	1	—	1	1
D 1. Rh.+Card.+Symps.+ Disability	1	—	—	—	—	—	—	—	—
D 2. Card.—Rh.+Symps.	2	—	1	—	1	—	1	—	—
Miscellaneous ...	2	—	—	—	—	—	—	—	—

In the first year 70 patients remained in *statu quo*, and in the second year 62.

* Since the work covers only two years, nothing final can be said as to this class of child.

With regard to the two fatal cases and the one child disabled during the second year, it should be recorded that in each instance hospital treatment had been prematurely terminated owing to ward infection, and that subsequent co-operation with the clinic had been most unsatisfactory. On the other hand, among those cases in which it was possible to carry out the full regime, no death has occurred, no permanent disablement, and no child has deteriorated to a point necessitating removal into Class C, while two children have been substantially improved and seven have recovered complete health.

CONCLUSIONS.

1. Any attempt to control the rheumatic infection in childhood must include provision for the acute, the convalescent, and the quiescent stages of the disease.

2. That by the establishment of a clinic of the kind described rheumatism in the children supervised can be

controlled, and the incidence of carditis reduced to a minimum.

3. That in it an instrument of research is provided for increasing our knowledge of the heart of the child and its response to the rheumatic toxin, and that the correlation of records obtained in such clinics would throw very valuable light upon the nature of the disease.

4. Finally, that the cardiac classification proposed offers a suitable basis for such correlation.

It is a special pleasure to record our indebtedness to Miss Watson, almoner, for her invaluable assistance in the organization of the clinic, since the success of the department has been in a large measure due to her efforts. To Professor Leonard Findlay, to whose initiative the inauguration of the clinic was due, and under whose care it continues, I wish to express my sincere gratitude for his unflinching help and encouragement in the development and correlation of the work and the supervision of its details.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, October 31st, 1925, p. 791. ² *Ibid.* ³ *Ibid.*, March 14th, 1925, p. 496. ⁴ Hospital Service Series, May, 1920, 151-161.

THE ACTION OF INTESTINAL EXTRACTS.

(Preliminary Communication.)

BY

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Cow and Dixon have shown that injections of boiled and filtered intestinal mucous membrane into dogs induce a secretion of pituitrin in the cerebro-spinal fluid. The effect is not immediate, and the pituitrin cannot be detected till about an hour after injection and does not reach its maximum for one and a half hours or more. The determination of the amount of pituitrin was made by the routine method on the uterus of the virgin guinea-pig. These observers also showed, however, that cerebro-spinal fluid so obtained exerts all the other known actions of pituitrin. The fact that the intestine is concerned in this secretion suggested to us that the pituitary secretion would likely be concerned with some digestive or metabolic mechanism. After numerous attempts to explain the secretion our efforts were at last led in the right direction by the observation of Burn that pituitary extract antagonizes the action of insulin.

If insulin is injected into anaesthetized dogs it produces a fall in blood sugar which reaches a minimum about three hours after injection. If in such an animal the cerebro-spinal fluid is tapped after the fashion of Dixon and Halliburton and tested for pituitrin it is found to be present one and a half to two hours after injection; that is to say, insulin increases the secretion of pituitrin just as it has been shown to increase adrenaline, but that this secretion is not obvious in the case of the pituitary until the blood sugar has been considerably reduced.

The following typical protocols will explain the nature of the experiments.

Experiment I.—Dog, male, weight 10.5 kilos. Anaesthetized by chloroform, then A.C.E., and finally morphine and urethane.

	Blood Sugar.	Pituitrin in C.S.F.
After 15 mins. anaesthesia ...	= 0.067	—
After 45 mins. " ...	= 0.074	—
After 1 hr. 15 mins. " ...	= 0.085	—
After 1 hr. 45 mins. " ...	= 0.095	—
After 2 hrs. 15 mins. " ...	= 1.040	—
After 2 hrs. 45 mins. " ...	= 1.150	—

Experiment II.—Dog, female, weight 12 kilos. Anaesthetized by chloroform, then A.C.E., and finally morphine and urethane. 24 units insulin were given intravenously fifteen minutes after anaesthesia.

	Blood Sugar.	Pituitrin in C.S.F.
Before injection and 14 mins. after anaesthesia ...	= 0.066	—
3/4 hr. after injection ...	= 0.061	—
1 1/4 hrs. " " " ...	= 0.055	—
2 1/4 hrs. " " " ...	= 0.047	++
3 hrs. " " " ...	= 0.043	++
3 1/2 hrs. " " " ...	= 0.051	—

Experiment III.—Dog, male, weight 10 kilos. Anaesthetized by chloroform, then A.C.E., and finally morphine and urethane. 20 c.cm. of boiled and filtered intestinal extract were given intravenously fifteen minutes after anaesthesia.

	Blood Sugar.	Pituitrin in C.S.F.
Before injection and 14 mins. after anaesthesia ...	= 0.074	—
3/4 hr. after injection ...	= 0.069	—
1 1/4 hrs. " " " ...	= 0.060	+
2 1/4 hrs. " " " ...	= 0.052	++
2 3/4 hrs. " " " ...	= 0.041	++
3 1/4 hrs. " " " ...	= 0.047	—

It will, of course, be suggested that the secretion of these two ductless glands is a provision for antagonizing excessive insulin action. The analogy between injections of intestinal extracts and those of insulin is so marked in this respect that we were induced to try the effect of alimentary extracts on blood sugar in rabbits. Injections of boiled and filtered duodenal mucosa in these animals induce a fall of blood sugar comparable with that of insulin. The fall often goes down to the convulsant level, though we have never been able to produce convulsions. The active substance is not secretin since it is destroyed by boiling with dilute acids, which process does not destroy the secretin, since we were able to show that the extract still contained a plentiful supply. Boiling with 1 per cent. sodium bicarbonate also destroys the blood sugar reducing substance. Boiled and filtered extracts of pancreas and many other tissues which we have used do not exert this effect. Ivy and Fisher state that the intestine contains one-fiftieth the amount of insulin of that in the pancreas. We have prepared insulin from the intestinal mucous membrane of pigs by the Dudley method; we are not prepared at the moment to give any figure of its amount, but it is considerably greater than that suggested by Ivy and Fisher. Nor at this stage are we prepared to offer information as to why this insulin body comes out in boiled intestinal extracts and not in other tissue extracts. We think, however, that the evidence suggests that pituitary secretion following the injection of intestinal extract is of the same nature as that which obtains after the injection of insulin.

A COMMENTARY

ON

TWO CASES OF HUNTINGTON'S CHOREA.

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We have recently had under our care at Severalls Mental Hospital two brothers who suffered and died from Huntington's chorea. In view of the slight incidence of this disorder we venture to set forth in some detail an account of these cases based on our clinical and *post-mortem* investigations.

CASE I.

W. G., an ex-soldier, aged 34, was admitted to hospital on July 9th, 1917.

History.—The patient had served in the army for eleven years prior to 1914, and he re-enlisted during the war. He was appointed to the Field Artillery, and was stationed at Woolwich, but never saw active service abroad. A few months after re-enlistment he was sent to a military hospital for observation of his mental condition, and was found unfit for further service. He was discharged from the army and admitted to the local infirmary, being subsequently certified insane and sent to Cane Hill Mental Hospital, whence he was transferred to Severalls. He was stated to have contracted syphilis in India about 1906, and had been diagnosed as a case of dementia paralytica. A brother had died in Brentwood Mental Hospital.

Condition on Admission.—Mentally he was dull, apathetic, and took very little interest in his environment. He was rambling in his talk, and his memory was extremely defective; he could not remember his regimental number or the addresses of his near relatives. Speech was slurred. He was not hallucinated, but was restless, threatening, and inclined to be violent in his conduct. Physically he was well nourished, and showed no signs of injury. The cardiac, respiratory, and alimentary systems were normal. The pupils were equal, but sluggish in reaction to light. The knee-jerks were diminished and the gait was ataxic. He was

considered to be suffering from general paralysis of the insane. There is no record at this time of the existence of choreiform movements.

Progress.—Shortly after his admission definite choreic movements became manifest. They rapidly developed into constant, generalized, jerky movements of the head, neck, and limbs, which were invariably accentuated when the patient was addressed. Examination of the cerebro-spinal fluid was negative for syphilis, and the diagnosis, being altered to Huntington's chorea, was confirmed when a brother was admitted in June, 1918, obviously suffering from this disorder. Thenceforth a progressive dementia supervened. The patient became slovenly and defective in his habits, very amnesic, always irritable, occasionally hostile, and more and more restless and resistive to attention. He became increasingly feeble, and died on January 7th, 1925, the choreic movements persisting until the end.

Post-mortem Examination.

(a) **Macroscopic.**—**Brain:** Dura mater normal. Marked thickening of the pia-arachnoid, with a few scattered milk-white patches. Excess of subarachnoid and ventricular fluid. Local flattening and atrophy in frontal and fronto-parietal areas. No macroscopic lesion of basal ganglia. Cerebellar consistency soft in general. **Thorax:** Thyroid fibrotic. Old adhesions of right pleura. Some old fibrosis of right lung. Heart normal. **Abdomen:** Gall bladder full of small faceted stones. Nothing else abnormal.

(b) **Microscopic.**—Nothing abnormal was noted in the microscopic appearance of the suprarenal glands or liver. Sections were taken from the medulla, pons, cerebellum, and mid-brain; also from the caudate and lentiform nuclei, thalami, and precentral gyrus. These were stained with haematoxylin and eosin by Nissl's method, and by Levaditi's silver nitrate. The following were the changes seen:

(1) **Leptomenigitis.**—This consisted more in thickening of the pia-arachnoid than in increased vascularity.

(2) **Small Round-celled Infiltration in the Perivascular Lymphatics.**—This was not seen in the medulla, pons, or cerebellum, but became noticeable in the mid-brain, being more marked towards the margins of the transverse section. The infiltration was more definite in the lentiform nucleus, thalamus, and precentral gyrus, and was seen most clearly in the caudate nucleus. Not the larger vessels, but the capillary vessels were affected, and of these less than half showed the infiltration. The cells were frequently arranged in a single line beside the vessel. Occasionally there were groups of cells in the Virchow-Robin spaces, but the condition could hardly be said to amount to the "cuffing" of acute encephalitis.

(3) **Infiltration of Small Round Cells in the Pericellular Lymphatics.**—One or two small cells in the pericellular space were not taken as abnormal. Here and there, however, were found nerve cells round which were clumped three, four, or more small cells. In most sections these were only to be found by searching carefully; they were most plentiful in the precentral gyrus.

(4) **Dilatation of Vessels.**—Increased vascularity, with dilated and congested vessels, was only seen in one group of sections taken of the thalamus. Here the first glance gave the impression of encephalitis, and indeed one small haemorrhage was found, but there were only a few round cells in the lymphatics.

(5) **Cell Degeneration.**—The cells in most sections appeared healthy, including those of the substantia nigra. In the lentiform nucleus and the precentral gyrus were cells in all stages of degeneration, but the great majority of the cells seemed healthy. The degeneration was quite irregular in distribution.

Summary of Pathological Findings.

(a) In the cerebellum, pons, and medulla: no change except leptomenigitis.

(b) In the mid-brain, caudate and lentiform nuclei, thalamus, and precentral gyrus: infiltration of small round cells, most marked in the caudate nucleus.

(c) In the thalamus: increased vascularity in addition.

(d) In the lentiform nucleus and precentral gyrus: some degeneration of nerve cells.

CASE II.

G. G., a man of no occupation, aged 43, was admitted to hospital on January 17th, 1918.

Previous History.—The patient had not been previously under care and treatment, but he was stated to have spent "three parts of his life in the workhouse," where he used to be employed in the bootmaker's shop. During the last two months he had been restless and violent in his conduct, and had assaulted various people without provocation. He had been habitually insulting to members of the opposite sex, degraded in his habits, and "lay about in the fields rough at night."

Family History.—One brother died at Brentwood Mental Hospital. One brother was living at Severalls Mental Hospital. The mother was insane. The father "does not suffer from any disease of a choreiform nature, but has malignant disease of the oesophagus."

Condition on Admission.—Mentally he was confused in thought, and could give little account of himself. He was restless, excited, and resistive to attention. He had delusions of a persecutory nature regarding women, stating that females followed him about and received money for ill-treating him. He had a marked inferiority complex. Physically he was fairly nourished, and the heart, lungs, and alimentary system betrayed little abnormality. The knee-jerks were exaggerated, and he showed definite and constant choreic movements of the muscles of the limbs and face. The gait was very unsteady. The pupils were equal and normal in reaction to light and accommodation. Articulation was much impaired, and he was defective in his habits.

Progress.—The patient showed a rapidly advancing mental deterioration. He was always irritable and hostile in his attitude

to his environment. His speech soon became so affected that his remarks were altogether unintelligible. Constant and violent choreic movements of the head and neck and limbs persisted, resulting frequently in bruises and abrasions, in spite of elaborate padding of his immediate environment and the adoption of all possible precautions against injury. He became gradually enfeebled, and died on December 28th, 1921.

Post-mortem Examination.

Brain.—Skull-cap thickened. Generalized congestion of the superficial cerebral blood vessels. Oedematous condition of the pia-arachnoid. Excess of ventricular and subarachnoid fluid. Local atrophy of frontal and fronto-parietal areas. Generalized cerebral softening. Brain stem and cerebellum soft in consistency.

Thorax.—Old adhesions at apices of both lungs and congestion at bases. A few small patches of atheroma in the aorta. Heart showed nothing abnormal.

Abdomen.—The gall bladder was distended, and contained two gall stones.

A microscopic examination was not performed at the time of the patient's death.

The following points appear to be of interest in connexion with the cases described.

1. The existence of a family history of insanity transmitted through the mother, three sons becoming insane, and two of these developing Huntington's chorea.

2. The difference in the early history of the two brothers subsequently affected with chorea. One (G. G.) had never been capable of regular employment; the other (W. G.) had a long record of army service prior to and during the first half of the war.

3. The younger brother (W. G.) had a history of syphilis contracted abroad during military service in 1906, and was diagnosed on admission as a case of general paralysis of the insane.

4. The same brother exhibited no choreic movements at the time of his admission; whereas G. G. showed unmistakable evidence of chorea from the first.

5. Regarding the difference in the age factor, the younger brother, who had led an active life, developed the disease at 34, while the older, who had spent the major part of his existence under institutional control, exhibited no symptoms until he was 43.

6. As regards the morbid anatomy, both cases exhibited thickening of the pia-arachnoid, local atrophy in the frontal and fronto-parietal areas, generalized cerebral and cerebellar softening, and a pronounced increase of cerebro-spinal fluid with dilatation of the ventricles.

7. In relation to the case (W. G.) in which it was possible to carry out a detailed examination under the microscope, the pathological changes consisted of chronic leptomenigitis, small round-celled infiltration of the perivascular lymphatics, particularly definite in the caudate nucleus, increased vascularity in the thalamus, but without any definite focus of acute encephalitis. There was also some degeneration of pyramidal cells, especially in the precentral gyrus.

The rarity of Huntington's chorea has prompted us to record the facts at our disposal relating to the two brothers who suffered, and ultimately died, from this disorder at this institution.

In conclusion, we wish to express our indebtedness to Dr. R. C. Turnbull, medical superintendent of Severalls Mental Hospital, for permission to publish this account.

THE INFLUENCE OF THE VERMIFORM APPENDIX ON GYNAECOLOGICAL SURGERY.*

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The figures upon which this paper is based are taken from a series of abdominal sections performed in the gynaecological department of the Bristol Royal Infirmary. They have not been selected in any way, and include every laparotomy done in the department during a period of twelve months. The total number is 300, and I am indebted to the late Professor W. C. Swayne for permission to use cases upon which he had operated, and

* Based on a paper read before the Bristol Medico-Chirurgical Society.

which amount to a little over one-quarter of the total. In almost all of his cases I was present at the operations and able to examine the material removed.

The operations can be roughly classified as follows:

Operations.	No.	Appendix Removed.	State of Appendix.		
			Acute.	Chronic.	Slight.
Hysterectomy for fibroids ...	48	10	2	6	2
Myomectomy	7	0	—	—	—
Myomectomy (during pregnancy)	5	1	—	1	—
Ovariectomy	54	3	—	2	1
Oöphorectomy	34	15	1	9	5
Hysterectomy for other causes	9	2	2	—	—
Wertheim's panhysterectomy...	8	0	—	—	—
Ectopic pregnancy	17	2	—	2	—
Adherent retroversion	31	11	1	9	1
Pyosalpinx	70	39	12	21	6
Hydrosalpinx	3	1	—	1	—
Appendicitis (2 plus pregnancy)	6	6	4	2	—
Unclassified	8	1	1	—	—
			23	53	15
Total	300	91	91		

This classification was used merely to show the type of operation performed and its association with disease of the appendix. It will be seen that the appendix was removed 91 times in 300 cases, and its condition is stated opposite each group of operation cases.

I have classified the condition of the appendix into three groups, as follows:

Acute.—Includes those cases with definite perforation or abscess formation. All cases with obvious acute inflammation.

Chronic.—Includes cases which had previously suffered from a well marked appendicular inflammation with definite adhesions, kinks, etc.

Slight.—Implies definite changes and adhesions (apart from anatomical ones) but not so well marked as to make it certain that the appendix, *per se*, was sufficiently diseased to cause the pain or other symptoms complained of.

No doubtful cases were included in this list, the appendices being sent to the pathologist for report for section in those cases where its naked-eye appearance was indefinite. Eight cases in which the appendix was removed "just because it was there" have not been included.

It will be seen that these operations fall roughly into two groups: (A) Operations done for inflammatory pelvic conditions; and (B) those in which operation was done for fibroids, ovarian conditions, and carcinoma. Group B contains 131 cases and the appendix was removed 31 times (23.6 per cent.).

The other cases were all caused by or gave rise to inflammatory reactions and can be grouped under that convenient term "pelvic peritonitis." The total was 169. In this group the appendix was removed on 60 occasions (35.5 per cent.).

I have included in Group B oöphorectomies, because it is not usual at the Bristol Royal Infirmary to remove the ovary unless it is badly adherent, prolapsed, or totally degenerated. I myself do not think that a large ovary gives any symptoms unless complicated by a pelvic peritonitis and adhesions.

In the non-inflammatory group of operations (Group A) there were two cases of special interest which occurred within a few weeks of each other. The patients were both young women under 27; both had been apparently quite healthy, including their menstrual histories. Each of them was suddenly taken ill—one with diarrhoea and vomiting after a picnic, the other with acute retention of urine.

In the first case there was a large single cervical fibroid completely filling the pelvis, which I removed by total hysterectomy, after preliminary myomectomy. The caecum contained a lump

the size of a Tangerine orange, situated at the base of the appendix; this was excised altogether with the greater part of the caecum, and was reported by the pathologist, Dr. Kay-Mount, as "typical so-called spheroidal cell carcinoma of the appendix." She did very well for eighteen months and was then readmitted to the infirmary with a large mass in the right iliac fossa. My surgical colleague, Mr. C. F. Walters, kindly saw her with me and we both considered it to be a recurrence. He operated and removed the remains of the caecum, the ascending colon, and the greater part of the transverse colon. Very much to our surprise the pathological report stated that this was a chronic inflammatory condition and showed no evidence of malignant disease. She is at present in perfect health.

The second patient developed acute retention and was found to have a large fibroid filling up the pelvis (weighing 9 lb. on removal). This was removed by subtotal hysterectomy. On examining the caecum a growth the size of a walnut was found on the distal end of the appendix. This was removed with the greater part of the caecum, and she appears to have made a complete recovery. The pathological report stated that this was also "spheroidal cell carcinoma."

Among the other cases in Group A the appendix was found to be densely adherent—twice to an ovarian cyst and four times to a fibroid.

In the much larger and more important group of operations for conditions involving peritonitis the first question which impressed itself on me was whether the inflamed appendix was the cause or the result of the condition found at operation. I found this almost impossible to decide in the majority of cases, the history being of little use except where there had been a recent attack of puerperal sepsis or gonorrhoea. The only criteria I could adopt were (1) that infection of both tubes probably implies an ascending infection; (2) recent gonorrhoea and puerperal sepsis are of similar significance; (3) a right-sided salpingitis, associated with appendicitis, and in which the left tube appears to be normal, is probably appendicular in origin.

There were 16 cases in Group B in which I feel fairly certain that the appendix was the original cause of the condition. In 8 of these the appendix and tube were continuous, with the fimbriae of the tube enveloping the end of the appendix, and in 2 there was pus and a faecal concretion actually in the lumen of the tube itself.

Since this series of cases was completed I have operated upon 5 cases from whom the appendix had been previously removed for acute appendicitis and who had had a normal gynaecological history up to the onset of the acute attack of appendicitis, but since that time had suffered from dysmenorrhoea, etc. In all these cases there was extensive chronic pelvic peritonitis with involvement of the right tube and ovary.

Operations for Pyosalpinx.—It will be seen that 39 out of the 70 cases showed definite appendicular disease (that is, 55.7 per cent.), and that in 12 cases it was acutely inflamed. It seems likely that in at least half the cases of pyosalpinx the appendix will be more or less acutely infected, and will probably need surgical intervention sooner or later, if, indeed, it is not the primary cause of the condition.

Adherent Retroversion.—These cases I have classed together, the great majority of them being treated by Gilliam's operation on the round ligaments. In all these cases there was more or less old peritonitis with adhesions in Douglas's pouch and matting of the tubes and ovaries. Here again the appendix was found to be affected in 31 per cent. of the cases, but, as might be expected, it was of the chronic type, except in one case, where I think a recent attack had supervened on an old chronic condition.

Oöphorectomy.—Here a similar condition prevails, 44 per cent. of the cases showing affection of the appendix; in these cases I am inclined to think that the appendix was usually the causal agent, and that the pain and malaise were due to the chronic appendicitis, and not to the enlargement of the ovary, although in all cases in which the ovary was removed there was considerable destruction of the ovarian tissue, consequent on prolonged inflammation and adhesions.

Ectopic Pregnancy.—Two very interesting cases were met with. (1) A case of tubo-abdominal pregnancy with a large gestation sac, in Douglas's pouch, containing twin four-months embryos, the caecum forming the outer boundary of the sac, the appendix being densely incorporated in its wall, and much thickened and reddened. It

was removed with the sac and the patient did well. (2) The other patient had a large right-sided tubal gestation with a very long appendix lying across and adherent to it; the appendix was gangrenous and a large concretion was just bursting through its tip. The gestation sac was full of thin, foul-smelling fluid; no embryo was found, but there was an abundance of necrosing chorionic tissue.

Hysterectomy for other Causes.—Most of the cases were for acute puerperal peritonitis; here the appendix was four times removed, twice being acutely inflamed. In both cases I feel certain that it was the cause of infection.

Appendicitis.—There were two cases, in the series, of appendicular abscesses complicating pregnancy at the seventh and eighth month. Four were found when operating for "cystic ovary." The ovaries were left, and the patients' symptoms have been cured completely by the removal of the appendix.

Deaths.

I have not found any reason to think that the removal of the appendix in any of these cases has been prejudicial to recovery or convalescence. There have been eleven deaths among the 300 cases—as follows:

Fibroids	...	...	...	...	2
1 from cardiac failure—aortic regurgitation.					
1 from pulmonary embolism.					
Ovarian	...	...	...	...	1
Malignant.					
Other hysterectomies	...	...	...	...	4
3 from puerperal peritonitis					
1 from criminal abortion, with perforated uterus and gas gangrene.					
Wertheim's hysterectomy	...	...	...	...	1
From shock.					
Pyosalpinx	...	...	...	...	2
1 from shock.					
1 from peritonitis.					
Myomectomy and pregnancy	...	...	...	...	1
Miscarriage and pulmonary embolism nine days after operation.					

In only one of these cases was the appendix removed; the patient had pyosalpinx, and died of peritonitis from which the gonococcus was recovered, so that I do not think that the mortality rate has been in any way affected by the removal of the appendix.

Among the oophorectomies two cases became infected in the abdominal incision, and possibly the appendicectomy was the cause of this occurring; otherwise the removal of the appendix seems to have caused no risk to the patient and has only occupied a few minutes. In 23 cases out of the 300 the appendix was acutely inflamed and would have required removal in any case.

I have found it very difficult to obtain any definite information as to the position of the appendix in health, but it appears that most of the authorities consider that the appendix may be below the brim of the pelvis in about 50 per cent. of cases, and also that in a large number of cases there is a definite anastomosis between the branches of the ovarian and appendicular arteries.

Conclusions.

1. The appendix is very likely to be affected by pelvic inflammations and may be the cause of salpingo-oöphoritis and its consequences more frequently than is expected.

2. The appendix should be suspected and examined in all cases of pelvic peritonitis, and it should be removed if it is in any way diseased, to prevent further trouble at a later date.

3. Even when the operation is performed for a condition which is not inflammatory the appendix should be examined; 20 per cent. of my series show definite disease of this organ, and 2 of the 31 appendices removed were reported as malignant.

4. Acute pyosalpinx is frequently complicated by acute appendicitis and vice versa.

5. "Oöphoritis" as a disease, and apart from pelvic peritonitis, should not be diagnosed. If at operation the ovaries are found to be merely enlarged and not adherent, then the appendix is most likely to be the cause of the

patient's pelvic pain. In corroboration of this, the number of oöphorectomies performed at the Royal Infirmary has fallen to a quarter of the number which were done before the war, and the results as to the cure of chronic pain have very greatly improved.

6. I would advance with great diffidence that it is just as well to remove a pelvic appendix whenever found, even if it appears quite healthy to the eye.

In conclusion, I wish to express my gratitude to Drs. Kay-Moul, Fraser, and Todd for cutting numerous sections of appendices and tubes in the pathological department of the Royal Infirmary.

THE RADICAL TREATMENT OF TRIGEMINAL NEURALGIA

AS EXHIBITED IN SEVENTEEN CONSECUTIVE CASES.

BY

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SOME ANATOMICAL CONSIDERATIONS.

The fifth cranial nerve is a fairly typical dorsal nerve. What is the corresponding ventral nerve, and, still more important, what is its portion in the sympathetic chain? There are at least four ganglia, sympathetic in structure, connected with this nerve—namely, Meckel's, Arnold's, the ciliary, and the submaxillary. They receive their efferent fibres from the third and seventh cranial nerves, which must therefore be regarded as the ventral element, while their afferent fibres are supplied indirectly from the superior cervical ganglion. It is of importance to note that the cell stations of the sympathetic nerves are within these ganglia, and not in the ganglion of the dorsal root (the Gasserian ganglion) or the cord.

PATHOLOGY.

Our present knowledge of the pathology of tic-douloureux is both unsatisfactory and unreliable. Degenerative changes of a doubtful kind and a round-celled infiltration have both been described as occurring in the Gasserian ganglion. Pressure on the ganglion by tumours can, according to some observers, give rise to a "true" tic (a very doubtful proposition). In sections of the ganglion removed at operation I have not been able to confirm any of these findings, not even in the minutest degree. My own most constant finding is a hypertrophic obliteration of the arteries of the ganglion itself due to hypertrophy of the circular muscular coat. It is not a condition of endarteritis. The change is identical with that seen in the arteries of the feet in that particular type of Raynaud's disease associated with intense pain of an unbearable kind in which patients readily submit to amputation in order to obtain relief. Similar changes were seen in the arteries of men who suffered with trench feet and the accompanying erythromelalgia.

This is the only change I have been able to find in the Gasserian ganglia of patients suffering from true tic, and it is of important significance. It suggests arterio-spasm, arterial cramp, a condition allied to angina which might suitably be called "arterial angina." It is an angioneurosis, brought about by some sympathetic unbalance.

If this be correct, afferent painful impulses from the arteries will travel by way of the ganglia mentioned, passing thence via the posterior nerve roots to the brain. This view is strengthened by the fact that removal of Meckel's ganglion gives complete relief in instances of tic affecting the middle division of the trigeminal. Interesting in this connexion are certain methods of treatment, hitherto empiric, such as removal of the superior cervical ganglion, ligature of the carotid arteries, which in this connexion is similar to removing the superior cervical ganglion, the exhibition of iodides and belladonna, and the use of amyl nitrite for relieving the spasm when at its worst.

SYMPTOMS.

The disease manifests itself at first in short lightning attacks of pain which start at some definite point, usually in the upper lip, or in one or more teeth of the upper jaw. The pain tends to spread from the starting-point and involves other areas. Starting in one or more teeth of the upper jaw, it spreads backwards and thence into the third division, lastly affecting the eye. On the other hand, but more rarely, the attacks may originate in and remain confined to the first division. The intervals between the attacks are at first considerable—weeks or even months. As the condition progresses the intervals between the attacks become shorter, and the spasms both longer in duration and more severe in character. At first the trouble is thought to lie in the teeth, and usually they have been extracted.

When the condition becomes fully established the attacks are very typical. A glass of cold water, a cup of tea, or even going out of doors, is quite sufficient to excite a paroxysm. The patient holds his head in both hands; lightning pains, causing indescribable agony, prevent him from moaning or uttering a cry; the facial muscles twitch, specially those of the eye; the lacrymal and salivary glands secrete, the pupil on the affected side dilates; following the spasm the face flushes on the side affected, and unilateral sweating occurs. Repeated attacks rapidly reduce the patient to a complete wreck, and unless relieved sufferers will themselves seek relief in self-destruction.

The pain is obviously not a neuralgia or a neuritis; it is a cramp, an arterial angina the result of arterio-spasm. It is due to some uncontrolled activity of the vasomotor nerves. The more I see of the condition the more convinced I am that this is the case.

TREATMENT.

Treatment lies between alcohol injections into the nerve or its ganglion and radical operative treatment. Alcohol injections may give permanent or temporary relief—most often the latter, the recurrences being worse than the original attacks. Twelve of my cases had alcohol injections before coming to me, and of these four were unable to open their mouths to the full extent owing to fibrosis of the masseter and pterygoid muscles following the injections.

Surgically several operations have been practised, but I have confined myself to the following three: (1) division of the sensory root; (2) division of the second and third divisions; (3) division of the second and third divisions with removal of the outer third of the ganglion. I do not think it matters whether the sensory root is divided or whether the second and third divisions are divided. The important point is to divide the nerves proximal to Meckel's, the otic, and submaxillary ganglia.

In my experience division of the sensory root is the easiest of the three operations. I performed this operation in five of my cases, and in every instance troublesome eye symptoms occurred; consequently I have abandoned it (Frazier-Spiller operation). I performed Hutchinson's operation (3) in four cases, and in my opinion this is the most difficult operation, as haemorrhage is apt to occur however careful and patient one may be. I performed a modification of Abbe's operation (2) in eight cases, twisting the proximal ends of the divided divisions and pushing the distal ends through the oval and rotund foramina, finally plugging the foramina with cotton-wool. In operations (1) and (2) there have been no eye symptoms and relief has been permanent.

It is only fair to state that any of these operations are difficult, and each surgeon will be guided by what he finds in his hands is the most expedient method. They are operations not to be undertaken lightly, and not before several attempts have been made upon the cadaver. I use an incision starting just behind the pinna, curving upwards in semicircular fashion to end at the mid-point of and just below the zygoma. The flap is turned down, and with it the posterior half of the zygoma as far as the infra-temporal crest. The pin of the trephine is placed just above and in front of the triradiate process of the zygoma, and a circle of bone is removed. This done, the dura is detached to the extent of three-quarters of an inch around

the opening, which is enlarged inferiorly as far as the infra-temporal crest and no further; otherwise the pterygoid plexus of veins may be injured and troublesome haemorrhage will make clear work impossible. I now detach the dura from the base of the skull with the gloved finger until an obstruction is reached. This obstruction is the third division. Reference to a skull will make this plain. The bent handle of a dessert-spoon is now introduced as a retractor to elevate the brain, and strips of gauze soaked in hydrogen peroxide are packed in between the handle of the spoon and the base of the skull. These are left in for from three to five minutes. This renders the field wonderfully clear, and arrests what little oozing there is from the bone. The second and third divisions are readily identified when the gauze strips are removed with the middle meningeal artery, whose relation to the roots is inconstant. Any of the three operations can now be completed. If the sensory root is to be divided the middle meningeal artery is divided after plugging the foramen spinosum with a small plug of cotton-wool. The dura is divided along a white line which marks the line of fusion of the dura propria around the third division. The ganglion is thus exposed and traced backwards to the sensory root. This is then divided, sparing if possible the motor element lying beneath it.

If the second and third divisions only are to be divided they are seized with forceps and slowly twisted proximally after division, the distal ends being pushed through their respective foramina, which are afterwards plugged with cotton-wool. In my opinion this is the operation of choice, as there have been no recurrences after four and five years, which rather supports the theory that the condition is sympathetic in origin, and that the afferent cell stations are situated in the sympathetic ganglia. An attempt should be made to save the motor element of the third division. I have been able to do this in four of my cases, but in those in which it was apparently divided the inconvenience has proved slight.

The post-operative phenomena of interest are as follows:

(1) Eye changes which manifest themselves in trophic conditions of the cornea. In one instance a conical cornea resulted with visionary disturbances.

(2) Paraesthesias in the form of pins and needles travelling over the areas of the divided nerves—sometimes pain in the form of tic, but less severe and less frequent—curious sensations in the pharynx (pterygo-palatine nerve), a feeling of fullness in the ear on the same side (tympanic branch of the auriculo-temporal nerve).

(3) Anaesthesia in part of the palate, tongue, and nose, resulting in the unconscious swallowing of foreign bodies—for example, plum stones.

(4) Some paralysis of the palate on the same side which may rather interfere with speech (tensor palate via the otic ganglion).

(5) Paralysis of the muscles of mastication with withering of the temporal muscle, and the consequent disfigurement if the motor root is wholly divided.

(6) Temporary mental symptoms.

It is of interest that post-operative infection of the respiratory annexes and trophic changes in the mucosa have been conspicuous by their absence.

Of seventeen cases operated upon four were male and thirteen female—that is, 75 per cent. female. There were two deaths—one a woman, aged 75, with advanced aortic disease; the other a woman, aged 65, whose general condition was exceedingly poor. This gives a mortality in this series of 11.8 per cent. With some diffidence I connect their deaths with the operation, but it will, I hope, prove that the cases were in no way picked.

In competent hands and in suitable cases I think that to-day this operation can be undertaken in perfect safety; in not one of my cases has there been recurrence. The first case was operated upon six years ago; in one instance there were symptoms on the opposite side, which subsided. In view of what has been said in the text the radical cure is correct both scientifically and practically, and is undoubtedly preferable to alcohol injection, which is but palliative and temporary.

CARCINOMA AFTER GASTRO-ENTEROSTOMY.

BY

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THE recent note by Sir George Beatson¹ suggests that the following case is worthy of record. It is of interest in several ways. It demonstrates the importance of a thorough examination of patients claiming compensation for a comparatively trivial accident. It shows the possibility of a simple, unsuspected tumour (chondroma) causing symptoms fitting in with the history of an accident. Finally, the case is recorded as one showing a carcinoma, following a gastro-enterostomy for ulcer, in which all the evidence appears to be against the theory that the ulcer, or ulceration around the gastro-enterostomy, was the cause of the carcinoma.

The patient went to Mr. G. C. E. Simpson, owing to the legal aspect of the case, complaining of pain in the region of the lower ribs on the left side, and stating that through an accident at work, some ten months previously, he had fractured the tenth and eleventh ribs. Two months after the accident he went back to his work, but was unable to do it owing to the pain, which he referred to the site of the fractures. He had not worked since.

While examining the patient a swelling was felt in the epigastrium and he was admitted to hospital for full investigation. Here he admitted that recently he had also suffered from some epigastric fullness about half an hour after food, which gradually passed off in an hour or so. His appetite was good and there was no vomiting, but a slight loss of weight was admitted. He further stated that he was operated upon ten years before for "stomach trouble" at the Royal Infirmary. Professor R. E. Kelly very kindly confirmed that he had performed a gastro-enterostomy upon the man for pyloric stenosis in 1915, the patient then being 43 years of age.

Examination revealed some tenderness of the tenth and eleventh ribs in the mid-axillary line. In the epigastrium and extending to the left a firm, rounded, and slightly tender tumour, which moved with respiration, was palpable. It was dull to percussion, but the dullness was not continuous with that of the liver, which appeared to be normal. A fractional test meal showed no free hydrochloric acid and a very low total acidity; x-ray examination showed a small gastro-enterostomy opening and a very irregular pyloric antrum, and suggested carcinoma ventriculi.

At operation an advanced carcinoma of the pyloric part of the stomach was found. The old gastro-enterostomy stoma was almost closed, and masses of glands were seen in the lesser omentum and constituted part of the mass felt at the clinical examination. The pancreas was surrounded by hard, enlarged glands, but was not itself involved. Anterior gastro-enterostomy was rapidly performed, and through the stomach opening the margin of the growth could be felt reaching just up to the old stoma, but not surrounding it. The patient did well for two days, and then suddenly collapsed, after vomiting once only on the third day, and died.

Several medical men witnessed the autopsy owing to the possibility of a legal action under the Workmen's Compensation Acts. There was definite angling of the tenth costo-cartilaginous junction on both sides, but more marked on the left; it was agreed by all that this could not have had any connexion with the development of the carcinoma. No other origin of the carcinoma was found than the pyloric antrum and pylorus. An old healed gastric ulcer scar was found immediately proximal to the growth on the lesser curve. The old stoma was free from growth except at its distal margin, where it was becoming involved as the tumour spread upwards along the stomach wall. Hard, enlarged glands were present right up to the mediastinum. There was some duodenal ileus. The other organs were normal except that a small innocent chondroma was found in the left pleural cavity opposite the middle of the tenth rib. It was picked off the parietal pleura quite easily, and its nature was confirmed later by microscopical section. Sections of the growth in the stomach showed it to be an adenocarcinoma of the colloid type. By section metastases were proved to be present in all the glands cut, right up to the highest part of the mediastinum.

From a forensic point of view this case shows the wisdom of a systematic examination, even when the patient complains of nothing more than tenderness over the seat of an old fracture. It is possible that, although the chief trouble was cancer, some of the symptoms may have been due to pressure by the chondroma on the intercostal nerves during inspiration.

From the clinical point of view it is more than doubtful if the ulcer had any relation to the carcinoma, as, with Mr. Sherren,² we feel that, after a period of excellent health for ten years following a posterior gastro-enterostomy for simple ulcer, ulcer-cancer must be rare. The long period of health suggests that the ulcer was simple

and cured; the short recent history of dyspepsia in itself suggests a carcinoma ventriculi not related to ulcer in its etiology.

The pathological evidence also supported this opinion. The growth involved the pyloric antrum distal to an old ulcer scar almost entirely. It extended up to the gastro-enterostomy but did not surround it, only reaching its distal margin. The sections did not in any way suggest a previous ulcer in the malignant tissue, and showed none of the scirrhous type of carcinoma so usual in the ulcer-cancer.^{3 4}

Most cases of carcinoma following ulcer or gastro-enterostomy have been described with a view to showing that the malignant condition has arisen in or from the simple. In this case all the evidence appears to be against this theory; but, while the gastro-enterostomy did not appear to be the seat of malignancy, its physiological effect upon the mucosa of the pyloric antrum and its secretion needs consideration. The pyloric mucosa, after gastro-enterostomy, may have been bathed in a fluid deficient in acid rather than in an hyperacid gastric juice. Just as hyperacidity is frequently associated with ulcer, so is hypoauidity with malignant disease. More evidence may thus be deduced that hypoauidity is one of the contributing causes of carcinoma ventriculi rather than the result of the disease.

Another factor for consideration is the likely presence of adhesions following gastric ulceration. These will tend to limit the mobility of the pyloric antrum, and with an efficient gastro-enterostomy this part of the stomach might be expected to secure a very considerable amount of rest and freedom from irritation, and be less likely to develop malignant changes; but the post-operative hypoauidity would still be present. A large number of surgeons seem to regard gastro-enterostomy as successful in many cases of gastric ulcer, even though in most cases partial gastrectomy by the Polya method or one of its modifications would appear to be the ideal treatment owing to the slight amount of shock in comparison with the extent of the operation.⁵ It may be mentioned here that one of Mr. Simpson's cases, a sleep-walker, got up on the night after operation. He was none the worse, and so was allowed up daily for a short time from the fourth day. He did so well that we are considering allowing a similar procedure in partial gastrectomy cases in future, or at all events commencing to move them considerably earlier than in the past.

In conclusion, in the case here described all the evidence, with the possible exception of the physiological effect of the gastro-enterostomy, is in favour of the carcinoma ventriculi having arisen without any relation to previous ulceration of the stomach or gastro-enterostomy stoma.

I wish to thank Mr. Simpson for allowing me to publish this case and for the help he has given me.

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FATAL HAEMORRHAGE FROM THE LIVER IN AN INFANT FIVE DAYS OLD.

BY

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THE following account of a rather unusual case seems worthy of record.

A male child was born at McHardy Home at 2 a.m. on August 25th, 1924; it weighed 10 lb. The mother, aged 42 years, had had nine previous children, all weighing between 9 and 10 lb. at birth. They were all alive and in good health. The mother appeared to be perfectly healthy, and gave a negative Wassermann reaction. Labour in the present case was normal and easy, and up till the fifth day the child's condition was perfectly satisfactory. It had lost about 10 oz. in weight, and was entirely breast-fed. On the fifth day the child was taken to its mother at 11 a.m., took its feed well, and was brought back to the nursery at 11.30. At 12.15 p.m. it was crying for a time, but nothing abnormal was noted. At 1.45 p.m. it was sleeping and looked well. At 2.15 p.m. it was noticed to be very pale and to be crying feebly. The sister in charge informed me that the child looked as if it had had a severe haemorrhage. On examination

the abdomen was noticed to be rather distended, and an area of dullness was found in the right flank continuous with the liver dullness. No tumour could be palpated. A diagnosis of haemorrhage into the peritoneum was made, possibly from some abdominal tumour. At 3.30 p.m. the child died.

Post-mortem Examination.—This was performed about 9 p.m. on the same day. The thoracic viscera appeared normal, but there was very little blood in the heart or great vessels. Through the right dome of the diaphragm a dark mass could be seen. On opening the abdomen about 6 oz. of free blood and blood clot were found, mostly in the right flank. The right lobe of the liver was dark from blood effused under the capsule, which was stripped up over an area extending above into the diaphragmatic surface of the liver, and in front to within about three-quarters of an inch of the falciform ligament. From a minute perforation on the anterior aspect of the capsule blood was still oozing. On cutting across this area a deep sulcus was seen on the anterior surface, running from above downwards and slightly inwards, about 2½ inches in length. To the right of this a dark area, roughly ovoid, sharply demarcated from the liver, was made out. This area was situated in the right lobe, and extended into the distal surface in front, and slightly on to the abdominal aspect beneath. It measured about 1½ inches across and about 2½ inches from above downwards. The liver weighed 243.06 grams. The remaining organs appeared normal.

Microscopical Examination of the Liver.—There was congestion and marked fatty change. An area of haemorrhage showed intermingled strands of fibrous tissue and a boundary of compressed haemorrhagic and fibroid liver tissue. This boundary showed in parts a leucocytic infiltration, and throughout the haemorrhagic area the leucocytes appeared to be increased, and were for the most part mononuclear in type. There was some early organization of the blood clot which would correspond with the period—five days—between the birth and death of the infant. The appearances suggested that the haemorrhage occurred at birth from trauma.

There can be very little doubt that the fissure found in the liver was a laceration which probably occurred during birth, although the fact of labour having been easy and normal makes it rather difficult to understand how it occurred. Holt states that small haemorrhages are not uncommon upon the surface of any of the viscera covered by peritoneum, and that intraperitoneal haemorrhages are rare, but may be very extensive, amounting to six or eight ounces, as in the present instance. Small surface haemorrhages of the liver, he states, are not infrequent. Occasionally one of considerable size occurs, separating the peritoneal covering and forming a tumour, generally upon the superior surface. Such lacerations may be produced during labour, and a slow accumulation of blood may take place beneath the capsule, death resulting from rupture into the peritoneal cavity.

RECOVERY FROM TUBAL DEAFNESS CAUSED BY A SARCOMA.

BY

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AND

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The following case is one of removal from the soft palate of a sarcoma which resembled clinically the type of endothelioma found in this situation.¹ As a result of relief of pressure on the Eustachian tube the patient recovered from unilateral deafness of eight years' standing.

An active man engaged in responsible affairs became deaf in the right ear at the age of 35 and noticed a swelling at the back of the mouth three years later. At the age of 40 he could only hear ordinary conversation close to the right ear. The swelling grew larger internally and began to project outwards behind the angle of the jaw. The voice had a nasal intonation, but there was no interference with breathing or swallowing.

The smooth yielding tumour occupied the right side of the soft palate and nasopharynx, the tonsil being displaced medially, and was slightly movable on bimanual palpation. The drumhead of the right ear was indrawn and with the C 256 tuning-fork bone conduction was relatively increased. With the stem of the vibrating fork on the vertex the sound was heard loudly in the right ear: by air conduction C 1024 was heard well, C 128 not at all. The left ear was normal. Systemic examination, including a blood count, revealed nothing abnormal.

Operation.

General anaesthesia was induced with chloroform and continued through a laryngotomy tube. The tumour, which extended deeply into the pterygo-maxillary and submaxillary regions, and was

surrounded with a false capsule, was dissected away. The walls of the cavity were coagulated by diathermy. A week later a tube of radium emanation was placed in the depth of the cavity and another towards the root of the tongue; these were secured in position for twenty-four hours by packing.

On section the tumour proved to be a spindle-celled sarcoma; portions of muscular tissue removed were seen to be invaded.

After-Treatment.

As soon as the sloughs had separated the patient was referred to Dr. William Mitchell for x-ray treatment, and five exposures were given. Three months later the drum was less retracted, and on inspection with Hay's pharyngoscope the Eustachian orifice appeared normal. After one or two inflations with the catheter the hearing for the watch and voice was completely restored. Rinne's test was positive, though air conduction was still a few seconds less in excess of air conduction than on the left side. Four years after the operation there was no sign of recurrence, and the hearing was normal.

What was the pathological condition of the right ear from which the patient recovered so promptly when the patency of the Eustachian tube was restored? In three cases of obliteration of the Eustachian tube by malignant tumours of the nasopharynx Brock found serous exudation into the tympanic cavity and its adnexa, attributable to hydrops *ex vacuo* rather than to inflammation. Karl Beck of Heidelberg, experimenting with dogs, closed the tube with wooden plugs, or, as was found more effective, with the thermo-cautery. After killing the animals, microscopic examination revealed hypertrophy and cellular infiltration of the mucous membrane, some bony thickening, and a sterile exudate containing polymorphs and lymphocytes. According to Habermann² this condition differs from chronic catarrh of the middle ear, in which proliferative changes in the tympanic mucosa are identical with those of hypertrophic rhinitis. In our case, in which closure of the Eustachian tube was probably gradual and possibly intermittent, there were no subjective symptoms of fluid in the tympanic cavity, nor could any fluid exudate be seen through the drum.

Only by the finest discrimination between the forms of chronic deafness can we hope to judge beforehand whether operations on the nose and throat will restore hearing.

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CONGENITAL OCCLUSION OF DUODENUM.

BY

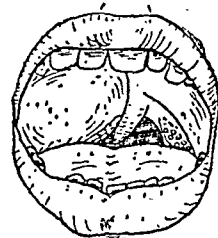
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DR. H. C. CAMERON, in the Lumleian Lectures, delivered last year,¹ discussed in the first lecture vomiting in infancy due to obstruction from developmental defect in the upper alimentary tract. The following case is reported because, as Cameron says, "the diagnosis, supported by a characteristic radiographic appearance, is often not difficult, and because, sometimes at least, we may hope to save life by means of a timely operation following upon early diagnosis." The condition, however, appears to be very rare. Only one case² has been reported in this infirmary, with about 3,500 admissions annually, in nine years.

A male infant, aged 5 days, was admitted to Booth Hall Infirmary, Manchester, on January 15th, 1926. There was a history of vomiting everything taken by the mouth since birth. The patient was the weaker and smaller of uniovular twins and weighed 4½ lb. at birth. The pregnancy and labour were normal and the parents and their children were healthy.

On examination the heart and lungs were found normal. The tongue and pharynx were red and congested. The abdomen was not distended, but some fullness was seen and felt in the epigastric region. No intestinal peristaltic waves were seen; there was no jaundice. The anus and rectum were normal. X-ray examination of the stomach was not done.



Appearance of the Tumour.

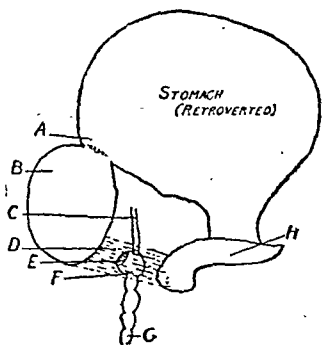
Vomiting persisted after admission in spite of medical treatment. After a feed, or sometimes not until after two or three feeds, food welled up into the mouth in large quantity. It was composed of curdled milk and was not bile- or blood-stained. The capacity of the stomach was very great, and gastric "wash-outs" returned unstained.

The stools, which were passed with ease, were composed of meconium, glairy mucus, and bile.

The nature of the lesion was suspected, and surgical treatment (gastro-duodeno-enterostomy) was considered, but the child had already undergone five days' starvation, and was in a condition of dehydration and inanition. It was therefore put in an incubator and rectal and subcutaneous salines given every four hours. Two days later (seventh day of life) it died, effortless vomiting persisting until the end.

Post-mortem Examination.

The liver reached to just above the umbilicus, and the lower border of the



A, Pyloric valve. B, First part of duodenum. C, Common bile duct. D, Fibrous band. E, Mass of lymphoid tissue. F, Remainder of duodenum. G, Small intestine. H, Pancreas.

stomach nearly to the symphysis pubis. The gall bladder was distended and the part of the stomach wall in contact with it was bile-stained. The stomach was greatly dilated and contained curdled milk. The pyloric valve was fully dilated.

The first part of the duodenum ended in a dilated, dome-shaped diverticulum. The occluded end was firmly connected by a strong fibrous band to the head of the pancreas. The remainder of the duodenum (second and third parts) began, at the upper end, as a bulbous dilatation, into which, almost at right angles, ran the common bile duct. A firm, nodular mass in the wall of the gut near the entrance of the duct proved, on histological examination, to be a mass of lymphoid tissue. A band, composed entirely of fibrous tissue, stretched from the occluded end of the first part of the duodenum to the head of the pancreas. Midway in its course it enveloped the bile duct and remainder of the duodenum. The pancreatic duct, although not traced, did not enter the gut in the region of the bile duct.

The remaining organs in the body appeared normal.

Early diagnosis is essential in these cases. Unfortunately, in the case recorded more than five days elapsed before the child was brought to hospital and a diagnosis made.

I have to thank Dr. J. D'Ewart, medical superintendent of the infirmary, and Mr. Robert Ollerenshaw, consulting surgeon to the Manchester Union, for permission to publish these notes. I have also to thank Dr. G. D. Dawson, pathologist to the Manchester Union, for the histological examination and identification of the various parts removed at the post-mortem examination.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SPONTANEOUS REDUCTION OF ACUTE INTUSSUSCEPTION.

SPONTANEOUS reduction of an intussusception and the verification of the diagnosis by laparotomy is of sufficiently uncommon occurrence to merit record.

A male child, aged 1 year and 6 months, was seized at 1.30 p.m. on March 3rd, 1926, with acute abdominal pain. It vomited on four occasions during the next four hours, and a motion passed was blood-stained. The child had always been constipated, but there was no history of previous attacks.

The child when first seen at 6 p.m. was suffering from agonizing abdominal pain. Across the abdomen, just below the umbilicus, a well marked tumour was present, and examination by the rectum revealed typical red-currant jelly.

The patient was admitted to the infirmary at 7.30 p.m.; it was screaming, and the legs were drawn up to the abdomen. A tumour was palpable below the umbilicus, and on rectal examination the gloys were blood-stained, but no typical red-currant jelly was found.

Operation was arranged for 9 p.m., but soon after the last examination the patient fell asleep, and remained asleep until 8.45 p.m. When seen at 9 p.m. it was quiet and contented and abdominal palpation and rectal examination were completely negative. No enemata had been given, but in view of the

definite findings at 6 and 7.30 p.m. it was decided to perform laparotomy.

The abdomen was opened by a paramedian incision. The small intestine for a length of 5 to 6 in. from the ileo-caecal valve was markedly thickened, congested, and rather distended, with haemorrhagic spots present at various points on the peritoneal surface. The thickening and congestion were most marked in the last 1 to 2 in. of the ileum, and the proximal portion of the intestine implicated presented a ring-like appearance as if one part of the intestine was invaginated slightly into the next part. The gut was quite viable, but the mesentery was congested, inflamed, and swollen, and the glands in the mesentery were enlarged. The "dimple" characteristic of the reduced intussusception was present on the lower outer wall of the caecum. The abdomen was closed, and on the next day one blood-stained motion was passed. On March 21st the patient was discharged after an uninterrupted convalescence.

Presumably, had no operation been performed this case would have been labelled "gastro-enteritis" or a vague "food poisoning," and one can only conjecture how many more such cases have been likewise labelled. In this case the definite physical signs at 6 and 7.30 p.m. made one chary of leaving well alone when the child was again examined at 9 p.m.

I am indebted to Mr. K. M. Duncan, F.R.C.S., for permission to publish this case.

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CYSTIC DEGENERATION OF A UTERINE FIBROID WITH PARTIAL EXTRUSION.

THE patient whose case is recorded below was brought to the Royal Salop Infirmary, Shrewsbury, in a condition so serious that no detailed history could be obtained.

A woman, aged 46, was admitted to the infirmary suffering severely from shock, with signs of haemorrhage. She stated, that, having been much troubled by "pains in the stomach and constipation," she had taken an aperient the previous evening, and on waking during the early hours of the morning had found her "bowels lying out on the bed."

A large mass of what at first appeared to be decomposed coils of intestine was seen lying between her thighs. She was immediately taken to the theatre and an anaesthetic administered. The prolapse, which weighed about 4 lb., consisted of a horribly putrid, grey, semisolid mass, held together by interlacing fibrous bands. There was very little haemorrhage, and no blood vessels could be seen. The external portion of the prolapse was clamped and excised. It was then seen that it had come down through the vagina, which was distended by a continuation of the growth. On introducing the hand into the vagina alongside the prolapse, the cervix was found to be dilated sufficiently to enable the hand to be passed into the uterus. The interior of the uterus was filled with a soft friable growth which was densely adherent to the uterine walls by tough fibrous bands. The uterus formed part of a hard rounded tumour filling the pelvis and extending up to four inches above the umbilicus. At the upper margin of the tumour a pedunculated fibroid could be felt.

It was decided to perform hysterectomy. A considerable amount of blood clot and offensive serum was found lying among the coils of intestine; this was seen to be coming from the right Fallopian tube, which was distended and had ruptured. The uterus was pale and oedematous. In front it was adherent in its upper part to the parietal peritoneum by recent adhesions and to the omentum and transverse colon by much firmer adhesions. The omentum was clamped and tied off, but it was necessary to dissect a flap of peritoneum off the uterus to free the colon. This flap was then folded over on itself and sutured, thus covering in the raw surface. The veins of the broad ligament were very dilated, especially on the left side.

Owing to the uterus being firmly fixed in the pelvis some difficulty was experienced in securing the uterine vessels. This was overcome by working down the broad ligament on one side, dividing the cervix, and securing the broad ligament on the opposite side from below upwards (Kelly's method). The peritoneal cavity was drained by a large tube brought out through the vagina.

Examination of the uterus showed that it was the site of numerous fibroids. The small pedunculated fibroid situated on the fundus had undergone calcareous degeneration. One large interstitial fibroid showed typical red hepatization. The main portion of the growth, however, consisted of a large submucous fibroid, which had undergone cystic degeneration. This filled the uterine cavity, and had sloughed; it was this sloughing mass that had been expelled from the uterus.

The pathologist reported that sections taken from the uterine wall, and the fibroids, had the appearance of a fibromyoma undergoing necrosis, and that there was no evidence of any malignant change.

I was afterwards able to get a more detailed history. The patient had had a child nineteen years previously, but no further pregnancies. Menstruation had been regular, but during the last four years had been excessive, lasting eight days. She stated that thirteen months ago she passed a "fleshy lump." She had noticed enlargement of the abdomen for two years, but had suffered no inconvenience until a month before admission, when she was much troubled by backache and abdominal pain accom-

panied by a slight but very offensive vaginal discharge. This, however, was not sufficiently severe to prevent her doing her usual household work.

As might be expected, the patient's convalescence was not uneventful. There was profuse purulent discharge from the drainage tube, but the temperature became normal on the third day; on the sixth day it rose again slightly, and this was accompanied by pain and some swelling of the left leg and thigh. This rapidly subsided under treatment, and all went well until the twenty-first day, when she suddenly died of pulmonary embolism.

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Surgeon, Royal Salop Infirmary, Shrewsbury.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

ST. PANCRAS DIVISION.

THE TREATMENT OF HEART FAILURE.

At a meeting of the St. Pancras Division of the British Medical Association, held at the Association House, Tavistock Square, on April 20th, Professor F. R. FRASER delivered an address on digitalis in the treatment of heart failure. Dr. GEOFFREY EVANS, chairman of the Division, presided over a large attendance.

Professor FRASER said that he intended to confine his remarks practically to the action of digitalis in auricular fibrillation. Pharmacologists, studying the effects of digitalis on animals, gave a great number of possible actions of the drug, but in the human subject, with therapeutic doses, the actions were really reduced to three, and possibly two of these were identical. The first of these actions was to slow the sinus node, the pacemaker of the heart, but it was no use to expect in this way to slow the heart when it was quickened by any cause other than heart failure, and even such slowing action as was brought about was not very powerful. The second action of digitalis, a powerful and constant one, was to cause delay at the auriculo-ventricular node in the conduction of the impulse from the auricle to the ventricle. About the third action there was a good deal of controversy. Some authorities maintained that digitalis increased the force of ventricular contraction; others denied this stoutly. Most of the British school were rather sceptical about any action of value in therapeutics upon the ventricular muscle, but evidence seemed to be accumulating that there was some such action, and if the action existed it meant that digitalis was of some use, not only in auricular fibrillation (which followed from its second action just stated), but in all cases of heart failure when the ventricular action was not so good as it ought to be. But this third action, like the first, was in any case a very poor action compared with the second. Like all powerful drugs, digitalis could do harm, and the maximum beneficial dose was very near to the toxic dose. Workers in New York had stated that with 15 c.cm. of good tincture, comparatively fresh, for every 100 pounds of body weight, a patient would be fully digitalized. Digitalis was completely absorbed from the stomach within six hours, therefore there was no purpose in giving digitalis hourly or two-hourly, nor, on the other hand, in waiting for a day before giving a second dose. Six hours was the right interval, so that there was a logical basis for the customary procedure of giving digitalis three times a day. Digitalis was excreted by the kidneys and bowels, and destroyed in the liver and heart muscle. It was calculated that the tincture of digitalis was eliminated or destroyed at the rate of 22 minims a day. Thus a dose of, say, 15 or 20 minims a day would not result in an increasing concentration of the drug in the body. Some patients could take 30 minims a day without accumulating it, but it was necessary to watch larger doses very carefully, because more digitalis was being given than could be destroyed. The toxic phenomena of digitalization were, in normal persons, drowsiness, nausea, and vomiting, occasionally diarrhoea. If digitalis were pushed still further actual heart-block would be caused. In the case of persons with a diseased heart, digitalis affected the diseased portion of the heart before the other effects were produced, and here dropped beats due to blocking indicated toxicity. In auricular

fibrillation, where a dropped beat would not be recognized, the first sign might be coupling. Apart from the limitations thus suggested, there were certain types of cases which did not seem to respond to digitalis as well as might be expected. A patient whose heart beat did not become slower was a patient who had an active infection. Another patient with auricular fibrillation and acute rheumatism might even have nausea and vomiting with digitalis before a slowing effect was perceived. Professor FRASER showed a number of charts to illustrate different types of cases. An additional output of urine, he said, was not due to any diuretic action of digitalis, but simply to an improvement in the circulation. With a mild degree of heart failure the pressure was even higher than when the patient was comparatively well; apparently there was a reaction in the periphery, and the pressure increased as the patient got worse. If digitalis were given in that state the pressure would fall. Under digitalis the pressure would rise or fall or remain constant according to the need of the patient. A raised blood pressure was never a contraindication to digitalis; usually it was the reverse. If digitalis were given whatever the abnormality in pressure it would bring about a closer approximation to the normal. He also advised that whatever preparation of digitalis was chosen, one preparation alone should always be employed; the necessary experience would not otherwise be acquired. He personally preferred the tincture, for reasons which he gave. He also mentioned the danger of intravenous injections of strophanthin if the patient within a period up to three weeks previously had had digitalis.

Dr. P. P. DALTON recounted a case of auricular flutter with senile changes in the heart, which he regarded as an ideal case for intensive digitalization. The patient, however, did not react at all well, and toxæmia was suspected; now Professor FRASER had made it plain that in cases where the heart was being poisoned digitalis would not act in doses short of toxic. Professor FRASER had mentioned only three actions of digitalis; Mackenzie thought there was another—namely, that the afferent fibres of the vagus were stimulated by digitalis to receive more impressions than they otherwise would. He asked whether the giving of digitalis for two or three days before operation would be likely to excite the vagus and increase the danger from anaesthesia.

Dr. A. J. CLARKE asked whether there was a nervous plexus in the auricle, or whether the conductivity was purely muscular. He asked also over what time the 15 c.cm. of digitalis per 100 pounds of body weight was given, and Professor FRASER replied: Rapidly, so as to prevent elimination. Another question referred to the risk of giving large doses of digitalis if the previous quantity of digitalis taken was not known; in a case of high blood pressure, in which there were signs of heart failure, was there any danger of apoplexy in giving digitalis?

Professor FRASER, in reply, said that digitalis had the same actions in acute infections as in other states, but the order of the actions was disturbed, so that the toxic actions preceded the beneficial, and the patient would vomit before the pulse rate slowed. In pneumonia he gave digitalis continuously, because he believed in the third action to which he had alluded. In high blood pressure there was no danger from digitalis at all; the tendency was for the pressure to come down. As to any danger in giving digitalis after previous unknown digitalization, the case was rather different from that of strophanthin; strophanthin was administered intravenously, whereas digitalis was given by the mouth, and then vomiting afforded a safety-valve. The auricle, so far as was known, had a purely muscular conductivity. With regard to vagus inhibition during anaesthesia, it was supposed that if a patient were digitalized completely there would be a vagus inhibition, and it was a good tradition that atropine should be given to the fully digitalized patient. With regard to stimulation of the afferent fibres of the vagus, there was no evidence for or against this theory; it was purely a hypothesis.

The CHAIRMAN commented upon the way in which scientific findings had been correlated in the lecture with clinical medicine; and a hearty vote of thanks was accorded to Professor FRASER.

Reports of Societies.

THE CLINICAL SIGNIFICANCE OF THE RESPIRATORY METABOLISM.

At a meeting of the Medical Section of the Royal Society of Medicine on April 27th, Dr. HUGH THURSFIELD presiding, there was a discussion on the clinical significance of the respiratory metabolic rate. The discussion was confined chiefly to the so-called basal metabolic rate—that is, the absorption of oxygen and output of carbon dioxide (respiratory exchange) measured in the morning before breakfast, some twelve hours after a light meal taken the evening before.

Dr. E. P. POULTON, in opening the discussion, said that the methods of indirect calorimetry—direct calorimetry was not used as a clinical method—might be divided into the open-circuit method, where air from the atmosphere was breathed through mask and valves and the expired air collected, and the closed-circuit method, where the oxygen absorption alone was determined. Dr. Campbell and he had attempted to combine various principles described by other workers into a new type of apparatus which he demonstrated. It was so constructed as to permit the results for oxygen and carbon dioxide to be obtained during the actual experiment, so that it was possible to be quite certain how constant the metabolism was from one period of five minutes to the next, and there was no waste of time with subsequent analysis. The patient breathed ordinary air; the experiment could be prolonged indefinitely provided the source of the oxygen was pure, and, if required, a volumetric tracing of the respiration could be made. Turning to the clinical significance of basal metabolism determinations in thyroid disease, Dr. Poulton said that in hyperthyroidism the basal metabolism was raised, and in cretinism and myxoedema it was lowered. But in using the basal metabolism as a method of diagnosis it had to be remembered that certain other conditions, such as fever and leukaemia, brought about a raised metabolism, while starvation, underfeeding, and Addison's disease caused a lowered metabolism. An observation of the basal metabolism might be of value in excluding hyperthyroidism as a cause of wasting. Certain patients had well marked signs of Graves's disease, and yet had a normal metabolism; these had been described as border-line cases. As a guide to treatment the basal metabolism was of very great value, not only in cases of exophthalmic goitre, but also in determining the right dose of thyroid to give in cretinism and myxoedema. In obesity the difficulty was to arrive at a correct standard of comparison. If the metabolism of the healthy subject before he became fat was used as a standard, then the basal metabolism of obesity was usually abnormally high—a surprising fact, considering that adipose tissue by itself probably had a very low respiratory exchange, and tended also to prevent loss of heat. An increased metabolism of this kind might be explained by an increased intake of food, on the analogy that fasting produced a lowered metabolism; but some observations by Plaut pointed to the possibility that in these cases it was not so much the basal metabolism that was at fault as the so-called specific dynamic action after the intake of food. In conclusion, Dr. Poulton referred to some observations by Dr. Campbell and himself on the effect of exercise on the respiratory exchange of a patient with severe bronchitis and asthma. As a result of exercise the respiratory quotient was found lower than among normals, while the total oxygen intake remained the same, and treatment with oxygen caused a rise in the quotient to about the normal value. He thought that there might be some qualitative alteration in metabolism, due to exercise, in patients who were suffering from chronic oxygen want.

Dr. C. M. WILSON said that a discussion of this nature would be justified if it could be shown that these measurements supplied something in diagnosis and treatment which clinical observation alone did not supply. In diagnosis the method was useful in distinguishing a non-toxic goitre in a nervous woman from a toxic goitre causing nervous symptoms. It was also useful in a group of cases common at

neurological hospitals in which the patients were nervous women with palpitations, some loss of weight, and other symptoms which might or might not be due to hyperthyroidism. A diagnosis could be made in this group by means of these measurements when clinically such a diagnosis could only be suspected, and it could be made at an early stage of the disease when treatment was likely to be far more effective than if it was postponed until the diagnosis on clinical grounds could be established. There were certain cases also of hypothyroidism stopping short of myxoedema which showed a definitely lowered basal metabolic rate, and these cases cleared up with the administration of thyroid extract. In brief, in diagnosis, though the measurements were not necessary for the confirmation of frank exophthalmic goitre or myxoedema, they were very useful in making an early diagnosis before the case was obvious clinically. In treatment the measurement of the basal metabolic rate did not enable one to say whether x rays or surgery were to be preferred in the management of exophthalmic goitre, but when the choice of treatment had been decided it was essential in the control of that treatment. He regarded it as unsafe to treat exophthalmic goitre with x rays unless the treatment was controlled by the basal metabolic rate, for such measurements not only prevented the treatment from being carried too far, but also from being stopped, through excessive caution, at too early a stage. The measurements did not indicate which were suitable cases for surgery, but they did indicate the right time for surgery, which was one of the three factors in successful operation, the others being the right choice of case and the skill of the surgeon. He believed that if an operation was done on a rising metabolic rate there would be trouble. Altogether these measurements lent precision to prognosis, and with regard to diagnosis and treatment they gave an element of safety which, so far as he knew, other observations could not supply.

Dr. GARDINER-HILL stated some conclusions gathered from between three and four thousand examinations at St. Thomas's Hospital during the last five years. The open-circuit method had been used; the closed circuit had been tried, but the results obtained in the open circuit with the Haldane-Douglas bag were held to be more consistent. One of the chief advantages of the bag was that the air breathed was more nearly normal than in the Sanborn apparatus. There seemed to be no doubt that in thyroid disturbance these determinations were of considerable value. In the diagnosis of early or latent cases of myxoedema much help had been afforded. In certain cases of sterility or repeated miscarriages where the gynaecologist could find no local cause there was a low basal metabolic rate, and pregnancy had followed administration of desiccated thyroid extract. The metabolism in pituitary disturbance was found generally within or only just outside normal limits.

Dr. R. D. LAWRENCE was not so optimistic as Dr. Wilson with regard to the value of these estimations over and above what might be ascertained from ordinary clinical observation of the pulse, weight, tremor, and so forth. He felt that a great deal of quite unnecessary work was being done. The part of the test which had interested him, however, was the respiratory quotient, which was definitely lowered in all fairly severe cases of Graves's disease. He attached a good deal of prognostic significance to a very low respiratory quotient, and thought that such patients were in a bad condition, and certainly not at the moment subjects for operation. He had been applying, with some success, the respiratory measurement to the ascertainment of the point at which Graves's disease, with upset of the carbohydrate metabolism (the condition in about 50 or 60 per cent. of the cases), passed over to Graves's disease in which true diabetes had ensued.

Dr. REGINALD HILTON spoke of the wide margin of error in these determinations. Errors were not avoided by the use of the Douglas bag, though this method was preferable to the oxygen-absorption method. It was very comforting to think that the progress of a disease could be measured numerically, but he rather agreed with Dr. Lawrence that these determinations were rarely necessary. They helped occasionally, but the clinician could very generally decide

the question without their aid, and he knew that some surgeons who once used the method regularly had now given it up. It was a useful control, but it could only confirm, not replace, the findings of the clinicians.

Dr. Poulton briefly replied.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of the Aberdeen Medico-Chirurgical Society was held on April 1st, the President, Dr. J. CROMBIE, in the chair.

Dr. A. G. ANDERSON showed a case of amyotonia congenita in a girl aged 12. The main features were the great flaccidity of the muscles, the diminished reflexes, and the fantastic attitudes in which the child could be placed. The child could remain sitting up but was unable to raise itself into a sitting posture when lying on the back. He also showed a man, aged 21, suffering from pseudo-hypertrophic paralysis which began between the ages of 14 and 15, a rather unusual feature. There were eight in the family; the eldest was affected, the five next were normal, and the two youngest suffered from this disease. The patient could walk fairly well and was able to pursue his studies at the university.

Dr. A. W. HENDRY showed a woman, aged 25, with well marked signs of acromegaly. She was seen first about a year ago, complaining of headache and fits of an epileptiform nature which occurred every four to seven weeks. She had noted the enlargement of the jaw, hands, and feet when she was 18. The nervous system was quite normal, but an x-ray examination showed a greatly enlarged sella turcica.

Dr. JOHN CRAIG showed a little girl who developed whooping-cough in December, 1924. There were no convulsions, and no unexplained fever, but she noticed on getting up in January, 1925, a weakness of the right hand, arm, and leg. The case was one of undoubted infantile hemiplegia. Dr. Craig mentioned that athetosis was more common in cases of infantile hemiplegia than in adults. The case was shown as illustrating a rare sequel of whooping-cough.

Mr. G. H. COLT showed a female patient, aged 20, who had suffered from a severe non-compound fracture of the right frontal bone. The unconsciousness on admission was not profound and she had bleeding from the right ear. A large trephining operation was performed the night of admission, and with the exception of a slight recession of the right eye, a slight inconstant nystagmoid movement, and loss of memory for names, not faces, she had made a very good recovery. The question of compensation was discussed at length.

CANCER RESEARCH.

A MEETING of the Derby Medical Society was held in the board room of the Royal Infirmary on April 15th, with Dr. HUGH BARBER, the President, in the chair, when Dr. S. MONCKTON COPEMAN, F.R.S., read a paper (illustrated by means of lantern slides) entitled "Some recent investigations on cancer."

Dr. Copeman gave a brief account of the work of the Departmental Committee on Cancer appointed in 1923 by the Ministry of Health, and of the memoranda and more detailed reports published under its auspices. In this connexion he dealt more particularly with the question as to whether mortality from the disease was actually increasing. As the outcome of recent statistical study this had been shown definitely to be the case, even when every allowance was made for "ageing of the population" and for improved diagnosis and accuracy of certification. The main portion of the paper was concerned with a description and discussion of recent experimental work on cancer, with special reference to that of Dr. Gye and Mr. Barnard on the discovery, isolation, and culture in a special medium, of a filter-passing micro-organism which not improbably constituted the specific virus of the disease. He also mentioned the investigations by Dr. Lumsden of the cure by inoculation of an immune serum of sarcomatous tumours experimentally implanted in the rat.

After summarizing the detailed reports by Dr. Jane Lane-Clayton on cancer of the breast and uterus, made on behalf of the Departmental Committee, and of the Public Health Committee of the League of Nations; Dr. Copeman discussed the question of racial incidence of the disease generally and its selecting various organs of the body. He also dealt with the ultimate results of operative procedure in relation to the stage of the disease at which the patient came up for treatment, and the completeness, or otherwise, of the operation performed. Dr. Copeman referred briefly to a method of palliative treatment for inoperable cases of cancer by means of a dietary depleted so far as possible of foodstuffs of animal origin, containing vitamin A. In certain cases in which progress of the disease was not specially rapid adoption of this method had been found beneficial in bringing about marked increase of body weight lasting over considerable periods of time and accompanied by partial or even complete alleviation of pains.

TREATMENT OF ECLAMPSIA.

At a meeting of the Newport Medical Society on March 31st, the President, Dr. S. HAMILTON, in the chair, Dr. R. GLYN MORGAN read a paper on the treatment of eclampsia.

Dr. Glyn Morgan stated that according to the Registrar-General's returns some six hundred women in Great Britain and Ireland lost their lives annually from eclampsia. The maternal mortality rate, according to the committee appointed by the Congress of Obstetrics and Gynaecology in 1922, was 22.5 per cent., while the foetal mortality rate was about 46 per cent. Some fifty years ago the maternal mortality rate in eclampsia was given as 22 per cent. Prophylaxis was of the utmost importance, and it was disastrous if a woman who had been diagnosed as suffering from a late toxæmia of pregnancy should develop eclamptic fits. In the present unsatisfactory state of knowledge innovations in treatment should be avoided, and those measures should be selected which involved the lowest mortality rate for the mother and child and a minimum of subsequent injury to the mother. Very strong evidence had been produced as to the safety of conservative measures and the danger of radical procedures in the treatment of the disease. Surgical treatment in eclampsia was much more harmful than allowing the child to remain in *utero* during medical treatment. Caesarean section was an unsuitable treatment for eclampsia. The two lines of treatment which had given the lowest mortality rate were those advocated by Professor Stroganoff and by the Dublin school. The fundamental idea of the Stroganoff treatment was that the fits played a pre-eminent part in the results of the disease, and that everything possible must be done to prevent their repetition. Stroganoff relied chiefly upon stopping the fits by chloroform, chloral hydrate, and morphine, and the prevention of all possible external stimuli, while he left the patient to detoxicate herself by her own excretory organs. Eliminative methods played a much smaller part in his treatment than in that usually adopted in Dublin and England. The Dublin method was largely based on the theory that the toxæmia was due to intoxication from the bowel, and intestinal elimination was the essential factor. It had been claimed that the method had reduced the maternal mortality rate to about 9 per cent. All cases of eclampsia, whether mild or severe, were best treated with as little obstetric intervention as possible. The measures adopted should be those which involved a minimum of shock and trauma. Simple medical treatment according to the Stroganoff or Dublin method gave the best results.

Chronic Encephalitis Lethargica.

Dr. F. W. ROBERTSON read a paper on chronic encephalitis lethargica, and laid particular stress on the symptomatic polymorphism of the condition. He pointed out that the endocrine glands were sometimes involved, and mentioned a case which showed evidence of a transient pituitary enlargement. Paresis of the ocular muscles was seldom absent at some stage. The condition frequently caused character and moral changes, more especially in younger children, and was frequently responsible for the

"difficult" child. He then described "Parkinsonism" in detail, and gave the full histories of three patients suffering from this condition. Necropsy findings showed a perivascular infiltration, more commonly in the pons or mid-brain. He discussed the differential diagnosis, and stated that the commonest pitfall was disseminated sclerosis. Treatment was unsatisfactory; bromides and sodium luminal were useful for relieving pain; educational treatment and disciplinary training was often necessary for young adults.

Reviews.

THE SURGERY OF CHILDHOOD.

A STUDY of Professor FRASER'S *Surgery of Childhood* is likely to change the opinion of anyone inclined to think that the surgery of childhood is not sufficiently specialized to justify its separation from the main subject. The book is based on lectures delivered to the Edinburgh Royal Hospital for Sick Children. In its scope it shows little or no sign of such an origin; the surgery of childhood is taken as a definite entity, and full consideration given to every branch. This inevitably leads to some overlapping as regards matters usually dealt with in standard textbooks of surgery and orthopaedics, but perhaps no more than is desirable for clear presentation of the subject.

The work is divided into two parts: Part I occupies 425 pages of volume i, and represents the general surgery of childhood; the remainder of this and the whole of volume ii are devoted to regional surgery.

In the general section there is a chapter on infusion and transfusion by Mr. Norman Dott; for blood transfusion the citrate method is advised and described in detail. The author himself has written the chapter on anaesthesia, very reasonably pointing out that a surgeon is in a good position to offer advice on this subject. He selects ether as the anaesthetic of choice, advising the use of chloroform in exceptional cases and in infants. His advocacy of ethyl chloride may not conform to the ideas of some specialists, but it should be noted that his views apply only to the open method of administration.

The section on rickets and tuberculosis of bones appears to us to be of exceptional value. The pathology of these subjects as far as it is known is clearly presented, and a vast amount of sound advice based on wide experience is given in relation to the treatment of these diseases. The detail in which the diagnosis and treatment of individual tuberculous joints is given makes this section an outstanding feature. The treatment of fractures is dealt with in some seventy-seven pages, and includes a short note on operative procedures for this condition; the section is illustrated with a number of x-ray photographs, a few of which, such as Nos. 66, 80, and 83, hardly seem worth the space they occupy. This is perhaps due rather to a failure in reproduction than to lack of detail in the original pictures.

In the regional section of the book, abnormalities and congenital malformations, as might be expected, take a prominent place. The section dealing with the intestinal canal is especially fully treated and well illustrated. Under the operative treatment of pyloric stenosis due attention is given to recent work; Rammstedt's operation and modifications of it are the methods which receive the most attention. The orthopaedic section presents a practical outline of the subject, is fully illustrated, and as an appendix has a useful note on the preparation of celluloid splints.

There is no bibliography, which seems to us an omission which might be rectified in a future edition. Much recent work is described and many references are made to rare conditions; details of the source of such information would make the book more valuable to those using it for reference purposes.

The work as a whole impresses us as being based on a substantial clinical experience tempered by an exceptional

critical faculty. The practical value is, on the whole, increased by a certain dogmatism in regard to indications for treatment—a dogmatism which is throughout controlled by a judicial attitude of mind. Altogether the book is a successful production, which will be of value both to the general practitioner and to the surgeon interested in children's diseases.

INDUSTRIAL PSYCHOLOGY.

THE book on *Industrial Psychology in Great Britain* which Dr. C. S. MYERS has just published is based on five lectures recently delivered by him in New York, but much new material has been incorporated. The opening chapter, on organization, gives a brief but interesting history of the development of industrial psychology in Great Britain. Its birth may be said to date from the formation of the Health of Munition Workers Committee in 1915, for that body, as Dr. Myers points out, carried out valuable pioneer investigations in munition factories upon hours of work in relation to output, lost time, and other questions of fatigue. In 1918 the Industrial Fatigue Research Board was formed to continue the work of the committee and extend it to other industries, and since that date the Board has published over thirty reports, one of the most important of which, on the subject of vocational guidance, was recently reviewed in these columns.

In the first few years of its existence the Industrial Fatigue Research Board conducted numerous inquiries into problems relating to specific industries, such as fatigue in the iron and steel trade, in the boot and shoe trade, and in cotton-weaving. The most recent policy of the Board has, however, been rather to study general problems of common interest to all industries, such as the introduction of rest pauses, accident causation, and ventilation. On the other hand, the National Institute of Industrial Psychology, which was founded in 1921, more especially aims at carrying out investigations at the request of individual industries or firms, and the training of investigators in industrial psychology. The work of the Board and that of the Institute are therefore to a large extent complementary. The Board conducts investigations with the detailed deliberation of the pure research worker, while the Institute applies the generalized results so obtained to a single factory. The employer of the factory usually desires immediate results which are not restricted to any one problem, but are related to any or all of the numerous questions which appertain to the human factor in industry. Many of these factors are dealt with by Dr. Myers in two chapters designated "Industrial fatigue" and "Movement study." He illustrates his exposition almost entirely by reference to investigations made in Great Britain during the last ten years, but the body of information available is so substantial that he does not need to omit any important aspect of the subject.

In his last two chapters Dr. Myers discusses vocational guidance and selection at some length, as is but natural, for the Institute of Psychology, under Dr. Myers's direction, has devoted a very large part of its energies to this particular field of inquiry. We are glad to think that the good work will continue even more vigorously in the future than in the past, thanks to very generous financial aid from the Carnegie Trustees. Vocational selection tests are now being applied by a large number of firms throughout the world, and the more progressive firms in Great Britain are gradually following suit. The Institute has devised appropriate tests for engineers, weavers, dressmakers, and other industrial workers, and also for clerical workers and retail saleswomen. Some of these tests are described in detail by Dr. Myers, with illustrations of the apparatus used. There seems little doubt that before many years have passed vocational and intelligence tests will be applied as a matter of course to every school child, and to most of the entrants into industry. What a world of misdirected effort will be saved thereby! Every employer interested in all questions relating to the physiology and psychology of industry, which are conveniently covered by the term "industrial psychology," cannot do better than read and digest this excellent little volume by Dr. Myers.

² *Industrial Psychology in Great Britain*. By Charles S. Myers. London: J. Cape, Ltd. 1925. (5½ x 8½, pp. 164; 18 figures. 7s. 6d. net.)

¹ *Surgery of Childhood*. By John Fraser, M.C., M.D., Ch.M., F.R.C.S.E., Regius Professor of Clinical Surgery in the University of Edinburgh, Consulting Surgeon to the Royal Hospital for Sick Children, Edinburgh. In two volumes. London: E. Arnold and Co. 1926. (Med. 8vo: Vol. I. pp. viii + 604, 332 figures; Vol. II. pp. iii + 548, 256 figures. 42s. net the two volumes.)

GASTRIC FUNCTIONS IN HEALTH AND DISEASE.

It is sometimes said that there are too many formal lectures in medicine, not only in medical schools, but of an endowed character at institutions, such as the Royal Colleges. The latter lectures have the advantage of giving younger men an opportunity of correlating published work and bringing researches conducted by themselves to notice, as is eminently shown by Dr. J. A. RYLE's Goulstonian Lectures delivered before the Royal College of Physicians of London last year on *Gastric Function in Health and Disease*,¹ now published with some additions in book form.

The lectures are based on five years' work with Rehfuess's fractional test meals carried out on normal people, including the lecturer, and on the subjects of gastric disorders. From these data, which are interpreted in terms of the late Sir James Mackenzie's conception of dyspepsias as expressions of disturbed reflexes, the dyspepsias are divided into five groups, which, however, overlap to some extent: the habit dyspepsias resulting from faulty conditions such as sedentary life and unhealthy conditions; nervous or psychogenic dyspepsias; toxic and infective dyspepsias; irritative dyspepsias due to a local or distal organic condition, such as appendicitis or a fatty extraperitoneal hernia, termed by Professor F. Craven Moore reflex dyspepsia; and, fifthly, dyspepsias consequent on gross structural disease, such as malignant pyloric obstruction or hour-glass stomach, or to surgical modifications of the stomach, such as anastomosis and sequels of a gastro-enterostomy. In a series of 267 unselected cases Dr. Ryle found that the last two groups of dyspepsias—the irritative and the mechanical—constituted 52 per cent., the toxic and infective group and the habit dyspeptic group 12 per cent. each, and the nervous group 24 per cent. of the cases. These various forms of dyspepsia are then separately described in detail.

Attention may be called to some of the conceptions formulated in these lectures; the two main types of the dyspeptic reaction are the "immediate" from the recently filled stomach, and the "delayed" from the emptying viscus; the provocative factors are either "pressor," producing exaggerated muscular action as in the irritative dyspepsias, or "depressor," causing relaxation or inhibition, as in dyspepsia due to fatigue or toxæmia. Among the toxic forms, that due to tobacco is an exception, as a pressor inhibition allows exaggerated vagus action so that a pressor effect results. Another causal factor is the physiological gastric habit of the individual which is part of his physical attributes; the anthropological relations of gastric and duodenal disease is a new problem, or rather the old one of diathesis revived, and this particular relation has recently been investigated by Dr. George Draper of New York and others. Dr. Ryle describes the normal or orthotonic stomach, the hypertonic, which is found in the vigorous, broad-chested, or lean individual with brisk reflexes, who may become the subject of duodenal ulcer, and the hypotonic stomach, as in the enteroptotic person. In the normal physical habitude the condition of the stomach may vary from orthotonus to at least slight degrees of hypotonus. These lectures are an admirable summary of thoughtful work, and are evidence of the Guy's spirit which Dr. A. F. Hurst has done so much to maintain. There are many points brought out, so to speak, in passing, such as the difference of the factors responsible for appetite and hunger, and the dependence of gastric flatulence on aerophagy, but enough has been said to show the high standard of these lectures.

A PUBLIC HEALTH TEXTBOOK FOR INDIA.

COLONEL C. L. DUNN, I.M.S., Director of Public Health in the United Provinces, and Professor D. D. PANDYA of Lucknow, have prepared a handbook² to meet the needs of candidates for the diploma in public health in India and of medical officers of health in that country. In it are con-

¹ *Gastric Function in Health and Disease*. By John A. Ryle, M.D., Lond., F.R.C.P. Oxford Medical Publications. London: Humphrey Milford, 26 charts, 8s. 6d. net.

² *Indian Hygiene and Public Health*. By C. L. Dunn, D.P.H., and D. D. Pandya, D.P.H. Camb. Calcutta: Butterworth and Co. (India), Ltd.; London: Butterworth and Co. 1925. (Med. 8vo, pp. xix + 679; 76 figures. 22s. net.)

sidered such subjects as water supply, ventilation, disposal of refuse and excreta, food, communicable diseases, housing and town planning, personal and school hygiene, climate and vital statistics, and sanitary law. The chapter dealing with the last subject occupies nearly half the book. Though applicable more or less to the whole of India, it deals specially with the United Provinces, containing all sanitary laws current in these provinces. These will be useful for reference to a health officer, but much increase the length and size of the book.

Under water supply, it is stated that 30 to 50 gallons a head a day are found sufficient in England (London has about 30 gallons and Glasgow 50). In hot climates, naturally, more water is required, and still more used, than in temperate regions, but the authors think that 50 gallons should be sufficient in India. The amounts supplied at present in eighteen of the chief cities of India are given in a table: only three come up to or near the standard desirable—Rangoon (54 gallons), Calcutta (40), and Lucknow (39); some of the largest cities have only a third or a quarter of this—Lahore (11), Amritsar (13), and Lucknow (15) being among the lowest. The reason these cities manage with so low a supply is that the municipal water supply, usually good, is supplemented by wells, public and private; but the water from wells, especially private wells, in a city is usually contaminated. An article in the *Pioneer Mail* of February 26th last on the Bombay water supply states that sixty years ago Bombay had a water supply of 10 gallons a head, which was found fairly sufficient; in 1892 the supply was increased to 38 gallons, and in 1915, after the construction of the Tansa dam, to 50 gallons a head. Even this amount has been found insufficient to give a constant supply throughout the day and new waterworks are under construction to double the amount. In India, and probably everywhere, it is not the water used which makes supplies insufficient so much as the water wasted. The only means of preventing this waste is to supply water by meter, like gas and electricity, not in unlimited quantities at a flat water rate. The latter, however, is the system in use in India, and for the most part in this country.

Under disposal of excreta it is stated that the water-carriage system has been introduced in most large towns in India, and is being extended, and that where a sufficient pipe water supply is available it is the best system. The great cities in the Indian plains have special difficulty in such disposal, owing to the flatness of the country and consequent want of fall. Calcutta and Rangoon, on large tidal rivers, are barely above water-level. In any case, water-carriage disposal is impossible without adequate pipe water supply, which is seldom available. The usual method of disposal is by removal and trenching, followed by cultivation of the trenching grounds. At best removal of night-soil in carts is a nuisance, and the trenching requires strict supervision. In an institution such as a jail, where labour is plentiful and under discipline, the system works well; elsewhere it shows better in theory than in practice. The account of the abominable *sandas*, or domestic well privy, the most insanitary nuisance in an Indian town, shows European readers what sanitarians in India have to contend with. The book is well got up, illustrations, type, and paper are good, and there are not many misprints.

BIOLOGICAL CONSTANTS.

Tabulae Biologicae is a collection of tables of biological statistics which have been prepared under the editorship of C. OPPENHEIMER and L. PINCUSSEN. The whole work will comprise four volumes of about 500 pages each.³ The first volume deals with statistics of pure physics, with physics as applied to biology, and with physical chemistry and its biological applications. Simple abstracts of constants and data are given without didactic comment.

The second volume deals, amongst other subjects, with the relation of biological processes to temperature, the physical chemistry of ferments, photo-chemistry, x rays,

³ *Tabulae Biologicae*. Edited by C. Oppenheimer and L. Pincussen and 90 contributors. In four volumes. Vol. I: Pure and Physiological Physics, Physical Chemistry and its Biological Applications. Vol. II: Thermodynamics, Ferments, Electrochemistry, Radiations, Biophysics, Secretions. Berlin: W. Junk. 1925. (Sup. roy. 8vo. Vol. I, pp. 522; Vol. II, pp. viii + 567, 25 plates, 47 figures. Price for four volumes, £3; bound, £9; not sold separately.)

radio-activity, general muscle and nerve physiology, and the chemistry of the secretions, including milk.

All workers in biological sciences are familiar with the prolonged search through literature that is often necessary in order to discover a biological constant, and most of those workers will at some time or another have regretfully compared the ease with which physico-chemical constants are to be found in "Landolt-Börnstein," with the difficulty of running to earth some simple constant in the biological sciences. The editors of *Tabulae Biologicae* have set themselves the task of preparing a book that will serve the biological sciences as the other book we have mentioned serves physics and chemistry.

The volumes under review consist, as has been mentioned, almost entirely of tables of constants, and therefore any detailed criticism is almost impossible. Reference to one or two subjects with which the reviewer is familiar shows that the collection of data has been carefully carried out, and that care has been taken to include the most recent and most reliable figures available.

To show the scope of their work, the editors, in an introductory leaflet, have prepared a kind of examination paper, the answers to which are to be found in the tables. Examples of these questions are:

"What is the lapse of time between immunization and the appearance of antibodies? What are the limits of the spectrum visible to the eye? How are white blood corpuscles distributed in the infant? What is the osmotic pressure of vegetable cells? What animals contain copper and in what quantities? How great is the combustion heat of lactic acid? How great is the conduction velocity in the ischiadicus of the frog?"

These examples show the wide range of sciences for which data are supplied; they concern botany, zoology, physiology, anatomy, pathology, bacteriology, pharmacology, hygiene, and general medicine.

Tabulae Biologicae should prove a valuable help and time-saver to all research workers and teachers in the wide domain of biological science. It is a work that no laboratory can afford to be without, and all medical men should remember the existence of these volumes, for reference to them will frequently provide in a few minutes information that might otherwise require perhaps weeks of reading to collect.

The price of the four volumes is at present about £8 unbound and £9 bound. The volumes are not sold separately; this, in the circumstances, is a reasonable condition. The price also is reasonable, since the volumes consist almost entirely of tabulated material, and the cost of printing such matter is notoriously high.

NOTES ON BOOKS.

THE first volume of the *Collected Papers* of the Rowett Research Institute, Aberdeen, has been issued. The institute was originally opened for research work in agricultural science in April, 1914; its activity was suspended by the war, but in 1919 the scientific research work was reorganized, an experimental stock farm established, and an adequate library provided. Sir George Adam Smith, Principal of the University of Aberdeen, is the chairman of the governing body, which includes members appointed by that university and the North of Scotland College of Agriculture; the director is Dr. J. B. Orr.

Dr. G. H. KLÖVERKORN has translated into German and re-edited the short work on the examination of the faeces by Dr. S. L. BRUG, Director of the Central Army Laboratory, Batavia. The original work is sufficiently well known to need no further recommendation at the present day, and the translation and editing seem to have been ably carried out. The book is of the nature of a primer for the student in the laboratory, and gives an account of a few practical methods of examination which are simple and have been proved to be reliable, and not a bewildering multiplicity. The brief descriptions of the intestinal parasites and commensals are

adequate for the beginner, and include the Entamoebae, the intestinal Flagellata, *Balantidium coli*, Giardiasis, Blastocystis, and Coccidia. A second section of the work treats of the examination for, and recognition of, helminthic ova in the faeces. There are eight plates with figures representing the various parasites and ova. Some of the latter are depicted although there is no reference to them in the text, notably *Schistosomum haematobium*, Fasciola, Fasciolopsis, Heterophyes, and one or two others. The author states in his preface that he has undertaken this translation because of the absence of such a work in German. Presumably he means works of such a small size as this, for the ground is covered by the books of von Prowazek, of Braun and Seifert, and of Neumann and Mayer, to name but three well known publications in that language. The present work is very convenient in size and is clearly printed on good paper. A few misprints will need correction in the next edition.

The second part of the eleventh volume of *The Medical Department of the United States Army in the World War* has been issued. It deals with various surgical matters, including empyema, maxillo-facial surgery, ophthalmology, and otolaryngology. The second part of volume xv, which deals with medical and casualty statistics, has also been received. We gave an account of the first part of this volume, relating to army anthropology, on December 27th, 1924 (p. 1202).

We have received volume v of the *Selected Contributions from the Peking Union Medical College*.⁹ It includes thirty-six papers on medical and allied subjects representing the activities of the college. The previous plan of collecting all the public investigations of the college in bound volumes has been found impracticable.

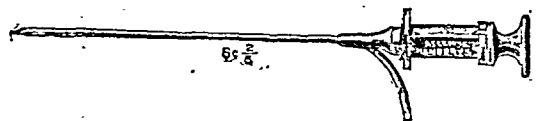
⁸ *The Medical Department of the United States Army in the World War*. Vol. XI, Part II, Surgery: Prepared under the direction of Major-General M. W. Ireland, M.D. Vol. XV, Part II, Statistics: Prepared under the direction of Major-General M. W. Ireland by Major Albert G. Love, M.C., U.S. Army. Washington: Government Printing Office. 1924 and 1925. (Sup. roy. 8vo: Vol. XI, pp. 827; illustrated; 3.50 dollars. Vol. XV, pp. 1368; 15 figures; 3 dollars.)

⁹ *Selected Contributions from the Peking Union Medical College*. Vol. V. Peking, China: The Peking Union Medical College. 1925. (Cr. 4to; illustrated.)

PREPARATIONS AND APPLIANCES.

A Lumbar Puncture Needle.

SURGEON LIEUTENANT COMMANDER W. I. GERRARD, R.N., writes: With the approval of the Director-General, Medical Department of the Admiralty, the following notes of an improved type of lumbar puncture needle are given. Acutely ill and unconscious patients cannot be placed in the position most suitable for lumbar puncture. It frequently happens in such cases that, when the needle has entered the spinal canal, the cerebro-spinal fluid, instead of dropping free from the needle opening, runs back along the outside of the



shaft; it is thus difficult to collect and a quantity is lost. In the modification of the puncture needle illustrated a small outlet pipe is fitted near the end of the needle. When the latter is *in situ* the stylet is withdrawn to just beyond the inner opening of the small outlet pipe, through which the cerebro-spinal fluid then escapes and is easily collected. Moreover, by means of the stylet, the rate of flow can be regulated. The needle has been successfully used in many cases, and has proved of much practical value. It is made by Messrs. Allen and Hanburys, London.

A Coat Lining with Air Cushions.

The "Gay" patent detachable lining, which can be used with any kind of overcoat or macintosh, contains two air cushions—one for the back and one to sit upon. These air cushions can easily be inflated or deflated in a few seconds without unbuttoning the coat, and, when empty of air, the lining is light, soft, and flat. This contrivance, which is chill and damp proof, is designed to give comfort to travellers, convalescents, and invalids. The provision of a cushioned seat and back rest, which does not add appreciably to the weight of the coat, will be welcomed by those who spend many hours out of doors in the country. When not required as a coat lining, it can be adjusted for use as a pillow for night travel, a soft cover for a hard chair, an emergency travel bed for an infant, or a hold-all; a light leather handle is provided for carrying. Three sleeveless designs are available: a back lining, at 21s.; a half-lining, at 22s. 6d.; and a whole-lining, at 25s. The lining is supplied by Messrs. G. MacLellan and Co., 22, Newgate Street, E.C.1, and at their warehouses in Glasgow, Liverpool, Manchester, and elsewhere.

⁶ *The Rowett Research Institute. Collected Papers*. Vol. I. Edited by John Boyd Orr, D.S.O., M.C., M.A., M.D., D.Sc. Aberdeen: The Librarian, the Rowett Research Institute. 1925. (Med. 8vo, pp. 575; illustrated. 2s. 10d.)

⁷ *Die Parasitologische Diagnostik der Menschlichen Faeces*. Von S. L. Brug. Ins Deutsche übersetzt und neu herausgegeben von Dr. G. H. Klöverkorn. Leipzig: Johann Ambrosius Barth. 1925. (Med. 8vo, pp. 64; 49 figures, 8 plates. R.M. 3.50.)

CAMBRIDGE MEDICAL WORTHIES.

At the social evening of the Royal Society of Medicine on Monday last, when the President, Sir ST. CLAIR THOMSON, received the guests, Sir HUMPHRY ROLLESTON, Regius Professor of Physic, Cambridge, gave an address on "Some worthies of the Cambridge Medical School." After observing that of the eighty presidents of the Royal College of Physicians of London since 1518, thirty-seven held Cambridge medical degrees, he went on to give accounts of worthies who were resident members of the University. He began with John Caius (1510-1573), who was the founder of scientific anatomy in this country and a Grecian after the order of Linacre, and, like Linacre, physician to three sovereigns—Edward VI, Mary, and Elizabeth. He was President of the College of Physicians on three occasions, for nine years in all, and did much for the College, founding its annals, designing the symbols and insignia, and in particular presenting to it the "staff of silver or caduceus with its head adorned with the arms of the College supported by four serpents to remind him by its material (silver) to govern with patience and courtesy, and by its symbols (serpents) with judgement and wisdom." Caius had been educated at Gonville Hall, Cambridge, of which he became a Fellow in 1533. He refounded Gonville Hall as Gonville and Caius College in the interests of medicine in 1557, and became master in 1558. His dislike of the vandalism of the times caused him to be persecuted by the vice-chancellor (afterwards Archbishop of Canterbury), and he died in London in 1573 in penury, for he had spent all his money on the College.

The next name mentioned was that of Francis Glisson, philosopher, physiologist, morbid anatomist, and clinician, who had described muscular irritability, and in 1650 wrote his book on rickets. His famous work *Anatomia Hepatis* (1654) made his name and capsule familiar to generations of students.

Of William Heberden, who before he removed to London was Linacre lecturer at St. John's College, Cambridge (1734-38), it was said: "He took careful notes of his patients, reading them over every month and then writing down in a kind of medical common-place book whatever he thought worthy of preservation; in this way he produced by the time he was 72 years of age his celebrated *Commentarii de Morborum Historia et Curatione*, which he entrusted to his son, William Heberden (the younger), with the injunction that it was not to be published until after his death." It was the last important medical treatise written in Latin.

Robert Glynn, afterwards Cloberry, was born in Cornwall in 1719, and educated at Eton and King's, which caused him when in practice to refuse to take fees from Cornishmen and Etonians. He had a great objection to opium and mercury, and when once was taken ill away from home he said to his physician that he was going to be very ill, but was on no account to be given any of "that vile drug, opium, or any preparation of it." When he recovered he asked whether his injunction had been obeyed, and the reply he received from his physician was, "If I had not you would not have been here to ask the question."

Sir Busick Harwood (1745-1814), a person of somewhat violent manners, was next mentioned; he was a Fellow-commoner of Christ's College, and became enthusiastic on the subject of blood transfusion, upon which, in 1785, the year after he was elected F.R.S., he wrote his M.B. thesis. He was appointed professor of anatomy in 1785 and retained the office until his death, although from 1800 to 1814 he was also Downing Professor of Medicine. He wrote a well illustrated *System of Comparative Anatomy and Physiology* (1795). He quarrelled with and challenged to a duel one of his colleagues (Sir Isaac Pennington) at Addenbrooke's Hospital, who treated the message with contempt and never answered. Pennington (1754-1817) was fifteenth wrangler in 1767; he was professor of chemistry for twenty years and Regius Professor of Physic from 1793 until his death, and for fifty years Linacre lecturer. He was succeeded, first

as Linacre lecturer and then as regius professor, by John Haviland (1785-1851). To Haviland, Sir Humphry Rolleston said, "the Medical School owes much more than is now realized, for had it not been for his influence and insistence the medical faculty might have been abolished, and it has been said that its subsequent success was largely due to his exertions. He was the first to give regular courses in pathology and the practice of medicine, and to make the medical examinations a real and rigid test instead of a rather farcical form, sometimes it has been whispered post-prandial, at least in point of time. As he wrote little, and personal memories die comparatively young, his name is seldom mentioned now, but if the doings of the medical school since his time be a monument to his saving grace, he could hardly have wished for a greater." Haviland was twelfth wrangler, and the next worthy mentioned, Sir Thomas Watson, was tenth wrangler (in 1815). He was also a Fellow of St. John's, Linacre lecturer, and junior proctor before he went to London to become physician to the Middlesex Hospital in 1827. Henry J. Hayles Bond (1801-1883) was regius professor for twenty-one years (1851-72) and took the rather unusual course of resigning twenty-one years before his death. His tenure of office was contemporary with a gratifying rise in the reputation of the medical school. This change indeed was urgently needed; for from 1833 to 1858 the average number of M.B. degrees granted in a year was less than four. In the fifty years, 1876 to 1925, approximately 2,500 first degrees in medicine or surgery have been conferred, the largest number being 90 in 1903; in 1917 there were 14, and in 1925 there were 68.

Coming down nearer to our own day, Sir Humphry Rolleston sketched the life of Sir George Paget, eighth wrangler, Fellow of Caius, for forty-five years physician to Addenbrooke's Hospital, and from 1872 to 1892 Regius Professor of Physic. He it was who, during Haviland's tenure of the chair, was instrumental in initiating clinical examinations for the medical degree; this was the first regular clinical examination held in the United Kingdom. "His share in the success of the Medical School has probably not been justly appreciated, for in addition to being the quiet but moving force behind his two predecessors he was instrumental in establishing the Natural Sciences Tripos in 1851, and took an active part in the early examinations. Further, it was during his term of office that the D.P.H. was started, and thus set an example to other universities and examining bodies."

Going on then to Sir George Murray Humphry, he said that it was nearly thirty years since his death, yet his pupils had an extremely vivid recollection of the most impressive teacher they ever had. "They recall him perched on his stool in the Museum, or leaning on his stick outside Addenbrooke's, with his mobile features, aquiline nose, glittering eye, and black hair, recalling Rembrandt's picture of the Jewish Rabbi, and by compelling attention 'the Ancient Mariner.'" "... He had the genius, perseverance, and collecting talent of the Chosen People. ... He found the Medical School insignificant, but left it what it is. ... A great anatomist, his book on the *Human Skeleton* (1858) made the dry bones to live, and was a quarry from which much ore was extracted by others." As a practitioner he was wonderfully shrewd, and many were the favourite aphorisms, such as "Eyes first, fingers next, ears last," that were remembered even now.

After a brief reference to William Harvey (1578-1657), the lecturer passed on to Sir Michael Foster, who, he said, "by creating the Cambridge School of Physiology, carried out Harvey's precept 'to search and study out the secrets of Nature by way of experiment,' and with Sir George Paget and Sir George Humphry created the modern Cambridge School of Medical Science." When he went to Cambridge his laboratory was at first half a room in the New Museums, his companion being the Plumian Professor of Astronomy James Challis (1803-1881). "Foster, ever anxious to encourage research and not without wise humour, initiated an investigation into the dissociation products of protein, which entailed the prolonged concentration of odoriferous fluids; not only did the Plumian Professor vacate his share of the premises,

but he spread about the tale of his experience, and, *post* or *propter*, Foster got progressively more elbow room."

Of Professor Alexander Macalister (1844-1919), who succeeded Sir George Humphry as Professor of Anatomy and held the chair for thirty-six years, the lecturer said that he "took a very broad view of human anatomy, like his successor, including embryology, histology, and anthropology, and was at once one of the most learned and most truly modest of men." Finally the lecturer said a few words about his immediate predecessor in the Regius chair, Sir Clifford Allbutt, declaring that, though wise with long experience, he "remained youthful in mind till the end, ever open to what was new as long as it was true, and yet he never seems to have made a mistake by backing some fallacious, though at first sight promising, departure. For sixty years he contributed to medical science, and much of what he pointed out has been so incorporated in common knowledge that his share is forgotten. He thought and worked on big lines, had high ideals, and was a most modest gentleman. His fame will increase when with the passage of years his work is seen in due perspective."

Sir WILLIAM HALE-WHITE, proposing a vote of thanks to Sir Humphry Rolleston, contributed further anecdotes, including the tale of Sir George Murray Humphry's systematic collection of centenarians who spurned neither wine nor tobacco; the pelican in St. James's Park which, having swallowed a Foreign Office paper believed to be important, was conveyed to a medical consulting room for an emetic; and the black-boned pigeons which, having figured in laboratory studies of Mendelian principles, subsequently formed part of Sunday dinners at Cambridge. During the evening various interesting exhibits were displayed and a programme of orchestral music was performed.

Nova et Vetera.

EARLY DAYS OF THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE Royal College of Surgeons of Edinburgh owes a debt of gratitude to the late Mr. Clarendon Hyde Creswell, formerly officer and sub-librarian of the College, for the painstaking work which has gone to produce the volume of historical notes dealing with the fortunes of that institution from 1505 to 1905.¹

Although the origin of barbers as a distinct craft may be traced back to 1092, when monks were forbidden to wear beards and members of the monasteries were trained in the arts of shaving and bleeding, and although two ranks were recognized, from the beginning of the thirteenth century, in clerical barber-surgeons and lay barbers, the official recognition of this calling in Edinburgh does not emerge until 1504. An extract from the burgh records of Edinburgh shows, however, that by this year the barber craft was a flourishing fraternity possessing a special altar in the Kirk of St. Giles for which they maintained a chaplain. The "seal of cause" or charter granted by the town council to the barber-surgeons in the following year contains a statement of their privileges and regulations. Every freeman of the craft was to pay one penny weekly and every servant or apprentice of the craft one halfpenny towards the upkeep of these religious observances. Before admission as a member of the craft each candidate required to be a burgess of the city and to be examined

"that he knaw anofamea nature and complexioun of every member In manis bodie. And in lykeways he knaw all the vaynis of the samyn thatt he may mak fewthomein in dew tyme. And als thatt he knaw in quhilk member the signe hes domination for the tyme for every man aucht to knaw the nature and substance of every thing thatt he wrikis or ellis he is negligent."

The town council was also to provide once in the year a dead body of a criminal for the purpose of the mutual

instruction of the members of the craft. An important provision which indicates a high standard relative to the general intellectual advancement of the time was that no master of the craft was to take an apprentice in surgery unless he could both read and write. The craft also obtained an important privilege which at the present day would have been of great financial value, that no man or woman within the burgh was to make or sell any *aqua vitae*, except the masters and freemen of the said craft of surgeons.

Privileges of Barber-Surgeons.

When the barber-surgeons thus became one of the recognized crafts or guilds of the city, they stood ninth or tenth in order of seniority, the eldest being the Hatmakers, who had been incorporated since 1473. By 1582 we find that the Barber-surgeons took precedence as the premier guild among the crafts, which now numbered fourteen. The guilds assembled at intervals for the discussion of questions relating to the rights and privileges of the trades, their place of meeting being the Magdalen Chapel in the Cowgate, which belonged to the Hammermen, and which is still extant. Under the famous "blue blanket," the tradesmen's banner, the surgeons often rendered valuable service in the field in the troublous times of the sixteenth century occasioned by wars against "our auld inemies of England." George Leithe, a deacon of the barber-surgeons in 1527, received a yearly fee and pension by Act of Parliament for his services, and in 1542 we find that he again was one of those who received a grant for "passand to the bordouris for curing of all personis that hapnit to be hurt be the Inglis menne." In 1558, the country being threatened by an invasion from the south, the council was hastily summoned to take steps for the protection of the city. Robert Henderson, deacon of the barbers, and seven others were selected as a committee to arrange for putting the town in a state of defence, and the surgeon-barbers' incorporation undertook to supply 717 men, of whom 27 were barbers, in case of attack. A special charter granted by Mary Queen of Scots on May 11th, 1567, shows that the surgeons had by this time become indispensable to the army in the exercise of their craft. This "letter of exemption," as it is generally called, states that the chirurgians are no longer required

"to bear armour nor pass in battle in our hosts, raids, gatherings, assemblies, weaponshavings, or wars to be made by us or our successors . . . by land and sea within this our said realms or without the same; and also from all compearance and passing upon any inquests or assizes on actions criminal or civil. . . . Provided always that they be present with our armies ready to do their cure and duty to all such persons as shall have want thereof."

Professional Remuneration and Craft Fees.

There were numerous records, in the early days of the incorporation, of grants for special services, such as that already mentioned. James Henderson, deacon of surgeons in 1587, was entrusted by the town council with the duty of visiting "all persons who shall be infected with the sickness of pestilence," for which he was to receive a yearly stipend of £20. James Henderson was thus the first medical officer of health in Edinburgh, and his duties were performed with so much satisfaction to the council that it excused him from payment of any taxes levied on inhabitants of the burgh during his life. About the year 1581 the entrance fees to the incorporation were for surgeons £60 (Scots) and for barbers £40. An apprentice when he was "inbooked" had to pay 40s., and there was also a quarterly subscription from every master and freeman of the craft amounting to 6s. 8d. The incorporation appears to have obtained a considerable amount of revenue from fines imposed on its members for various offences, £5, for example, being the fine once paid by a member for uttering "unrelant speeches" against the deacon, deforming the officer, and leaving the meeting without permission. For the more serious offence of having "beaten and stricken the deacon's wife, his children, and servant, and for having offered to put violent hands on the deacon himself," Francis Easton, apprentice to the deacon, was fined £50, as well as being obliged to sign a very humble apology. Another of the sources from which the calling derived an income is deserving of special mention.

¹ *The Royal College of Surgeons of Edinburgh: Historical Notes from 1505 to 1905.* By Clarendon Hyde Creswell, F.S.A.Scot., late Officer and Sub-librarian of the College. Edinburgh and London: Privately printed for the College by Oliver and Boyd. 1926. (Med. 8vo, pp. xv + 262; illustrated. 10s. net.)

In 1614 an ingenious tax was introduced, called the "Cure of Petients," which ordained that whenever a surgeon or barber received upwards of £10 for the curing of a patient he should pay 10s. to the funds of the calling. The sum realized in this way in one year amounted to £23 10s. Another way of helping the funds to a certain extent was by fees charged for the loan of a mortcloth or funeral pall, which was hired out at interments for the purpose of covering the coffin. The incorporation apparently possessed two of these mortcloths, one of which had armorial bearings worked upon it, and the other, which cost £175 2s., was made of velvet.

The Surgeon-Apothecaries.

Both the internal economy and the external circumstances of the incorporation were subject to great stress in the early days. The surgeons were constantly attempting to dissociate themselves from the simple barbers. At the same time new drugs were being imported and pharmacy was becoming a recognized art, so that the treatment of patients was passing to a considerable extent into the hands of men who dealt in drugs. From 1657 the character of the incorporation underwent an important change. Several of the more outstanding barber-surgeons had become skilled in pharmacy, which was taught to their apprentices along with the art of surgery. The barber-surgeons jealously watched the progress of the apothecaries, ready to hale before the town council any apothecary who was reckless enough to bleed a patient, apply a cere-cloth to a dead body, or perform any manual operation. The apothecaries in some instances evaded the consequences by sending accounts to their patients in which no specified charge was made for such services, to the great annoyance of the surgeons. In 1680 a serious dispute arose on this matter between the surgeons and the apothecaries, which was in due course decided by a full bench of judges, who, in the end, found for the apothecaries that the two callings of surgery and pharmacy were no longer to be practised by one and the same person. Partly, no doubt, as a result of the disagreements between the surgeons and apothecaries, the physicians of Edinburgh sought to obtain a charter erecting them into a Royal College, which they effected successfully in 1681.

The book contains much subsequent history regarding the social and domestic activities of the College of Surgeons, the teaching of anatomy, the early association of the incorporation with the Royal Infirmary, the professors of surgery appointed by the Royal College of Surgeons, and the association of the College with the town council. The matters dealt with in these chapters, though of less general interest, are of great historic importance to the Edinburgh Medical School.

HERBERT JONES TESTIMONIAL.

As we announced nearly two months ago, the Herefordshire Medical Society has inaugurated a fund to present a testimonial to Dr. Herbert Jones, who has resigned his appointment as medical officer of health for the combined districts of the county, which he has held for many years, during which he has maintained the pleasantest relations with the medical profession in the area. He has, moreover, done much work for the profession outside the county, both through the British Medical Association and through the Society of Medical Officers of Health. He was a member of the Central Council of the British Medical Association for two terms, and also of its Public Health Committee. He was president of the Society of Medical Officers of Health in 1914-15, and has been a member of its council since 1900. As we stated when first calling attention to the fund (on March 20th), there are few men more intimately acquainted with the intricacies of public health law and its administration, and Dr. Herbert Jones has always been ready to place his knowledge at the disposal of inquirers. For this reason we very heartily endorse the observation Dr. Steed, the honorary treasurer, makes in a letter sending us the second list of subscribers; he says that "the testimonial is worthy of more support from the general body of the profession than it is receiving." We also agree with Dr. Herbert Peck of Chesterfield in his letter published on April 17th, where he

says that those who belong to the public health services should welcome the opportunity of testifying their admiration for Dr. Herbert Jones, and that this applies especially perhaps to the younger members, who, if they now enjoy better salaries than in the past, owe it largely to the efforts of Dr. Jones and others, who in but few instances reaped any benefit for themselves. As Dr. Cox has observed in his recent monthly letter to the officers of the home Divisions and Branches and to members of the Council and central committees, the fund should appeal to workers of the Association, because Dr. Jones was one of the pioneers in bringing about better relations between the public health service and the general practitioner. Dr. Jones, who has been for some time in very bad health, has always held one of those posts in the public health service which is very modestly remunerated. Those who know the circumstances best feel that the fund should be a substantial testimony to Dr. Herbert Jones's fine work. Subscriptions should be sent to the honorary treasurer of the fund, Dr. John Steed, Staunton-on-Wye, Hereford.

SECOND LIST OF SUBSCRIBERS.

- £5 5s.—Dr. J. D. Jenkins (Ystrad Rhondda), *Sir George Newman, K.C.B.
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 £1.—*Dr. W. D. Carruthers, Dr. T. F. Dewar, C.B.
 10s. 6d.—*Dr. J. P. Litt, Dr. A. Murphy (Brynmenyn).
 *Through the Editor of *The Medical Officer*.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee fifty-three cases were considered and £548 voted to forty applicants. The following is a summary of some of the cases relieved.

Daughter, aged 56, of M.R.C.S. (Bart's) who died in 1889. Was in a home for several years, but latterly has been able to take light posts, and having had to leave her last employment through ill health, an emergency grant of £1 was given to tide her over. She has now secured another post.

Daughter, aged 32, of M.D. Dub. who was in the navy and died in 1897; he had retired and commuted his pension three years before he died. All money invested in Germany was lost in the war. Applicant has supported herself and her mother, but owing to recent ill health has not been able to earn enough. An emergency grant of £2 10s. was given. The applicant is a B.A. and is at present seeking some light post as her health is indifferent.

Widow, aged 94, of M.R.C.S. who died in 1867. Up to the age of 75 she supported herself by taking lodgers. She has made her home with friends for the last twenty years, but now is so old and feeble that she requires constant attendance. She has the old age pension and £20 from a charity, and the Fund was asked to supplement this to enable her to have an attendant. Rent 10s. a week. Voted £40 in twelve monthly instalments.

Daughter, aged 66, of a practitioner who died in 1875. She and her sister, aged 61, have managed to maintain themselves, but owing to illness and ill health are now without money for necessities. The applicant has managed to earn her living as a hosiery machinist until recently, and now receives 9s. a week disablement benefit. Her sister at present is very ill in hospital. Voted £12 in twelve monthly instalments. The application for a grant for the sister will be considered later.

Daughter, aged 74, of M.R.C.S. Eng. who died in 1876. She had a school for thirty-five years, but has had to sell it in order to refund money to the estate of her late partner. She has the old age pension. The Fund voted £30 in twelve monthly instalments.

Subscriptions may be sent to the Treasurer, Sir Charles Symonds, K.B.E., M.S., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

British Medical Journal.

SATURDAYS, MAY 8TH AND 15TH, 1926.

THE USES OF VACCINES.

OUR knowledge of the prophylactic uses of vaccines is, for reasons which are easily discovered, much more accurate than our knowledge of their therapeutic uses. To judge of the efficacy of any remedy for the prevention of disease is a relatively simple matter. The experiment is a clean one, free from complications. The patient will or will not catch the disease against which we seek to protect him, and if a sufficient number of experiments can be performed the statistician can pronounce his judgement confidently. But to judge of the efficacy of any remedy to be used in the treatment of disease is a much more difficult business, because the issues are more complicated. With many diseases recovery is the rule, and in all the impartial observer must admit that several agencies may have co-operated in the cure. It is natural, therefore, that our knowledge of vaccine prophylaxis should be richer than that of vaccine treatment, and it is easy to give examples. Thus, when employing vaccines for prophylaxis, as with the typhoid vaccine, we can speak confidently of the number of million microbes necessary, and we can foretell with reasonable precision what may be expected from this dose. We also know the length of time the immunity is likely to last. Compared with this accuracy of knowledge the treatment of existing disease by vaccines is mere guesswork. There is plenty of evidence that vaccines are useful in the treatment of many different infections, but the time for their administration, the interval between the injections, and even the size of the dose, are questions on which widely different opinions are held. The principles of the method of giving vaccines in the treatment of disease are not properly understood, and the details of technique are not based upon experimental evidence, but are decided at the discretion of the clinician.

Professor Ledingham has pointed out in the lecture we publish to-day (p. 815) that much of what is commonly called vaccine therapy is really vaccine prophylaxis. The vaccine treatment of furunculosis, for instance, is largely, if not wholly, a question of prophylaxis; for immediate benefit is not considered the chief aim, but rather a response in the tissues which will secure a greater immunity in the future. But in spite of the fact that much of what is called vaccine therapy may be moved to the firmer foundation of vaccine prophylaxis, there remains a definite small residue which belongs to treatment and not to prevention. Professor Ledingham considers that what is not prophylaxis is simply an example of non-specific protein therapy. There is certainly a lack of strict specificity about the results obtained, and the clinical manifestations appear too soon for them to be attributed to the much more slowly moving machinery known to operate in prophylaxis. Sufficient evidence has now accumulated to show that in many diseases it does not much matter what bacterial protein is given in the vaccine. Such a dose of vaccine may act,

as Professor Ledingham suggests, by causing a greater flow of blood through some indolent inflammatory focus, or it may act in some entirely different way, calling into play a mechanism with which we are not familiar.

To return once more to the securer territory of vaccine prophylaxis, it is satisfactory to find that we are able to form a fairly clear mental picture of what is aimed at when a vaccine is given to prevent disease. A certain amount of confusion clouded the picture when pathologists began to insist that immunity to disease does not run parallel with, and cannot be measured by, such easily demonstrable antibodies as agglutinins, opsonins, precipitins, etc. But there is one reliable method of measuring immunity in experimental animals, and that is by estimating the increased capacity to stand a lethal dose of the particular germ. We can apply the knowledge gained from this experimental work to the problem of human disease, and say that the real aim of immunization is to produce that alert state when all the defensive machinery of the body can be mobilized at the earliest signal, and the circulating fluids at once saturated with protective antibodies. It is this state of preparedness which vaccine prophylaxis aims to produce.

THE BIOLOGY OF POPULATION GROWTH.

DR. RAYMOND PEARL is well known to English students as a brilliant pupil of the school of Karl Pearson who has done more than any other investigator and teacher to make available in America the methods of research which two great Englishmen—Francis Galton and Karl Pearson—created. Dr. Pearl began his scientific career as a biologist; he was afterwards an eminently successful university professor of vital statistics and biometry; he has now, well armed with statistical methods, formally rejoined the biological army, or the general staff of that army, and directs an institute of biological research.

His latest volume,¹ although it could only have been composed by a trained statistician, expounds the point of view of a philosophical biologist. He begins by showing how various forms of growth, from that of individual rats to populations of men, can be described by a simple curve tending to an upper and a lower limit. He then shows that in an experimental microcosm of flies the growth of population follows the same course as that of a nation of men living under the conditions of modern civilization. Then he shows that if we pass from civilized to semi-civilized races, from the French to the indigenous population of Algeria, we again find this curve. There follows an extremely interesting and well written account of the history of modern Algeria. Clearly the indigenous population does not resort to contraceptive measures in any natural sense of the term, yet the birth rate falls. Why? Evidence is then presented indicating that increasing density of population is associated with decreasing fertility, as Michael Thomas Sadler thought he had demonstrated ninety-five years ago. Dr. Pearl does not refer to Sadler, who was a poor statistician and a worse writer, no match for that master of the cocksure school, Macaulay. Yet Sadler was not so far wrong at bottom, and was by no means so ridiculous as his political opponent supposed.

Dr. Pearl then passes to a discussion of the differential birth rate, and remarks—justly, we think—that

¹ *The Biology of Population Growth*. By Raymond Pearl. New York: Alfred A. Knopf. 1925. (5½ x 8½, pp. xiv+260; 41 figures. 3 dollars 50 cents net.)

"the efforts of the eugenists to correct the evils of the differential birth rate by endeavouring to induce the socially, economically, and in some part biologically superior classes to reproduce more freely, as a sort of transcendental social duty, have not met with any discernible success, and in my opinion are not likely to." He comes down decisively on the side of the advocates of birth control: "But if it is not possible to make desirable people have more babies, why not try teaching other people how to have fewer? This is precisely the position of the birth control movement, and it seems to me to offer the only hope of altering for the better the existing differential inequalities in the distribution of the birth rate." An elaborate statistical analysis follows of some data regarding the frequency of sexual intercourse in the married life of a sample of men who had been successfully operated on for the relief of benign hypertrophy of the prostate; but the bearing of this upon the general theme of the book is, perhaps, a little remote.

Lastly, Dr. Pearl summarizes the deductions he thinks warranted by the evidence. He considers it to be established that there is an "inexorable" law of population growth, but he is less pessimistic than Malthus as to the consequences. On this point he writes: "I think the thing which first made me dubious about this inevitable misery doctrine was its seemingly compelling logic. It was so easy to prove logically that it must be so that I began to be suspicious that in fact it probably was not so at all. Long experience with experimental work has taught me that a somewhat rough and ready, but on the whole dependable, rule is that any natural phenomenon which, in advance of observation of the event, can be proved by purely logical processes to be necessarily so, almost invariably turns out upon really competent and penetrating trial or observation to be in fact not so at all but quite otherwise. This curious phenomenon is, of course, not the fault of logical processes of thought, but merely an expression of human fallibility in the matter of premisses."

The subject of this inquiry is one of much medico-sociological importance, and Dr. Pearl handles his material with skill and discretion. Those familiar with the author's scientific writings will recognize various results which have been published in other forms, but even they will find a great deal of fresh matter, and an educated man who does not know the "literature" could hardly choose a better introduction to the problem of population.

"BRITISH MEDICAL JOURNAL."

THE present issue of the BRITISH MEDICAL JOURNAL, was in course of preparation for printing last week, and should have been published on Friday, May 7th, with the date "May 8th, 1926." The general strike, however, stopped all work at the machine printers' office on May 4th. Accordingly publication of the JOURNAL, in common with that of other weekly periodicals, had to be suspended, and no printing could be carried on. The calling off of the general strike on May 12th was not immediately followed by resumption of work at the machine printers' office, but we hope that before the end of this week all copies will have been printed and dispatched. In the time available there is, of course, no possibility of preparing and printing a separate issue for the current week, and it has therefore been decided to revise the contents up to the hour of going to press, and to let this JOURNAL bear the two dates "May 8th and May 15th."

THE LIGHTING OF SCHOOLS.

SHORTLY before the war the Illuminating Engineering Society appointed a committee to report on the lighting of schools. So far as daylight arrangements are concerned the recommendations made by that committee still hold good. The minimum permissible illumination of a school place was defined as 1 per cent. of the outside window-sill illumination. With regard to artificial lighting, however, there seems reason to suppose that the minimum laid down thirteen years ago—namely, two foot-candles for any school place—is much too low. At a meeting of the Illuminating Engineering Society on April 29th Dr. James Kerr, late school medical officer for London, in opening a discussion on the subject, said that although he was a member of the committee which had recommended the two foot-candles minimum, further experience of children's vision had brought him to the opinion that this minimum ought at least to be doubled. The better course, he thought, would be to lay down an optimum rather than a minimum. For classrooms this should be an evenly diffused lighting of from five to seven foot-candles on each desk, the light to be given from large "luminaires" (bowls or globes diffusing the brilliance of the original source) of an intrinsic brightness equal to three candles for each square inch of their surface. A child, said Dr. Kerr, could do his work at illuminations below this limit, but it entailed an improper degree of effort. Some regard had to be paid to the psychology of the child. Actual school observations had shown that the young child had to make a considerable effort to recognize the objects which were presented to him. An adult was able to perceive the form of an object or the significance of a word at a glance; the merest hint was sufficient, through the force of association, to enable him to identify it. But the child had to piece the details together or laboriously to spell the word, and therefore well illuminated detail was a need of, at all events, primary education. Another consideration was that the ordinary testing of the vision of school children showed that during the first half of school life about one-third failed to attain the normal standards, and that 10 per cent. of children left the primary schools permanently short-sighted. It was necessary, therefore, to make a considerable allowance for subnormal vision. It was the same with the exercise of the organ of vision as with any other voluntary function of the body; while efforts could be made successfully to work for a short time at "full load," the normal working capacity fell far short of this. The child should not be expected to work continuously in school anywhere near the limits of visual efficiency. During recent years the means of illumination have become greater and relatively cheaper. The gas-filled (half-watt) lamp had been introduced, and there had been improvements in bowls, globes, and reflectors. A smooth and agreeable illumination from a large even source was now possible. All naked sources in schools should be shaded or screened, but while indirect lighting (that is, with the source entirely concealed) must perhaps be left out of account so far as schools were concerned, he thought there was very little preference from the hygienic point of view between direct and semi-indirect lighting. With direct lighting the provision of large globes or shades bringing down the intensity to about three candles for each square inch of the luminous surface made the distribution fairly even, and did away with the main objection to this form of lighting. For myopic children it might be well to use with the lamp certain large daylight or "rest-light" filters. After a proper system of lighting in schools was established it was necessary to maintain its efficiency, and Dr. Kerr expressed the opinion that this matter should not be entrusted entirely to the schoolkeeper; large education authorities should appoint illumination inspectors. With regard to blackboards, the original report of the

committee, which Dr. Kerr again endorsed, was that blackboards should have at least 60 per cent. more illumination than the rest of the room; but on this point one of the subsequent speakers said that there was a limit beyond which a blackboard could not be satisfactorily illuminated because a higher illumination would give a haze over its surface. Many speakers, mostly lighting engineers, took part in the discussion, but their contributions added little to the stock of practical experience in school lighting. One point brought out was the value of left-hand light balance, in which the lamps in a classroom are placed a few feet away from the wall on the pupils' left, the reflective power of the wall being utilized to give an even illumination over the left shoulder. The chairman of the meeting, Dr. E. H. Nash, took occasion to observe that it might be all very well to talk of five, seven, or ten foot-candles on the desk, of the possible introduction of indirect lighting for schools, and of the appointment of special mechanics to superintend the lighting, but financial economy was a very stubborn factor which had to be reckoned with by education authorities and those who advised them.

THE MACHINE AND THE MAN.

An interesting report to the Industrial Fatigue Research Board on the design of machinery in relation to the operator has been issued by the Medical Research Council. From time to time note has been made of damage done to workers through the defective construction of machines; the incidence of Dupuytren's contraction in lace-winders is an example; it has been shown to be related to the size and shape of the levers on lace machines. But the Industrial Fatigue Research Board could not find that any systematic research into the subject had been made. It was proposed, therefore, that a special committee should be appointed to investigate; and the Board advised the Medical Research Council that the Department of Scientific and Industrial Research should be asked to co-operate. A committee of six members was formed, and Professor E. H. Starling was made chairman. The mechanical side of the investigation was entrusted to two engineers, Mr. L. A. Legros and Mr. H. C. Weston, and on the physiological side Professor E. P. Cathcart of Glasgow has been supervising the necessary research. The investigation was started on two lines: (1) a general survey of repetitive machines, in order to disclose any defects in design; (2) physiological research into the energetics of muscle, especially in the movements employed in machine control, in order to determine the limits in which they can be exercised under favourable conditions. The report now issued is by Legros and Weston, and deals with the first line of investigation; its study by machine manufacturers will, it is hoped, secure their collaboration. Machines in common use are described in which the design appears capable of improvement. Physiological research presents such formidable difficulties in apparatus and technique that a long time must elapse before any results of practical applicability can be obtained. In an introduction to the report the difficulties in the evolution of a machine that attains its object with a minimum of discomfort and fatigue to the operator are illustrated by the story of the bicycle—the two-wheeled frame with a saddle, invented in France in 1818, through the “hobby-horse” of 1840, the “boneshaker” of the sixties, the “ordinary” of the youth of some of us, with its instability fore and aft, and the short-lived “kangaroo,” to the rear-driven safety invented in 1879. A period of fifty years was occupied in increasing mechanical efficiency to practically the present figure; there followed a second period in which the human element was recognized as part of the machine,

and improvements were made in safety, in lessened vibration, and in increased power in speed and hill-climbing with lessened fatigue. The improvements have met the requirements of the rider physiologically by reducing vibration and lessening fatigue, and psychologically by diminishing the risk of accident. The neglect of the user's interests in other machines may, as the authors suggest, cause unnecessary fatigue accompanied by loss of output. In the report investigations are recorded from this point of view into laundry machines, leather-working machines, and some miscellaneous machines, such as those used for boring, boots and shoes, textile work, and tobacco-cutting. Legros and Weston have been able to point out improvements and modifications which could be carried out without great expenditure. They quote in their report some remarkable incidents in time-saving introduced by Henry Ford through attention to the comfortable position of the men while at work. Incidentally, it is noted how readily the workmen—and the designers—become slaves to habit, so that often alterations in method are opposed by the workmen themselves.

THE ISOLATION AND CONSTITUTION OF INSULIN.

A few weeks ago (April 10th, p. 666) a short account was given of a communication published by Professor J. J. Abel of Johns Hopkins University, who has been engaged for some time on the preparation of highly concentrated insulin, in which he stated that he had succeeded in obtaining a crystalline compound with an activity of about 100-rabbit units per milligram. Parallel researches on insulin have been conducted by Professor Casimir Funk in Warsaw, who published a preliminary communication in January this year (*Proc. Soc. Exper. Biol. and Med.*, 23, 281, 1926). In a further note (*Science*, lxiii, 401, 1926) he has announced that the probable formula for insulin is $C_{27}H_{45}O_{22}N_{11}S$, with a molecular weight of 1565. He believes the structure of the compound to be a polypeptide composed of fifteen amino-acids. The convulsive dose for rabbits of pure insulin obtained in this way is about 0.08 mg. The chief conclusions of Funk and Abel appear to be in fair agreement, for both find that pure insulin is a sulphur-containing compound composed of amino-acids. The two observers also find activities for their final preparations to be of the same order. These investigations appear to prove that insulin is one of the most potent substances known, and it will be interesting to see if further research confirms the conclusions arrived at regarding its crystalline structure and molecular weight.

THE ROYAL SOCIETY.

Eight distinguished men of science have lately been elected foreign members of the Royal Society; the last similar election was held in 1921. Professor Martinus Willem Beijerinck, of Gersell, Holland, is one of the leading authorities on the physiology of bacteria, and the author of 129 publications on researches into bacteriological and vegetable physiology. Dr. Niels Bohr, professor of physics, Copenhagen University, is the director of the Spectroscopical Institute and the founder of the modern theory of the relation between spectroscopy and atomic structure. Dr. Ernst Cohen, professor of physiology and general chemistry at Utrecht, is a director of the Van't Hoff Laboratory also, and has conducted many researches into the allotropic states of the chemical elements, and the conditions of stability of pure substances in the solid (crystalline) state. Dr. Willem Einthoven, professor of physiology, Leyden, is well known for his ingenious work in devising instruments for recording minute electrical changes in animal and plant tissues, as well as many instruments for other researches in physiology and physics. Dr. Karl Ritter von Goebel of Munich has published numerous investiga-

tions dealing with vegetable morphology. Professor Henry Fairfield Osborn of Columbia University, New York, is director of the American Museum of Natural History; his work on the evolution of mammalian teeth is well known, and he has also published numerous articles on the horse, rhinoceros, and dinosaurs and other prehistoric animals. Professor Max Planck (Berlin) is distinguished for his studies in mathematics and physics, and was the founder of the quantum theory. Professor Arnold Sommerfeld of Munich is also a well known mathematician and physicist.

THE WORK OF THE ROCKEFELLER HEALTH BOARD.

THE annual report for 1924 of the Rockefeller Foundation's International Health Board has just been issued. It has been prepared by the general director, Dr. F. F. Russell, and is the eleventh of the series. During the year the Board co-operated with the Government health agencies of ninety States and countries in their efforts to improve the health and general well-being of their populations. Public health activities may be divided into two main categories—in the first place, improvement of environment, such as sanitary conditions, guarding of water supply, and clean food; and secondly, the measures dealing directly with individuals, such as medical inspection of school children, infant hygiene, pre-natal and maternity services. In many countries the outstanding need is improvement of environmental conditions; in tropical and subtropical regions soil pollution is a most important factor in hookworm disease, and against it the International Health Board has for years conducted a well organized campaign which has done a great deal to control the widespread scourge, though much remains to be done; the problem is said to be serious in India; it is estimated that in the Madras Presidency 70 per cent. of the population of 45 millions are infected. It is perhaps inevitable, but certainly disappointing, that, after having been clear since 1922, Salvador had a flare-up of yellow fever in June, 1924; preparations were being made to attack early in 1925 the last stronghold of yellow fever in West Africa. The results of the antimalarial campaign are encouraging; Yazoo County, Mississippi, is an example, for the incidence of malaria there has fallen since 1920 from 126 to 32 per 1,000. Valuable work on the determination of the special varieties of mosquitos conveying malarial infection in different countries has been undertaken. Education of both Government officials and the public plays a prominent part in the campaign against disease, and an epidemiological intelligence department is being maintained.

CANCER COMMISSION OF HARVARD UNIVERSITY.

THE thirteenth annual report of the Collis P. Huntington Memorial Hospital for Cancer Research and of the laboratories of the Cancer Commission of Harvard University has just been issued; it covers the year ending June 30th, 1925. The hospital and laboratories have both been in active operation throughout the year, and the number of new patients is steadily increasing. It is likely that the pressure on this special hospital will be relieved in the near future, for the report mentions that two other clinics for cancer patients will shortly be available. One of these, an out-patient "consultation tumour clinic," is in fact already in operation at the Massachusetts General Hospital, with an attendance of about 150 cases a month. The other is to be an additional cancer hospital equipped with all resources for treatment and research. To both of these projects the Huntington Hospital has given assistance and support on the ground that greater facilities are needed than those now available for the treatment of cancer, and that the withdrawal of some of the routine cases from the Huntington clinic would make possible a greater selection of material suitable for investigation. The report is con-

piled on the same plan as its predecessors, and contains reviews of the year's activities by the chairman, director, chief physician and surgeon, matron, social service worker, research workers, State diagnosis service, and treasurer. A brief account is included of research work carried out in the departments of physics, pathology, and clinical medicine, and a list is given of the 186 papers contributed to scientific papers by the staff during the year.

PROTOZOAL PARASITES.

Protozoology, like so many of the scientific handmaidens of medicine, is a child of lowly birth and humble upbringing, which has now reached a sturdy and healthy adolescence—a fact brought to mind by the recent publication of a short history of the subject by Professor F. J. Cole.¹ Although Leeuwenhoek, the father of protozoology, wrote as long ago as 1675, it was not until a century and a half later that the subject received more than the casual attention of a handful of distinguished observers. The first human protozoal parasite—the amoeba of the mouth—was not found until 1849; but during the nineteenth century the science progressed rapidly, and, so far as man is concerned, reached its high-water mark with the discovery of the life-history of malaria—that everlasting monument to the intuitive genius of Manson. This, however, was only the last of a series of discoveries, often on apparently unrelated branches of the science. In 1878 Manson discovered the life-history of *Filaria bancrofti* in the mosquito; in 1893 Smith and Kilborne showed that the protozoan parasite of Texas fever was tick-borne; in 1896 Bruce showed the connexion between the tsetse and the trypanosomes of animals; and in 1898 Ross published his work on the transmission of bird malaria by grey mosquitos. These were the milestones which lead up to the solutions of the problems of malaria and sleeping sickness. In one respect there is an interesting parallel between the histories of these diseases; in both cases the life-history was first of all established in an animal species, and the knowledge so gained was afterwards applied to detect the cause of a human disease. Professor Cole's history, however, is not mainly concerned with the medical or even the economic aspect. He ranges over the whole subject—and it is a wide range—drawing a lesson here and pointing a moral there. He illustrates not only the importance of success, but the significance of failure. "The secrets of this inscrutable cosmos yield themselves only to the few; the work is difficult, mistakes are inevitable, and progress slow." In criticizing our predecessors we must remember that we stand on their shoulders, and we owe as much to their mistakes as to their wisdom. Nevertheless, all the striving and controversy only serves to invigorate that regard for faithful observation on which all serious research must in the last resort depend. Professor Cole's history is necessarily brief, and he has been able to paint only the high lights on a canvas full of colour and varied form. But he has in the few pages at his disposal written an essay full of interest to all, and pregnant with sound understanding of the pitfalls which beset the scientific historian.

A FRENCH VIEW OF MARRIAGE AND SYPHILIS.

THE meeting of the Medical Society for the Study of Venereal Diseases on April 30th was addressed by Dr. G. Lacapère, consulting physician to the St. Lazare Hospital, Paris, formerly of the St. Louis Hospital, and a pupil of the late Professor Fournier. The subject of Dr. Lacapère's address was syphilis and marriage, and he discussed the conditions under which medical men in France considered themselves justified in permitting the marriage of a person who had had syphilis. Absolute proof of the eradication of

¹ *The History of Protozoology*. By F. J. Cole, D.Sc., Oxon. London: The University of London Press, Ltd. 1925. (Demy 8vo, pp. 67; 2 plates. 3s. net.)

the disease could not be established with regard to syphilis any more than with regard to tuberculosis and other chronic infections. The fact that the Wassermann test became negative did not give absolute security. Syphilis, following the general pathological law, was more likely to be cured the earlier treatment was started. During the fifteen or twenty days after the appearance of a chancre the reaction was negative, the syphilis remaining local; the cure during this period was consequently easy. It was easier still if, within a week or two weeks after a dangerous contact, preventive treatment could be started in the shape of injections of "914." After such a patient had been under clinical and serological observation for a year following this course of preventive treatment, and everything remained normal, permission to marry might be given. If treatment was not started until after an unquestionable primary sore had developed, intravenous injections of arsenobenzol should be given, a first series rapidly, and a second series three weeks after the last injection of the first. This might be followed up by a third series, or by two series of injections of insoluble bismuth. The total duration of the treatment should be about ten or twelve months, after which an observation period of from eight to twelve months was necessary. If the reaction then remained negative, if a provocative injection of "914" gave satisfactory results, and if the cerebro-spinal fluid was normal, the patient might be allowed to marry. In cases in which a positive reaction had already developed, almost all French syphilologists used the "914" preparation, some advising intravenous injections and others intramuscular. Dr. Lacapère preferred intravenous injections when attacking syphilis in the stage before a positive reaction had appeared, but after the appearance of the positive reaction he frequently had recourse to intramuscular injections, though he considered these effective only if the doses given were equal to those administered by the intravenous method. The intramuscular injection of "914," however, was not always well borne, and sometimes he used injections of sulfarsenol alternating with insoluble bismuth injections, so permitting the sulfarsenol to be brought down to a point evoking only a mild degree of pain. His practice was to give once a week an intramuscular injection of sulfarsenol and, three days later, an intramuscular injection of bismuth. Two and sometimes more series were necessary, an interval of three or four weeks separating the series. This regular treatment should be continued for some time, even if the tests were negative. Treatment for eighteen months was the minimum, and after the tests became negative it was advisable to continue the injections for a year. As long as the tests were still positive he used "914" injections alone, or combined with bismuth injections; when the tests became negative he gave for a year treatment with insoluble bismuth. If everything remained normal a provocative injection was given and a lumbar puncture made, and then, if all tests were negative, marriage might be authorized; but a minimum of two and a half years should elapse from the commencement of treatment. Dr. Lacapère also discussed the various indications for the treatment of syphilis in the tertiary stage. If no irremediable symptoms, such as angina pectoris or tabes, manifested themselves, the practitioner should set himself to cure the actual symptoms and render negative the tests of the blood and spinal fluid, continuing the treatment long enough to avoid relapse, and keeping the patient under observation by tests at regular intervals and provocative injections. In spite of all precautions it might happen that syphilis was transmitted to the children of the marriage, and most French syphilologists advised an intensive treatment during the weeks preceding marriage. The precautions to be taken must be greater in the case of a woman than of a man. If a woman had had syphilis, although the reactions might have been negative for years,

the result might still show itself in miscarriages or infected children. It was therefore advisable, unless the cure of the syphilis dated back for a very long time—at least eight years, according to one French authority—that the woman should take a course of treatment during pregnancy. In the treatment of the expectant mother arsenobenzol given by intravenous or intramuscular injection seemed to furnish the best results. His own frequent plan was to give a series of "914" injections, with intervals of six weeks, during which he gave biweekly injections of insoluble bismuth, the treatment being continued until three weeks before confinement.

THE CASE OF DR. KNOCK.

Dr. KNOCK's first activities on taking over a small country practice from Dr. Parpalaid were to summon the town crier and arrange for his services, meet the schoolmaster and suggest that lectures on hygiene should be instituted, come to a satisfactory business arrangement with the chemist, and finally give free consultations on Monday mornings from 9.30 to 11.30. The results were eminently satisfactory to him, and the number of patients seen weekly rose from about 10 to 150, and the number of patients under regular treatment at home from almost *nil* to over 200 each week. Dr. Knock spent the first month in finding out the incomes of each of the six thousand inhabitants of the village, for, as he argued, each inhabitant was *ipso facto* a potential patient, and he wished to be quite clear as to the quality and quantity of treatment which might be ordered for a specific case. The question whether such conduct is to be regarded as infamous in a professional respect fortunately does not arise, for the village is Saint-Maurice in France, and although portions of it are represented on the stage at the Royalty Theatre, London, it is doubtful whether Dr. Knock, in the person of Mr. Dennis Eadie, will be dealt with by any disciplinary body. Dr. Knock had spent his very earliest years in a close study of the advertisements of patent medicines, and thus equipped he secured a post at the age of 20 as "ship surgeon, partly qualified," after he had taken a university degree in ancient history and made a living by the sale of shirts. Following a very successful voyage in which no patient died—for Dr. Knock does "not approve of patients dying"—he traded in monkey-nuts for some years, but, becoming bored with this and with many other pursuits, he studied medicine, and obtained his M.D. with a thesis entitled "The common misuse of the word 'cure' in medicine." Dr. Knock professes that he serves the cause of medical science, and seeks to resolve each inhabitant of the village "into a medical existence of his own." He boasts that he will put the whole town to bed if necessary, and when the final curtain falls on this clever satire by Jules Romains, translated by Harley Granville-Barker, it seems extremely probable that he will carry out his threat. A note on the play as originally performed two years ago in Paris was published in our issue of January 26th, 1924 (p. 178).

At the forthcoming Eucenia the University of Oxford will confer the honorary degree of D.C.L. on Lord Dawson of Penn, and that of D.Sc. on Sir Walter M. Fletcher.

It is with deep regret that we have to announce the death of Mr. Stephen Paget, F.R.C.S., which took place on May 8th at his home in Limpsfield after a long illness. We hope to publish an obituary notice in our next issue.

On the afternoon of Friday, May 28th, the Prince of Wales will open the obstetric hospital and the nurses' home presented to University College Hospital by the Rockefeller Foundation, and the reconstructed ear, nose, and throat hospital presented by Mr. Geoffrey Duveen.

Canada.

[FROM OUR SPECIAL CORRESPONDENT.]

POST-GRADUATE INSTRUCTION.

THE plans for extramural post-graduate instruction under the grant from the Sun Life Insurance Company are working very smoothly and with great satisfaction. The announcement was made to the annual meeting of the Canadian Medical Association at Regina last year (BRITISH MEDICAL JOURNAL, August 1st, 1925, p. 229), the amount of the grant is 30,000 dollars, and the scheme is an extension of one started some years ago by the Committee on Education of the Ontario Medical Association. In Halifax, for example, the extended scheme was initiated at a meeting of the Halifax branch of the Medical Society of Nova Scotia, at which there was a large attendance. Dr. John Stewart presented a number of photographs and skiagrams which he had just received from Sir George T. Beatson of Glasgow, which were of much interest, since they showed the results of operations performed by Lister forty years ago. Dr. Stewart and Sir George Beatson were fellow students at Edinburgh, and both had worked as house-surgeons under Lister. The illustrations were of a case of multiple tuberculous lesions, in which, amongst operative procedures, Lister had removed the left patella and had united the femur, tibia, and fibula with a single silver wire suture. The man had recently been admitted to the Cancer Hospital, Glasgow, for a malignant tumour of the eyelid, and it had therefore been possible to get the pictures. He had been able to carry on his work as a cattle drover during the intervening years, his knee remaining in a position of complete extension. The wire suture was seen to be intact. The post-graduate lecture for the evening was then given by Dr. J. Appleton Nutter of Montreal, who described certain paralytic deformities, especially those of childhood. These lectures have been delivered in Ontario, where one of the first lectures was given by Dr. A. Primrose of Toronto, and in Manitoba, where Dr. Frank Patch of Montreal and Dr. Duncan Graham of Toronto addressed several branch medical societies.

NOVA SCOTIA AND NEW BRUNSWICK.

There has been an unusual prevalence of diphtheria and scarlet fever throughout various parts of Nova Scotia, but, as has been ascertained by the Department of Public Health, most of the cases of both diseases have been of a mild type. The department also publishes vital statistics which show some interesting comparisons. In August, 1925, for example, the infant mortality rate was 51.1; for August, 1924, it was 104.9. For this month also the tuberculosis death rate was the lowest for a great many months, and the indications are that this rate for the entire year will be the lowest yet recorded. There has been a great improvement in health conditions during recent years, and careful statistical records are brought forward to prove that the greatest gain has been made in districts where public health nurses have been at work for some years.

Similar encouraging reports come from New Brunswick. Dr. H. A. Farris, superintendent of the St. John County Hospital, reports that there has been a decided falling off in the number of cases of tuberculosis in the city of St. John, and the decrease has been most marked in children. It is attributed to the activities of the nurses of the Society for the Prevention of Tuberculosis, and to the work of the County Hospital.

THE CAMPAIGN AGAINST TUBERCULOSIS.

The National Research Council of Canada last autumn inaugurated extensive plans for a national "campaign" against tuberculosis. There has been no lack of efforts along these lines heretofore, but it was felt that these might be correlated and controlled by a central organization, thus sharing all the benefits of concentration. Data had been collected throughout the previous summer on all the branches of research in tuberculosis—human, bovine, and avian—and in the autumn a meeting of the most prominent men in this field was held in Ottawa. At it a report

was drawn up which set forth under thirteen headings the whole field of research, and after consideration of this report the National Council decided that it would have enough money out of the vote passed at the last session of Parliament to carry on the work thus laid out. Accordingly, 30,000 dollars has been made available, which it is thought will be enough to cover the expenditure during the remainder of the year. In this connexion Dr. Auguste Pettit, of the Pasteur Institute, member of the Academy of Medicine of France, and secretary to the Biological Society of Paris, has accepted an invitation to take charge of the research work at the University of Montreal.

MCGILL UNIVERSITY NURSERY SCHOOL.

To the many educational interests of McGill University there has now been added a nursery school. The inception of this is due largely to the financial backing of the Rockefeller Foundation, which has given a grant of 10,000 dollars a year for five years for this purpose. The school is designed to care for about twenty children, ranging between the ages of 2 and 4, and careful observations will be made of their growth and psychological development. About eighteen children have been received at the school during the winter, and the scheme, which at first came in for a certain amount of criticism, is now making good progress.

England and Wales.

PRESENTATION PORTRAIT OF THE LATE SIR SYDNEY RUSSELL-WELLS.

AN interesting ceremony took place at the Dreadnought Hospital (Seamen's Hospital Society), Greenwich, on May 4th, when Sir Humphry Rolleston, Bt., unveiled a presentation portrait of the late Sir Sydney Russell-Wells, M.P., who was assistant physician to the hospital from 1906 to 1908, and physician from 1908 until his sudden and premature death in 1924. Among those present were several relatives of Sir Sydney Russell-Wells, including his brother, Sir William Wells. The portrait, which was painted by Mr. John Wells, R.I., a nephew, is of life-size, three-quarter length, and shows its subject wearing the gown of Vice-Chancellor of London University, while a view of Greenwich appears in the background. Dr. C. E. Sundell, physician to the hospital, in asking Sir Humphry Rolleston to unveil the painting, said that the portrait was a tribute to the memory of a colleague. The idea of the portrait was formulated at a meeting of the medical council of the hospital, and received at once unanimous support. The staff felt that to them a portrait was not a necessary memorial, because they would always have in their minds a recollection of Russell-Wells as a physician, a friend, and a counsellor, but they knew that as time went on, and changes took place in the staff, it was well that there should be a permanent memorial on the walls of the staff room of a man of such outstanding gifts and personality. The name of Sir Humphry Rolleston came at once to mind when they considered who should be asked to perform this ceremony: in the first place, because he was associated with the same hospital (St. George's) as Sir Sydney Russell-Wells; in the second place, because he had held for four years the highest place that a physician in this country could attain—that of President of the Royal College of Physicians; and, finally, because during the war he held high naval rank and served the sailor to whom Sir Sydney Russell-Wells also devoted so many years of labour.

Sir Humphry Rolleston, before unveiling the portrait, referred to the whole-hearted devotion of Sir Sydney Russell-Wells to all aspects of the welfare of the hospital. As a physician he took a wide interest in all forms of disease, in particular diseases of the heart and circulation, which, as they now knew, had a melancholy association with his personal health. He was a man gifted with foresight and imagination. Impressed with the importance of biochemistry, he was anxious that the pathological department of the hospital should be reinforced by the appoint-

ment of a biochemist. Some of his latest work was done on a subcommittee which was concerned with additions to the hospital and the erection of a nurses' home. As a member or chairman of committees he had great abilities; he was clear, conciliatory, and convincing, and a past master of procedure. One closely associated with him in this capacity said: "I have never seen anyone like him as a member of committees; he had a gift of exposition and of marshalling his points which would convert the most determined opponents in an almost uncanny manner." This talent he certainly utilized for the benefit of the Seamen's Hospital in the thorny questions that must needs arise concerning the policy and administration of hospitals. The speaker himself had seen Russell-Wells's steady progress from a student at St. George's (1889) to Vice-Chancellor of London University (1919-22). His success in this high office, in which he succeeded Sir Cooper Perry, was marked by the establishment of a School of Commerce and of a degree in that important aspect of national life. Russell-Wells's services to the University began in 1903, when he became a member of the Senate as a representative of Convocation, being elected by the registered graduates in science. He was vice-chairman of the Council for External Students from 1906 to 1908, when he became chairman, and he guarded their interests and maintained a just balance between the internal and the external students. He was also the representative of the University in the House of Commons and on the General Medical Council. In all these many and varied activities he never spared himself, and there was little doubt that his devotion to duty conduced to his premature death. No ordinary man in mental ability, he had many other sides and interests: he was a prominent Mason, was keenly interested in engineering and electricity as hobbies, and was a skilful craftsman in his workshops, where he loved to spend his leisure time. He had rigorously trained himself, and his success was recognized as his due. They would not look upon his like again. Sir Humphry Rolleston concluded by saying that it was most appropriate that the portrait of Sir Sydney Russell-Wells, due to the generosity of those who knew from intimate association his ideals and the character of his work, should be offered to the hospital which he had served so long and unselfishly. Fortunately the work was entrusted to a most-skilful artist who, as his nephew, had special advantages for the execution of this successful portrait of Sir Sydney, which, on behalf of the subscribers, he asked the Seamen's Hospital Society to accept.

Sir Arthur Clarke, chairman of the board of management, accepted the portrait on behalf of the Seamen's Hospital Society, and also paid a tribute to Sir Sydney Russell-Wells. Sir Sydney's gift which he most coveted was his peculiar power of getting people to agree with him. Professor R. Tanner Hewlett, director of pathology at the hospital, in proposing a vote of thanks to Sir Humphry Rolleston, said that his own association with Sir Sydney Russell-Wells dated back for some thirty years. The first time he met him was in the mid-nineties, in a house in Great Russell Street, which was then the headquarters and laboratory of the British Institute of Preventive Medicine, now the Lister Institute. At that time many people supposed that when the body was invaded by micro-organisms it got rid of them by producing some disinfectant substance which killed them off, and he remembered how eagerly Sir Sydney Russell-Wells set himself to search for this substance, thereby illustrating his bent towards biochemistry. Mr. R. E. Bickerton, D.S.O., ophthalmic surgeon to the hospital, seconded the vote of thanks, and recalled that among Sir Sydney Russell-Wells's lovable qualities was a keen sense of humour.

STANDARDIZATION OF HOSPITAL ACCOUNTS.

We have previously referred to the fact that the form of systematization of hospital accounts, first recommended in 1906 by the King Edward's Hospital Fund for London, the Metropolitan Sunday Fund, and the Hospital Saturday Fund, has been found unsuitable for universal application. Sir Basil Mayhew criticized the system severely in his introduction to Mr. Joseph E. Stone's book

on hospital accounts, as we mentioned on September 27th, 1924 (p. 586), and the fourth edition of *The Revised Uniform System of Hospital Accounts*,¹ now issued by the three Funds, contains amendments which go some way to meet the objections which have been raised. The basis of the method advocated by Mr. Stone was that termed "costing," which is well known in every large commercial business, but is difficult of application to hospital accounts. A step towards the adoption of such a procedure is taken in the appendix to this new edition, which deals with the internal control of hospital expenditure, including quantitative statistics of food and other commodities, the periodical compiling of estimates of income and expenditure, and departmental costs with an illustrative departmental analysis on "costing" lines. Although the interdependence of the various hospital departments renders the application of such lines very difficult, yet the removal from this edition of the old requirements which made "costing" more difficult, and the provision of an illustration of how the analysis of departmental expenditure might be made, open the door for such hospitals as wish to work out cost accounts. Without much change in the published accounts the way has been prepared for hospitals to develop an accounting system which would enable them to ascertain the costs of work done in each department. The characteristic feature of *The Revised Uniform System* as a whole is that it provides for the complete separation of the income and expenditure on maintenance account from all other items. The income and expenditure account contains only the items of income and expenditure relevant to the year, but without any exceptions. The ordinary income has now been grouped under three main headings: voluntary gifts, receipts on account of services rendered, and the return from invested property, which are the three main sources of hospital income; the grouping of expenditure has also been simplified. The present edition has been prepared after consultation with the British Hospitals Association, the Incorporated Association of Hospital Officers, and the hospitals on the books of the Fund, by a subcommittee of the Hospital Economy Committee of the King's Fund, under the chairmanship of Sir Basil Mayhew. It is issued with the authority of the three Funds and supersedes all previous editions. It is required to be used by every hospital in London receiving grants from the three Funds; the Voluntary Hospitals Commission of the Ministry of Health has recommended the universal adoption of the system, and restricted its grants to hospitals using it or some other form of accounts approved by the Commission.

NOTIFICATIONS OF INFECTIOUS DISEASE.

We have received from the Ministry of Health the following tabular list of notifications of infectious disease in London and in England and Wales (including London) during the week ending May 1st, 1926:

	London.	England and Wales (including London).
Small-pox ...	—	146
Scarlet fever ...	241	1,518
Diphtheria ...	242	979
Enteric fever ...	9	44
Pneumonia ...	117	1,198
Puerperal fever ...	5	42
Cerebro-spinal fever ...	3	9
Poliomyelitis ...	—	3
Poliomyelo-encephalitis ...	—	2
Encephalitis lethargica ...	4	53
Continued fever ...	2	7
Dysentery ...	—	2
Ophthalmia neonatorum ...	5	93

MATERNITY BEDS IN LONDON.

At the annual meeting of Queen Charlotte's Maternity Hospital, Marylebone Road, London, Sir Samuel Scott, who presided, stated that there were only 700 beds for maternity patients in the voluntary hospitals of London. Queen Charlotte's Hospital, which last year admitted 1,966 patients to its wards, had frequently to refuse applicants owing to lack of accommodation; the committee had arranged to provide an operating theatre, which had

¹ *The Revised Uniform System of Hospital Accounts*. Fourth edition. London: George Barber. 1926. Price 5s. net; 5s. 4d., post free.

become a necessity, but it contemplated an increase in the number of beds, and for this purpose a large sum would have to be raised. Dr. G. C. Peachey had recently brought to light an interesting fact regarding the foundation of the hospital. He had discovered a manuscript in the British Museum which made it clear that the hospital was founded in 1739, and could thus claim to be the oldest maternity hospital in Great Britain.

QUEEN MARY'S HOSPITAL FOR THE EAST END.

A new pathological department at Queen Mary's Hospital for the East End, Stratford, was opened on April 28th by Lord Birkenhead. The building forms part of the out-patient department, which was erected as the West Ham war memorial, at a cost of £40,000, and opened by Prince Henry in 1924, at which time insufficient money had been received to complete the pathological section. The new department consists of six laboratories with consulting rooms; its equipment is fully comprehensive and up to date, and other hospitals in the district will, it is hoped, benefit materially by making use of it for pathological work. Sir Leonard Lytle, chairman of the hospital, referred to the very active assistance given by Mr. Will Thorne in raising the money for the erection of the out-patient department. Lord Birkenhead mentioned that in the course of last year 130,000 out-patients were treated by the staff, and congratulated the hospital on the value of the work which was being done.

Scotland.

DUNDEE X-RAY PIONEER.

At the meeting of the Carnegie Hero Fund Trustees held on April 29th at Dunfermline the trustees awarded a bronze medallion, together with an allowance of £200 per annum, to George Alexander Pirie, M.A., M.D., of Dundee, who was engaged in x-ray work from 1896 to 1925, and as a result became permanently injured and had to relinquish professional work. Dr. Pirie was recently made the recipient of a local presentation, as announced in our issue of April 3rd (p. 632).

BRITISH MEDICAL ASSOCIATION: FIFE BRANCH.

The last of the series of clinical meetings held by the Fife Branch during the winter took place in the Station Hotel, Kirkcaldy, on April 22nd. The lecturer was Sheriff Dudley Stuart, Sheriff Substitute of Fife and Kinross, who delivered a most interesting and instructive address entitled "Some points from a lawyer's notebook." The importance of a careful, detailed, and thorough examination in all criminal cases was emphasized, and illustrated by anecdotes and references to well known trials. Questions regarding certification, the maintenance of an impartial attitude of mind, not only in medical reports but also in the witness-box, the importance to the doctor of obtaining consent before examination, the circumstances in which the seal of professional confidence may be broken to further the ends of justice, and other points of interest to the medical profession were dealt with from the lawyer's point of view in a manner which was much appreciated by the members present. A discussion followed in which Drs. Douglas, Dickson, Cairncross, Tuke, Macdonald, and Balfour Graham took part. Thereafter the annual dinner of the Branch took place. The chair was taken by Dr. Heron of Markinch (President), and the following guests were entertained: Sheriff Dudley Stuart, Sir Norman Walker, Dr. J. R. Drever (Scottish Secretary of the British Medical Association), Dr. Buist (Dundee), Dr. George A. Allan (Glasgow), and Mr. W. T. Duncan (Fife County Insurance Committee). Dr. C. E. Douglas (Cupar) and Dr. Tuke (Dunfermline), members of the Branch who had both delivered addresses during the winter session, were also present. Apologies for absence were intimated from Professors Murray Lyon, T. J. Mackie, Leonard Findlay, and Dr. Murray Young, and members of the Branch unable to be present. The toast of "The Imperial Forces" was proposed by Dr. MacTier (St. Andrews), and

replied to by Lieut.-Colonel Balfour Graham; and "The British Medical Association" by Sir Norman Walker, who congratulated the Association on having a leader like Sir Robert Bolam, shrewd and far-seeing, who commanded the respect and confidence of the rank and file. He also referred to the work Dr. Drever had done in consolidating the Association in Scotland. In reply Dr. Drever pointed out the satisfactory increase in membership, and also referred to the good work done by Dr. Cox during his visit to South Africa. Dr. C. E. Douglas proposed "The Guests" in an eloquent and felicitous speech, unfortunately curtailed by time. Sheriff Dudley Stuart and Dr. Buist replied. Songs were rendered by Drs. Dickson, McEwen Sinclair, and Lieut.-Colonel Balfour Graham. Thereafter *Floreat res medica* and the usual votes of thanks brought a very pleasant and enjoyable evening to a close.

EDINBURGH MEDICAL FACULTY BICENTENARY.

The arrangements for the celebration of the bicentenary of the Medical Faculty at Edinburgh University, which will be held in June, are now fairly well advanced, although not completely fixed. As already noted in the *BRITISH MEDICAL JOURNAL* of February 6th (p. 252), the Medical Faculty at Edinburgh University virtually began in 1726 with the appointment of Professors Andrew Plummer and John Innes as professors of chemistry and medicine, Andrew Sinclair and John Rutherford as professors of medicine and institutes of medicine, and Joseph Gibson as professor of midwifery. Anatomy, which included surgery, had been taught by Professor Alexander Munro for some seven years previously. As the Tounis College at Edinburgh in 1726 for the first time became able to give its own students a complete course of instruction in the subjects required for a medical degree, and began shortly thereafter to examine for and grant the degree of M.D., the year 1926 marks the bicentenary of the addition of a medical faculty to the Tounis College, and in a wider sense, therefore, of the transition from the Tounis College to the University. The bicentenary celebrations have been arranged to take place on Thursday and Friday, June 10th and 11th. It is expected that a banquet will be held in the University Library Hall on the evening of June 10th, at which it is hoped all the medical teachers of the Edinburgh Medical School may be present. On Friday forenoon the University will confer an honorary degree upon a number of distinguished men, of whom a list was given in our issue of April 3rd, and on the occasion of the laureation it is expected that an address will be delivered by Sir George Newman, chief medical officer of the Ministry of Health. In addition to the list of honorary graduates already announced, the Senatus, by a subsequent resolution, has decided to confer the degree of LL.D. upon Professor W. T. A. Jolly, professor of physiology in the University of Capetown. The Royal College of Surgeons proposes to entertain the honorary graduates at luncheon, and in the afternoon the new department of surgery, presented to the University by the Rockefeller trustees, will be opened by the Secretary for Scotland. The Fellows of the Royal College of Physicians intend to entertain the honorary graduates and others connected with the ceremony at an early dinner on this evening, and the celebration will be terminated by a reception which the Lord Provost and magistrates propose to hold in the Royal Botanic Gardens on Friday evening.

Ireland.

ROYAL VICTORIA EYE AND EAR HOSPITAL.

The need for financial assistance and increased accommodation was stressed at the annual meeting of the Royal Victoria Eye and Ear Hospital, Adelaide Road, Dublin. The report showed that during the year 1,664 patients were admitted to the hospital. In the out-patient department 8,380 new patients were registered, and 4,170 returned for further treatment, making a total of 12,550 who received attention during the year. The aggregate number of visits

paid by these patients was 35,544. The need for additional accommodation became more and more pressing, and the committee looked forward to the time when it would be able to complete the original plans of the hospital. At present there were over forty patients waiting for admission. An order of the High Court in March of last year declared the hospital entitled to the funds available under the terms of the will of the late Mrs. Harvey Lewis. The costs had not yet been taxed, and, pending the realization of investments, it was not possible to state the actual sum available, but it was hoped that over £15,000 would be received. It was hoped to invite tenders shortly for the erection of a new wing to contain about forty additional beds. The cost of the building would be over £15,000, and money would be required for furnishing and equipment. Towards this the committee had nothing in hand. The expenditure was £11,383, and the receipts, exclusive of legacies, were £8,289; £4,238 was received in legacies. Lord Glenavy said that the report was satisfactory, in so far as it showed that the hospital was carried on with increasing efficiency and advantage to the citizens of Dublin and the Free State. Either the income must be increased or expenditure reduced if the hospital was to avoid bankruptcy. He thought there was room for an increase under the heading of paying patients. He was not at all sure that patients were paying anything like the maximum which they should, and this applied particularly to in-patients, who last year paid only £2,797, while the cost of provisions alone was £3,587. Voluntary associations such as that of Messrs. Jacobs would do much to help hospitals.

SHAVING-BRUSHES AND ANTHRAX.

Dr. M. J. Russell, M.O.H. Dublin, in a letter in the daily press states that his attention has been drawn by the Glasgow M.O.H. to the fact that it had just been discovered that shaving-brushes imported from Czechoslovakia are infected with anthrax, and that in December, 1925, two gross of these shaving-brushes were consigned from Glasgow to Dublin. It is therefore imperative, in view of the great danger of infection, that any persons who have purchased shaving-brushes at an auction recently should destroy them. No case of infection had yet been notified to him, but that was no guarantee that the continued use of those brushes might not have a disastrous result.

Correspondence.

HYOSCINE IN PARALYSIS AGITANS.

SIR,—The interesting communication on "Hyoscine in post-encephalitis lethargica" by Dr. P. K. McCowan, Dr. J. S. Harris, and Mr. S. A. Mann, in the *JOURNAL* of May 1st (p. 779), prompts me to send you the following note on a method of giving this drug in paralysis agitans, which I have found of great service since I first used it about sixteen years ago.

It is generally agreed that no drug is as effective as hyoscine in controlling the tremor of paralysis agitans, but as a rule the onset of dryness of the mouth or paralysis of the muscles of accommodation makes it impossible to give more than a comparatively small dose. I found that pilocarpine neutralizes the effect of hyoscine on salivary secretion and on the intrinsic muscles of the eye without in any way diminishing its effect on the tremor. Consequently a much larger dose can be given than would otherwise be possible. The further addition of strychnine helps to prevent the depression caused by the hyoscine, again without diminishing its influence on the tremor. I generally begin with a mixture containing gr. 1/200 hyoscine hydrochloride with gr. 1/15 pilocarpine nitrate and m 3 liq. strychninae given four times a day. The dose is then very gradually increased till the tremor is controlled or unpleasant symptoms are produced. In most cases it is possible to give gr. 1/50 hyoscine, in many cases gr. 1/20, and occasionally as much as gr. 1/8 without any troublesome dryness of the mouth, paralysis of accommodation, or other unpleasant symptoms being produced. The dose of pilocarpine is at the same time increased, but not

in proportion, gr. 1/6 being generally the maximum, and the dose of strychnine may be increased to m 5 or 6. By these means the tremor can be much more completely controlled than by giving the drug alone, and also without having recourse to subcutaneous injection.—I am, etc.,

Windsor Forest, Berks, May 1st.

ARTHUR F. HURST.

SIR,—In the interesting article on hyoscine in post-encephalitis lethargica, by Drs. McCowan, Harris, and Mann, doubt is expressed whether some of the beneficial effect noted is not due to suggestion. While it is impossible to exclude altogether its effect from any form of treatment, the authors of the paper seem to have demonstrated, in a striking and unusual manner, from their investigations on the blood sugar curve, that suggestion had nothing to do with the improvement they observed. It may, moreover, be stated with confidence that post-encephalitic Parkinsonism is a condition which is singularly unresponsive to suggestion when administered by the common psychotherapeutic methods.

The authors go on to say that "It must be more than coincidence that the hysterical element is here [that is, in post-encephalitic conditions] found to an extent not approached in any other group of patients found in a mental hospital." Equally it cannot be a coincidence that these patients are almost the only ones with so-called hysterical symptoms where no effect whatever is produced by direct psychotherapy. And this naturally raises the question: Is there really an hysterical element in these symptoms at all? That many doctors think so is undeniable. At the Cassel Hospital we are constantly receiving applications that patients be admitted with functional symptoms following on encephalitis. The ground for such a statement has usually been that the doctor in his consulting room has by persuasion then and there induced the patient to perform certain synergic movements much better than they could be performed before. The very rapidity of the result is an indication that it is of no value; hysterical symptoms are not modified in this easy fashion. The explanation, however, is simple. In post-encephalitic rigidity the lesion is one affecting automatic movement. So long as the patient is using his voluntary system which is comparatively unaffected—that is, so long as he is giving close conscious attention to his movements—he will get a better result; but as no one can continue to do this for more than a very few minutes there is no practical result to be gained by persuasion, re-education, or any psychological method.

The question whether these symptoms should ever be spoken of as hysterical—though indeed they may simulate hysteria—is of importance from the hope which the authors have that here may be found an organic basis for hysteria. If the symptoms only resemble those of hysteria but are not identical with them, then we have not approached any nearer to an organic explanation of this disorder. But if the symptoms of the post-encephalitic are the same as those of hysteria we are at once plunged into a difficulty greater than that in which we are at present. We shall then be compelled to acknowledge that suggestion can have an effect on what the authors call "subtle biochemical or biophysical abnormalities," for they themselves freely acknowledge that suggestion has some effect on hysteria. This is to acknowledge psychogenesis, but a psychogenesis of a peculiarly incomprehensible order.

Is it not simpler to say that there are two categories, mental and physical; that though they interact we do not know how; that each may produce similar symptoms, though fortunately we have learnt in certain cases to distinguish between them; finally, that, so far, nothing is to be gained by explaining the one in terms of the other?—I am, etc.,

T. A. ROSS.

The Cassel Hospital for Functional Nervous Disorders,
Penhurst, Kent, May 3rd.

ADOLESCENT ALBUMINURIA.

SIR,—I have no doubt that many of your readers will have felt inclined to echo the surprise of your correspondent Dr. Claude Wilson that anybody should have sought instruction for the treatment and "cure" of orthostatic

CORRESPONDENCE.

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albuminuria, a condition as a vasomotor peculiarity and privilege of referring to. But I would like the albuminuria which results after Wilson's opinion that the albuminuria of the same kind severe exercise is an exaggerated tendency of the same kind and, as he puts it, physiological. Dr. Wilson refers to Dr. Collier's well known observation that albuminuria occurred in every member of an eight after rowing a course. I have investigated the effects of track athletics upon a fairly extensive scale: in many cases the feats of exertion have been of the greatest severity, certainly at least equivalent to the ordeal of rowing from Putney to Mortlake; yet subsequent albuminuria has been conspicuously absent. I can recall only one really definite example—a Marathon runner who had completed the distance without any signs of disproportionate distress or exhaustion: a considerable degree of albuminuria with hyaline and granular casts persisted in this instance for thirty hours. But a close inquiry into his history elicited the information that he had suffered from nephritis—probably scarlatinal—as a child, and that at the age of 25 he had been in hospital for so-called "war nephritis." From my own experience I have always been of opinion that the albuminuria described by Dr. Collier and others as occurring in oarsmen is not due to the exercise *qua* exercise, but depends upon mechanical factors which are easily involved in the case of rowing and obviously absent in running. It would be of some interest to determine what is the subjects of recognized orthostatic albuminuria. Secondly, other forms of violent exertion, such as bicycling, are interesting to ascertain.

described by Dr. Wilson, is not due to the exercise quite as much as is generally supposed. Mechanical factors which are easily invoked, such as the pressure of rowing and obviously absent in running. It would be of some interest to determine what is the effect upon subjects of recognized orthostatic albuminuria, first, of hard rowing, and secondly, other forms of violent exercise. It would also be interesting to ascertain if "rowing albuminuria" can be related to the duration or to the comparative severity of the exercise. That exercise alone, however severe, can be responsible I find it difficult to believe; and even though some objection may be taken to the description of "physiological" as applied to a sequel of rowing, it would seem that any renal change which is produced must be of the most trivial and ephemeral nature.

My acquaintance with athletic young men in the early twenties certainly encourages a belief in Dr. Wilson's suggestion that "adolescence" may, in many cases, be a comparatively protracted affair; and that so far as certain localized tendencies are concerned the subjects, as he puts it, "never grow up."—I am, etc.,

ADOLPHE ABRAHAMS.

211 May 1st.

TREATMENT. JOURNAL

London, W.1, May 1st.

THE SPAHLINGER TREATMENT.
F. Jenkins (BRITISH MEDICAL)
with the Science of Affairs

THE SPAHLINGER TREATMENT. JOURNAL,
MAY 1ST, 1926, P. 805) AGREES WITH THE SCIENCE COMMITTEE
(1) THAT IT IS WISE IN THE PRESENT STATE OF AFFAIRS TO REFRAIN
FROM EXPRESSING AN ABSOLUTE OPINION ON THE EFFICACY OF THE
SPAHLINGER TREATMENT; (2) THAT THE TREATMENT OUGHT TO
BE PUT TO A LENGTHY AND VIGOROUS TRIAL UNDER MEDICAL
SUPERVISION IN THIS COUNTRY; (3) THAT THE INVESTIGATIONS
SUGGESTED BY THE SCIENCE COMMITTEE ARE REASONABLE AND
PRACTICABLE; (4) THAT AN APPEAL FOR FUNDS TO MEET THE
EXPENSE OF THESE INVESTIGATIONS IS WORTHY OF SUPPORT; AND
(5) THAT IN THE CIRCUMSTANCES M. SPAHLINGER NEED NOT BE
URGED TO DISCLOSE PUBLICLY ANY LABORATORY METHODS WHICH HE
DESIRES TO RESERVE.

In view of this agreement the members of the Science Committee will naturally welcome any form or degree of co-operation which Dr. Jenkins is in a position to afford them. It is true that in a rapid phrase, and with something less than courtesy, Dr. Jenkins impugns the good faith of the Science Committee. The charge is too absurd to be taken seriously, and the memory of it will not disturb the Committee's desire to encourage an enterprise to which its word is pledged.—I am, etc.,

C. O. HAWTHORNE,
Chairman of the Science Committee.

TO DOUBTFUL

London, May 1st.

COMMON SENSE IN RELATION TO DOUBTFUL
TUBERCULOSIS.

COMMON SENSE IN RELATION TO DOCTORS.
TUBERCULOSIS.

LONDON, MAY 1ST.

SIR,—I would like to add my testimony to that of Dr. Weatherhead that there is no appreciable risk of infection of non-tuberculous persons at a well ordered sanatorium. The question of a well ordered sanatorium is beside the

NDENCE.

point. The Ministry of Health has been in many cases obliged to approve of certain sanatoriums as the lesser of two evils. That emergency is, however, fast becoming a thing of the past as the tuberculosis scheme develops, and the standard, slowly, it is true, but surely, is being raised as circumstances permit, and as increased knowledge among the profession as well as the laity renders it possible.

... agree that it is high time that this boggy of in-
... It is monstrous to think that
... seeking health at such
... infection. Mar

I again agree that it is high time that this body of infection should be laid. It is monstrous to think that people have been deterred from seeking health at such a centre as Davos by the intimidation of infection. Many years ago the late Dr. Huggard had to fight against this misrepresentation. The history of the conjugal relations of marital life shows that the incidence of infection is no higher than in ordinary life. What greater proof is needed? The great susceptibility of infancy rapidly diminishes after the third year.

I have lived practically my whole life since my teens in close association with tuberculosis, either in Switzerland, in hospital, as medical officer to a sanatorium, in tuberculosis dispensaries, or in tuberculosis pavilions during the war, and I have never in any of these resorts known a case in which infection was so traced. During eighteen years at Stanington Sanatorium, where we have children of the most tender years and a staff of some seventy maids and nurses, no such case has come under my notice. Even if a case previously without physical signs were returned to us with definite physical signs, it would prove nothing. Any person with a lowered line of life is liable to become a victim to tuberculosis; if that line is lowered and not heightened at a sanatorium, the sooner its doors are closed the better.

The consumptive in this country has been painfully bungled and mishandled for over thirty years. The voice of those who have been through the mill—the tuberculosis officers and medical superintendents—rings out clear and unmistakable, "Send us the cases early, the earlier the better"; if amongst them are a few mistakes, they will be quickly sorted out and labelled "non-tuberculous." When one comes to haver over treatment of a case of haemoptysis, I think the limit has been attained. A great authority says: "There is only one excuse for not giving a patient who suffers from an early haemoptysis the benefit of early diagnosis and early treatment, and that is, failure on his part to consult a physician."—I am, etc.,
T. C. HUXTER, M.D.,
Medical Superintendent, Stanington Sanatorium.

April 28th.

Medical Superintendent.

**MENTAL IRRITABILITY AND BREAKDOWN
IN THE TROPICS.**

R. Murray Barrow's letter in
shows that it is possible
for a person to suffer from a severe
fever and still be able to work.

April 28th.

MENTAL IRRITABILITY AND BROWN
IN THE TROPICS.

SIR,—I think Dr. R. Murray Barrow's letter in the
JOURNAL of April 3rd (p. 634) shows that it is possible to
get "nervous breakdown" in widely differing climatic
conditions. Dr. Barrow fixes the blame on "the bright-
ness of the sun's rays." I cannot agree with him, as
I have met some of the most placid and mild-mannered
people who have spent a long life in tropical climates,
Bright sunlight, especially if reflected, is a violent irritant
to the unprotected eyes, and through them to the nervous
system. I have experienced severe headaches due to this
when motoring on the white roads of Southern England,
and in France, but found complete relief by wearing a
pair of greenish-amber coloured glasses.

While I do not agree that it is "the brightness of the
sun" that causes these cases of nerve irritability
in places where the sun
is visible and invisibly
troubles the

While I do not agree that it is "the brightness of the sun's rays" that causes these cases of nerve irritability, I have no doubt at all that in places where the sun's rays are powerful and prolonged the visible and invisible rays of the sun are the *fons et origo* of the trouble. Both in "bracing" places like Alberta and the Kenya Highlands, and in "depressing" tropical places where there is rarely a breeze, the sun's rays increase the metabolic activity of the body at an altogether abnormal rate. This is shown by increased perspiration (I have perspired freely when climbing a glacier in bright sunlight), increased heart rate, loss of weight—amounting in some cases I have seen to emaciation—and the feeling that more food and drink is required. It is therefore a wise plan to rest when possible during the hottest part of the day,

and so lessen the metabolic activity of the tissues—directly by resting brain and muscles, and indirectly by keeping out the rays of the sun.

In both bracing and depressing places it is essential to protect the head, the eyes, and the body from the heat rays and chemical rays of long-continued strong sunlight by coloured glasses if necessary (especially from reflected light) and the use of special clothing, as suggested in my previous letter (March 27th, p. 595). The rationale of the mode of production by the sun's rays of these cases of nerve exhaustion is probably, however, subtly different in bracing and depressing places—that is, places where there are few winds and comparative air stagnation exists. During Dr. Barrow's first winter in Alberta he felt "energetic and invigorated," due to the sun's rays increasing his metabolic activity. As the weather was very cold he would not perspire, as in the tropics, and this would put a more severe strain upon his digestive apparatus, kidneys, and lungs. Being themselves "speeded up" by the sun's rays and the bracing atmosphere, these organs performed their extra task with ease the first winter, as evidenced by his feeling of well-being, but by the third winter "he became more irritable, more sensitive to cold"—"one's blood got thinner." If he had said his blood by now was loaded with toxins, owing to the temporary failure of the appropriate organs to deal with them, due to exhaustion, after being "speeded up" for two years, he would have been correct, I think, and I have no doubt that his irritability was due to toxæmia produced in this manner.

It is interesting to note that Dr. Barrow observed that alcohol and anaesthetics were extremely rapidly absorbed, showing metabolic activity to have been very great. In the summers which were stormy, damp, and hot the nervous irritability was not felt so much because, of course, of the joint action of perspiration and of winds on the body. In a depressing tropical place with little wind movements the nervousness is also, I believe, due to a toxæmia originated, as before, by the sun's rays. In healthy people whose organs are in good order there is here also some preliminary feeling of well-being (along with the discomfort) caused, as before, by increase of metabolism produced by the sun's rays, and also by the ingestion of stimulating new foods and drinks. The attention is distracted also by the strange new life, and the discomforts thus minimized. Owing to the absence of winds, however, perspiration is not adequately evaporated, and as there is no play of air round the body noxious gases given off by the skin remain in contact with it. The lungs and other organs are also not so active as in a "bracing" climate, so that from the first the individual in such a place suffers from toxæmia. The toxins themselves for a while will stimulate the excretory organs, but this, like the effect of alcohol, is evanescent.

As showing the remarkable effect of winds upon well-being in the tropics, I may say that some years ago I was for some little time at Pukow (across the river from Nanking). There I saw two very bad cases of mental irritability in Europeans. One of these men actually lived there in a tent, whilst the other crossed the river to Nanking to sleep and to have some of his meals, but was for the most part at Pukow. Another European in the same service, and several others in different service, but who were all most of their time in Nanking, were bright and cheerful and indulged in sport and games. Both the normal and the irritable ones took alcohol and smoked tobacco. The only difference that I could see was that there was generally a gentle breeze at Nanking, as there are hills quite near, while at Pukow it was sweltering and still. Pukow then consisted of a few junks, a small stage, and an immense flat swamp. It was summer time, and exceptionally hot at that, I was told.

As regards Dr. J. W. Thomson's suggestion that the condition of nervous irritability may be due to a deficiency of electrical content in the air of the tropics, it is well known that the composition of the air in different localities is remarkably constant, and so the electrical ions must also be constant. Anyone sailing along the coast of Cochin China at night is quite convinced that there is plenty of electricity there, for generally the mountains along the

coast are ablaze with gigantic lightning flashes resembling an artillery engagement on a huge scale.

It would appear, then, that "bracing" and "relaxing" places alike, if endowed with long-continued strong sunlight, are dangerous to the nervous system, and I believe the reasons to be what I have suggested. As to the means of combating these effects, I hope the suggestions given in my previous letter, and amplified and more reasoned in this one, may be of use. *In media tuta*, as in so many things, appears true of tropical places, or where there is strong sunlight—that is, if one could choose, it would be well to be at a moderate height, or at sea-level near a range of hills, where there is generally a gentle air movement.—I am, etc.,

ANDREW S. McNEIL, L.R.C.P.S.Ed.

Liverpool, April 2nd.

SIR,—The very varying replies to the Bishop of Singapore's letter seem to indicate that there is no agreement as to the main cause of the frequency of nervous symptoms so common in Englishmen abroad. The Association of Medical Officers of Missionary Societies, of which I am honorary secretary, has discussed this subject frequently since the war terminated. While we have formulated no decision on the subject, our deliberations would seem to indicate that the trouble is more due to changed environment than changed climate, and that the remedy lies in an appreciation of the danger, and a knowledge of psychological facts. Our 1923 edition of "Health Instruction for Missionaries," after speaking of daily habits, and the increased strain due to new conditions and environment, advocates "sanctified common sense" as the main safeguard.—I am, etc.,

London, E.4, April 30th.

L. E. WIGRAM.

NAPOLÉON'S PRIZE FOR RESEARCH ON CROUP.

SIR,—The following short account of a medical episode in the life of the great Napoleon may be of interest to your readers.

When Josephine de Beauharnais was married to General Bonaparte she had two children, the younger of whom, Hortense Eugénie, married in 1802 Louis Bonaparte, brother of Napoleon. Later in the same year a son was born to them. The birth of this boy was an event of the very greatest political importance, for in view of the childlessness of Napoleon and Josephine, now emperor and empress, he was a possible heir to the throne of his uncle, and future ruler of France. As a matter of fact, had he lived, he might have ascended the throne in 1852, in place of his brother Napoleon III. Unfortunately this child died of croup in 1807. The news, when conveyed to Napoleon, caused him, as was characteristic, to take some action in the matter, and, although at the time engaged in a strenuous campaign in Russia, he dictated the following letter from army headquarters to his Minister of Foreign Affairs:

"Monsieur Champagny,—Depuis vingt ans il s'est manifesté une maladie appelée *croup*, qui enlève beaucoup d'enfants dans le nord de l'Europe. Depuis quelques années elle se propage en France. Nous désirons que vous proposiez un prix de 12,000 francs, qui sera donné au médecin auteur du meilleur mémoire sur cette maladie et sur la manière de la traiter.

"NAPOLÉON."

As far as I can ascertain only two essays were sent in as the result of this offer, one from Geneva and one from Bremen, neither of which seems to have been of much moment, and I can find no record of the prize of 12,000 francs having been awarded.

The facts that the young prince was 5 years of age, and that his attack was fatal, point clearly to the disease having been diphtheria.—I am, etc.,

L. A. PARRY, F.R.C.S.

Hove, April 18th.

CARBONIC ACID AS A PRESERVATIVE.

SIR,—In making experiments relative to the cause of decomposition, I secured a number of newly laid hens' eggs and placed one in a jar of each of the following gases: oxygen, hydrogen, nitrogen, air, carbonic acid.

After standing for a period of about five months these jars were opened; those containing oxygen, hydrogen, nitrogen, and air gave off a most repulsive odour, and the eggs were decidedly bad.

The jar containing carbonic acid, when opened, gave off practically no odour, and the egg, when opened, was pure and fresh. When poured on to a saucer it had all the appearance of a newly laid egg.

As the result of this observation I made further experiments and examinations, with equally good results.

In one case, where the egg had been standing in a jar of carbonic acid for about four months, the lime salts of the shell were partly dissolved, probably due to the acetic acid used to generate the gas from sodium bicarbonate, but the membranous material was quite healthy. This, when opened, was found to contain a yolk and albumen in a state of perfection, without discoloration or odour.

My observations on eggs and other material lead me to believe that in carbonic acid, freshly generated, we have a preservative which may be of incalculable value from commercial and scientific standpoints.—I am, etc.,

H. E. JONES, M.B., C.M.

Glasgow, April 25th.

DR. YOUNG'S CANCER PARASITE.

SIR,—Dr. Leitch's statement (BRITISH MEDICAL JOURNAL, May 1st, p. 808) that the object of the test experiment carried out at his laboratory was the production of "straightforward cancer" is disproved by the following letter written by me to him on May 10th, 1924:

"Dear Dr. Leitch,—I have had a letter from Sir Walter Fletcher saying that you have kindly agreed to test out in your laboratory an 'experiment' which I have carried out with an organism obtained from mouse carcinoma. I have professed to show that in a considerable proportion of inoculated animals a progressive lymphomatous lesion of the nature of pseudo-leukaemia and, in an advanced case, of lymphosarcoma, is produced. I enclose a copy of the paper in which I describe this lesion, and I propose, with your permission, to show you the actual slides. I have claimed that this finding is relevant to cancer research because:

"(1) The leukaemic process is considered by many observers as exhibiting all the stages between a benign neoplasm and a malignant new growth.

"(2) The evidence is strong that these have an infective origin, and my own experiments are capable of being interpreted as implying a blood infection with a tumour-producing organism.

"(3) Maud Slye's experiments suggest some relationship between pseudo-leukaemia and cancer.

"I would suggest that you be kind enough to provide me with two mice with an easily transplantable carcinoma and that from these I would attempt to isolate an organism which you or your assistant would inject into a considerable number (say fifty with fifty controls); the results to be noted by you. I shall await the arrival of the mice, and after the isolation of the organism will write you to make further plans.—Believe me, yours very truly, JAMES YOUNG."

—I am, etc.,

Edinburgh, May 1st.

JAMES YOUNG.

THE "SPECIAL REPORT SERIES" OF THE MEDICAL RESEARCH COUNCIL.

SIR,—I do not care to engage in controversy with those who, like Dr. Greenwood, in order to distract attention from the inaccuracy of their arguments, abuse the amenities of scientific discussion by descending to the use of stupid personalities.—I am, etc.,

Liverpool, May 3rd.

W. BLAIR BELL.

NASAL PLASTIC REPAIR.

SIR,—I desire to thank the several surgeons who have written on the subject of my article on nasal plastic repair in your issue of November 28th, 1925 (p. 987). The device described was so slight a departure from well established methods that it is not surprising to learn that some of them, as well as myself, have been using it for several years. I wish especially to thank Professor G. Portmann of Bordeaux for kindly sending me a reprint of his own article from the *Revue de Laryngologie* of 1923, describing a practically identical method.—I am, etc.,

Bristol, May 4th.

E. WATSON-WILLIAMS.

Obituary.

WILLIAM FREDERICK SHANKS, M.B., CH.B. GLASG.,
Professor of Physiology, Leeds.

THE untimely death of William Frederick Shanks, Professor of Physiology in the University of Leeds, which occurred on April 15th, came as a shock to his many friends, both in the academic world and in the medical profession generally. He had but recently left the post of lecturer in experimental physiology in Glasgow University to take up the appointment in Leeds rendered vacant by Professor Raper's transfer to Manchester, and his former colleagues and many of the students in the Glasgow School learnt with very deep regret that their friend and teacher had been spared to occupy his new and well deserved position for so short a period.

He was born in Glasgow in 1888, matriculated at Glasgow University in 1909, and graduated B.Sc. in pure science in 1913, specializing in physiology, in which subject he gained special distinction at the degree examination. Thereafter he completed the medical course, qualifying as M.B., Ch.B., and graduating with commendation in 1915. Immediately afterwards he joined the R.A.M.C., and was attached to the R.F.A., with which he served in France until, in 1919, he was demobilized in order to return to his university as assistant in the department of physiology.

In October of the same year he was appointed lecturer in experimental physiology. This post he occupied during a particularly difficult period, when the normal number of students was trebled by the return to study of those who had had their curriculum interrupted by war service. Extremely conscientious in all his works, he was particularly so in regard to his teaching duties, and his able conduct of the medical and science classes during this onerous period was of inestimable value to the senior staff. A capacity for clear and concise exposition in his lectures, his ever-willing assistance in the technical difficulties of the practical class, and a faculty for appreciating their point of view, rapidly won for him a high place in the estimation and affections of the students.

In October, 1923, at a comparatively early age, he was appointed to the chair of physiology in Leeds University in succession to Professor Raper. In his new appointment the ability and sterling qualities which he had displayed in Glasgow rapidly gained for him honour and affection from his staff; he relinquished the research work for which he had with difficulty managed to find time in Glasgow, and devoted his whole time to the organization of his new department.

Great as were the demands of teaching in the early post-war years, Shanks published a number of papers in the *Journal of Physiology*. Much of the research work in the Glasgow Laboratory at that time was being directed towards defining the relationship of infantile tetany and tetania parathyreopriva, and to the probability of both being caused by guanidine intoxication. The relation of methyl-guanidine to creatin on the one hand and to cholin on the other suggested a repetition of Riesser's work on the conversion in the body of cholin into creatin. Of this conversion Shanks found some confirmatory evidence, and this led to a further investigation on the presence of excess cholin in the blood of parathyroid-ectomized animals. This was followed by an investigation on the disappearance within the body of cholin which had been subcutaneously or intravenously administered; a communication on this subject was made before the International Physiological Congress of 1923. A fourth paper appeared on the excretion of cholin in the urine.

All his research work was characterized by the same conscientious attention to detail that he had exhibited in his teaching; he was always on the look-out for possible sources of fallacy; he would freely discard any experiments in which there seemed the slightest flaw of reasoning or technique. It is a matter of very sincere regret with all those who have been associated with Professor Shanks, either in Leeds or in Glasgow, that he was not spared to see the fruits of his labour in Leeds, and to prosecute

further the research work which he had commenced in Glasgow.

In July, 1924, Professor Shanks married Miss Pearl S. Henderson, B.Sc., a lecturer on the staff of the Glasgow Institute of Physiology. Much sympathy will be felt for her and for Professor Shanks's mother and sister in their sad bereavement.

FREDERICK STEPHEN PALMER, M.D., F.R.C.P.,
Consulting Physician, West End Hospital for Diseases of the Nervous System.

We regret to announce the death of Dr. Frederick Stephen Palmer, on April 21st. He received his medical education at the Westminster Hospital, and obtained the diplomas M.R.C.S.Eng. and L.S.A. in 1869. He then held house appointments at the Westminster Hospital and the Radcliffe Infirmary, Oxford, after which he began general practice in East Sheen. He graduated M.D. Durham in 1885, and in 1901 obtained the diploma of M.R.C.P. Lond. In that year he gave up his practice in Surrey and removed to London, where he worked at the Hospital for Sick Children, Great Ormond Street, and the National Hospital for the Paralysed and Epileptic, Queen Square. In 1904 he was elected physician to the West End Hospital for Diseases of the Nervous System, and for many years was physician to the Hostel for St. Luke and the Royal Society of Musicians. In 1911 he was elected F.R.C.P. He was an ex-president of the West London Medico-Chirurgical Society, and a former vice-president of the Medical Society of London. He was appointed consulting physician to the West End Hospital for Diseases of the Nervous System in 1921. Dr. Palmer was the author of numerous articles on neurological and general medicine.

A colleague writes:

Dr. Frederick Palmer's sound practical knowledge, gained at the Radcliffe Infirmary, where he was resident for some years, coupled with his natural gifts of energy, kindness, geniality, tact, business instinct, and personal charm, were bound to secure for him a prominent position in the profession. The courageous step he took, when well advanced in life, in abandoning general practice in London, was thoroughly justified by events. The wisdom of his election as a physician to the West End Hospital for Diseases of the Nervous System was proved by many years of skilled and devoted service to the hospital, and by the affection he inspired in all connected with it. His professional ability and status as a physician were acknowledged by his election to the Fellowship of the Royal College of Physicians of London, a distinction he greatly valued. He was rarely absent from important functions of the College, and he made many friends among the Fellows. Dr. Palmer faithfully obeyed the admonition "Judge not." I never knew him, either directly or by veiled innuendo, to cast aspersions on others. He was happy, serenely happy, in his home life, and was fond of music, history, and biography. Golf he never succumbed to, but many an off afternoon was spent in walks round and about London with his long-time friend Dr. de Havilland Hall. Though advanced in years Dr. Palmer was singularly youthful in mind and body, and it was a great grief to his many friends when they learnt that he had fallen a victim to an attack of virulent influenza.

Dr. DAVY T. BELDING of East Dereham died on April 15th, aged 62 years. He was the son of the late D. T. Belding of South Creake Hall, and studied medicine at St. Bartholomew's Hospital. He was prosecutor at the Royal College of Surgeons of England in 1886-87, and took the diplomas of the Conjoint Board in England. He became a partner of Dr. Hastings of Dereham, and subsequently succeeded to the practice. He was medical officer of health for the East Dereham Urban District and the Miffland and Launditch Rural District, and certifying factory surgeon. During the war he served with the East Anglian Territorials, became A.D.M.S. of the East Anglian Division, and was transferred to the Eastern Command when the Division went to Gallipoli. At the conclusion of hostilities, when he held the rank of brevet lieutenant-colonel, he returned to his practice. He took great interest in golf, was an original member and an ex-captain of the Royal Norwich Golf Club, and a member of the Royal West Norfolk Golf Club since 1892. Dr. Belding, who was a member of the East Norfolk Division of the British Medical Association, is survived by his widow and a daughter.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Birth Control.

THE question of the advisability of imparting information regarding methods of birth control was discussed at length in the House of Lords on April 28th. It arose on a motion by Lord Buckmaster, requesting the Government to withdraw all instructions given to or conditions imposed on welfare committees to cause them to withhold from married women in their district information where sought by such women as to the best means of limiting their families. Lord Buckmaster pointed out that whereas fifty years ago the advocacy of birth control was attempted to be punished by the criminal law, the only question to-day was whether steps should be taken to withhold from the poor the knowledge possessed and practised by the rich. All the books dealing with this question treated it as an axiom that birth control was being extensively practised by the well-to-do, and that it was only among the poorest and most ignorant stratum of society that that knowledge had not permeated and was not used. Statistics showed that for 1,000 married people, under the age of 50, the birth rate for schoolmasters was 93, for clergymen of the Church of England 100, for clergy of all denominations about 102, for doctors and professional men from 103 to 105, for skilled labourers 153, and for unskilled labourers 247. There was a descending scale of intelligence in exact inverse ratio to this standard of birth rate. The present position was that the Ministry of Health would provide money for assisting welfare centres to give help and advice to women expecting children or who had young children under their care. But there was an expressed prohibition that prevented these people, although they were qualified medical men and women, from being able to give information to any person who asked them as to the means by which further births might be prevented. His motion laid no burden and imposed no duty on any medical officer of health. It did not even contain directions that it should, or say that in the opinion of the Ministry it ought to be done. It was to let these qualified medical people, if they in their judgement thought fit, exercise their medical knowledge for the relief of the women who came before them. Cases in which pregnant women did everything they knew to procure abortion would continue if the women were not allowed to obtain knowledge by which they could prevent themselves having children. They were living in a world of sham or in a "cloud cuckoo land." Every now and then cases came before the courts and some person was sent to gaol for performing an illegal operation. If women asked for information by which they could prevent children they could not be given it, because, if they were, the grants would be stopped. What, asked Lord Buckmaster, was the answer to the case he had put? It was said that directly they limited the birth rate they began to descend in the scale of the world. Was the measure of nations to be tested by their fecundity like rabbits? It was not a question of numbers, but of quality. While he spoke with deep respect for the deep-rooted religious objection to the proposal, he could not understand the ground on which it was based. Human nature being what it was, the doctrine of abstinence was impossible.

The Marquess of Salisbury (Lord Privy Seal) opposed the motion on behalf of the Government. He said that what was really concerned was the success of the great policy of hygiene, which had been the characteristic of the last half-century in this country, and which had met with such success. While they all regretted the sorrow and misery to which Lord Buckmaster had referred, they must be careful that in finding a remedy for them they did not strike a fatal blow at a great service which was doing infinite good to the very class for which he pleaded. The maternity and child welfare system had grown enormously, and there were now over 400 committees. Under the committees were over 2,000 centres all over the kingdom, engaged in the work of helping expectant mothers or those who had just had children. The movement was taken advantage of by a very large proportion of expectant mothers and those whose children were just born with such success that the mortality among children under 1 year had gone down by 50 per cent. since the beginning of the century. The Mothers' Union, as well as large numbers of religious bodies, were against Lord Buckmaster's proposal. It would be extremely rash to do anything which would interfere with the success of the centres. If the medical officer were given unfettered discretion to give information he would give it in his official position. If he were attached to the centre, how could he discriminate? It would not only be the sick and miserable women, whose health had been ruined by their children, who were also indolent and vicious, who were given to giving to another? (Lord Buckmaster: Why not? Private doctors do.) But this was an official doctor, and he would have to accept each case. The impression in the public mind would be that the Government had agreed that henceforward, so far as its official sanction was concerned, a woman might choose for herself; it did not even matter what her husband thought. Again, although some defective women might go to the centres, the women whose mental condition made the results so deplorable were not the people who went for assistance to anybody, because their minds were not qualified to form a rational conclusion. It was also untrue that the hard cases could not get relief. They could go to the doctors for a relatively small fee just as richer people could, and it was a great mistake to think that they were entirely ignorant in these matters. The fall in the birth rate was a very serious thing. In the decade 1871 to 1880 the births were 35 per 1,000. In 1924 they were only 18 per 1,000. The population was increasing because of the shrinking death rate, and not the increasing

birth rate. The real catastrophe before European civilization was that the white races would begin to diminish, and nothing must be done to assist that.

The Archbishop of Canterbury also opposed the motion. He said that the maternity and ante-natal centres and the infant welfare centres might be, and constantly were, worked together, though they were not necessarily dependent on each other. Their object was to secure healthy birth in the interests both of the mother and the child. This was secured by the observance being taught to mothers of well ascertained and well established laws as to the pre-natal treatment of both mother and child. There were to-day 2,122 centres in England, and at 641—nearly one-third—pre-natal work was carried out. Prior to the formation of any such centres the death rate of children under 1 year was very high. In 1905 it was 128 per 1,000, in 1910 it had fallen to 110, and it was now 75 per 1,000. There were also a good many birth control clinics, supported either by voluntary subscriptions or the fees of parents or both. These were primarily, and even avowedly, for giving advice to married women who desired to limit their families or not to have another child. They professed to give their advice only to married women. In the maternity centres with which his friends were concerned no distinction was drawn as regarded giving advice and help between married and unmarried expectant mothers, and they were equally careful with both. The Archbishop said he made no kind of suggestion that there should be any restriction or interference with the birth control centres, which had been established by those who desired to use them and were supported by some exceedingly thoughtful people. He knew medical men and health visitors who were at work in some of the large maternity centres. He had got into touch with them, and he found a perfect assurance everywhere, first, that the number of applications for advice of the particular kind under discussion was rare, and, secondly, that no restraint whatever was put on the doctor if, on medical grounds, he thought it necessary to give advice respecting child-bearing, but he was under no obligation to give such advice. He was not there as a public officer who was bound to give an answer to an inquirer on that particular subject. That was rightly so. Very many of these people objected on principle to giving such advice in anything but the most rare and exceptional way, and if they were bound to do it on every inquiry they would feel themselves in an impossible position. Many of the other patients objected to the use of the centre for such a purpose, as did many of the outside public. The power of the doctor to give individual advice was not restrained. If they passed this resolution they would lay on these medical practitioners, who were public officers, a moral obligation to give that advice to groups who asked for it. The two regulations which existed stated: (1) "That the maternity and infant welfare centre should deal only with the expectant or nursing mother (and infant) and not with the married or unmarried woman contemplating the application of contraceptive methods." (2) "It is not the function of an ante-natal centre to give advice in regard to birth control, and exceptional cases where the avoidance of pregnancy seemed desirable on medical grounds should be referred for particular advice to a private practitioner or hospital." He did not think the second of these rules was worded in the best way or was exactly what the Ministry of Health meant. But the medical man or woman, in his judgement, wanted to be protected against having the moral obligation laid on him or her to give advice on this subject of contraceptives, which advice he or she might not wish to give, and which those supporting and guiding them did not wish should be given. In order to satisfy himself further, he had made inquiry from some of the highest authorities in the Ministry of Health and had drawn up the following memorandum from conversations he had had with the highest authorities as to what happened now: "In all cases attending the clinics where this information is necessary on medical grounds advice is always given by the doctor, irrespective of any request on the part of the mother. Neither by the wish of the mother nor by statistical evidence have we been led to believe there is any great demand for this kind of advice. In suitable cases recommendations have been strongly made that the use of contraceptives should be discontinued, and we have reason to know that the advice has been acted upon with satisfactory results. The extreme medical cases in which another birth would be likely to prove disastrous to the mother are few and far between. Such cases would not ordinarily attend a maternity and infant welfare centre; but if and when they did, it may be safely assumed that the mother would be advised as to the right course to adopt in order not to have any more children. The purpose of the maternity and infant welfare centre is to deal only with the expectant or nursing mother (and her infant) and not with cases of disease on the one hand or, on the other hand, with married or unmarried women contemplating the application of contraceptive methods. The object of these centres is—(1) to advise the expectant and nursing mothers; (2) to provide ante-natal supervision; and (3) to care for the infant. In order to conserve the purpose of these maternity and infant welfare centres it was necessary to exclude any systematic or organized work in the direction of contraception." It was made perfectly clear that no sort of restriction was placed on medical men. He asked, further, whether, if the medical man or woman did give this advice, it would mean either the withdrawal of the grant or discredit to the individual. The idea was laughed at and he was told "Nothing of the kind." There was no sort of interference between the patient and the doctor desired or thought of. If that was so, what became of the resolution? They were really asking for something to be withdrawn which did not exist. He hoped that the wording of the second of the regulations would be revised by the Ministry of Health. He could not help thinking that the resolution was based on a misunderstanding. Another question was: What was the medical knowledge which was supposed to be used by those who, if Lord Buckmaster had his way,

would be encouraged definitely to give that advice. The opinion of Lord Dawson of Penn, who was not present that day, carried great weight. He had had talks with him about it, and he had read the evidence which Lord Dawson had given on the subject. He would quote what he said: "Up to now there has been no systematic investigation of contraceptive methods by the medical profession in this country, though such an investigation is now proceeding in the United States." In those circumstances, and with the uncertainty of knowledge on the subject, it would be intolerable to lay on the medical authorities the duty of giving such advice.

Viscount Fitzalan of Derwent contended that in view of the divergence in medical opinion no Government was justified in taking the course demanded by Lord Buckmaster. He proceeded to read a list of eminent physicians who were against proposals connected with birth control. The welfare group of the Society of Medical Officers of Health discussed the question at its annual meeting last July, but no resolution in favour of birth control was passed.

Earl Russell said that it was true of most branches of medicine that they had not devised the most perfected treatment. For instance, they knew very little about cancer. But that was no reason for not using the best medical knowledge that was possible or for not doing what they could with the knowledge they had.

The Lord Chancellor (Viscount Cave) said that the resolution would not only empower the medical officer of health or a doctor who was a member of the committee to give general advice to married women on the subject of birth control; it would be in the power of any member of the committee, without any medical knowledge and any examination of the person seeking advice, to give her advice. The doctor could not always be there, and were they to allow the other members of the committee, excellent and helpful as they were in many ways, to take the grave responsibility of giving women this advice? The practice that was being discussed was still in the region of experiment. There was much discussion among doctors whether any of the methods recommended were free from danger.

The motion was carried by 57 votes to 44.

Bills.

In the House of Lords, on April 28th, the Midwives and Maternity Homes Bill, which has passed the House of Commons, was read the first time.

I.M.S.—On May 3rd Earl Winterton informed Mr. Lansbury that the Indian Medical Service, being an all-India service, was a central subject, and to safeguard the position of the members of the service it was provided in the Devolution Rules that a local government should employ such number of Indian Medical Service officers in such appointments and on such terms and conditions as might be prescribed by the Secretary of State in Council. Among the posts reserved for the Indian Medical Service under this rule was that of Surgeon-General with the Government of Madras, and one of the conditions prescribed by the Secretary of State in the case of this and a small number of other high posts was that they should be filled by nomination by the Governor-General. The object of prescribing this condition was to safeguard the interests of the service as a whole, and the claims of officers not serving in the particular province concerned.

Registration of Nursing Homes.—The Select Committee of the House of Commons on the registration of nursing homes took evidence on April 29th from Miss Macdonald, secretary of the Royal British Nurses' Association, who advocated the registration of all nursing homes, their inspection, not by local authorities, but by officials appointed by the Ministry of Health, and their staffing entirely by trained nurses, with a housekeeper. Answering Sir Richard Luce, she said it was not common in her experience for nursing homes and maternity homes to be combined. She thought maternity cases should not be in the same homes as septic surgical cases. There should be separate inspecting staffs for nursing homes and for maternity homes. Sir Richard Luce said this was likely to prove a practical political point. Was witness prepared to wreck the bill on it? Miss Macdonald said she was not. Witness proposed that inspection should be by nurses. Sir Richard Luce asked whether the Government would not then require a large staff of inspectors of matrons or at least of sister's standing. Witness did not think that many would be required. Answering Dr. Shiels, she said many of the association members worked in nursing homes, and she had from them many unsatisfactory reports. She knew of a home where five nurses slept in one room. There was not so much complaint now about long hours. Evidence was given by another witness concerning a nursing home where neglect of the patients was alleged.

Telephone Boxes.—On April 27th the Postmaster-General informed Sir H. Brittain that where attendants were employed at public telephone boxes they were responsible for keeping the cabinet and apparatus in a clean condition. The mouthpieces and earpieces were wiped with a clean cloth, moistened with disinfectant, every morning. The floor was washed at least once a week and the inner walls occasionally, as required. At unattended call offices the mouthpieces and earpieces were wiped with a clean cloth and moistened with disinfectant once, twice, or three times weekly, according to the use made of the office. The floor was washed once a week and the inner walls as required. Standard makes of disinfectant were used. On April 27th the Postmaster-General told Rear-Admiral Beamish that rural telephone call offices installed in local post-offices were available only during the hours when the post-office was open, but urgent calls could

generally be made at other hours upon payment of a disturbance fee if there was a responsible person on the premises. Such calls were rare.

Death Penalty for Cowardice in the Field.—In Committee on the Army Annual Act, Mr. Thurtle moved a new clause to abolish the death penalty for all cases of cowardice and desertion on active service, reserving it for treachery and desertion to the enemy. He said there were great differences of physique, nervous system, and will power among men, and it was unfair to take an individual who had been meagrely treated by Nature and subject him to this terrible penalty. Let them contrast the physique and nervous system of a man brought up in the slums, undernourished almost from birth, and subjected to long spells of unemployment, with those of a man from Australia, well nourished all his life and with body and nervous system toned up by an open-air life. The latter must inevitably be better adapted to stand the strain of modern battle. Captain King, Financial Secretary of the War Office, said the Committee which considered the question two years ago pointed out that only 11 per cent. of the death sentences passed during the late war were carried out. Certainly 999 out of 1,000 officers and men who served in that war knew fear. After three years' overseas experience in the war he could count less than ten men whom he knew to be without fear. Some men had less self-control than others, and it was necessary to give a final fillip to their will power. Mr. Attlee said courage failed suddenly, and the man was not then in a position to weigh the consideration that if he went back he would be shot. The death penalty was not a deterrent, but a failure to recognize the psychology of men under modern conditions. Major Hills said that in the Peninsular war when a British regiment had lost 10 per cent. of its effectives that regiment was finished. In the late war a battalion of 500 men might lose 50 per cent. in taking up its position before an attack, but who thought of going back? After losing half its effectives a battalion would still go on. Either the present generation was braver than the generation which fought in the Peninsula, or modern war was less terrible than the old wars. A man who was a coward and wanted to go back from the front line could usually do so. He could always go to the medical officer and say he had a pain in his stomach. He might have that pain or not, but he was a nuisance to his fellows, and his commanding officer was glad to get rid of him, so in the end that man went back. Mr. Viant said some men could not climb to great heights; their nerves would not permit them. The same thing must hold true on the battlefield. The proposed clause was defeated by 269 to 123.

Answers in Brief.

The mid-year population of England and Wales for 1925 is estimated by the Registrar-General at 38,890,000.

Asked, on April 29th, whether he proposed to hold an inquiry into the purity of drugs supplied to panel patients, Mr. Chamberlain said arrangements were in operation for the systematic analysis of sample prescriptions with the object of testing the purity of ingredients and the accuracy of dispensing. He saw no need for the suggested inquiry.

The House of Commons has voted an estimate of £348,200 for expenditure on Employment and Health Insurance buildings in Great Britain, including the Ministry of Health.

Universities and Colleges.

UNIVERSITY OF LONDON.

The following candidates have been approved at the examinations indicated:

DIPLOMA IN PSYCHOLOGICAL MEDICINE (with special knowledge of Psychiatry).—D. E. Cameron, E. C. T. Emerson, C. O. Perera, J. S. I. Skottowe, R. Thompson.

Postponement of Examinations.

The Vice-Chancellor of the University of London announces that the examinations for internal and external students, which June, have been postponed to a date to be announced later. This date will not be earlier than September 1st. The following examinations for internal students normally held in June or July have also been postponed to a date to be announced later: All intermediate examinations; all examinations in agriculture, laws, engineering, commerce, medicine, dentistry, veterinary science; examinations for diplomas. The following examinations for external students normally held in June or July have also been postponed to a date to be announced later: Examinations in commerce, medicine, dentistry, and veterinary science. An announcement will be made later regarding other examinations for external students. The following examinations will be held at the dates given in the regulations: Matriculation and certificate in religious knowledge, general school examination, M.A. and M.Sc. (internal and external), and exhibitions examinations.

NATIONAL UNIVERSITY OF IRELAND.

UNIVERSITY COLLEGE, DUBLIN.

The following candidates have been approved at the examinations indicated:

M.B., B.Ch., B.A.O.—P. H. Cummins (second-class honours), C. F. Carey, J. Coshlan, J. J. Craig, T. Daly, E. R. Devlin, A. Lico H. Duff, T. Duffy, P. Dryer, J. F. J. Kelly, Kate A. Moran, Marguerite S. O'Mahony, Eileen M. O'Neill, J. I. N. O'Sullivan, K. Phelan, T. J. A. Ryan, J. Vesey, G. J. Waters.

The following are exempted from further examination as indicated:

In Part I (Medicine and Pathology): T. N. Fogarty, J. J. Glynn, E. Kilmartin, Jane A. M. Nagle, T. H. Quinn, J. G. O'Donnell.

UNIVERSITY OF BOMBAY.

The Bombay University Handbook for the current year contains the provisions of the Acts relating to the University and the general regulations by which it is governed. A list of officers is given for the present and the previous year, and also the rules and regulations of the University library, a list of scholarships and prizes, and the syllabuses of all the various examinations. A list of textbooks for the arts, science, and law examinations is included.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An ordinary quarterly comitia of the Royal College of Physicians of London was held on April 29th, when the President, Sir John Rose Bradford, was in the chair.

Fellowship.

The following were elected to the Fellowship:

Donald Rose Paterson, M.D.Ed. (Cardiff), George Eric Campbell Pritchard, M.D.Oxf. (London), Sir Henry John Forbes Simpson, W. V. O. M.B.Ed. (London), Wilfred Edgecombe, M.D.Lond. (Harrogate), Harold Pritchard, M.D.Lond. (London), Frederick George Thomson, M.D.Lond. (Bath), William Johnson, M.C. M.D.Lond. (Liverpool), Charles Wilfred Vining, M.D.Lond. (Leeds), Richard Robins Armstrong, M.D.Camb. (London), John Josias Conybeare, M.D.Oxf. (London), John Cuthbert Matthews, M.C. M.D.Camb. (Liverpool), Julian Lionel Preston, M.B.Lond. (London), John Alexander Drake, M.D.Lond. (London), Francis Richard Fraser, M.D.Ed. (London), Ambrose Thomas Stanton, M.D. Toronto (Kuala Lumpur), Sir George Seaton Buchanan, C.B., M.D.Lond. (London).

Nominated by the Council under By-law XL (b):

Arthur Edwin Boycott, M.D.Oxf. (London), John Thomson, M.D.Ed. (Edinburgh).

Membership.

The following candidates, having satisfied the Censors' Board, were elected:

W. L. Ackerman, M.B.Lond., H. C. Beccle, L.R.C.P., F. B. Byrom, M.B.Lond., A. M. Cooke, M.B.Oxf., W. E. Cooke, M.D.Liverp., W. S. U. Copeman, M.B.Camb., E. R. Cullinan, M.B.Lond., A. J. Davies, M.B.Hirm., C. F. Fernando, M.B.Lond., W. Fletcher, M.D.Camb., H. Fraser, M.D.Aberd., C. J. Fuller, M.B.Oxf., R. N. Hajra, M.B.Calcutta, H. W. Hetherington, M.B.U.Toronto, G. C. Mills, M.B.Camb., M. Newman, M.D.Liverp., A. B. S. Owen, M.B.Sydney, S. W. Patterson, M.D.Melb., H. V. Phelon, M.B.Lond., K. Playfair, M.B.Camb., T. V. Preston, M.B.Lond., T. A. Ross, M.D.Edin., E. B. Strauss, M.B.Oxf., H. F. Turney, M.B.Oxf., Gladys M. Waechope, M.D.Lond., J. Whitby, M.B.Lond., J. F. Williams, M.B.Melb.

Licence.

Licences to practise physic were granted to the following 194 candidates, who have passed the Final Examination of the Conjoint Board and have complied with the by-laws of the College:

M. O. Abdeen, C. E. Allen, Marlon L. Bainbridge, J. C. H. Baird, M. Barer, R. E. Barrett, O. H. Bellerby, P. G. Bentlif, C. E. Bigger, C. R. Birnie, L. B. Birt, A. D. Blackwell, B. Blaxill, J. L. Blonstein, W. R. Blunt, J. D. Borham, Kathleen M. Bowman-Manifold, D. G. Bova, G. J. O. Bridgeman, G. H. Brown, H. Bruce, P. R. Buckton, H. A. Bulman, F. Bunje, A. Burlingham, C. H. Burridge, H. A. Byworth, E. Carey-Shaw, Elizabeth J. Carpenter, A. G. Chamberlain, G. P. Chandler, J. C. H. Chilcott, Enid Clarke, E. M. Coleman, A. B. Connell, R. P. Corkery, J. G. Cox, Lucy M. Craige, G. H. Crisp, C. R. Croft, B. R. Crossley, Olive C. Crowley, P. C. Cumber, P. C. Datta, T. L. Davies, J. E. Debono, J. H. de Jager, T. S. Dewey, D. A. Dewhurst, A. F. Downie, L. A. Dubinsky, R. A. M. Dyke, W. G. P. Dyson, R. P. S. Edden, A. G. Edisson, G. Edwards, G. C. Edwards, M. N. El-Din, E. Evans, E. S. Evans, J. P. Evans, J. A. Eyres, Alice B. Field, B. A. Fitzsimons, R. G. Flower, J. N. C. Ford, R. M. Forsyth, E. L. Fothergill, A. R. French, J. Freudenheim, Margaret L. A. Galbraith, W. L. Gillbard, R. S. Glennie, L. D. Golomb, J. Gray, R. M. Greenop, E. J. Greenwood, T. W. Griffiths, H. L. Groom, G. J. Gross, K. H. A. Gross, B. Guyster, A. F. W. Hall, H. J. Harcourt, T. H. Hobbes, A. Hobson, L. E. Houghton, J. E. Howard, E. G. Howe, L. Hutchison, D. Inuber, P. F. Imianitoff, J. H. F. Jayasuriya, Iris A. Jekins-Lloyd, D. McI., W. Koudall, J. W. Kendall, Eileen M. Laker, J. R. E. Lee, H. P. Lehmann, P. O. K. Lewis, L. Lipschitz, G. H. Livingstone, Elsie Lyon, Margaret B. Macdonald, Mary A. C. MacHugh, R. M. Maher, A. R. Marsh, C. W. Marshall, Florence I. J. Masterman, A. N. Mathias, C. A. L. Meredith, J. H. Miller, H. L. Milles, J. McN. Milloy, D. E. J. Mitchell, E. D. Moir, J. W. Monroe, E. W. Morgan, J. E. C. Morton, C. E. H. Morykopf, M. Mured, B. L. S. Murtach, A. H. Musgrove, H. P. Nelson, C. B. Netscher, D. A. Newbery, R. Okell, E. R. B. Owen, Evelyn M. Pakeman, Marion G. Palmer, S. C. St. G. Parry, W. E. Parry, A. Patrick, P. H. Perkins, E. K. Pritchard, Henrietta Procter, M. M. Raouf, W. H. G. Reed, J. H. Ripka, M. E. D. Roberts, R. I. Roberts, Janet McL. Robertson, E. Robinson, Alice L. Robson, E. H. Roche, Sibyl D. Rodgers, F. C. Roles, R. P. Rose, H. W. Sadlier, J. de la M. Savage, J. W. Schofield, J. W. Schollum, J. A. Screech, S. T. Secombe, M. Sendak, Nancie A. Simmons, J. F. Simpson, W. E. Snell, A. W. E. Forsa, Beryl M. Stevens, Dorothy E. Stewart, E. C. N. Strong, Ma M. Su, T. H. Taylor, F. E. Theis, J. W. de W. G. Thornton, G. J. D. Twork, C. C. Ungley, F. P. C. Wadge, H. Walden, F. H. A. Walker, E. Walsh, Betty C. Waters, T. E. Watkins, J. G. Weston, J. G. Wigley, J. I. Williams, H. Winch, Eileen C. Wise, W. R. Wood, Rosa S. Wordsworth, Hon-Ping Yew, H. R. Youngman, A. B. Zimble, *

* Under the Medical Act, 1876

Research Prize in Metabolism.

It was reported that the College had expressed the wish to bestow some £2,000. The College, for research work in disorders of reference for the study of their occurrence in children and adolescents, and particularly for diabetes.

Appointments.

It was announced that Mr. Dighton Pollock has accepted the office of junior standing counsel, and Dr. S. W. Wheaton that of delegate to the Jubilee Conference of the Royal Sanitary Institute in London in July, 1926.

Dr. H. Morley Fletcher was elected Senior Censor.

The President was appointed to represent the College at the celebration of the bicentenary of the Faculty of Medicine of the University of London on July 15th, 1926.

It was decided to elect a Fellow to represent the College at the National Association for the Prevention of Tuberculosis at Glasgow on July 1st, 2nd, and 3rd, 1926.

Sir Humphry Rolleston was elected a member of the Executive Committee of the Cancer Research Fund.

Portrait of the late Sir Richard Douglas Powell.

Sir Douglas Powell, Bt., offered to the College a replica of a portrait of his father, the late Sir Richard Douglas Powell, Bt., painted some thirty years ago by Spencer Watson, A.R.A., the replica to be painted by the same artist. This offer was accepted and the thanks of the College accorded to Sir Douglas Powell.

Conjoint Examinations.

Three reports from the Committee of Management of the conjoint examinations were received and adopted.

The Committee reported that certain restrictions in the new conjoint students as compared with students who are following the curricula of various universities have been made to meet this.

II. In order that the examination in pathology be as far as possible to clinical medicine and surgery, an examiner in special pathology will in future be appointed to the post of surgeon, and the papers will be taken conjointly with the appointed examiner in pathology. The practical and *viva voce* examinations. As pathology will cease to be a subject included in the examination in medicine and surgery, the *viva voce* examination in these subjects will be reduced from twenty to fifteen minutes. In this way there will be a *viva voce* examination in medicine of fifteen minutes' duration for each candidate, with the preliminary period of ten minutes for the examination of excreta and of the microscope specimens, while in surgery there will be one period of fifteen minutes' *viva voce* examination instead of two periods of ten minutes.

III. *Examiners in Tropical Medicine and Hygiene.*—Owing to alterations in the distribution of the examination for the Diploma in Tropical Medicine and Hygiene, there will in future be two examiners described as "examiners in pathology and tropical hygiene" and two described as "examiners in tropical medicine and surgery," one of each description to be appointed by each College as at present.

Regulations for Membership Examination.

The Registrar gave notice that at a forthcoming general meeting of the College he will propose, on behalf of the Censors' Board, additional regulations for the Membership Examination, as follows:

Every candidate for the Membership shall furnish proof:

- (1) That he has been engaged in work in a clinical laboratory for a period of at least three months he has received instruction in medicine.
- (2) That he has held a house-ship by the Censors' Board for a period of at least six months, or some other appointment involving personal responsibility for patients, which shall be considered by the Censors as equivalent.

Tenure of Office of President.

A proposal that the tenure of the office of President should be limited to three years was defeated after some discussion.

Medical News.

THE Prince of Wales has chosen Friday, July 16th, as the date on which he will preside at the dinner in aid of the funds of the National Association for the Prevention of Tuberculosis, which was postponed in December last owing to the death of Queen Alexandra.

WE are asked to remind readers that the complimentary dinner to Sir StClair Thomson, President of the Royal Society of Medicine, arranged by the Section of Laryngology, will be held at the Hotel Victoria, Northumberland Avenue, on Friday, June 4th, at 7.30 p.m. The dinner will be followed by a dance. The price of the dinner and dance, exclusive of wine, is 21s. Tickets may be obtained from Mr. Norman Patterson, 82, Portland Place, W.1.

THE Röntgen Society and the Electro-Therapeutics Section of the Royal Society of Medicine announce that the seventh Mackenzie Davidson Memorial Lecture will be delivered by Dr. A. Dauvillier of Paris in the Barnes Hall (1, Wimpole Street) on Thursday, May 20th, at 8.15 p.m. The subject of the lecture is "The measurement of x-ray dosage."

THE Maudsley Lecture will be delivered before the Royal Medico-Psychological Association on Tuesday, May 18th, at 3 p.m., in the Great Hall of the British Medical Association House, Tavistock Square, W.C., by Professor George M. Robertson, President of the Royal College of Physicians of Edinburgh; the title of the lecture is "The prevention of insanity: a preliminary survey of the problem." The President, Sir Frederick Mott, K.B.E., F.R.S., will take the chair. Admission is free without ticket.

THE Fellowship of Medicine announces that the Royal Northern Hospital will give a fortnight's intensive all-day course in medicine, surgery, and the specialties, beginning on May 31st, and the Children's Clinic will start a special three weeks' course on the same date. During June the following courses will also be held: a two weeks' course in chest diseases at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park; a three weeks' course in gynaecology at the Chelsea Hospital for Women; a course in urology at the All Saints' Hospital three afternoons weekly for a month; a course in bacteriology at Charing Cross Hospital; and a general practitioners' course at the London Temperance Hospital, lasting a fortnight, with daily lectures and demonstrations from 4.30 to 6 p.m. Copies of all syllabuses and of the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

AT the meeting of the Royal Society of Tropical Medicine and Hygiene, to be held at 11, Chandos Street, W.1, on Thursday, May 20th, a paper on the treatment of surra in India will be read by Mr. J. T. Edwards, B.Sc., M.R.C.V.S., Director of the Imperial Bacteriological Laboratory, Muktesar.

DR. JOHN COWAN of New Galloway, Kirkcudbrightshire, the smallest Royal Burgh in Scotland, has recently been presented with a silver loving-cup from the councillors and others to commemorate the completion by him of twenty-five years as provost.

THE date of the annual dinner of the Harveian Society of London has been altered from June 10th to Thursday, June 17th.

A CONFERENCE on milk in relation to public health will be held in the King George's Hall, Caroline Street, Great Russell Street, W.C., on Tuesday, June 8th, under the presidency of the Minister of Health. The morning session (10 to 1) will be opened by a short address by the chairman, Mr. Wilfred Buckley, C.B.E., after which the reports of public authorities on the present-day conditions of the milk supply will be considered. Dr. Harriette Chick will read a paper on milk in relation to public health, which will be followed by a discussion to be opened by Dr. W. G. Savage. The afternoon session (2.30 to 5.30) will be opened by the Minister of Health. Consideration of suggestions received by the Conference Committee regarding the steps to be taken for the improvement of the milk supply will be followed by a general discussion. Further particulars can be obtained from Miss J. E. Holland, the secretary of the conference, 3, Bedford Square, London, W.C.1.

THE Rockefeller Medical Fellowships for the academic year 1926-27 will shortly be awarded by the Medical Research Council, and applications should be lodged with the Council not later than June 10th. These Fellowships are provided from a fund with which the Medical Research Council has been entrusted by the Rockefeller Foundation. Fellowships are awarded by the Council, in accordance with the desire of the Foundation, to graduates who have had some training in research work in the primary sciences of medicine or in clinical medicine or surgery and are likely to profit by a period of work at a university or other chosen centre in the United States before taking up positions for higher teaching or research in the British Isles. A Fellowship will have the value of not less than £350 a year for a single Fellow, with extra allowance for a married Fellow, payable monthly in advance. Travelling expenses and some other allowances will be made in addition. Full particulars and forms of application can be obtained from the Secretary, Medical Research Council, 15, York Buildings, Adelphi, London, W.C.2.

AN election to Beit Memorial Junior Fellowships will take place in July. The Fellows then elected will be required to begin work on October 1st. The Fellowships are of the annual value of £350. The usual tenure is for three years. Applications must be received on or before June 1st. Forms of application and all information may be obtained by letter only, addressed to Sir James K. Fowler, honorary secretary, Beit Memorial Fellowships for Medical Research, 35, Clarges Street, London, W.1.

MR. RICHARD LAKE, F.R.C.S., Geoffrey E. Duveen lecturer in otology in the University of London, and surgeon to the Ear, Nose and Throat Department at University College Hospital, will give three lectures during June on Thursdays at 5 p.m., at University College Hospital Medical School—the first (June 3rd) on deafness and occupations, the second and third (June 10th and 17th) on middle-ear disease. The lectures are open to all practitioners and to medical students.

THE Board of Education has published a new edition of the list of certified special schools, recognized institutions for the training of blind and other defective students, and nursery schools in England and Wales included under its special services regulations. The pamphlet also contains information about certain technical classes for defective students. The schools for physically defective children are divided into groups as far as possible, so as to indicate the type of case dealt with. The addresses of the schools are given, and particulars of the average attendance at each during the year 1924-25. The list may be obtained from H.M. Stationery Office, Adastral House, Kingsway, W.C.2, price 1s., postage 1d.

THE thirty-fifth annual report of the Nurses' Co-operation indicates satisfactory progress during 1925. The number of cases attended increased and the fees paid are larger than those of the previous year, in spite of there having been a smaller number of nurses on the staff. The Nurses' Co-operation was established to provide fully trained hospital nurses and to secure full remuneration for them. It has a sickness benefit fund and a benevolent fund, and nurses are insured against accidents.

DR. J. GLAISTER, of the Inner Temple, was called to the Bar on April 28th.

A TUBERCULOSIS congress will be held at Düsseldorf, under the presidency of Dr. Ziegler of Hanover, on May 28th and 29th, when the following subjects will be discussed: (1) The chemotherapy of tuberculosis, introduced by Drs. Feldt of Berlin and Ulrici of Charlottenburg. (2) The modes of dissemination of tuberculosis, introduced by Drs. Bruno Lange of Berlin and Beitzke of Graz.

DR. LAIGNEL-LAVASTINE has succeeded Professor Menetrier as president of the Société française de l'histoire de la médecine.

MESSRS. PICKFORDS, LTD., 205, High Holborn, London, W.C.1, are issuing a programme, which can be obtained from any of their branches, entitled "Holiday Tours, 1926." They have arranged for motor tours, both in Britain and on the Continent, and we are asked to state that the baggage of passengers booking Continental tours through them is automatically insured to the value of £50 for the duration of the holiday.

UNDER the name of Journées médicales de Paris a congress of an essentially practical nature, appealing to all branches of the profession, will be held in Paris from July 15th to 19th under the presidency of Professor Fernand Vidal. There will be an exhibition at the same time of books, instruments, drugs, etc. Excursions are being organized to Rheims, the battlefields of Champagne, and hydromineral spas. The subscription will be 50 francs for practitioners and 20 francs each for members of their family. Further information can be obtained from the general secretary, Dr. Dujarric de la Rivière, 18, rue de Verneuil, Paris.

THE thirty-first Dutch Congress of Public Health will be held at Utrecht on June 25th and 26th, when the following subjects will be discussed: (1) The risk of tuberculous infection in various occupations, introduced by Drs. R. N. M. Eijkel and M. K. Hijnsius van der Berg. (2) The value of terminal disinfection in infectious diseases, introduced by Dr. L. Heijermans.

THE Oriental Medical Association, like the British Medical Association, has this year started a new *Oriental Journal of Diseases of Infants*. At the end of 1922 Dr. Suzuki of Kyoto, Japan, founded the *Journal of Oriental Medicine*, which has become so popular with Japanese contributors that papers on infant disorders have been crowded out. Hence the new journal, of which Dr. Suzuki is editor. The first number is a tribute to Professor I. Hirai, who attained his sixtieth birthday on October 31st, 1925. Professor Hirai was the founder of the children's clinical section in the Kyoto Imperial University. He has contributed much to the literature of pediatrics, and has in particular elucidated the nature of serous meningitis in infants, a disease which causes a high mortality in Japan. He is now succeeded by Dr. Suzuki. The first issue contains seven papers, two in English and five in German, as well as a Japanese section. Of the papers the first and longest is in English; it is on congenital bone syphilis, is written by the editor, and is profusely illustrated by skiagrams. The second paper also is in English; it is on the control of beri-beri, and is by two medical officers of the Manchurian Plague Prevention Service—Dr. J. W. H. Chun, senior medical officer, and Dr. Wu Lien Teh, director and

chief medical officer. They insist on the importance of obtaining legislative and educational measures, and point out that the two in fact overlap, but consider the latter the more important. They lay particular emphasis on the value of vitamin-containing foodstuffs, such as fresh vegetables, beans, sprouts, and fresh fruit. If these are consumed in sufficient quantities, they say, beri-beri may be avoided, even though white rice is eaten. They attach more importance to education than to legislation because the latter may have the effect of increasing the cost of living. The papers in German are short; two of them deal with child dysentery and two with pneumonia. The new periodical is to be published quarterly by the Children's Clinic of the Kyoto Imperial University. No price is mentioned.

Minerva Medica, which is devoted to the early diagnosis of cancer, has recently published original articles by the editor, Professor F. Micheli, on the serum diagnosis of cancer, by Professor Monpurgo on histological diagnosis, by Professors A. Carle and G. M. Fasiani on early diagnosis of cancer of the breast, and by various specialists on the early recognition of cancer in other parts of the body.

DR. JEAN CHARCOT, who was recently elected a member of the Académie des Sciences, has been awarded the prize of 100,000 francs founded by Prince Albert I of Monaco in recognition of his numerous scientific expeditions and as a grant for the oceanographic researches which he will shortly undertake.

ON the occasion of the fiftieth annual meeting of the German Society for Surgery the issue of the *Zentralblatt für Chirurgie* of April 10th published a series of letters addressed to von Langenbeck the founder, and Gurli, for many years secretary of the society, by numerous well known German surgeons, including von Bergmann, Billroth, Esmarch, Thiersch, Hagedorn, and Volkmann. A brief account of their life and works has been prefixed to the letters by Dr. August Borchard, one of the three editors of the *Zentralblatt*.

PROFESSOR S. NIKANOROV, director of the Institute of Microbiology at the Saratov Faculty of Medicine, has recently been awarded the decoration of the "red flag of work," which is the highest distinction in the Union of Soviet Republics.

COMMENTING on the fact that neither the German Ophthalmological Society nor the German Society for Gynaecology will hold a congress this year, the editor of the *Deutsche medizinische Wochenschrift* expresses the hope that many other societies will follow their example to prevent the excess of scientific publications in general and of congress proceedings in particular.

A FURTHER series of articles, entitled "Occupation and Health," have been issued by the International Labour Office as part of the *Encyclopaedia of Hygiene, Pathology, and Social Welfare*, which is being compiled. The present series, Nos. 22-29, relates to poisonous woods, calcium cyanamide, the superphosphate industry, ankylostomiasis, the rubber industry, asbestos, the felt hat industry, and methyl bromide. When the whole series has been published the complete *Encyclopaedia* will be issued in a bound volume.

THE annual report for 1925 of the National Baby Week Council shows that about 500 local baby weeks were arranged during the year, and that there was an increasing tendency for local authorities to undertake continuous propaganda by film displays, lectures, and demonstrations. Many local health weeks also devoted much attention to questions relating to welfare work. Accounts are given of the various competitions arranged by the Council during the year. We referred to some of these a few weeks ago when mentioning (p. 461) the annual general meeting early in March.

THERE has recently been an increasing number of cases of rabies throughout Germany, 44 municipalities having been attacked in Lower Franconia, 23 in the Upper Palatinate, and 18 in Lower Bavaria. A serious outbreak of anthrax due to contamination of the pastures has occurred in Omsk, Siberia.

THE jubilee of the Association pour l'Avancement des Sciences will be celebrated at the 1926 congress of the association, which is to be held at Lyons from July 26th to 31st. A large scientific exhibition has been organized in connexion with the congress, with pharmacological, radiological, psychological, and other medical sections.

A HYDROBIOLOGICAL station has recently been established on the Danube at Vienna under the direction of Dr. A. Czerny.

DR. FERNANDO CASADESÓ has been nominated professor of oto-rhino-laryngology in the Barcelona Faculty of Medicine.

THE seventh Italian Congress of Radiology will be held at Naples next October.

THE graduation dinner of the University of London, which was to have been held on May 12th, has been cancelled in consequence of the strike.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and **LETTERS** forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring **REPRINTS** of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the British Medical Journal are **MUSEUM 9361, 9362, 9363, and 9364** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

"R. S. F." asks for advice on the treatment of a man, aged 60, who has had a urethral stricture for ten years. He is unable to micturate normally, and has been passing a No. 9 gum elastic catheter twice a day. As the stricture readily admits a No. 11 sound, the disability would appear to be of nervous origin.

"E." asks for advice in the treatment for the following case: A woman with lipomatosis of both legs round the ankles, more marked in the right leg. There is thickening round both ankles and the underlying fatty tissue is attached to the skin. No other collections of fatty tissue are present elsewhere.

NON-OPERATIVE TREATMENT OF CONGENITAL PYLORIC STENOSIS.

DR. J. L. MEAGHER (London) writes:—Bearing upon my article published in the issue of January 16th upon the non-operative treatment of congenital pyloric stenosis, a letter which I received recently from Professor H. Finkelstein, director of the Kinderkrankenhaus of the municipality of Berlin, is of interest. In it he states: "We have treated since your being with us about ten cases in the same manner with equal success. Only one has been operated on." For the information of those who have not read the article it may be mentioned that the chief points of the treatment practised at the Kinderkrankenhaus are atropine and adrenaline medication, concentrated feeding, and stomach wash-out.

HYPERTYREXIA.

DR. E. THORP (Assistant M.O.H. Sunderland) writes with reference to the query on hypertyrexia (March 20th, p. 554): I have seen hypertyrexia in acute rheumatism and puerperal sepsis, in each case the normal thermometer being useless. I had no difficulty in procuring a hypertyrexia thermometer for my hospital for such cases. A case in which the temperature reached 109.6° F. is recorded in *Clinical Notes and Deductions of a Peripartetic*, and another in the Ministry of Health's book on encephalitis lethargica as having occurred in Sunderland Royal Infirmary (114°). The highest temperature I myself have seen is 112°, in puerperal sepsis, and 114° in the same case shortly after death.

THE ERADICATION OF COCKROACHES.

IN reply to a correspondent, who asks how cockroaches may be eradicated from the ground floor (kitchen and offices) of a house, we may say that the first step to be taken is to seal up all cracks in which they can live, special attention being paid to cracks round fireplaces, entrances of pipes, and the backs of cupboards. The skirting should also receive attention. The most satisfactory method of attacking the cockroaches is to use some insect powder, such as one of the following: (1) Sodium fluoride 3 parts, and fresh pyrethrum powder 1 part; (2) powdered borax and pyrethrum, with a little sugar added; (3) plaster-of-Paris 1 part, and sugar 2 parts. Those three mixtures are all harmless to animals and are all very effective against cockroaches. Which ever powder is preferred, it should be scattered about the spots where the cockroaches are found at night and the dead swept up in the morning; its use must be persevered with for some time. All foodstuffs should, of course, be kept out of the way or the cockroaches may not be induced to eat the powder. Poisoned pastes are not recommended, unless there is no possibility of children or animals reaching them. Traps, consisting of jam jars with a cardboard lid containing a hole in the middle, may be used. Through the hole an inverted paper cone with an apical

opening should be inserted. The insects enter through this to reach the contained bait (beer or banana is excellent for this purpose) and are unable to escape. Sulphur dioxide (2 lb. of sulphur per 1,000 cubic feet of space) and carbon bisulphide have also been used for fumigation against these pests with excellent results. We have no records of formalin vapour having been used, but we know of no reason why it should not be successful. If carbon bisulphide is used it is well to remember that the vapour is inflammable and forms an explosive mixture with air. Steam vapour also gives excellent results.

LETTERS, NOTES, ETC.

A MEMBER living in Northampton has asked the Medical Insurance Agency (B.M.A. House, Tavistock Square, London, W.C.1) for particulars of an "All-in Policy" of household insurance, but has not given his full name and address.

A WARNING.

THE Secretary of the Medical Defence Union informs us that the person referred to under this heading in the **JOURNAL** of May 1st (p. 814) has been arrested by the police.

MOTOR CAR INSURANCE.

MR. L. FERRIS-SCOTT, F.C.A., Secretary of the Medical Insurance Agency, writes: With reference to Section 2 (Accidental Damage) of the third clause of the Doctors' Special Policy issued by Lloyd's underwriters through the Medical Insurance Agency, the meaning of the words "and shall also indemnify the insured in respect of external damage to the insured car during riots and civil commotions" is undoubtedly that damage caused to any part of the car by external means is covered. It will be understood that mechanical breakdown is not covered either during riots or civil commotions or during peace time. Such damage as (1) removal of carburettor, (2) puncture of petrol tank, (3) slashing of tyres, (4) damage to glass, etc., of covered cars, is insured under the policy. If a car is not used for its normal purpose the policy will be invalid unless previous notice has been given and the assent of the underwriters obtained. Thus, a four-seater car could carry four passengers even though they be not personally known to the owner and the policy would remain in full force, but a private car is not normally used for the conveyance mainly of foodstuffs. Damage to springs due to overloading is not covered under the policy, whatever the cause of it. Such damage would come under the "breakdown," and would not be covered. It should be noted that the holders of fire and by riots and combined would be wise, therefore, for all insured householders to see that they hold "comprehensive" household policies of the type issued through the Medical Insurance Agency, in which case they will find their interests fully protected in the terms of the policy.

PERSONAL CLEANLINESS: LATRINES.

do not exist; most toilet papers are not impervious, and when the extent to which our food is handled is taken into consideration it becomes a matter of surprise that gastro-intestinal disorders are not more common.

THE AFTER-TREATMENT OF OPERATION CASES.

"PHYSICIAN" writes: It is generally recognized that the after-treatment of operation cases is of great importance, and surgeons who have not the time to attend carefully to the after-treatment of patients on whom they have operated at nursing homes usually leave it in the hands of a competent junior surgeon. But unfortunately this is not always done. Thus, at a large well known London nursing home, on requesting not long ago that a patient under treatment there might have the dressing advised by the surgeon who had operated, I was informed that the nursing staff acted as house-surgeons and would not think of asking the surgeon what further dressing should be applied. This statement may only have been a silly boast, but, if true, no doubt it is exceptional for the nursing staff to act as house-surgeons in other nursing homes. Nevertheless, I have good grounds for believing that in some private nursing homes in many cases the dressings and after-treatment of operation cases are left too much in the hands of nurses, often to the detriment of the patient. After very sad experience I consider it is clearly the duty of physicians and general practitioners, before placing their operation cases in the hands of any surgeon, to ascertain, if possible, who will carry out the after-treatment and dressing. If this will be left chiefly in the hands of the nurses, then my opinion is that the assistance of some other surgeon should be obtained.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 36, 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 184.

A Post-Graduate Lecture ON CARDIO-AORTIC SYPHILIS AND ITS TREATMENT.*

BY

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SYPHILIS of the aortic orifice is, I think, considered to be, in male adults, the most common cause of aortic insufficiency. The disease of the heart is so frequently associated with syphilis of the aorta itself that, from a pathological standpoint, it is not justifiable to consider the two conditions separately. Whether the aortic valves are ever primarily and exclusively attacked by syphilis—true syphilitic endocarditis—is still an open question. The pathological changes in the aorta are those of syphilitic mesoaortitis. Microscopically, the most important changes found in the media and adventitia are a perivascular infiltration of the vasa vasorum, with small-cell infiltration in areas of the media, and a splitting and destruction of elastic fibres and the muscle cells. The heart muscle shows hypertrophy more in the left ventricle than the right, and dilatation. The hypertrophy is much like that seen in the patient with hypertension. Spirochaetes are often found in the walls of the aorta and heart muscle. The normal structure of the valve area is altered so as to produce insufficiency at the orifice during diastole. The picture in most cases is that of aortic insufficiency, and not of aortic stenosis. The valve leaflets are sclerosed and retracted and sometimes there is marked sagging, and there may be actual destruction of the leaflet. The free margin of the valve may be greatly thickened and rigid. General arterio-sclerotic changes of the aorta may be noted, and complete or partial occlusion of a coronary orifice.

SYMPTOMS AND CLINICAL COURSE OF THE DISEASE.

If we analyse the symptoms of a large group of syphilitic aortics, some 200 in number, which we have had under continuous observation for a number of years in the cardiac clinic of Sir Thomas Lewis at University College Hospital, nothing really distinctive will be found to distinguish this group from another group, also under observation during a similar period, with aortic disease of rheumatic origin. A certain number, sooner or later, had symptoms of heart failure with congestion—breathlessness at rest, and the other symptoms which we are accustomed to associate with pulmonary congestion, hepatic engorgement, and other signs of increased pressure in the venous system. The onset of auricular fibrillation with a rapid ventricular rate may be the direct cause of failure in a proportion of these cases. A normal rhythm is, however, the rule. A few have subacute infective endocarditis. A second larger group had symptoms due to loss of cardiac reserve, but with the myocardium not sufficiently damaged to cause venous stasis; they had breathlessness on slight exertion, precordial pain, palpitation, giddiness, fatigue, and undue exhaustion. There is a third group, much smaller than one would expect, the chief complaint of which is pain that is anginal in character and distribution. There is, too, a small hypertension group, often, but not always, with albumin and casts in the urine. Finally, we have to consider a small number who have signs of aortic disease but no obvious symptoms of myocardial insufficiency.

The aortic arch will be found dilated in many patients with aortic regurgitation of syphilitic origin, but in not a few such aortic widening will be absent. It should, of course, be suspected in all cases of frank aortic syphilis, or where syphilis is suspected as the cause of the disease. Those with aortic dilatation and hypertension tend to fall into the anginal group, though the anginal syndrome may be absent; while in many with angina the blood pressure may not be raised. One cannot, however, say that the greater the dilatation, the nearer such dilatation becomes aneurysmal, the more frequently will it be found that the

type of heart failure is anginal in character. When an aneurysm is present the symptoms complained of may be due to pressure of the aneurysm on the surrounding tissues. Aneurysm of the transverse arch is more likely to give rise to these symptoms than aneurysm of the ascending arch. Symptoms may lead us to suspect cardio-aortic disease, but it is upon physical signs that we must rely in arriving at a diagnosis.

PHYSICAL SIGNS OF THE DISEASE.

The physical signs of cardio-aortic disease of syphilitic origin are in some cases those signs we associate with heart failure of the congestive type—that is, signs of pulmonary congestion, with engorged veins in the neck, hepatic engorgement, renal congestion, etc. There is nothing in this type of failure which indicates the syphilitic origin of the disease. Identical signs occur in aortic disease of rheumatic origin. All degrees of enlargement are seen, from the heart which is normal in size to dilatation and hypertrophy extending past the anterior axillary line. The signs of valve disease are those of aortic insufficiency—a diastolic murmur heard over the aortic cartilage. This valve defect in some can only be recognized by listening carefully to the left of the sternum at the level of the third interspace, and sometimes the patient must be placed in a horizontal or left lateral position and the murmur listened for at the end of expiration. This aortic leak may be slight or considerable, and this is determined by the character of the pulse. A collapsing pulse is a sign of free aortic regurgitation. The leak is probably slight when the pulse is not of the Corrigan type. In many patients with the pulse collapsing—that is, with free aortic regurgitation—a presystolic rumble is heard at the apex. It is safe, in the absence of a rheumatic history, to treat this as a Flint's murmur. This murmur may be accompanied by a thrill over the mitral area. Aortic stenosis can be diagnosed when, along with a systolic murmur and most frequently a diastolic murmur as well, a systolic thrill is felt over the aortic cartilage, and the pulse is slow rising, of the anacrotic type. The signs of aortic dilatation are visible palpable pulsation in the second or third interspace to the right and left of the sternum, submanubrial dullness, and impaired resonance on percussion over the area of pulsation. Aortic dilatation should be suspected when submanubrial dullness alone is present. Always when possible the diagnosis of aortic dilatation or aneurysm should be confirmed by x-ray examination of the chest. It is humiliating when an aneurysm presenting no clinical signs looms up on the fluoroscopic screen, and disconcerting when the x-ray picture reveals a normal-sized aorta when an aneurysm has been suspected. A normal rhythm is present in the majority; auricular fibrillation in a few; extra-systoles are common. Sometimes subacute infective endocarditis completes the clinical picture. There were very few of these cases in this series.

EFFECT OF SPECIFIC TREATMENT IN CARDIO-AORTIC SYPHILIS.

Certain interesting facts emerge from the study of the after-histories of pensioners and ex-service men with aortic syphilis, whom we have kept under observation during the past five years. Of these men referred to the special heart clinic at University College Hospital from the Ministry of Pensions an unselected group of 58 was chosen and given special treatment, and accurate notes were made of the results obtained. An approximately equal number of control cases was selected, closely resembling in age, symptoms, and signs, the group of treated cases. The object of this investigation was to determine if possible the effect on the course of the disease of specific treatment in cardio-aortic syphilis. Since 1919-20 the treated cases were given each year a series of six to eight intravenous injections of novarsenobillon 0.6 gram at weekly intervals. An initial dose of 0.3 gram was given before beginning treatment as a safety measure. These injections were always made in the out-patient department, and no special precautions were taken regarding diet or rest. No accidents have been recorded and no symptoms of consequence developed as the result of treatment. It was felt that 0.3 gram was too small a dose to be of any therapeutic value, and 0.9 gram

* Given at the National Heart Hospital, January, 1926.

too large to give to patients with cardio-aortic syphilis in an out-patient department. A few patients complained of breathlessness after the injections; these were of a nervous type, and no attention was paid to this symptom. Others felt giddy and some fainted, but these gave a past history of giddiness and syncopal attacks. These symptoms were looked upon as vaso-vagal in origin, and not an indication to discontinue treatment. Mercurial inunctions were prescribed at each monthly out-patient visit, and the patient was instructed how to apply the ointment. The majority were given mercury in this way. Some were directed to take hydrarg. cum creta, 1 grain thrice daily, in place of the inunctions. Rarely were symptoms of mercurial intoxication recorded. Potassium iodide, 10 grains thrice daily, was given to all. General tonics were substituted for the mercury and potassium iodide in the control cases, and novarsenobillon was withheld from them. No appreciable change in the physical signs or symptoms in these patients could be detected as a result of treatment. Some felt better; others not. The murmurs remained unaltered, and the size of the heart unchanged. The Wassermann reaction—positive in all—became negative in 12, and all

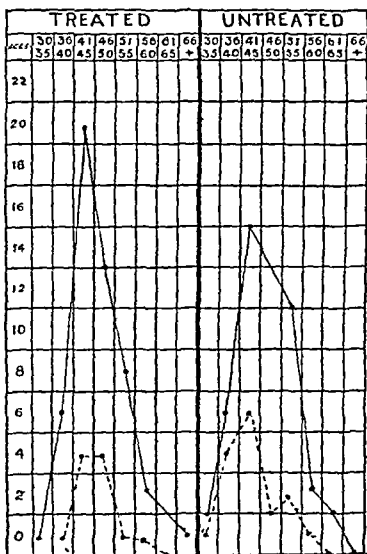


Chart showing the age incidence of the disease (continuous line), and the ages of those who died (broken line), in two groups of cases of cardio-aortic syphilis—treated (58 cases) and untreated (52 cases). The average age incidence of the disease was: treated cases 46.8, untreated cases 46.9. Of the treated cases 14 died, the average age at death being 45 years; of the untreated cases 19 died, the average age being 45 years.

this reason the ages in the treated and untreated cases are approximately the same. The dotted lines represent the age incidence of death. It will be seen from these curves that the average age at death in the treated cases is 45 years, and in the untreated cases 43 years—a difference of two years. Of the treated cases 14 (24.1 per cent.) have died, and of the untreated 19 (33.9 per cent.)—a difference of 9.8 per cent. A difference in the death rate of 10 per cent. over a period of five years may not be without some prognostic significance. If two years have been added to the life of those patients in the treated group over a period of five years' observation, it is possible that the arrest in the disease was due, at least in part, to the treatment which they received. In both groups deaths occur at a lower age level than the average age of all patients in the series under observation. The numbers in this chart are too small, I think, to allow one to draw further conclusions as to the value of specific treatment in aortic syphilis.

In the table I have given a general survey of the type of cases which make up the two groups of cases under observation. It also displays the relative frequency of deaths in the two groups. The mortality is naturally higher in the group with congestion. Five of these were treated

Survey of the Type of Cases in the Two Groups under Observation (Treated and Untreated).

SIGNS.	TREATED. (55 cases; 14 dead.)			UNTREATED. (52 cases; 19 dead.)		
	Aortic Regurgitation: Syphilis.			Aortic Regurgitation: Syphilis.		
	Aneurysm.	Aortic Dilatation.	Nil.	Aneurysm.	Aortic Dilatation.	Nil.
No Congestion:						
Much enlarged...	—	7 (1)	8 (2)	2 (2)	9 (2)	4 (1)
Enlarged ...	1	18 (7)	14 (2)	2 (1)	5 (1)	27 (8)
Not enlarged ...	—	2	—	—	—	—
Congestion:						
Much enlarged...	—	2 (1)	—	—	1 (1)	1 (1)
Enlarged ...	2 (1)	—	1	—	—	1 (1)
Not enlarged ...	—	—	—	—	—	—
Total ...	3	29	23	4	15	33
Dead ...	1	9	4	3	4	11

The figures in parentheses indicate the deaths in the respective groups.

and two died (40 per cent.). There were 3 in the untreated group and all died. The numbers are too few to enable a statement to be made as to the value of treatment when signs of failure with congestion are present. When signs of congestive failure were present it was felt that the disease had advanced too far to expect any improvement in the condition of the patient from specific treatment. It was also considered to be not without risk to treat this type of patient with injections of arsenic. In the treated group without congestion there was one aneurysm with the heart moderately enlarged; this patient is alive, as against 4 with aneurysm, the heart much enlarged in 2 and moderately or slightly enlarged in 2; 3 of these died. It is unfortunate that this incidence of aneurysm is so high in the untreated cases without failure. It might be thought advisable to exclude these 5 cases from the series. Before doing so we must recognize the difficulty of distinguishing between dilatation and aneurysmal dilatation. The line of demarcation is not an easy one to follow. When we consider the next group, with aortic dilatation, we find 27 among the treated and 14 among the untreated, with considerable enlargement of the heart in 7 of the former and 9 of the latter; 8 in the treated group died, and 3 in the control group. Here it might be said that we are dealing unfairly with the treated cases, for on account of the larger number of patients with aortic dilatation in the treated group we might expect the number of deaths to be higher. In the third group—22 treated without dilatation of the aorta, and 8 of these with the heart much enlarged, as compared with 31 controls and 4 with the heart much enlarged—4 of the treated group died, and 9 of the untreated.

Everything considered, the grouping on physical signs is fairly evenly distributed among 56 control and 58 treated cases: 14 of the treated, or 25.4 per cent., died, and in all but one of these treated cases the Wassermann reaction remained positive, as compared with 18, or 34.6 per cent.—that is, the mortality rate is 9.2 per cent. lower in those patients who received specific treatment as compared with patients from whom such treatment was withheld. In the table I have not included 7 cases noted in the chart, as they had no valvular disease.

CONCLUSIONS.

I think it justifiable to conclude from these observations that specific treatment is indicated in syphilitic cardio-aortic disease; that no danger is attached to the intravenous injections of arsenic in moderately large doses given without any special precautions; and that arrest in the disease, as shown from the after-histories of cases treated, may be due to specific treatment given over a period of five years.

A British Medical Association Lecture ON MENTAL INEFFICIENTS: TREATMENT OR PUNISHMENT.*

BY
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THE subject with which I am dealing is a very big one; it can be approached from many different angles. In the time at my disposal it will be possible to deal only with a few of the problems involved.

The first idea I want to put before you is that the interesting reports published in recent years by the Prison Commissioners show how much their attitude has changed towards crime and delinquency. The observations which have led to this change have influenced, not only those responsible for the care of persons who have proved themselves to be asocial or antisocial, but also the majority of serious thinkers and others interested in social welfare, particularly magistrates, teachers, and ministers; I would mention particularly women workers, whose maternal instinct has made them ready to accept the idea that, in many cases of delinquency, treatment rather than punishment is not only more just, but also holds out greater possibilities of protecting those who require care and protection, and of educating and training many who are of no service to the community at the moment, but are yet capable under guidance of developing into useful citizens.

The thoughts which have led to this change of attitude about delinquency must have been simmering for many years; the first important step in crystallizing out the facts was taken by the late Dr. Charles Goring in the early years of this century. Dr. Goring was a prison medical officer who had before him the theory championed by Lombroso, an Italian authority on mental disease, which was largely accepted at that date—that there is a distinct criminal type, which can be picked out by anatomical configuration and general make-up. Goring, by laborious work during several years, dispelled the illusion that there is a criminal type. He proved that the criminal is just like other men, except that he tends to be a little inferior, physically and mentally, compared with his fellows. He showed that the criminal can never be recognized as such, and should not be branded as a born criminal. The offender is of the same clay as other people. It is impossible, Goring said, to diagnose as such the criminal, who comes from every class and group in the community; all that can be done, if it is desirable to recognize prospective criminals in any group, is to examine that group thoroughly and find out the most inferior, physically and mentally. The most inferior in those respects may become delinquents. At the same time, it may be said of those who take a good place in the group, either physically or mentally—and especially in both respects—that it is extremely unlikely they will ever be found in prison. Delinquents come from every class, however the classes are divided. Suppose they are divided into rich and poor; there are not many rich people in prison because the poor are the most numerous class, and also because, looking at the problem from one angle, poverty is a predisposing factor to crime, stealing being the most frequent crime. But rich people do get convicted; those who do are the most inferior of the rich, physically and mentally, taking the word "mentally" in its widest sense. So with the poor; it is certain the better types of the poor will never be found in prison. Goring's investigations, as he himself saw, inevitably paved the way to the idea that individual examination and investigation is essential.

At the same time it was being recognized more and more clearly that severe punishment is not necessarily followed by less crime. The old theory was that by increasing punishment discipline could be enforced. But we all know that punishment is much less severe now than it was eighty or a hundred years ago; yet crime is steadily diminishing.

The objector may say that there must be some other explanation, such as better education. But if he says that he is really saying that education is one of the most successful remedies for delinquency. Again, it is a matter of observation that the habitual offender, who usually gets a more severe sentence each time he commits an offence, so far from being restrained by the extra punishment, often goes on to commit worse offences and to commit them more frequently.

The natural consequence of such observations, and of Goring's investigation, was the publication in 1915 of a book on delinquency by Dr. William Healy, an American, who started work in Chicago and later transferred to Boston. His book, *The Individual Delinquent*, was epoch-making, but I should now advise the serious student to devote his attention to a more recent and better book, published in this country by Mr. Cyril Burt, *The Young Delinquent*. The young delinquent must always interest us most, because he is the person most likely to respond to treatment. Goring proved that the habitual offender nearly always begins his criminal career between the ages of 16 and 19. Mr. opinion is that if Goring had had the opportunity of examining persons under 16, as I have, he would have placed the determining age earlier; 9 or 10 is a more important age. It is, therefore, a mistake to dismiss the first offender, or a case in the children's court, without full investigation. Inquiry would often show that such a person has been on the wrong path for years, and that what appears to be an unimportant phase may actually be the last opportunity for real help.

If treatment, rather than punishment, is to be the aim, the question arises, What treatment? The answer is, It is only possible to tell by individual examination. In order to be clear about the difference between the old and the new ideas, I would say the old idea was—tell me the crime, and I will tell you the punishment. The new idea is—first tell me all about the individual, including what he has done, but especially his environment, and his training, or lack of training; secondly, let me examine him (a) physically, (b) intellectually, (c) psychologically; then, and then only, can I tell you what treatment he requires.

At this stage we must be careful not to develop any delusions that by suitable treatment we are going to reform every case. We hope to do better than with the old methods, but we must admit that some cases are beyond treatment, and that, even with the most hopeful, disappointments are inevitable. Those who are beyond control must be dealt with by segregation, alike in their own interest and also for the safety of the community. The mentally defective are obviously in the impossible group. It must be admitted at once that in consequence of the inborn nature of mental defect none can be cured, while only comparatively few, after having once gone wrong, can be trained to such a degree that they can ever again lead a satisfactory life in the ordinary world. In order to realize these facts it must be remembered that all the organs of the body consist essentially of cells, embedded in a matrix. The brain differs from all other organs in that its cells, once they are developed, a process which is completed during the few months succeeding birth, never change again. In other organs cells are continually dying and being replaced by fresh ones. In the brain no such change is possible. Besides, the brain cells of a mental defective are obviously fewer, and also smaller and less well developed than in the normal. So the unfortunate defective has to carry on all his life with a supply of brain cells inferior in quantity and quality.

The number of mental defectives found among delinquents, or in prison, is not large. The number in prison in recent years, as recorded by Dr. East and other competent authorities, does not exceed from 3 to 5 per cent. Although only a small group this is an important one, because the mental defective is likely to go on committing offences time after time, as he can be but little influenced either by punishment or by moral training. It is important to remember that high-grade feeble-minded cases are so difficult to recognize that they can only be diagnosed by qualified practitioners who have had some years' experience. The examination must be made under satisfactory

* Given at a meeting of the Brighton Division on March 16th, 1926.

conditions, and can never be made in court; yet it is not infrequent for magistrates to attempt to decide the matter for themselves by a question, such as "Do you know your multiplication table?" or to request the medical expert to demonstrate by a few questions that the person is feeble-minded. It should be pointed out that any examination in court is unfair to the delinquent, and shows complete misunderstanding of the situation.

Individual examination can only be available for a limited number of persons charged at the courts. Examination must be thorough, and must be made by a reliable expert; the time required and the dearth of competent examiners means that only selected cases can be examined. Undoubtedly, more medical experts will be available when there is a demand for their services; so far, however, those who have devoted special attention to the matter have not been encouraged either in court or elsewhere. It is essential to concentrate on the first offender, and especially the young, particularly children. But even in the children's court only a small number can be medically examined; the cases must, therefore, be selected. Who is to select them? Personally, I do not believe in a medical assessor sitting in court, which, as I have already said, is not a place for any medical examination. The cases to be investigated must be selected by the magistrates and the court officials, but we, who know, ought to guide them in the matter. As a rough and ready guide in the case of young delinquents I would say that all the following require careful examination and consideration:

1. Stealing £1 or more, or articles of corresponding value.
2. Offences dangerous to the public, such as placing sleepers on the railway line or throwing stones at passing trains.
3. All sex offences, because it has been shown that a large proportion of such offenders are either mentally defective or suffering from some mental disorder.
4. All who look ill or who are suspected to have any physical defect or disease.
5. All who are suspected of mental defect or mental disorder.
6. Lastly, all those offenders who are not understood.

In regard to the last group it seems extraordinary that it should still be not uncommon to see in the papers that a magistrate has said to an offender: "I cannot understand your case, but I am going to deal with you." Would it not be a help to the magistrate in such circumstances to call to his aid someone who has made a special study of the relationship of delinquency to mental and physical abnormalities? When examining it is necessary first to exclude the mentally defective, because, although not a large class, they are an important one. Next it is essential to pick out any who are suffering from actual mental disorder. This is an even smaller group than the mentally defective, contributing not more than 1/2 per cent., but it is a group which must receive special consideration because the members of it may be a serious danger to the community. It is important to bear in mind the possibility of encephalitis lethargica, a disease which has sometimes been followed by unsatisfactory changes in conduct. These facts make it clear that delinquency is not simply a problem of mental defect, as some people imagine; it can only be partly dealt with by segregating the feeble-minded. We must, however, recognize that, although we find among delinquents only a small number who actually come under the Mental Deficiency Act, we are likely to find a larger number who are dull and backward. This is, however, such a handicap in life that the unfortunate individual ought sometimes to be regarded as only partly responsible and judged accordingly.

In the next place, it is necessary to think of physical disability or disease. This should always be looked for first in the actual medical examination, because abnormalities of the eyes and teeth, adenoids, paralysis, and so on, are more easily recognized than mental irregularities, and are much easier to treat. The cripple, especially if he has an obvious deformity, is handicapped in the keen struggle for existence; a child with short sight which has not been recognized misses much, and, in addition, bears the heavy burden of a feeling of inferiority. This feeling of inferiority, although not obvious nor recognized by the sufferer, is present in many delinquents; it must be dealt with. It is just as important to recognize the earliest stages of constitutional disorders, such as

tuberculosis. It does not require much gift of imagination to realize that sometimes at the beginning of such a disease the unfortunate sufferer may feel so ill that he is tempted to steal, or to get money in an easier way than by going out to some laborious occupation. Some years ago one such person, instead of being punished for his offence, was placed in a sanatorium for consumptives for four months. Ever since he has remained a satisfactory working member of the community.

Next arises the question: Is there any other group as definite which ought to be considered? The time has undoubtedly come when we ought to recognize as such cases of mental conflict. This is a condition the term for which partly explains itself. One of the simplest examples is afforded by the delinquent who has been forced into the wrong occupation—one for which he is unsuited, particularly if he has special ability or predilection for work of a different kind. The individual with artistic ability who is engaged in monotonous work on a machine comes in this group. All those who have done any psychological work know that as a rule it is of little use to ask such a person whether he likes his work or whether he feels he is fitted for something else. In the majority of cases he recognizes neither his unsuitness for the work on which he is engaged nor his capacity for work of a different kind. Ordinary questioning will not elicit the facts, but only observation and thorough investigation on psychological lines. Time is too limited to do more than mention one or two other causes of difficulty in life, such as an extreme father or mother complex, or the unhealthy mental attitude developed in those unfortunate people who have had no moral training at all, or a hyper-Puritanical upbringing, or little or no opportunity for healthy recreation, which is absolutely essential for every growing animal. The necessity of special psychological examination must be emphasized, because many medical practitioners think they have made all the investigation necessary when they have asked a few leading questions. The diagnosis of psychological abnormalities is not easier than that of physical conditions, but far harder and more delicate. What should we think of a doctor who, when called to a patient, makes his diagnosis by asking the unfortunate sufferer whether he has got pneumonia or pleurisy, or whether the pains in his joints are due to rheumatoid arthritis or some more simple condition? Questions of a corresponding kind are of no more use in a psychological examination, for which special training is essential, coupled with some knowledge of mental defect, and still more of mental disorder.

Unfortunately, at the present time the new psychology is under a cloud, for the reason that when it became prominent during the war it was accepted by many who had no knowledge of mental disease and who got no more special training than a course perhaps of six weeks or three months. Then they set to work on unfortunate cases of shell shock, many of whom were unsuited for active treatment, or incapable of ever responding, because they were cases of mental defect or advanced mental disorder, or were so constitutionally inferior that they were never likely to improve much. The psychologists of mushroom growth have already, to some extent, disappeared; but the result of their work still remains to be recorded with what has been done by the smaller number, who are better qualified, and whose work is correspondingly discredited. In dealing with disorders of conduct it is of no use to label a condition as a "psycho-neurosis" or as "hysteria," ignoring the fact that a psycho-neurosis can often not be distinguished from a psychosis, and that an hysterical reaction is not very unnatural when a person feels really ill; it is often exhibited by people who are far from being malingerers. The so-called case of "nerves," so far from having nothing wrong, is suffering from a disorder of the imagination, a condition difficult to investigate and treat. It certainly cannot be dealt with by the stock prescription of recommending a change, and telling the sufferer to forget his troubles. What is the use of ordering a change without investigating first what change is necessary, and explaining how to make it? The psycho-neurotic, like the sick man, is often anxious to make a change in his condition; he wants, more than anyone else, to forget his troubles, but cannot do so until someone shows him how. The fact is that no one is capable

of dealing with such cases unless he knows how to enter into the patient's feelings. An unfortunate little girl, 14 years of age, who had been stealing at school, came from a virtuous but poverty-stricken home, where the father had giving up both drinking and smoking in order that his family might have a better education. Unfortunately, however, he never forgot to remind his family of the great sacrifices he was making. This girl was being pressed at school, in the hopes that she might become a pupil teacher. Having recognized that she had artistic taste I suggested to her how delightful it would be if someone made her a present of a pretty dress, especially if she had a ribbon at the same time for her hair. Her eyes sparkled at once; on discussing the situation she had little doubt that the happiest life for her to look forward to was to become a dressmaker, work for which she was well suited. One advantage would be that if no one ever made her a present of a beautiful dress, as indeed seemed likely, she would at least have leisure some time, when she knew how, to make one for herself.

The question may be asked: If punishment is of limited value, is discipline of no use? The answer is, that discipline is essential, but it must never be repression through fear. Starting in infancy and early childhood with wise suggestion, regulation of habits, and imitation of good examples, discipline must become the result of wisdom founded on the appreciation of reality. The best discipline comes from Nature, which, if we can only see it, teaches us to recognize reality and its force, so great that it cannot be ignored. Discipline comes also from the training given by wise mothers and fathers, coupled with the benefits of rubbing shoulders with brothers and sisters, who constitute a birthright of which the only child is robbed. The discipline of the drill sergeant may lead to perfect conduct, but, so far from leading to perfect character, it often develops no character at all. In order to develop character there must be freedom to develop, after first learning obedience in the early years.

Opportunities for healthy recreation are essential. In this connexion it is important to remember that the Scottish investigation into juvenile delinquency showed that far more offences were committed on Sunday than on any other day, and that the two other most unsatisfactory days were Wednesday and Saturday, which are half-holidays.

In conclusion, it may be thought that I am very revolutionary in my ideas. If so, it will be found by referring to the reports of the important prison conference held in London last August that I have much authority to support me. That conference was the ninth International Prison Conference; the first was held in London in 1872, while the last previous one was held in Washington in 1910. Two facts at this conference were particularly noticed: the first was the tremendous change that had taken place in ideas about crime since the last one was held. The other was the realization that of the fifty-six different countries which sent representatives to the conference some of those countries usually looked upon as backward were found to be, if not actually more, at any rate quite as enlightened as the countries that are generally considered to be in the van of progress. Among the important resolutions passed by the Prison Conference I would direct attention especially to the emphasis laid upon probation. This is one of the most effective means of dealing with delinquency, but in order that it may be effective it must last for a much longer time. If we send a young person to a training college or a university, he usually goes for two or three years, and often for longer. When an offender has already graduated in an unsatisfactory course, how can we hope to train him for something better in such a period as six or twelve months? In many cases the period ought to be not less than five years. Better trained probation officers are required, but one of the chief essentials is to see that before probation begins a thorough examination is made to determine what special arrangements ought to be made conditions of the probation. The conference also attached great importance to the indeterminate sentence, which is the natural consequence of individual treatment, and is the only possible way of dealing with some offenders. The conference emphasized also the importance of special

training for magistrates, going so far as to say that all who wish to be magistrates should be compelled to attend lectures on psychology, sociology, psychiatry, and penology. It drew attention to the importance of scientific investigation of accused and convicted persons, with the object of elucidating the causes of delinquency and discovering the suitable treatment of the individual. It was decided that classification in penal institutions ought to be according to character and ability to be reformed. One of the most important resolutions was that in all cases where parents are incapable of providing for the moral education of their children the court should have the power of boarding out the children in a suitable foster-home.

As a last word I would say that if the important resolutions arrived at by this conference were carried out we should go a long way towards dealing satisfactorily with delinquency.

A SIMPLE MODIFICATION OF THE MIDWIFERY FORCEPS.*

BY

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I HAVE been asked to initiate a discussion on the midwifery forceps, especially in relation to the choice of instrument and its applicability to private practice under modern conditions.

I am not so much concerned with the indications for forceps, though I would like to say that there is a tendency at present, in my opinion, to their too frequent use in these days of hurry and haste, not altogether always to the advantage of either mother or child. I feel sure there is often too much meddlesome interference nowadays in midwifery, partly for the reason I have already stated—impatience—and partly also with the idea of shortening labours from motives of humanity, which are really short-sighted measures when one comes to analyse them. Suffering can often be mitigated by other and safer means.

Be that as it may, it cannot be denied that the judicious use of forceps is one of the most beneficent and life-saving adjuncts to labour which we possess, in spite of the abuses which have crept in, mainly from their too early application and a failure always to recognize the real indications for their use and their undoubted limitations.

The indications for forceps are generally in a certain proportion of delayed and dangerous labours, but not in all, and the object is to secure the safe delivery of a living child with the avoidance of injury to the mother. These results can in most cases be secured by the judicious and careful use of forceps. A severely lacerated mother, or the delivery of a dead or dying child, cannot surely be claimed as an altogether satisfactory forceps delivery. The practical teaching of the safe use of forceps is one of the most important things teachers have to do. It is a responsibility which weighs very heavily on all who teach obstetrics, and the far-reaching consequences which result from inadequate practical teaching are appalling to contemplate the more one thinks of them.

As I have said already, however, I am not now considering so much the principles involved in the use and application of forceps as some points to which I wish to draw attention in regard to the construction of the instrument, and to indicate what in my opinion constitutes the safest kind of forceps to use (when its use is indicated) with the minimum forceps risk to mother and child.

There is no doubt that the principle of axis traction constitutes one of the most important improvements and advances in the construction of midwifery forceps in recent years (probably the most important). I cannot but think, however, important as the axis-traction principle undoubtedly is, that the purely mechanical aspect of its

*A paper read before the Edinburgh Obstetrical Society, February

application has been carried perhaps a little too far. There are other equally important matters which I believe have been lost sight of in concentrating mainly on the mechanics of attempting to secure, especially at the brim, adequate axis traction with the axis-traction rod forceps in common use.

I feel almost as if I were guilty of heresy if I seem to belittle the importance of the axis-traction rod forceps in a school such as that of Edinburgh, where such magnificent work has been accomplished in that direction by such men as A. R. Simpson and Milne Murray, following on the lines of Tarnier in trying to perfect the axis-traction principle. This great legacy they have handed on to us makes us

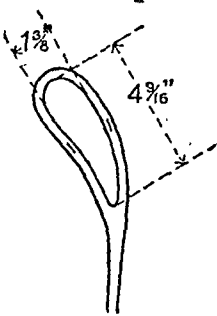


FIG. 1.—Blade of forceps showing original long fenestra of Sir J. Y. Simpson, which is retained in Haig Ferguson's modification.

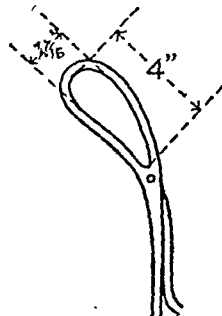


FIG. 2.—Blade of Milne Murray's axis-traction forceps, showing fenestra shortened by half an inch to permit of traction rod being attached as high as possible.

ever their debtors. Their work is abiding for all time. I do not, therefore, for a moment wish to minimize the value and importance of the axis-traction principle. What I desire to criticize is the method by which it is attempted to apply it in the use of the modern type of the axis-traction rod forceps. What I wish to contend for is that in adapting the axis-traction principle with traction rods to the forceps of Sir J. Y. Simpson, while securing a great advance (as we all admit) in the method of traction, we are losing (owing to the construction of the instrument) one of the great advantages of Sir J. Y. Simpson's original instrument, which I regard as the most perfectly constructed forceps in existence, in its measurements and curves, for conserving the interests of the foetus during its passage through the pelvis (Fig. 1).

Sir J. Y. Simpson laid great stress on long fenestrae as being of special importance in preventing undue compression of the foetal head in prolonged forceps cases, and my experience fully bears out his contention. The adaptation of the axis-traction rods to the original Simpson forceps results in the shortening of the fenestrae by half an inch, as the diagrams show; that loss of half an inch, in my opinion, is a very vital loss (Fig. 2).

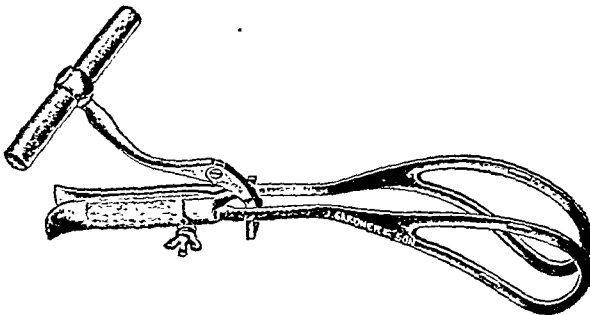


FIG. 3.—Author's forceps.

In the forceps I will now demonstrate (Fig. 3) I aim at getting axis traction without diminishing the length of the fenestrae, and I claim for this forceps greater simplicity, greater safety, and greater efficiency than the axis-traction forceps with traction rods attached. I showed this forceps to this society fifteen years ago after using it for one year previously. Now, after sixteen years' experience, during which period I have used no other (except occasionally to

demonstrate other varieties in the Maternity Hospital clinics), I can assert that it has given me infinite satisfaction, and compared with other forceps has reduced my foetal mortality in difficult forceps cases by about 10 per cent. This I ascribe mainly to the long fenestrae. There should be no maternal mortality in low and mid forceps cases, and, as Whitridge Williams has shown, the foetal mortality should also be practically nil, except in the rare cases of contracted outlet—often, alas! overlooked.

I can recall only two foetal deaths since using this forceps, excluding cases when other forceps had been used first.

This forceps secures sufficient axis traction in the cavity and at the outlet of the pelvis by using it in the ordinary way with the traction handle adjustment as shown, but in addition one can get real axis traction at the brim by tape traction without shortened fenestrae. The traction tapes are threaded through eyelet holes which are made at the level of the middle of the fenestra in each blade. The attachment of the tapes to the blades is practically, therefore, at the level of the biparietal diameter of the head (opposite the parietal eminences) at a height to which axis-traction rods cannot attain. This high traction on the head through the tapes tends markedly to increase flexion, which is a further advantage. High forceps are so seldom applied nowadays, in comparison with twenty years ago, that I need not elaborate these points. I have not personally for many years had occasion to use this tape traction. When I showed this forceps here fifteen years ago the tape

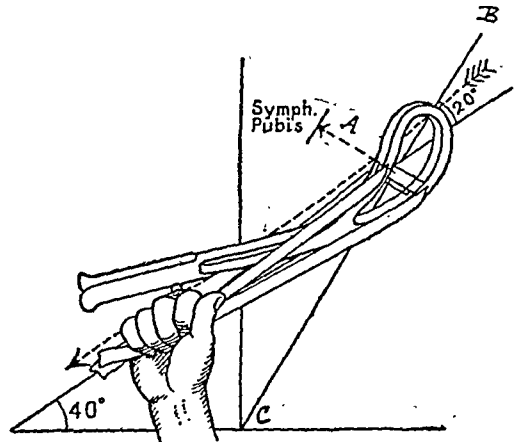


FIG. 4.—Diagrammatic representation of traction with tapes with Haig Ferguson's forceps. The hand which holds the tapes pulls in the direction of the "practical axis." The head descends in the axis of the "excavation of the pelvis" (a C), a part of the force (A) being annihilated by pressure against the pubes.

traction arrangement at the brim seemed to fascinate all the speakers, to the exclusion of what I regard as the infinitely more important and practical cavity and outlet traction, where the tapes are not used at all.

I may say that the late Professor Fabre of Lyons, whom I regard as one of the most ingenious and sagacious of modern obstetricians, always advocated tape traction, both in high and low forceps cases. He adapted tape traction to the ordinary Levret forceps (as modified by Pajot). Some of Fabre's illustrations show how he utilized tape traction (Fig. 4) ("lacets," as he called them) with the Levret-Pajot forceps (Pajot's manœuvre), and how by combined manipulation with the lacets and with the handles of the forceps he was able successfully to deal with difficult cases. He was also in the habit of using the tapes for securing anterior rotation in occipito-posterior cases as illustrated in the accompanying diagrams (Figs. 5 and 6)—a method which I have also on occasion used. I find that one can generally rotate the head safely in posterior positions by pressing in the required direction with a finger inserted into the lower end of the fenestra. Fabre believed that tape traction allowed the head more freedom of movement, and thus, in virtue of the laws of accommodation, helped it to adapt itself more easily to the diameters of the pelvis. Fabre was in the habit of attaching a dynamometer to the tapes during traction to ensure that too much force was not being used. He regarded 55 lb. traction as the

limit of safety for the child. For practical purposes I believe that biceps traction (that is, with bent elbows) is sufficient for safety.

It will thus be evident that tape traction secures pulling on the head at a higher level than axis-traction rods can

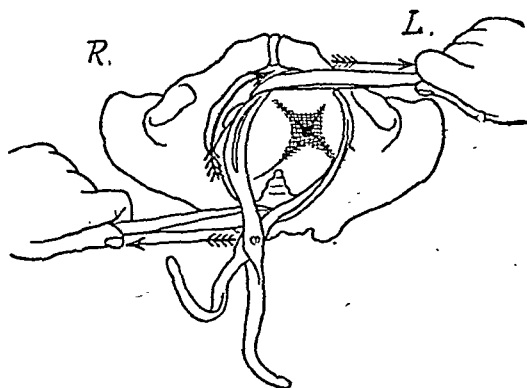


FIG. 5.—Divergent bilateral traction with the two tapes in a right occipito-posterior position to secure anterior rotation. (After Fabre.)

possibly achieve, thus securing more adequate axis traction at the brim. The head becomes more thoroughly flexed by this method of traction (as Davies has pointed out), and, above and beyond all, the fenestrae of the blades have not in any way been interfered with in an attempt to get axis-traction rods attached as high as possible, and even then not high enough to secure completely the object aimed at. It has been adduced that the tapes may break: well, if they do, it is simple to put new ones on. If they break it is probable that too much force has been used, and in this case they make for safety, like an electric fuse. It is a different matter from the breaking of axis-traction

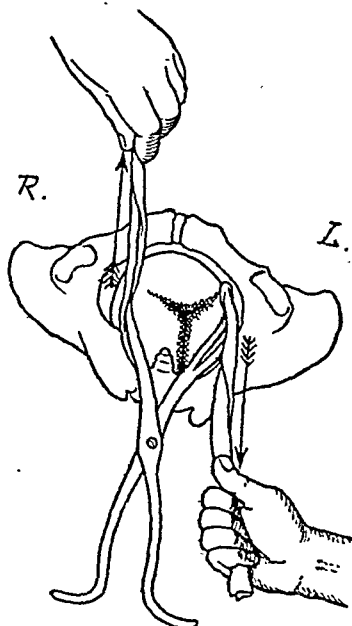


FIG. 6.—Rotation accomplished and occiput lying under the pubes. (After Fabre.)

rods (which has occurred twice in my experience), which leaves the axis-traction rod forceps practically useless. It has also been objected that the tapes may fray the maternal soft parts; this can be prevented by the use of a vaginal retractor or an ordinary Sims speculum to protect the posterior vaginal wall. This is not as a rule necessary, however, as I shall explain later.

I shall now describe the forceps which I use and advocate, and while it is available if need be for tape traction at the brim such as I have been describing, I wish

distinctly to emphasize that this, in my opinion, is not its most important role. Its chief value is in the common everyday forceps case with the head well engaged in the pelvis (low and mid cases). Axis traction in such cases can be sufficiently secured by the simply adjustable traction handle, and the retention of the original long fenestrae of Sir J. Y. Simpson adds materially, as I have said before, to the safety of the child.

The measurements from the Smellie lock upwards conform exactly to Sir J. Y. Simpson's measurements (Fig. 7). I have shortened the handles for three reasons: (1) to indicate that they are not meant for traction; (2) to discourage the use of the handles for application, believing as I do that the blades should be applied by the shanks as tending to ensure their more gentle introduction by delicate manipulation; and (3) to allow the traction handle to work free from obstruction by the forceps handles without making the attachment of an inordinate length. The screw is the same as in the ordinary rod axis-traction forceps. Its use can often to a great extent be dispensed with, as the simple device which attaches the traction handle serves for all practical purposes to make the screw unnecessary after the forceps has been adjusted and traction has begun. It will be seen that the construction of this forceps is very simple. There is no complicated mechanism to go wrong—in other words, it may almost be said to be "foolproof," and there is nothing likely to break; it is a light instrument and not clumsy in appearance; and, above and beyond all, it combines the outstanding advantages of Sir J. Y. Simpson's original forceps with the added advantages of axis traction and the minimum amount of compression of the foetal head. With the old Sir J. Y. Simpson forceps when traction was made on the handles the resulting necessary compression of the head was to a certain extent counteracted by the long fenestrae; with the rod axis-traction forceps the axis-traction advantage is to some extent counterbalanced by dangerous pressure on the foetal head owing to the shortened fenestrae. In this forceps, I submit, the advantages of both the old and the new are conserved without detracting from the special features of importance in the construction of either. It is an attempt, and in my experience a successful attempt, to combine what is best in the old forceps with what is best in the traction-rod forceps, the result being an improvement on both.

It must always be remembered that the rod axis-traction forceps was at first constructed and mainly meant for high forceps cases, so as to secure as nearly as possible axis traction at the brim of the pelvis. I have shown that perfect axis traction at the brim is not possible with these rods and is only imperfectly carried out at the expense of shortening the fenestrae.

Incidentally I would here call attention to the classical diagram (Fig. 8) showing the physics of traction, from A. R. Simpson and von Winckel, to illustrate the line of traction with the rod axis-traction forceps. It will be observed that the line AB gives mathematically the true, accurate, and ideal line of proper pull at the brim, but it is an erroneous representation of the pull of the axis-traction rods, which are attached, be it remembered, to the lower end of the shortened fenestrae; and it will be seen that the line AB lies considerably behind the lower end of the fenestrae. The figure therefore gives an incorrect impression of what rod axis traction really does. The line of pull of the rods is considerably further forward than is here represented. The diagram, in fact, correctly portrays what theoretically might be taken as the line of pull with tape traction.

Chassagnay has shown, however, that when traction is exerted at the level of the centre of a movable object

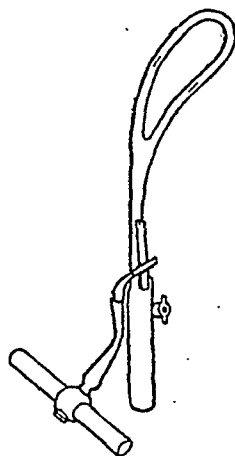


FIG. 7.—Left blade of Haig Ferguson's forceps showing attachment of removable traction handle.

(*traction au centre de figure*) the line of traction may make an angle of 45 degrees with the axis of the passage without causing friction, and he showed that the advantages of *traction au centre de figure* can be applied to forceps;

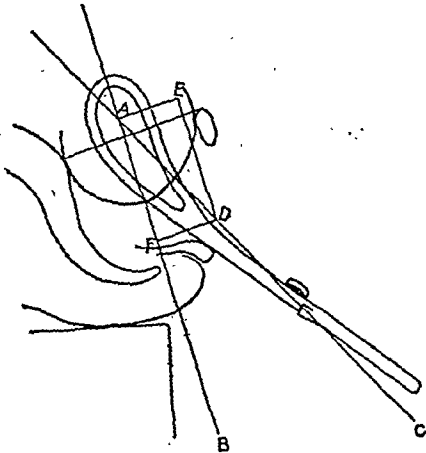


FIG. 8.—Diagram showing physics of traction with Simpson's ordinary forceps in the pelvis. (A. R. Simpson and von Winckel.) A B, Line of proper pull. A F, Available pull. A E F D, Parallelogram of forces on A F. A E, Misspent pull. A C, Line of pull with ordinary long forceps (without traction rods).

and this has been confirmed by Fabre, who described tape axis traction at the brim as "*traction au centre de figure*." In other words, if traction is made on the middle of the head, as can be done by tape traction, it is not necessary to pull so far back (towards the coccyx) as with the rod axis-traction forceps, and there is consequently not so much danger of fraying the soft parts with the tapes as one might fear. Indeed, according to Fabre, the line of well directed tape traction need not exceed the making of an angle of 20 degrees with and in front of the umbilico-coccygeal line to get all that one needs. (See diagram showing schematic representation of tape traction—Fig. 4).

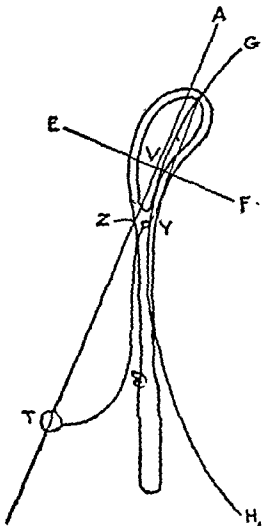


FIG. 9.—Mechanical construction of rod axis-traction forceps. (After Milne Murray.) V, Theoretical position for attachment of traction rods. Z, Best practical position for attachment of traction rods (with shortened fenestrae). T, Traction handle.

of the fenestrae, with the ordinary Sir J. Y. Simpson forceps in the pelvis. In Milne Murray's diagram the fenestrae have been shortened and the traction rods attached as high as possible to secure the best available axis traction, which he here mathematically illustrates. Milne Murray admitted that the point V is the theoretical position for the attachment of the traction rods, and he grasped the fact that to make his mechanics anything like perfect the higher the traction rods were attached to the blades the better. He consequently sacrificed part of the length of the fenestrae in an attempt to secure this advantage. But, even so, this axis traction, as will be noted, is not ideal, though for most practical purposes it may be

sufficient. Murray made an attempt to widen the fenestrae, but this did not compensate for the shortening. In addition, wide blades are more difficult to apply.

To put the matter in a nutshell, ideal axis traction at the brim can only be accomplished by traction in the middle of the head, as Fabre has pointed out. Traction rods cannot secure this without seriously shortening the fenestrae. The more the fenestrae are shortened and the higher the rod attachment, the better is the rod traction, but the more dangerous is it for the child, thus constituting a good example of the horns of a dilemma. It follows, therefore, that tape traction at the brim from the level of the centre of the head with full-sized fenestrae is ideally and practically correct, and should produce the best results all round.

I readily admit that the rod axis-traction forceps is equally available (perhaps more so) in the cavity and at the outlet; but again in these situations it is also handicapped by the short fenestrae, which are dangerous to the child with no compensating advantage. Whitridge Williams uses Tarnier's latest model of axis-traction forceps with detachable traction rods and handle bar. In 1910 he writes: "I use this instrument in all cases without the traction rods in low and mid, and with the traction rods in high forceps operations." In 1924 he writes that he uses the traction rods in mid operations as well.

My forceps as it stands is adapted mainly for traction in the cavity and at the outlet, which practically nowadays are the only situations where forceps should be used; but, in addition, this forceps has potential arrangements for almost perfect high axis traction by tape attachment, should an exceptional case demand it.

I do not for a moment contend that tape traction applied to the forceps is entirely a modern idea. Laroyenne in 1875 adapted the lacets of Chassagnay to Levret's forceps, but, so far as I know, this is the first time they have been applied to forceps with an axis-traction handle attachment, thus combining, as I have explained, an alternative method of axis traction (available for all circumstances) in the one instrument.

I confidently submit this forceps for criticism, trial, and approval.

A CASE OF SACRO-COCCYGEAL CHORDOMA.

BY

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THE fact that up to the present time only 57 cases of chordoma have been published makes it desirable that each isolated case should be recorded. The case here described, the fourth to be diagnosed in Leeds, was encountered recently at the General Infirmary, and presents the typical clinical and pathological features of this rare tumour.

PATHOLOGICAL ASPECTS OF CHORDOMA.

Chordoma, as its name implies, is a growth of peculiar characteristics having its origin in notochordal tissue. Müller (1858) was the first to put forward this view, which, however, received little support at the time. Virchow (1857) and others regarded these tumours as cartilaginous, and small limited outgrowths of this nature arising in the basi-sphenoid continued to be reported under the title of "echordosis physaliphora." It was not until many years later that Müller's views received confirmation from Ribbert (1894), who reviewed the whole subject and advanced the following reasons for his belief in the notochordal origin of the tumours: (1) All spring from the middle line. (2) In no case has transition from cartilage to tumour tissue been demonstrated. (3) The tumour and the cartilage merely coexist side by side—a persistence of the cartilage merely softening the cells do not present the typical physaliphorous appearance of these growths. There is, on the other hand, a close resemblance between

the tissue of a chordoma and that of the notochordal vestiges in the intervertebral discs.

In the following year Ribbert (1895) showed experimentally, by puncturing the intervertebral discs of rabbits, that the escaped nucleus pulposus after a time showed evidence of cellular proliferation, and that its histological structure came to resemble minutely that of chordoma. There could be no doubt, therefore, as to the identity of nature and origin of the two formations.

Chordomas arise with few exceptions at either the anterior or posterior extremity of the notochord. Of the 57 cases so far recorded, including the present one, 25 occurred in the region of the spheno-occipital synchondrosis, 28 in the sacro-coccygeal region, 1 in the occipital region, 1 in the upper and lower jaws, 1 in the cervical and 1 in the lumbar region. In a recent communication Stewart and Morin (1926) have reviewed the whole subject and collected all the cases which have been recorded up to the present.

These tumours do not as a rule give rise to signs and symptoms until adult life is reached. Those occurring in the spheno-occipital region manifest themselves earlier than sacro-coccygeal growths. The average age at which the patients came under observation in the former group was 34.9 years, whilst that of the latter was 50.6 years. Males are affected more than twice as often as females. This is notably the case in tumours of the sacro-coccygeal region, and may lend some slight weight to the theory of trauma as a cause, since males are admittedly more liable to injury than females. The possible importance of trauma as an etiological factor in sacro-coccygeal cases is mentioned by several writers—Bérard, Dunet, and Peyron (1922), Micotti (1922), Andler and Schmincke (1923-24), Stewart and Morin (1926)—who suggest that severe coccygeal trauma may liberate chordal tissue from its normal osseous control and even stimulate its proliferation. On the other hand, in many cases there is no history of antecedent trauma.

Chordoma is a malignant tumour; generally of slow growth, it infiltrates and destroys hard and soft tissues alike, and is very liable to recur after removal, but rarely gives rise to metastases. In some cases, however, growth may be more rapid, and metastatic deposits have been described in lymph glands (Peters, 1919), liver (Pototschnig, 1919), and other tissues (Stewart, 1922). The ultimate prognosis in chordoma is bad; the average duration of life after the first appearance of symptoms in spheno-occipital cases is 2.8 years. In sacro-coccygeal cases the tumour is not so rapidly fatal; the average duration is 6.4 years. Stewart (1922) published a case which developed metastases five or six years after the first operation, the patient eventually dying eleven years after the primary tumour was first discovered. The more serious nature of the spheno-occipital variety is undoubtedly due to its position and to the gravity of the operation for its removal.

CLINICAL ASPECTS OF CHORDOMA.

1. *Chordoma of the Spheno-occipital Region.*—The clinical signs of tumours in this region are usually those of a slowly growing tumour involving the base of the skull and adjacent nerve structures—headache, vomiting, dizziness, and progressive failure of vision being the early symptoms. Paralysis of various kinds depend on the size and situation of the tumour. The enlargement is usually directed upwards into the cranial cavity, but some tumours have extended downwards into the naso-pharynx or into the sphenoidal sinus or orbit.

2. *Chordoma of Sacro-coccygeal Region.*—These tumours frequently become painful at a fairly early stage. The pain is localized in the region of the sacrum and coccyx or may be felt in the buttocks and legs. Lumbago and sciatica may occur and interference with micturition and defaecation may arise in the later stages. The symptoms depend mainly on the direction in which the tumour enlarges. Backward extension eventually causes a tumour in the region of the lower end of the sacrum and coccyx. The tumour is situated in the middle line, is of slow growth, and firm and elastic to the touch. Tenderness is not as a rule a pronounced symptom. The overlying skin retains its normal appearance and is usually freely movable

over the tumour, which is firmly fixed to the deep tissues. If the enlargement is in a forward direction towards the hollow of the sacrum and the rectum the main symptoms may be referred to the latter organ. Obstruction to the passage of faeces and even ulceration may occur; or, from interference with the venous return, haemorrhoids may develop. This condition has arisen in several cases as an early sign. In the present case the patient underwent an operation for haemorrhoids four years before the tumour was discovered, but this was probably merely coincidence, for at the time of operation for removal of the tumour there was no forward extension sufficient to produce obstruction to the blood return from the rectum.

REPORT OF CASE.

The patient, a male aged 43, first noticed a small swelling at the lower part of the sacrum in November, 1924. It was slightly painful and tender, and slowly increased in size. The pain became gradually worse, and five months afterwards was present in the left buttock and thigh. It was thought to be sciatica, but did not improve under treatment. On admission to the General Infirmary on November 7th, 1925, he presented a slightly lobulated rounded tumour the size of half a Tangerine orange, situated in the middle line at the level of the junction of the sacrum and coccyx. The tumour was rather tender on pressure and the skin, though somewhat adherent, was normal in appearance. The growth was firmly fixed to the deep tissues and no movement whatever could be detected between it and the underlying bone. It was of firm elastic consistency and gave no signs of the presence of fluid. On rectal examination a vague irregular fullness could be felt in the hollow of the sacrum. The rectal wall was not adherent to the tumour nor was the latter projecting into the lumen of the gut. The fullness was confined to the middle line and the upper limit could be felt by the tip of the examining finger.

Operation, November 10th, 1925.

Under general anaesthesia a vertical incision was made over the tumour. The skin, which was more adherent than had appeared clinically, was dissected back and the edge of the tumour defined. It was found to be firmly attached by a wide base to the lowest piece of the sacrum. On attempting to cut it free from the bone it burst and a large quantity of jelly-like material escaped. It was then found that the bone itself was eroded and infiltrated with growth which passed high up into the sacral body. As much of the tumour as possible was removed and the sacrum itself curetted, a large quantity of jelly-like tissue and several pieces of eroded bone being removed. Haemorrhage was free. The wound was packed and partially closed. There was a considerable amount of bleeding after the operation which necessitated repacking. The wound eventually healed by granulation, and the patient was discharged after several weeks in hospital.

Morbid Anatomy and Histology.

The portion of tumour removed, some 2½ inches in diameter, is elastic to the touch, well encapsuled on its superficial aspect, and shows distinct lobulation. The deep surface is ragged and irregular where it has been detached from the underlying bone. On section the growth has a characteristic alveolar appearance, the lobules being separated from each other by fine fibrous trabeculae. The nodules of growth consist of translucent whitish gelatinous tissue and often show central cavitation, as a result of the extreme mucoid change which is present. Numerous small areas of haemorrhage are scattered throughout the tumour.

Histologically the appearances correspond precisely with those of previously reported cases of chordoma. Solid masses of epithelial cells are situated for the most part in contact with the connective tissue septa. Their nuclei are small and rounded or irregular in shape, with ill defined chromatin network. The cytoplasm is abundant and finely granular, but of very indefinite outline, so that one cell is not easily distinguished from its neighbours. This solid appearance is characteristic of the youngest cells; most of them, however, show the marked cytoplasmic vacuolation typical of chordoma, with formation of mucinous material which escapes from the cell to form large homogeneously stained areas in the centre of the tumour lobules. Throughout these areas are scattered blood cells and isolated epithelial islets. Histological evidence of malignancy is but scanty; no mitoses are observed, and cells of the more embryonic type described constitute only a small portion of the tumour. On the other hand, the large amount of mucin present is, as Stewart and Morin (1926) have pointed out, an indication of its comparatively benign nature.

COMMENTARY.

Although as much of the tumour as possible was removed by dissection and curetting, the extensive bony involvement makes it practically certain that some of the tumour tissue remains behind. Recurrence, therefore, will almost certainly take place, but as the chordoma histologically appeared to be of very slow growth it may be some considerable time before operative intervention is again necessary.

The pain in the left buttock and thigh, which disappeared immediately after the operation, returned within two months. The operation wound is healed, and there is

no evidence of recurrence *in situ*. Rectal examination reveals no sign of anterior extension of the growth towards the bowel. The patient is now undergoing x-ray treatment, so far with no relief of his pain.

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THE PROPHYLACTIC VALUE OF SCARLET FEVER ANTITOXIN.

BY

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AN opportunity recently occurred of testing the degree and duration of passive immunity conferred by prophylactic doses of scarlet fever antitoxin. As the procedure adopted involved several of the new methods in scarlet fever, we think that some account of our observations will be of interest.

In a diphtheria ward a girl, aged 12, convalescent from the disease, and therefore up and about, developed scarlet fever. The diagnosis of this case was confirmed by a very marked Schultz-Charlton reaction, produced by the intradermal injection into the rash of 0.2 c.cm. of horse scarlet fever antitoxin, and also by a positive Dick test. As the child had received diphtheria antitoxin many days before, she was first desensitized with 1 c.cm. of horse serum in the ordinary way, and then received 25 c.cm. of an unconcentrated scarlet fever antitoxin intramuscularly. The temperature, which overnight had risen to 103.8°, dropped by crisis to normal by the morning. The rash, which had become very intense before serum was given, completely disappeared in less than thirty-six hours; the temperature remained normal, and the child to all intents and purposes was quite well, and has remained so. This child had no previous history of scarlet fever. On the same morning another girl, aged 10, vomited and complained of slight sore throat. The tonsils were observed to be congested, and she presented an extremely faint pink flush over the trunk; her temperature was found to be 101°. Although this child was stated to have had scarlet fever "at home" a year previously, the Dick test was positive. The flush on the trunk was so fleeting that no Schultz-Charlton test was feasible. We have no doubt that this patient had an abortive attack of scarlet fever, but she was nevertheless dealt with in the same way as will be described in the case of other contacts in the ward.

On the occurrence of these two cases a search was made for the source of infection. A girl, aged 12, who had been admitted six days previously with severe faucial diphtheria, was found to be desquamating on the hands. Careful inquiry elicited the fact that nearly three weeks prior to admission to hospital she had complained of a sore throat, and that a rash had been noted on her back and legs. The Dick test in this case was negative to a dilution of toxin which we are satisfied after some hundreds of trials in various dilutions constitutes in 1 in 1,000 dilution a reasonable skin test dose. This toxin (X48) was supplied to us by Dr. R. A. O'Brien, and is the toxin used with corresponding controls of heated toxin throughout the Dick tests described in this paper. This negative response to a skin test dose of Dick toxin was consistent with our previous experience of the Dick test performed on cases of scarlet fever in the third week or later. We have no doubt that this girl, herself immune to a skin test dose as a result of a recent attack of scarlet fever, was the source of infection.

Although we and others of our colleagues in the Birmingham City Hospitals are satisfied, as the result of a long series of trials, that 0.2 c.cm. of 1 in 1,000 dilution of toxin X48 constitutes a skin test dose, we have in this series of cases, and as part of a larger piece of work, used not only 1 in 1,000 dilution, but also 1 in 500. The use of these two dilutions, one twice as strong as a normal skin test dose, gives us a measure of the immunity possessed by the patient in excess of that denoted by a negative skin test dose. All the contacts, therefore, were tested with both these dilutions, as were also the two infected cases and the infecting case. The latter, as already stated, gave a negative response to 1 in 1,000, but was positive to 1 in 500.

Of the 16 contacts, 14, including the abortive case of scarlet fever already mentioned, gave positive readings to both dilutions; the two exceptions, who had well authenticated (hospital treated) previous attacks of scarlet fever, were completely negative to both dilutions, showing that as a result of a previous attack they possessed an immunity to scarlet fever toxin far in excess of that denoted by the skin test dose. It was determined to produce passive immunity in these 14 cases. Two scarlet fever antitoxins from different sources were employed for this purpose. Scarlet fever antitoxin "C" was a concentrated antitoxin, of which we had a small supply for testing: It was stated that each cubic centimetre would neutralize "at least 50,000 skin test doses of scarlet fever toxin," and that 2.5 c.cm. constituted a dose which would produce passive immunity. Scarlet fever antitoxin "U" was an unconcentrated serum, part of an experimental batch. We had previously ascertained that 0.2 c.cm. of 1 in 1,000 dilution of this batch of serum would produce local blanching when injected intradermally into a recent scarlet fever rash. We also knew that 10 c.cm. of this unconcentrated serum would convert a Dick-positive reactor into a negative reactor in twenty-four hours. We therefore in 4 cases employed 2.5 c.cm. of the concentrated serum, and in 10 cases 10 c.cm. of the unconcentrated serum. In every instance the intramuscular route was employed; thirty-six hours after the serum had been administered the patients were again tested with the same dilutions of the same toxin, and the results of these tests, together with subsequent tests at intervals, are set out in the chart.

One of the disadvantages of the use of unconcentrated scarlet fever antitoxic serums when used in therapeutic doses has already been noted by one of us¹—namely, the occurrence of serum rashes which may be quite severe. Hence a very careful record was kept of the occurrence and severity of any serum phenomena after the use of prophylactic doses of concentrated and unconcentrated serums respectively. It will be seen from the table that none of the 4 cases given concentrated serum in doses of 2.5 c.cm. developed serum rashes; whereas 6 of the 10 who had received 10 c.cm. of the unconcentrated serum developed trifling rashes, in most cases on the arms and legs only. One rash was scarlatiniform in type, and confined to the back.

The following chart sets out the results of all the observations which were made.

A study of the chart shows that as a result of administration of 2.5 c.cm. of a concentrated antitoxin or 10 c.cm. of an unconcentrated antitoxin, immunity was produced in thirty-six hours in all cases to a skin test dose of toxin; and in 9 of the total to a dilution of toxin twice as strong. In a week's time all the 4 cases who had received the concentrated serum were still negative to a skin test dose, whilst 3 gave minimal reactions to the 1 in 500 dilutions; 4 of the 10 cases who had received unconcentrated serum gave minimal positive results to 1 in 1,000 dilutions at the end of a week. In all these cases the 1 in 500 dilution was, of course, also positive. Two children remained negative to both dilutions. A week later still re-tests were performed with the same toxin in the same dilutions. One child who had received concentrated serum still remained negative to both dilutions, whilst 3 gave positive reactions—two of them minimal—to 1 in 500. Four of those immunized with unconcentrated antitoxin still remained negative to the 1 in 1,000 dilution (two of these to both dilutions). Five children reacted positively to both dilutions, and the remaining child had been discharged from

CASE	AGE	PRIMARY DICK TEST		SC. FEVER ANTITOXIN TYPE	DOSE CCS	1st RE TEST 24 HOURS		2nd RE TEST 1 WEEK		3rd RE TEST 2 WEEKS		4th RE TEST 3 WEEKS	
		1	500			1	500	1	500	1	500	1	500
1	4	●	●	C	2.5	○	○	○	○	○	○	○	○
2	3 ¹⁰ / ₁₂	●	●	C	2.5	○	○	○	○	○	○	○	○
3	7	●	●	C	2.5	○	○	○	○	○	○	○	○
4	10	●	●	C	2.5	○	○	○	○	○	○	○	○
5	6	●	●	U	10	○	○	○	○	○	○	○	○
6	3	●	●	U	10	○	○	○	○	○	○	○	○
7	7	●	●	U	10	○	○	○	○	○	○	○	○
8	13	○	○	NIL		○	○	○	○	○	○	○	○
9	12	●	●	U	10	○	○	○	○	○	○	○	○
10	11	●	●	U	10	○	○	○	○	○	○	○	○
11	10	●	●	U	10	○	○	○	○	○	○	○	○
12	10	●	●	U	10	○	○	○	○	○	○	○	○
13	11	●	●	U	10	○	○	○	○	○	○	○	○
14	10	●	●	U	10	○	○	○	○	○	○	○	○
15	9	●	●	U	10	○	○	○	○	○	○	○	○
16	8	○	○	NIL		○	○	○	○	○	○	○	○

○ NEGATIVE ● POSITIVE ◐ POSITIVE OF SMALL AREA OR FAINT POSITIVE

Note.—Only 6 cases showed serum phenomena. These were as follows: Cases 5, 9, 10, and 15 had urticaria on arms and legs; Case 12 on arms only. Case 13 had a scarlatiniform rash confined to the back. Cases 4, 8, and 16 were the only ones with a previous history of scarlet fever.

hospital before this second re-test could be carried out in her case.

A fourth re-test in twenty-one days of 6 children who had remained negative to a dilution of 1 in 1,000 at the third re-test was carried out. All 6 of these children were still negative to 1 in 1,000; 3 of these 6 had received concentrated antitoxin, and one of these 3 still remained negative to 1 in 500 dilution. The remaining 5 gave small reactions to 1 in 500 dilution.

It may be concluded, therefore, that 2.5 c.cm. of a good concentrated scarlet fever antitoxin will protect a child susceptible to scarlet fever (as assessed by a skin test dose of Dick toxin) for at least a fortnight, and that 10 c.cm. of an unconcentrated serum of known high blanching titre will confer similar protection, although with less certainty. Concentrated serum in a dose of 2.5 c.cm. did not produce a serum rash in any of the four cases investigated. There is the additional advantage that such a small bulk of serum is in itself in the neighbourhood of a desensitizing dose of horse serum; hence in the case of a child who has previously received diphtheria antitoxin the process of desensitization may be safely omitted if only such a small bulk of scarlet fever antitoxin is requisite.

It should be added that all the cases related above, including the infecting and the infected cases, were removed, as soon as the results of the first Dick test after serum were read, to an ordinary scarlet fever-diphtheria ward. They were consequently exposed to the infection of scarlet fever throughout the period recorded. No instance of infection occurred amongst any of the transferred children.

We have no doubt that the practitioner in charge of children's institutions now has available in the Dick test and in scarlet fever antitoxin the means of prompt control of an outbreak of scarlet fever. Scarlet fever antitoxin may be used for either of three purposes: (1) intradermally, preferably diluted to 1 in 10 with normal saline, for the diagnostic Schultz-Charlton reaction; (2) intramuscularly or intravenously, in therapeutic doses, for the treatment of the disease; (3) intramuscularly, for the production of temporary passive immunity.

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Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

PHENOLAINE IN OPHTHALMOLOGY.

My first introduction to phenolaine was through Mr. Nesfield's *Ophthalmic Surgery*. After a fairly extensive use of it during a period of two years I share his enthusiasm and regard the drug in ophthalmology as one of the most important in our armamentarium.

The reason for this communication is that I have inquired from several ophthalmologists if they had had any experience of it, and have received negative replies, and my hope that it will lead to a trial in those cases in which it is especially recommended—nebulae and leucoma of the cornea.

My first experience with phenolaine was in a case which I will briefly describe, and in which the result was miraculous, using the word Mr. Nesfield quotes in relation to the drug.

A boy, aged 6 years, was sent to me by Mr. Claude Avarne in October, 1923. The boy had had a most severe attack of whooping-cough in January of that year. The mother then noticed that the right eye began to turn in. When I saw him he had a decided right convergent strabismus, could not fix with that eye, and had no perception of hand movements. Ophthalmoscopic examination revealed an old mass of vitreous opacity, barring absolutely any view of the fundus. This mass was evidently the result of a haemorrhage into the vitreous due to the whooping-cough.

I had just been introduced to phenolaine, so I began, according to directions, subconjunctival injections. I gave one a month. After the fourth injection the vitreous became absolutely clear, and has remained so. I followed up with one other injection.

A tucking operation then followed to reduce the squint. Owing to the subconjunctival injections there was a most alarming chemosis during the process of healing, so much so that I had to snip the conjunctiva to promote drainage. The result of the tucking operation, in spite of all, is perfect. Owing to the length of time the eye had squinted it is amblyopic + 1.00 Sph. V.=6/36. From a blind eye this is surely a triumph for the injections.

I have since used phenolaine in many cases of old nebulae, and have never met with disappointment. I always urge it with confidence. Cases that could only read Jaeger 6 have been brought up to 1 or 2. I have not used it in patients over 30. The strength is that Mr. Nesfield recommends—2 minims to an ounce of sterilized tap water. I use water which has passed through a Pasteur-Chamberland filter, but phenolaine possesses very high antiseptic and anaesthetic properties. Tap water has a great deal to do with its action, according to Mr. Nesfield.

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INTRAUTERINE AMPUTATION OF LEFT LEG.

On Monday forenoon, September 28th, 1925, I was called to see a woman, aged 33, who was due to have her eighth confinement in the beginning of November. She thought she was in labour, as she had been having pains since September 26th, and was alarmed at the delay.

The uterus was up to the level of the umbilicus and indicated a transverse presentation; the os uteri was well dilated with the right shoulder presenting. Under chloroform the shoulder was pushed up, and in manipulating for a foot my finger came against a very sharp end of bone, and I also felt a small foot and leg lying free inside the uterus. I secured the normal foot and easily delivered a live boy, my only fear being that the uterus might get damaged by the pointed stump of the femur. I then removed the detached foot and leg.

On examining the child I found that the left leg was amputated about the middle of the thigh, the stump being completely healed except that the femur projected about a quarter of an inch—a condition similar to that found during the war after circular amputations that had been allowed to granulate. The amputated part was macerated and much smaller than the other limb—about 5 months as compared to 7½ months. There was nothing abnormal about the placenta, which came away easily within ten minutes of the birth. The cord was somewhat longer than usual and very thin. The woman made an uneventful recovery and was up on the tenth day.

Up to the seventh child there was no trouble with any of her babies. Between the sixth and seventh, which was a breech, she had an abortion at the third month. All the children were born alive, but small. She is rickety and has a justo-minor pelvis.

Among the points of interest in this somewhat rare case are that the child was born alive, it cried feebly for ten minutes, showing that the constricting force was not likely to have been the umbilical cord, as otherwise a dead child would have been expected; if the force was sufficient to cause amputation it would have been sufficient to stop the flow of blood in the vessels of the cord. It is conceivable, however, that by slow pressure, the tissues being soft, especially the bone, amputation might take place without the death of the child and the condition of the cord might support this view. The stump being healed is sure proof that amputation took place some month or two previously and this conclusion is strengthened by the size of the amputated part.

The condition differs from the more common types of ectromelia where, owing to pressure as a rule of an amniotic band, there is non-growth of a limb or part of a limb; in this case the limb was developed, and what caused the amputation is difficult to say. None of the textbooks at my disposal describe such a condition. Unfortunately I was unable to secure the body or even photographs.

Greenock.

W. HORNSBY, M.B.Glas.

TWO NEO-NATAL DEATHS.

THE two following cases seem of sufficient interest to be placed on record. The first occurred in the practice of Drs. Chapple and Slack at Stairfoot, Barnsley.

A male infant was born at 4.15 a.m. on December 21st, 1925; a certified midwife was in attendance. The mother had had six stillbirths, and one child who died in infancy; only one girl survived. The midwife reported that the child appeared to be fully developed, cried lustily, but soon appeared to be in pain. She called in a doctor (under the Midwives Act, 1918). One of us (A. B. S.) attended, and found that the clothing of the child was saturated with blood; the child died an hour afterwards.

At a *post-mortem* examination, when both of us were present, the umbilical cord appeared to be properly tied in two places, and the ligatures were firmly *in situ*. There was a small crack or ulcer, hardly noticeable, where the umbilical cord joined the skin of the abdomen, and it seemed that oozing had taken place from this. On opening the abdomen much free haemorrhage was seen in the peritoneum below the spleen, where there was a large clot. Apart from a large thymus the remainder of the body appeared fairly normal.

In this case, without a *post-mortem* examination it would have been difficult to combat the suggestion that the death was due to haemorrhage from faulty ligation of the cord. The internal haemorrhage and the family history, combined with the external haemorrhage, were very suggestive of haemophilia. This suggestion was adopted by the coroner at the inquest.

The second case was brought to the notice of one of us (T. E. F.) by the coroner's officer, who called on January 16th, 1926, with the following note:

"At 4.30 a.m. to-day, Mrs. E. H. gave birth to a male child, a certified midwife being in attendance. The midwife left at 6 a.m. At 12.15 p.m., when she returned again, she found the child dead in bed beside the mother. Dr. P. was called in and pronounced life extinct."

The history of the case suggested overlying, but the midwife stated that the child was born with the cord around the neck. A *post-mortem* examination was conducted on the following day by Dr. P., when T. E. F. was in attendance. The child appeared fully developed and well nourished, but the head was intensely congested. On opening the thorax, however, the small intestines and spleen were found in the left side of the chest above the diaphragm, compressing the heart and lungs towards the right. The lungs appeared to be only half the normal size. A large foramen or gap was present in the left side of the diaphragm immediately adjoining the twelfth rib. It readily admitted one finger, and the intestines and spleen could be pulled back into the abdominal cavity.

These cases show the desirability of holding a *post-mortem* examination in all cases of infant deaths where the cause is not certain. Incidentally also the cases point to the difficulty in reducing the infantile mortality of the first week of life, when congenital malformations and abnormalities produce their toll.

T. E. FRANCIS, O.B.E., M.D., B.S., D.P.H.,

A. B. SLACK, M.B., Ch.B.Vict.

Reports of Societies.

MALARIAL TREATMENT OF GENERAL PARALYSIS.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland held on April 23rd, the President, Dr. F. C. PURSER, in the chair, Dr. GEOFFREY BEWLEY read notes on two cases of general paralysis treated with malaria parasites. Dr. Bewley said that both patients had a fully positive Wassermann reaction of the cerebro-spinal fluid, a cell count of about 50 per c.mm., and a strongly positive colloidal gold curve. In each case the rigors occurred every evening and were controlled by quinine after ten had occurred. In the first case the mental change was dramatic, the patient becoming perfectly normal in a fortnight and being discharged from the asylum six weeks after treatment; the Wassermann reaction had then become negative, the cell count almost normal, and the colloidal gold curve that of a very weak parietic. Four weeks after being discharged this patient had an acute melancholic attack and was certified again. In the second case three weeks after treatment the Wassermann reaction had dropped to *plus 1* for 0.1 c.cm. and the cell count practically to normal; the colloidal gold curve remained unchanged. The mental change, however, had shown a slight but steadily progressive improvement.

THE PRESIDENT said that this was the first communication on this subject which had been brought before the Academy, although work on these lines had been going on in Dublin for some time. The clinical results in Dr. Bewley's cases seemed to him to be quite as good as in any of those he had seen reported. The pathological results in the first case were very good, and made him think that there was more in this treatment, in the way of permanence, than was thought by many who tried it. He had seen the first patient with Dr. Bewley, to certify him, and there was certainly no doubt about the condition being general paralysis of the insane.

Dr. H. T. BEWLEY said that he had seen these patients frequently, and the first was a typical case of general paralysis as regarded the mental state. The recovery was the most dramatic in mental medicine that he had ever seen, as it occurred with such suddenness. The second illness of the patient was also very sudden, and did not look at all like general paralysis. The patient became melancholy and threatened suicide; he became dull and stupid, and it was very difficult to get him to take food. Although there was no stricture in the urethra, he did not seem to care to pass water, but just allowed his bladder to become distended. In the second case there was a gradual but very marked improvement. Nothing dramatic had occurred, but the patient was a great deal better, and seemed to be improving steadily day by day, since the malarial treatment. Dr. Bewley referred to the small degree of general illness of the patients. On the evening of treatment the temperature might be high, but next morning the patient was perfectly well, and did not suffer from any depression or weakness such as was common when a patient's temperature was high. It was a very great disappointment that the first patient had relapsed, after such a brilliant recovery. He hoped that the second patient would go on improving, and ultimately regain mental vigour completely, or at any rate to a very large extent.

Dr. H. R. C. RUTHERFORD referred to a report of Dr. Graham of the Mental Hospital, Belfast, on malarial treatment for general paralysis. In 1923 Dr. Graham had treated seventy patients, and was able to discharge thirty, of whom twenty-one were absolutely well, and remained well for long periods, varying from a year to a year and a half. Nine went away at their own request, against his advice, and of these two returned for further treatment. Twenty-eight did not improve, and one case failed to develop malaria. Dr. Graham had no doubt that this was a very valuable treatment.

Dr. JOHN DUNNE of the Richmond Hospital was also enthusiastic about the treatment. The pathological

results in Dr. Bewley's patients had been better than in Dr. Graham's, in that although Dr. Graham's patients regained mental health they did not improve much physically, and their Wassermann reaction was often positive, even when cured.

Dr. E. S. HORGAN referred to the close correspondence between the Wassermann and the colloidal gold tests, especially if the Wassermann test was performed in double dilutions. He thought it would be interesting to follow up the further clinical symptoms in these cases, and see whether the improvement would continue parallel between the colloidal gold and Wassermann reactions on the one hand and the symptoms on the other.

Dr. G. E. NESBITT referred to a case of his own at present under treatment. Dr. A. R. PANSONS asked if there was any danger associated with malarial treatment, and said that it was very difficult to understand what had caused the reaction and what was going on in the first patient's brain.

Dr. BEWLEY, replying, said that he had never experienced any difficulty in finding malaria parasites; in every film he had found parasites in every stage. The serological results were not nearly so important as the mental results. There was some danger in the treatment; it was dangerous to allow rigors to continue for a long time, and the onset of jaundice or hyperpyrexia was dangerous. He thought, however, that it was quite justifiable to subject patients to a very considerable risk if by doing so there was a possibility of curing them of a disease which was otherwise incurable.

Scleroderma.

Dr. KATHLEEN LYNN showed a case of scleroderma in an infant aged 7 months. She said that scleroderma generally attacked infants of only a few days of age; they usually died from it in a short time. This infant had been perfectly normal until it was 2 months of age, but the symptoms then became well marked. She thought that some improvement was occurring.

Dr. M. DRUMMOND said that this case was almost unique in some respects, especially as the child had lived so long. Generalized scleroderma was very unusual. He personally had seen only two patients; one had died at 2 months of age and the other at 5 months of age. He did not think that much could be done for the child. In some generalized cases in older children ultra-violet rays had been given with success, but he felt that in such a young child this treatment might be a risk.

The PRESIDENT said that it was three days since he had first seen the infant; it was certainly no worse, but he did not think it had improved. He asked if there was anything which suggested a syphilitic history.

Dr. LYNN, replying, said that there was apparently no specific history in the family. The father had recovered from tuberculosis, and was now in fairly good health. There were nine children, one an idiot; three were still alive, and six dead. The mother was a delicate-looking woman. In cases of scleroderma the temperature was raised, but this infant's temperature was always subnormal. There had been no gain in weight, but she thought the child had improved a little, though some days it was better and others worse.

Clinical Cases.

Dr. M. DRUMMOND showed a case of tuberculide of the skin simulating leprosy. The resemblance to leprosy was very striking, there being complete absence of ulceration. The ends of the fingers were red and swollen, and the terminal phalanges showed a rarefying osteitis. A portion of skin was removed on two occasions for examination, and the structure was found to be tuberculous. Dr. W. D. O'KELLY said that in specimens taken from this patient characteristic tubercle bacilli had been found, but no leprosy bacilli. He had, however, inoculated a guinea-pig, which had shown no signs of tuberculosis, and no cultures of tubercle bacilli were obtained. The resemblance to leprosy in this case was very great, but he personally thought it was a case of tuberculosis, although he had failed to find tubercle bacilli.

Dr. W. G. HARVEY showed a case of alkaptonuria. Marked pigmentation was to be seen in the sclerotic and slight pigmentation in the cartilages of the ears. The patient developed some nasal obstruction, and nasal cartilage had to be removed; this was found to be pigmented in spots. Sir JOHN MOORE said that this patient was an old soldier who had served in India; thirty years ago he had had haematemesis, apparently caused by an overcharged liver, due to the mitral lesion which was still present.

Dr. L. ABRAHAMSON showed a case of syphilitic disease of bone simulating rheumatoid arthritis. There was, on admission to hospital, marked swelling of both ankles extending to the upper malleoli and over the posterior third of the foot. Tenderness was present, and movement was markedly limited and painful on both sides. The Wassermann reaction was strongly positive. An x-ray examination showed pronounced periosteitis, involving the lower end of both tibiae, with deposition of bone, which had been laid down in a peculiar frilly form. Anti-syphilitic treatment was followed by marked improvement in the symptoms and the swelling, though bony changes persisted. In three weeks the patient was able to walk without discomfort.

Dr. G. E. NESBITT showed electro-cardiograms from two cases of a rare type. One was paroxysmal tachycardia, apparently ventricular tachycardia, and the other was left bundle branch block. Dr. Nesbitt believed that ventricular tachycardia was a very rare condition. Dr. L. ABRAHAMSON said that ventricular tachycardia was an exceedingly rare condition, and, apart from this, he thought that some of the cases which were published as ventricular tachycardia were really not ventricular, but ordinary tachycardia. He was quite convinced from the electro-cardiograms shown by Dr. Nesbitt that his case was one of ventricular tachycardia. He asked him if he thought that the fine notches shown at the top of the waves represented the ventricular beat. He personally thought they did, and if so it was especially rare. The long pauses in the tracing showed evidence of sino-auricular block, which also was very rare. He agreed that Dr. Nesbitt's second case was one of left bundle branch block, but the diagnostic criteria of this condition were not as yet firmly established by necropsy findings.

RESULTS OF PLASTIC SURGERY.

At a meeting of the Bristol Medico-Chirurgical Society held at the University on March 10th, with the President, Mr. T. CARWARDINE, in the chair, Mr. H. D. GILLIES read a paper on the functional and aesthetic results of plastic surgery. Starting with the deformities resulting from gunshot wounds of the face, Mr. Gillies said that the broad principles underlying their repair were: (1) to conserve every scrap of undamaged tissue; with this end in view, close the wound as soon as possible, sewing skin to skin or mucous membrane; (2) to replace all normal tissue in its proper place; (3) to bring fresh healthy tissue to close the gaps, both in skeleton and soft parts. He then spoke of the evolution of the tube graft and its application in the repair of shell wounds, giving numerous illustrations from photographs of the various stages, and the results. The method of measuring and fitting grafts by the help of plaster casts and stencils was described. The use of Thiersch and Wolfe grafts was shown, and the occasional cosmetic disappointments with the latter mentioned. When repairing the face, and especially the nose, the lecturer emphasized the necessity of providing a mucous membrane, or at least skin, to replace the destroyed mucous lining of cavities. In this connexion he described the "stent" inlay graft, and illustrated its application in the nose, in the mouth, and for ectropion. Loss of part of the lower jaw was repaired by means of bone grafts and dental prostheses; cartilage grafts were used to repair nose and forehead, and dental prostheses for loss of the upper jaw. The results of treatment of scarring after severe burns were illustrated. Mr. Gillies then turned to the application of these principles to the deformities of civil life resulting from burns, industrial or motor accidents, and

extensive operations. The method of treating facial naevi and hairy moles was shown, and the important social and psychic bearing of these deformities mentioned. The general principles of plastic surgery evolved for the treatment of the face were not confined to this region. Destruction of tissue in the limbs might be amenable to treatment along these lines when other methods offered little prospect of success. Means for improving the functional results after cleft palate operations were shown, and the repair of damage to the pudenda in both male and female described. Finally, purely cosmetic manoeuvres, such as the rectification of a "Semitic" nose, were indicated. The lecturer concluded by saying that the secret of success was a correct diagnosis. One must ascertain exactly what was missing and had to be restored. Care on the part of the surgeon, and patience, both from him and from his patient, were the other requisites. A very complete series of photographs illustrated each of the various processes, and demonstrated the truly remarkable results that the lecturer had been able to achieve.

PREGNANCY IN A DOUBLE UTERUS.

At a meeting of the North of England Obstetrical and Gynaecological Society in Manchester on April 16th, the President, Mr. W. GORAN (Leeds), in the chair, Dr. J. W. BRIDE (Manchester) described a case of obstructed labour due to uterus didelphys, which was particularly interesting in that two separate and well formed vaginas were present, and that in the first pregnancy the unimpregnated horn effectually obstructed delivery.

A primipara, aged 25, was admitted to St. Mary's Hospitals, Manchester, on January 26th, 1922, as a case of either pelvic tumour obstructing delivery or a full-term ectopic pregnancy. There was a history of pains for two days, and a show. On abdominal examination the uterus was found to be tonically contracted, and the lie of the foetus was oblique, the back being to the mother's left and front and the head in the right iliac fossa. No foetal heart sounds were heard. On vaginal examination two separate, well formed, and dilated vaginas and cervixes were found; the left was fully dilated and the membranes were ruptured. The pouch of Douglas was filled with a soft mass, which could not be pushed up by moderate pressure. A diagnosis of pregnancy in the left horn of a double uterus with the right horn obstructing delivery was made, and it was decided to perform Caesarean section at once. The left pregnant horn of a uterus didelphys was exposed, and the wall was so thin that the foetus was readily seen through it. A dead, well developed, but slightly macerated foetus was extracted, and the uterine incision sutured with catgut. The right horn lay retroverted in the pouch of Douglas, and quite obstructed delivery. The true conjugate of the pelvis was found to be 3½ inches. On account of the poor condition of the patient, nothing more was undertaken at the time. A decidual cast was passed on February 1st. The patient made a good recovery, being told on her discharge, on February 14th, to report at once if she became pregnant again.

Dr. Bride next saw her at the seventh month of pregnancy in 1925, and she was admitted to hospital on June 6th, with slight labour pains. The foetus lay transversely, the head in the left iliac fossa. No vaginal examination was made, but it was thought that the right horn was pregnant on this occasion, and bearing in mind the extreme thinness of the wall of the pregnant horn in the previous labour he decided to perform Caesarean section at once. A pregnancy of the right horn was found; again the wall of the uterus was so thin that the foetus was visible through it, and it was contracting. A living male child, 6½ lb. in weight, was delivered. The patient did not wish to be sterilized. The left horn was lifted out of the pouch of Douglas, the scar of the old Caesarean section was found well healed, and there were no adhesions. The mother was discharged on June 29th, and the child was alive and well.

Dr. Bride summed up the main points in the case. In each labour a different horn was pregnant, and the non-pregnant horn obstructed labour quite apart from pelvic contraction. He thought that the extremely thin wall of the horn would have given way in prolonged labour. A decidual cast was passed in the first pregnancy. The interesting uterine malformation would have rendered likely a mistaken diagnosis of tumour or ectopic pregnancy if the vaginal malformation had been absent or not recognized.

The President remembered a similar case in which spontaneous delivery of a breech had occurred with uncertainty as to the degree of dilatation of the cervix, owing to examination of the wrong half of the vagina.

Professor H. BRIGGS (Liverpool) emphasized the fact that the non-pregnant horn was never drawn up out of the pelvis, and that obstruction to delivery was almost certain to occur in every such case. He said the term "didelphys" was wrong. It was reasonably certain that the condition never obtained in women, and the correct title was "bicornis."

Dr. WILLETT (Liverpool) also described a case in which the non-pregnant horn did not obstruct.

Haematoma in the Abdominal Wall simulating New Growths.

Professor W. E. FOTHERGILL (Manchester) read a paper on haematoma in the abdominal wall simulating new growths, and gave an account of some of the cases which he had encountered. He gave an account of the diagnostic points and the lines of differential diagnosis. (We hope to publish Professor Fothergill's paper in an early issue of the JOURNAL.)

Mr. W. W. KING (Sheffield) described two cases in which rupture of a vessel in the abdominal parietes gave rise to acute symptoms; one case simulated torsion of the pedicle of an ovarian cyst, and the other caused continued pain of uncertain origin.

Case 1.—In an elderly woman, the subject of chronic bronchitis, acute left-sided abdominal pain followed a severe attack of vomiting; the presence of a tender swelling just above the left of Poupart's ligament at first suggested a hernia. The swelling rapidly increased in size; the patient became very ill, and vomiting was copious; the bowels acted with an enema. Twelve hours later a tumour the size of a five months pregnancy was detected in the abdomen. This was at first thought to be an ovarian cyst with torsion of its pedicle, but pelvic examination contradicted this possibility. As the result of an exploratory laparotomy, the "tumour" proved to be a large haematoma lying between the rectus fascia and the peritoneum. The clot was evacuated, and the patient made a good recovery.

Case 2.—A woman, aged 38, had an acute attack of epigastric pain and vomiting, which was subsequently shown to have been due to pancreatic disease. The violent vomiting caused a sudden pain in her left side, which persisted more or less acutely for three weeks, when she was sent to hospital. It was then possible to detect some bruising of the skin, which roughly followed the line of the deep epigastric vessels. In the middle of this a tender swelling was felt, which, upon bimanual examination of the pelvis, was found to bulge into the peritoneal cavity. The diagnosis of a ruptured vessel, presumably the deep epigastric vein, in the abdominal wall was therefore sufficiently clear to admit of expectant treatment. In four weeks all tenderness and swelling had disappeared. While in hospital she had a second attack of epigastric pain associated with a transient glycosuria, and marked tenderness and swelling of the pancreas; apart from this she made a good recovery.

Dr. D. DOUGAL (Manchester) described a case of carcinoma of the cervix uteri after a subtotal hysterectomy. The growth in the cervix arose two years after the operation, and the cervix was then removed without any special difficulty. Professors BLAIR BELL (Liverpool) and FLESCAR SHAW (Manchester) agreed with Dr. Dougal as to the necessity of total hysterectomy in parous women, and where the cervix had been damaged or infected. Professor W. E. FOTHERGILL read notes on a case of hydatid cysts in the broad ligament; and Dr. E. D. CROFT (Leeds) gave details of a similar case in which there were also hydatids at the lower pole of the left kidney.

At a meeting of the Chelsea Clinical Society held at St. George's Hospital on April 20th, with Dr. GORDON LANE in the chair, a discussion on the treatment of late syphilis was initiated by Professor EYRE, and continued by Dr. C. E. SUNDELL and others. It was generally agreed that the injection of salvarsan or its allies was of great benefit in the amelioration of symptoms of general paralysis and locomotor ataxy, and, in some cases, effected an apparent cure. One or two speakers laid stress on the importance of treating syphilitic women during pregnancy, even though they might show no signs of the disease. The importance of bismuth preparations was urged by more than one speaker, who rated their value, in the treatment of late syphilis, as at any rate equal to that of mercury and potassium iodide.

Reviews.

ENDOCRINOLOGY.

THE second edition of Sir E. SHARPEY-SCHAFER's authoritative work *The Endocrine Organs: An Introduction to the Study of Internal Secretion*,¹ the first half of which was reviewed in our columns two years ago (1924, i, 429), is now completed by the appearance of the second part, dealing with the pituitary, the pineal, the alimentary canal, the pancreas, and the sex glands. The pituitary occupies rather more than half the volume, the sex glands rather less than a quarter, the pancreas about a seventh, so that the pineal receives eight and the mucosa of the alimentary canal five pages. The author and his pupils have done so much on the physiology of the pituitary, and the subject is so complex and important, that a very full account is most welcome.

The anatomy, both comparative and human, is described in detail and illustrated by admirable figures. It is more than thirty years since, in collaboration with the late Dr. George Oliver, a partnership now, by the author's change of name, likely to be perpetuated by the Oliver-Sharpey Lectures at the Royal College of Physicians of London, he announced the pressor effect of pituitary extract. Since then much water has passed through filtering physiological minds, and the numerous additional observations are recorded in great profusion. For example, the pars tuberalis, which surrounds the stalk of the pituitary and covers the tuber cinereum, is of great interest in connexion with Roussy and Camus's contention that polyuria and even dystrophia adiposo genitalis are due, not to pituitary lesions, but to damage to the tuber cinereum, for these observers appear to have ignored the existence of the pars tuberalis. The section dealing with the clinical manifestations of pituitary disease gives a clear and most interesting historical summary of the subject and is enriched by illustrations which, as elsewhere in this well got up work, are admirably reproduced. The therapeutic uses of pituitary extracts are briefly but critically epitomized.

The structure and the relation of the islands of Langerhans to the ordinary alveoli of the pancreas are similarly set forth with fine pictorial assistance. It may, perhaps, be recalled that thirty-one years ago, in his address to the British Medical Association (BRITISH MEDICAL JOURNAL, 1895, ii, 341), the author suggested that human diabetes was due to pathological changes in the islands. It is now conscientiously pointed out that the word "insulin," independently employed by the author in the first edition of this work in 1916, was employed as far back as 1909 by Meyer. Another point of historical interest is the approximation of Paulesco's work in 1916 (published in 1921) to the epoch-making discoveries at Toronto. The chapter on the internal secretions of the sex glands sets out the effects of grafting and vasectomy, and the criticisms brought against Steinach's conclusions, that the "all or none" principle of excitability applies to the interstitial cells, are shown to be illusory.

Dealing mainly with physiology, but not neglecting the practical application of the rapidly increasing observations on the endocrine glands, Sir E. Sharpey-Schafer's book is a most valuable source of reference, but it is obvious that the time will soon arrive, if it has not already come, when a fresh edition of the first part will be called for by his numerous readers.

Dr. W. N. BERKELEY's *The Principles and Practice of Endocrine Medicine*² is intended for those in active medical practice. Its compactness, and the details it gives of endocrine diseases and their treatment, will appeal to many. The anatomy and physiology of the several endocrine glands are summarized by Dr. Berkeley, who devotes special though short chapters to the autonomic nervous system and to the subject of basal metabolism. The thyroid naturally receives

most attention (seventy pages), the pituitary comes next with fifty-two, and then the gonads, which receive rather more space than the parathyroids and the adrenals. Owing to the recent work on the parathyroids the relatively full account of their bearings on disease is welcome. The author supports the view that chronic parathyroid dyscrasia or insufficiency is the responsible cause of paralysis agitans, though he naturally mentions, but without much discussion, the more generally accepted responsibility of the globus pallidus system. His experience with parathyroid medication is favourable, but he failed to get any improvement in the Parkinsonism of epidemic encephalitis. Among a hundred patients treated with parathyroid one only showed an idiosyncrasy to it. The possibility of hypersecretion of the pancreas or hyperinsulism with symptoms of hypoglycaemia is raised. It is rather overstating the case to say that renal glycosuria without a corresponding rise in the blood sugar is very rare. In discussing the internal secretions of the gonads Dr. Berkeley gives some interesting references to the history of castration, and refers to Steinach's and Voronoff's work on rejuvenation, but, as elsewhere, is wisely cautious and avoids drawing conclusions from insufficient data; this is also manifest in the chapters on the interrelations of the endocrine glands and on the clinical forms of pluriglandular disease. In conclusion Dr. Berkeley's book may be recommended to busy practitioners as a useful and trustworthy guide, and, though mainly a summary, provides many references which will be useful to those specially interested in particular points.

DENTAL CARIES AMONG AUSTRALIAN ABORIGINES.

Our school children who suffer so often from dental caries and toothache may well envy the lot of the aboriginal children of Australia. Dr. T. D. CAMPBELL has recently examined the skulls of 630 Australian aborigines, representing individuals of all ages, noted the condition of their dentition, and has published his results in a book entitled *Dentition and Palate of the Australian Aboriginal*.³ His collection included a series of thirty-seven children under the age of 12, and in them not a single tooth was affected with caries. Examination of a similar number of white children in any school in Adelaide would have shown that in thirty-five of them one or more of the teeth had become carious; or, to state the result in another form, 100 per cent. of the milk teeth of the aboriginal children were sound, whereas in white children only 6 per cent. were free from caries, the condition in the schools of Adelaide being neither better nor worse than that of the schools at home. Dr. Campbell noted that the milk teeth of aboriginal children are ground down by wear, a condition rarely seen in the mouths of English children. He attributes the immunity of the teeth to caries and the freedom of the palate from narrowing to a vigorous use of the teeth; the opinion will be received with caution by those who have noted the effects which Mrs. May Mellanby produced on the teeth of young animals by feeding them on a deficient dietary.

Dr. Campbell's observations on the incidence of caries amongst adult aborigines are also of great interest. He found no caries in the teeth of young adults; it began to appear in the fully grown adults and was most frequent in the skulls of the aged, but even in them only about 1 per cent. of teeth were affected. "Caries among the aboriginal natives," he states, "appears to be essentially a disease of old age and is closely associated with extreme attrition and large erosion cavities." Caries attacks native teeth only after they have been damaged. But in natives who have grown up on the outskirts of civilization and adopted the white man's diet, carious teeth were almost as numerous as among Europeans. Dr. Campbell believes that the loss of immunity to caries by contaminated blacks is due to the nature of the white man's diet. He says:

"If the masticatory system be supplied with a diet which imposes upon the teeth and jaws the task of functioning in a

¹ *The Endocrine Organs: An Introduction to the Study of Internal Secretion*. Second edition. Part 2: The Pituitary, the Pineal, the Alimentary Canal, the Pancreas, and the Sex Glands. By Sir E. Sharpey-Schafer, L.D.S., D.Sc., M.D., F.R.S. London: Longmans, Green & Co., Ltd. 1925. (Sup. roy. 8vo, pp. xv-xxii + 177-418; 118 figures.

² *The Principles and Practice of Endocrine Medicine*. By William Nathaniel Berkeley, Ph.D., M.D. London: Henry Kimpton. 1925. (Med. 8vo, pp. xi + 368; 4 coloured plates, 56 figures. 21s. net.)

³ *Dentition and Palate of the Australian Aboriginal*. By T. D. Campbell, D.D.Sc. University of Adelaide Publications under the Keith Sheridan Foundation. Adelaide: The Hassell Press. 1925. (Cr. 4to, pp. viii + 123; 53 plates, 20 figures.)

thorough and physiological manner, then the tendency will be for the maintenance of normal and healthy conditions. Modern dietaries and methods of food refinement do not provide for this, hence the present-day oral and dental degeneracy."

To this Mrs. Mellanby might reply that it was not the softness of the diet that was at fault but its deficiency in certain substances which are needed for the production of sound enamel, dentine, and bone. The unbiased critic may suspect that both are right, each having laid hold of part of the truth.

While the Australian aborigine in his native haunts is almost free from pyorrhoëa it is otherwise as regards dental abscess. Dr. Campbell found that nearly 20 per cent. of the middle-aged suffered from alveolar abscess, while in the aged 74 per cent. were so afflicted.

The sections of Dr. Campbell's monograph which deal with the diseases and disorders of the teeth of Australian aborigines represent only a fraction of his investigations. In reality he has produced a standard treatise on the dentition, palate, and jaws of the most primitive of living peoples, one which will satisfy the requirements of the scientific dentist and expert anthropologist for many years to come. The University of Adelaide recognized the value of Dr. Campbell's investigations by conferring on him the degree of Doctor of Dental Science.

"THE MEDICAL ANNUAL," 1926.

THE aim of *The Medical Annual*¹ is to supply a review of the year's work in the treatment of disease. It claims to be essentially a practical book. To quote the graphic introductory sentence of the preface, "Its object is to supply ammunition to the men in the firing line of the war against disease." In more prosaic language we presume that this means to hand on to practitioners the discoveries of the year and the current opinions about pathology and other sciences. Such fare might, of course, be altogether unpalatable if unskillfully served; or it might be extremely useful if sensibly dressed. *The Medical Annual* has always been carefully edited and has won a position of importance amongst medical periodicals. The present volume is similar to its predecessors in its general arrangement, and doubtless will be equally useful.

The book is essentially a dictionary, and, like all dictionaries, cannot be read systematically page by page. No reviewer, however conscientious, could wade through it from cover to cover, and we cannot pretend to have discovered all its treasures or weaknesses. But after an afternoon's browsing, sampling in a leisurely fashion anything that seemed of particular interest, we feel justified in expressing the following opinions.

The thirty-four authors who have contributed to this volume seem for the most part to have dealt with their subjects either by giving an abstract of important scientific articles contributed to medical papers during the last year, or by writing an essay on what each considers to be the up-to-date point of view of his particular subject. The latter type of contribution appears to us to be not only the most readable, but also the most instructive. No doubt the one-sided private opinion finds more opportunity of trespassing into this type of article than in the judicial abstract, but the status of almost every contributor is such as to allow it to be expected that the reader will respect his opinion as much as that of an author of an abstracted paper. It would be easy to give examples of contributions that are nothing more than summaries unaccompanied by comment of papers written for various journals during the last twelve months. Perhaps in some of these, where the main activity of the contributor appears to have been with scissors and paste, he purposely refrained from expressing a personal opinion because the time is not ripe for judgement. Passing to the second type of contribution, we should like to mention two examples of the kind of article which seems to us to be more useful. Naturally its style would not be suitable for every subject, though we are persuaded that it might have a wider application. We choose these two articles at random: there may be others with a better claim to prominence.

If we turn to the subject of food, we find an article

by Dr. Savage on acute food poisoning which deals successively with the causation of food poisoning, epidemiological features, types of food poisoning, and methods of investigating outbreaks to ascertain their cause and nature. The author has succeeded in giving a brief but accurate account of all the essential features of food poisoning, incorporating into the story the important new detail of the last twelve months, but yet presenting facts in their proper relation to each other, so that the less informed as well as the expert can read the article with pleasure.

Similarly, Dr. Maclean, in his article in diabetes, though he does not pretend to cover the whole ground, yet gives a very interesting review of modern development. He quotes from important articles which have appeared recently and in many cases adds his own judgement to the extract he quotes.

Finally, we must mention that illustrations, particularly plates, seem more numerous than ever and are excellently reproduced.

THE ANATOMY OF THE BASAL GANGLIA.

PROFESSOR CHARLES FOIX and Dr. J. NICOLESCO have made an important contribution to neurology in the publication of their volume² on the anatomy of the basal ganglia, subthalamic region, and mid-brain, to which is added an account of the pathological anatomy of Parkinson's disease. The volume, which is beautifully produced and well bound, consists of close on 600 pages of descriptive text and some 360 illustrations, the majority being fine photographic reproductions of naked-eye and microscopic sections, but there are a number of coloured plates and diagrams.

The work is divided into three parts. The first contains a general description of the anatomy of the regions under consideration, and includes an alphabetical index of the principal nuclei and tracts, with a short definition of each. The section ends with a brief account of the embryology of the area. The second part is a systematic study of topographical sections made in three planes—vertical-frontal, horizontal, and sagittal. One series is stained by myelin stains to show the nerve tracts, and a second series by Nissl's method to demonstrate the formations in the grey masses. Accompanying the photographic reproductions are line diagrams explaining each section. The third and most important part contains a detailed description of the cell and tract anatomy of each subdivision of the region individually—corpus striatum, thalamus, subthalamic region, sublentiform region, region of the infundibulum and tuber, red nucleus, locus niger, etc. It is impossible to summarize the large amount of detailed information in each section of the book, but the whole is presented with remarkable clearness and skill. The work must prove indispensable to all concerned in the serious study of the anatomy, physiology, and pathology of these regions, which have assumed great and growing importance in recent years.

The volume concludes with a detailed description of the morbid anatomy of true Parkinson's disease. The post-encephalitic Parkinsonian syndrome is excluded, though the authors agree that the localization of the inflammatory lesion in these cases is essentially the same as that of the abiotrophic and degenerative lesions of so-called true Parkinson's disease—that is, mainly in the globus pallidus and locus niger. In addition to the special changes in these situations, they find widespread changes of a senile type throughout the cerebrum, cerebellum, and brain stem. This section is particularly interesting and, like the rest of the volume, is fully illustrated.

CHEMICAL PATHOLOGY.

THE five years which have elapsed since the fourth edition of Dr. WELLS's *Chemical Pathology* was published has been a period during which biochemical studies have been attended with considerable success, and in preparing the fifth edition³ of his well known textbook Dr. Wells was faced

¹ *Anatomie Cérébrale: Les Noyaux Mésencéphalo-sous-optiques. Suivi d'un logique de la Maladie de Parkinson.* Dr. J. Nicolsco. Paris: Masson et Cie. 1925. 4 plates. 100 fr.; bound, 125 fr.

² *Chemical Pathology.* By H. Gideon Wells, Ph.D., M.D. Fifth edition, revised and reset. Philadelphia and London: W. B. Saunders Company. 1926. (Roy. 8vo, pp. 790. 40s. net.)

³ *The Medical Annual.* Forty-fourth year, 1926. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1926. (Demy 8vo, pp. ciii + 636; 105 figures, 66 plates. 20s. net.)

with the question of what to omit and what to add from the volume of publications on chemical questions. The chief aim of the book in the past has been to supply a reasonably complete summary of knowledge of chemical pathology within a single volume of moderate size. The advances of recent years have necessitated some increase in the size of the book, but this increase is not so great as might have been anticipated; because some of the older work has been eliminated and many chapters entirely rewritten. No doubt it would be easy to report the existing state of knowledge of the topics considered in this book in a much briefer space, but more than the minimal amount of existing evidence is included here because it has always been one of the objects of the book to serve as a guide to investigators with the hope of stimulating further researches.

Since we have already discussed the qualities of this textbook when reviewing previous editions, and since the book is already familiar to many of our readers, we need do no more than announce the fact that a further edition has been issued.

THE STUDY OF COLLOID CHEMISTRY.

It has been truly said that no complete appreciation of the characteristics of colloids can be realized without practical—that is, manipulative—experience. The English translation of MICHAELIS's book⁷ is therefore a work of some importance to the numerous students of the subject. In it are described the experiments fundamental to a proper introduction to the subject. The directions for procedure are sufficiently explicit to enable the worker to choose the necessary equipment and practise the exercises given. These cover substantially the whole field of methods by which colloidal characteristics have been investigated. Beginning with the principle of serial experiments, the volume proceeds to describe precipitation from colloidal solution by electrolytes, with illustrations of the adjuvant and antagonistic actions of different ions and the effects of mutual protection and precipitation of colloids. Determination of the concentration of hydrogen ions by indicators leading to the titration of gastric juice is next studied. Following this are experiments in the optimum concentration of reactions, surface tension, osmosis, electrophoresis, adsorption, and measurement of electromotive force. The directions are accompanied by a detailed discussion of the theoretical considerations bearing on the facts, and these are set out in the clearest terms. A performance of the exercises carried out with due care will lead to confidence and will qualify the worker for independent attack on self-imposed problems. A growing number of students willing to develop a practical experience in its study are being attracted to this subject: to these this book presents an opportunity for that development. Even those who are content with the knowledge to be acquired by reading will be wise to choose this volume. The scheme of study presented leads not only to a clear understanding of the principles enunciated, but also to the direct elucidation of the reactions of importance in physiology and pathology. It is an excellent book ably translated.

NOTES ON BOOKS.

TEN years ago bilharziasis was regarded as an incurable disease of unknown etiology. To-day, thanks to the labours of Christopherson, Leiper, and others, the disease is one of the more certainly curable and most easily preventable. In various countries local investigators have elucidated details concerning the mode of spread and the best method of applying treatment. We have received for review a small book entitled *Schistosomiasis vel Bilharziasis*,⁸ by Dr. C. G. KAY SHARP, who, as chief medical officer to the Natal Education Department, has had experience of the disease in schools in South Africa. He considers that the school is one of the best means of securing

control of the disease. The treatment of the individual at home is a useful, though not an important, contribution to public health, but in the schools mass treatment can be carried out and mass education in prevention given. This little volume, so conveniently arranged and so well written, will give to those interested, either in the medicinal or educational aspect of the case, an insight into the most recent advances in our knowledge of the subject, and can be cordially recommended, owing to its clarity, to the lay reader as well as the medical practitioner.

Pitfalls of Marriage,⁹ by WALTER GALLICHAN, is another of the many volumes that have been published in recent years on the problems of love and sex. Like all similar writings, it is an effort to show that the chief risks to happiness in marriage arise from ignorance of the two sexes "regarding each other's psycho-sexual emotions, desires, and needs." The theme is worked up into a series of ten short chapters, which contain nothing that is new, and in which quotations are freely made from writings and addresses that are common property in the literature of the sex problem. The author's style is clear and straightforward, without undue prurency, and will probably be appreciated by readers desirous of being instructed in what, after all, is well known to most men and women in these days of psycho-analysis and sex education.

In his little book on *Diabetes Mellitus and its Dietetic Treatment*, a new edition¹⁰ of which has recently reached us, Major B. D. BASU, I.M.S.(ret.), advocates treatment by diet. He is strongly in favour of a purely vegetarian diet, and gives advice as to the various forms of such diet which he considers useful. Glycosuria is a very common disease among the upper and middle classes of Indians, especially Bengalis of middle age. The volume is intended for the patient rather than for the medical profession, and the advice given should be of service to those who will take the trouble to follow it with care. A book which has gone through thirteen editions in sixteen years (1909 to 1925) has evidently found a public. There are too many misprints.

⁹ *Pitfalls of Marriage*. By Walter M. Gallichan. London: George H. Wales. 1925. (Cr. 8vo, pp. 95. 3s. 6d. net.)

¹⁰ *Diabetes Mellitus and its Dietetic Treatment*. By B. D. Basu, Major, I.M.S.(ret.). Thirteenth edition. Bahadurganj, Allahabad: The Panini Office. 1925. (Cr. 8vo, pp. ii + 94. 2 rupees.)

THE UNIVERSITY OF LONDON.

WE announced at the end of March (March 27th, p. 583) that the report¹ of the Departmental Committee appointed by the Board of Education on the University of London had been issued, and gave some brief indications of its general character. The report is, however, a very important document, making proposals for important changes in the government of the University of London; and in the interests of London education, and of medicine in particular, we think it advisable to give a somewhat detailed criticism of its recommendations.

The Departmental Committee was appointed by the then Minister of Education, Mr. Charles Trevelyan, in October, 1924, with the following terms of reference:

"To consider the Final Report of the Royal Commission on University Education in London dated March 27th, 1913, and having regard to present circumstances and after consultation with the persons and bodies concerned, to indicate what are the principal changes now most needed in the existing constitution of the University of London and on what basis a Statutory Commission should be set up to frame new Statutes for the University."

The Committee consisted of Lord Ernle, as chairman, Sir Robert Blair, Mr. H. L. Eason, Mr. H. B. Lees-Smith, Sir Henry Miers, Professor A. F. Pollard, Sir L. A. Selby-Bigge, and Miss K. T. Wallas. Lord Ernle resigned from the committee in the early part of 1925 and was succeeded by Mr. Hilton Young as chairman. The question of the site was expressly excluded from the reference to the Committee.

The Committee took a large amount of evidence from representatives of institutions, schools, and other bodies, and also from a number of individuals. It held forty-six meetings, of which twenty-eight were, in the main, devoted to the taking of evidence, and the remainder to deliberations and the drawing up of the report. The Committee appears to have taken a considerable amount of

⁷ *Practical Physical and Colloid Chemistry for Students of Medicine and Biology*. By Leonor Michaelis. Authorized translation from the second German edition by T. R. Parsons, B.Sc., M.A. Cambridge: W. H. and Sons, Ltd. 1925. (Demy 8vo, pp. x + 195; 40 figures. 7s. 6d. net.)

⁸ *Schistosomiasis vel Bilharziasis*. By Dr. C. G. Kay Sharp. Foreword by J. B. John Bale, Sons & Co., Ltd. London: John Bale, Sons & Co., Ltd. 7s. 6d.)

¹ Report of the Departmental Committee on the University of London. Cmd. 2612. London: H.M. Stationery Office or through any bookseller. Price 1s. 3d. net.

care in asking for evidence from bodies and institutions directly or indirectly concerned with university education in London and from individuals whom it considered to have valuable knowledge on the same subject.

The report is signed by all the members except Mr. Lees-Smith, who dissents from the recommendations with regard to the establishment of a University Council.

The report discusses in many places the report of the Haldane Commission of 1913. In many respects the members of the Committee disagree with the recommendations of that Commission, but in others they agree. It will not be necessary to indicate in detail the various points of agreement and disagreement, but there is one conclusion of great importance which should be stated now; it is:

"we would emphatically record our conviction that on geographical as well as on other grounds there is no justification for more than one university in London.

In the body of the report they state that the Act of 1898, under which the present University was constituted, "is conspicuously lacking in a principle which we regard as essential to a true conception of the University of London." This is that the University cannot hope to realize its full powers until its colleges and constituent units can take a full share in its government. Up to the present, in the main, the colleges and constituent units of the University have only had representation on the supreme governing body or Senate by indirect methods. In order to secure this vital principle they recommend that statutory changes be made to ensure adequate institutional representation on the Senate. The present organization of the University assumes that there are three main activities in the University: (a) the teaching side; (b) the external side; and (c) the extramural side. At the present time there are three statutory standing committees of the Senate—the Academic Council, the Council for External Students, and the Board to Promote the Extension of University Teaching—which roughly undertake the duties which concern the three units mentioned above. The report states that many problems require consideration which are not primarily the concern of teachers or graduates as such but of the institutions, such as the various colleges which form parts of the University. The Committee holds strongly the view that this institutional and college element is so important that it ought not only to have representation on the Senate, but that a special standing committee of the Senate should be devoted to these interests. On this account the majority of the members recommend the formation of a new council to be called the Collegiate Council. Attention is drawn to the fact that the Government gives to the University of London and the various colleges and institutions which help to form it, through the University Grants Committee, an annual sum of £377,000 for university education in London. This sum is not given as a block grant to the University of London to be distributed by it to the individual institutions of the University, but separate grants are paid to the central administration of the University, to each of its two incorporated colleges (University College and King's College), and to twenty schools, of which eleven are medical schools. From this point of view they consider this state of things to be clearly unsatisfactory, in that the University of London is in no real sense master of its own house or capable of enforcing a policy of its own. They say that "In guiding the development of its colleges and schools the University has less reality of power than outside grant-giving bodies such as the University Grants Committee or the London County Council." This they consider a great indignity for the great University of the capital city of the Empire, and consequently they recommend that in the proposed amended constitution of the University the allocation and distribution of grants coming either from the Government through the University Grants Committee, or from the London County Council or from other bodies, should be in the hands of the University authorities. The Commissioners consider (Majority Report) that the present Senate is too large, too unwieldy, and contains too many representatives

of internal interests to fit it to be a supreme body in the allocation and distribution of funds.

Finance.

With this conclusion we are in agreement. In the past the Senate of the University has taken very little active and direct part in the initiation of new projects of education which are of great importance to London and London education. In most instances proposals either for reform or for the initiation of new projects have come from institutions or individuals directly connected with them. At the present time the Senate consists in the main of two halves, which may be designated the internal and the external. These are so evenly balanced that in practice it has been found almost impossible to carry through any measures of reform or change whenever there has been any serious difference of opinion. This is very well illustrated by the question of the proposed site for the University. As is well known, some years ago a site was bought by the Government and offered to the University under certain conditions. For several years this matter has been, one might say, under continuous discussion in one form or another, and now, owing to the fact that the University has not been able to accept the offer from the Government, this offer has recently been withdrawn and the site again offered for repurchase to the Duke of Bedford, from whom it was originally bought and to whom it has now reverted.

In connexion with this aspect the Commissioners say:

"We have no doubt that there should be in the University of London a body so constituted as to qualify it to negotiate with grant-giving bodies, to engage with them in the final and effective discussion of the University budget and to allocate the grants which result from that negotiation and discussion."

They express the hope that the actual effect of a change from allocation of grants by the University Grants Committee and other bodies to their allocation by the University will not be exaggerated. It is not to be supposed, they say, that the first act of the University would be to tear up the old allocation and construct an entirely new one. In fact there is little doubt that in the earlier stages of such a change the practice of the University Grants Committee in the past would be closely followed.

University Council.

As regards the government of the University, they say: "We are satisfied that all functions of government in the University of London cannot be constituted in a single body," as is done at the present time with the present Senate. They reject that feature of the Haldane Report which put supreme executive power in the hands of a small body predominantly unrepresentative of University interests. They say: "It would be idle to attempt to constitute a Senate completely representative of all the varied institutions and interests of the university," and they also say "it would be unwise to ignore the fact that the larger the body the less effective it is likely to be as an executive instrument." They do not regard such a large assembly as the Senate must invariably be as suitable to negotiate with public grant-giving authorities on behalf of the University and its colleges. In addition they do not think that the Senate, or any committee of the Senate, should exercise final authority in financial matters. On account of these considerations they recommend (Majority Report) that there should be a *University Council* to determine the allocation of funds for the execution of University policy and generally to exercise control of finance; and that this council should consist of sixteen members—the Chancellor, the Vice-Chancellor, the Chairman of Convocation, six members elected by the Senate from their own number, four representatives appointed by the Crown, two representatives of the London County Council, and one co-opted member. They recommend that this council shall have power to co-opt one member because they think it would be advisable for the council to be able to secure the services of one member well versed in financial matters or identified with interests with which the University is, or may be, financially concerned.

The duties of the council suggested are "to control the finance of the University and in particular to have final

authority in the allocation of University funds, but in dealing with financial matters directly affecting educational policy, it should give the Senate full opportunity of reporting." They recommend that the council shall have the power to negotiate with and receive money from grant-giving bodies for the University as a whole and for any schools of the University, including colleges. They also recommend that the council should appoint its chairman from among its own members.

The formation of such a council will transfer from the Senate to it the supreme decision in all financial matters and in all matters which concern generally University policy in London. It will be seen, however, that it is not suggested that this council should take action in connexion with educational matters unless it has previously had a report from the Senate on the subject. Taking into consideration what has happened in the past and the difficulties which are invariably experienced in a large body as numerous as the present Senate in carrying out administrative functions and in initiating progress, it appears to us that the creation of a council of this kind, which in some respects resembles the Board of Regents who control the finances and general university policy in many American universities, would be an excellent solution. The University is so comprehensive as regards its colleges, institutions, and educational interests that it does not seem wise to leave to a body which is composed to a great extent of representatives of either institutions or educational interests the final decision as regards the important points of University finance and University policy. A smaller body, such as the council suggested, would, in our opinion, be in a position to carry out these duties much more effectively and with less chance of results being influenced by interested institutions or individuals. Some have argued that the formation of a council of this kind would necessarily place the supreme control of University policy and progress in the hands of people who at first hand might not be familiar either with the University of London or the requirements of University education. We cannot think, however, that with the proposed constitution such a result is likely to follow; in fact, we feel assured that the Crown and other bodies concerned will appoint to the council persons who are well suited for carrying out the duties of such an important body.

The Senate.

The Departmental Committee recommends that the Senate should consist of the Chancellor, Vice-Chancellor, the Chairman of Convocation, sixteen members elected by the Faculties, sixteen members elected by Convocation, one representative each from seven colleges (University College, King's College, Imperial School of Science and Technology, School of Economics, Bedford College, East London College, and Birkbeck College), two representatives of general medical schools elected by the medical schools, and five members to be co-opted at the discretion of the Senate. Two, but not more than two, may be appointed to represent schools of the University not otherwise directly represented on the Senate. They recommend that the Senate should elect the Vice-Chancellor, and, in so doing, should not be restricted to choosing one of its own members. If a person is appointed who is not a member of the Senate, he shall be a member of the Senate during his term of office as Vice-Chancellor.

As regards the duties of the Senate, the report says

"that the Senate, subject to the final decision of the council, shall control the educational work of the University and shall also have power to delegate the performance of such duties as it thinks fit to its standing committees and other bodies."

The Senate thus constituted will consist of forty-eight members, or forty-nine in the case of a Vice-Chancellor being elected from outside. The present Senate consists of fifty-six members, so that there would be a small diminution. This is, in the main, due to leaving out two members appointed by the Royal College of Physicians and two by the Royal College of Surgeons and the members appointed by the law institutions (Lincoln's Inn, Inner Temple, Gray's Inn, and the Law Society). Originally, when the present Senate was constituted, it was thought that the inclusion

of various representatives of the law institutions might result in the formation of a great school of law within the University. This, however, has not happened, and, in fact, all attempts to form such a school with the co-operation of the law institutions have failed. As regards the representation of the Royal College of Physicians and the Royal College of Surgeons, it was thought that possibly closer working arrangements of some kind or other might have been established between the two great medical licensing bodies in London and the University. Nothing, however, has been done in this matter, and so, judging from the analogy of the law, the Commissioners have not recommended that these four representatives should be continued in the new Senate. From the point of view of medical education and licensing in London, we cannot help thinking that in future there must be some form of very close co-operation between the University of London and the Colleges of Physicians and Surgeons. So far, however, all suggestions for closer connexion and working have not led to progress, and we only hope that in the future the Council of the University, when constructed, will be able to promote a more active co-operation than exists at present. At the moment all students in medical schools in London have, in the main, to pass the examinations of the Colleges of Physicians and Surgeons as well as those of the University of London for their qualifications. To anyone who has had practical experience, especially of final examinations, it seems that the same ground is being gone over twice without any real reason.

One very important difference in the proposed duties of the new Senate and those of the old is that it shall have power to delegate the performance of such duties as it thinks fit to its standing committees and other bodies. In the past this has not been possible. Consequently the work of the Senate has been to a great extent that of registering and confirming the works of various councils, committees, and boards of studies. The report recommends the establishment of five standing committees—Academic Council, Council for External Students, Collegiate Council, the University Extension and Tutorial Class Board, and the Matriculation and Schools Examination Board. These standing committees it is recommended should have power to delegate executive power to subordinate bodies. This ought to facilitate the administrative working of university education. It is also recommended that the Senate should have power to appoint standing and other committees and delegate executive functions to them, provided that such powers and duties do not interfere with the powers and duties entrusted by statute to some other body. It is recommended that there should be right of appeal to the Privy Council. The report specifies in particular that the Senate should have power to appoint bodies to act as Boards of Studies in respect of special subjects, and in appointing these bodies shall not be limited by statutes governing the constitution of Boards of Studies.

Academic Council.

The report recommends that the Academic Council consist of the Vice-Chancellor, sixteen members of the Senate elected by the Faculties, and nine other persons, who need not be senators, appointed by the Senate. In appointing these nine other persons it is advised that the Senate shall have regard, amongst other things, to important subjects of study not represented on the Academic Council, and shall consider any reports and nominations submitted by Boards of Studies.

Council for External Students.

It is recommended that the Council for External Students shall consist of the Vice-Chancellor, sixteen members of the Senate elected by the Convocation, and nine other persons, who need not be senators, appointed by the Senate.

Collegiate Council.

This is an entirely new body not represented in the present constitution of the University. It is advised that it should consist of the Vice-Chancellor, the Principal, seven members of the Senate appointed by the seven schools already mentioned, two members of the Senate appointed

by the medical schools and such other representatives of schools of the University as the Senate may determine, provided that if the Senate determines to add other members, and groups a number of institutions for representation, the grouped institutions shall themselves elect the representatives allotted to them. It is recommended that the Principal of the University should be the chairman of the Collegiate Council in virtue of his office, and that the duties of the Collegiate Council should be to advise the Senate on institutional and inter-institutional matters, and exercise such executive functions with regard to inter-institutional matters as the Senate may assign to it. It appears to us that the establishment of a Collegiate Council of this kind is a most important step towards progress. In the past there has never been an effective method whereby inter-institutional or inter-collegiate educational matters could be regularly discussed and the decisions so attained become effective as regards the important principles in connexion with education in London. By making the Principal chairman of the Collegiate Council it is thought that he will have such a knowledge of individual collegiate institutions that he will be able to help them materially in their deliberations and in many cases give them very valuable advice.

The University Extension and Tutorial Classes Board.

In the establishment of the University Extension and Tutorial Classes Board, which would be appointed by the Senate, it is recommended that a condition be made that it should include members of the Academic Council, Council for External Students, and Collegiate Council, together with some representation of the interests with which the Board would be concerned.

The Matriculation and Schools Examination Board.

The report recommends the establishment of a Matriculation and Schools Examination Board, to be appointed by the Senate, subject to the condition that it shall include members of the Academic Council, the External Council, and the Collegiate Council, together with some representation of the interests with which the Board will be concerned.

The report further recommends that the Senate should appoint a Board of Faculty in the Faculties of Art, Science, and Medicine, and that it should have power to appoint a Board of Faculty in any other Faculty. It is recommended that one of the duties of a Board of Faculty, or of a Faculty where no Faculty Board exists, shall be to make recommendations to the Senate as to the composition of Boards of Studies, after having considered the suggestions, if any, of Boards of Studies, as to their own composition.

An important improvement as regards education and administration within the University will be effected if this recommendation is carried. It will be seen that the Board of Faculty will have power to communicate direct with the Senate, instead of, as at the present time, having to send its recommendations through the Faculty itself. In medicine, especially, the Faculty is so large that it is often impossible from a practical point of view to make representations to the Senate within a reasonable time.

As regards schools of the University, the conditions governing the admission or readmission of an institution as a school of the University would include the following:

(a) That the University is satisfied with the constitution of the governing body of the institution and with the statutes under which it is governed.

(b) That the institution recognizes the right of the Council of the University to negotiate, on the institution's behalf, with public grant-giving bodies, and to receive and allocate the grants available for university education in London.

(c) That the institution undertakes not to issue a public appeal for money without first obtaining the consent of the Council of the University, and to consult the University before accepting benefactions to which conditions are attached.

(d) That the institution relinquishes to the University the appointment of such of its principal teachers as the Senate may determine.

In connexion with these recommendations the medical schools of London, or at least some of them, will find, in all probability, that it is necessary in some way or other

to alter their constitution or their government. At the present time many medical schools are governed by a committee of teachers, which has no corporate constitution, and which, in many cases, is unable to communicate directly with the University owing to the fact that the medical schools in many instances are part and parcel of hospitals, and any negotiations on educational matters have to be carried on through lay members of the governing body. It is not clear from the recommendation (d) as to which teachers shall be included on the list of those whose appointment has to be approved by the University. Difficulties may arise if that recommendation is adopted in its present form in connexion with the present method of appointment of heads of clinical units. In practice these appointments are made usually conjointly by the University and the hospital and the authorities of the medical school. There is little doubt, however, that practical difficulties in connexion with these appointments can readily be settled in the drafting of Statutes by the Commissioners if and when appointed.

Examinations.

It is recommended that the Senate should have power to approve for degree purposes syllabuses and courses of instruction submitted by incorporated colleges or schools of the University and to conduct examinations for university degrees related to such syllabuses and courses of instruction. Such powers as these may, in the future, have great influence in connexion with education in London. Difficulties may be experienced in ensuring that courses of instruction and examinations represent the same standard of education and knowledge.

Principal.

The report recommends that a Principal of the University should be appointed by the Senate after consideration with the Council, and that he should have unrestricted rights of attendance and speech at all meetings of the Council, the Senate, and the standing committees of the Senate, and that it shall be his duty to assist them with his advice. In addition he shall be chairman of the Collegiate Council, but shall not be a member of the governing body of any school of the University. In our opinion this recommendation is most important, and we quite agree with the suggestion that the title of the principal administrative officer should be "Principal" and not "Principal Officer," as at the present time. Many may advocate that the offices of Principal and Vice-Chancellor ought to be combined. In the University of London, which comprises so many educational institutions, it is not, in our opinion, feasible or practicable to combine the duties of these two offices in one individual. We think it advisable also that the various members of the Senate or persons taking a very important part in education in London should have the opportunity of being placed at the head as Vice-Chancellor (under the Chancellor).

The recommendations to which we have referred as a Majority Report are signed by all members with the exception of Mr. Lees-Smith. He has presented a Minority Report in which he disagrees with the recommendation for the establishment of a University Council, which is to be charged with the general conduct and which is to deal with the finance of the University. He thinks that the Senate ought to be the supreme body, and that a statutory "Finance Council," with the same membership as that proposed in the report for the supreme University Council, should be formed. The duties of this Finance Council, in his opinion, would be to allocate the public grants made to the University, subject to any general policy already laid down by the Senate. He thinks it could be given, by standing order, formal power to negotiate with grant-giving bodies, subject to general directions given by the Senate, and, whether formally or not, would in fact conduct the negotiations.

With this opinion, expressed in the Minority Report, we do not agree. We feel strongly that the supreme governing body of the University ought to be comparatively small, such as it is proposed in the Council, and that it ought not to be in the hands of a large body such as the Senate.

British Medical Journal.

SATURDAY, MAY 22ND, 1926.

THE UNIVERSITY OF LONDON.

THE affairs of the University of London do not seem to make much progress, unless it be backward. Certain things, however, have happened. In the first place, the Duke of Bedford has decided to exercise his right to repurchase from the Government the Bloomsbury site, which was offered to the University by Mr. Fisher when President of the Board of Education, on the terms agreed upon at the time of its purchase by the Government. In the second place, the Senate and Convocation of the University have carried resolutions rejecting the chief recommendation of the Majority Report of the recent Departmental Committee—namely, the creation of a supreme Council; both resolutions have been communicated to the President of the Board of Education, and the Senate has appointed a committee to consider what alterations are needed in the organization of the University.

The Senate as at present constituted is a large body containing only a small minority acquainted with the needs of the medical schools of London, which collectively form the largest and most active faculty engaged in teaching in London. Our information is that medical opinion in the University is not in accord with that now expressed by the Senate and by Convocation. We publish elsewhere in this issue an article reviewing the report of the Departmental Committee, and we believe that the medical teachers in London would be more nearly in sympathy with the opinions there set out. We understand that the Board of the Faculty of Medicine, the Committee of Medical Members of the Senate, and the Board of Advanced Medical Studies have given definite expression to their views in favour of the recommendations in the Majority Report of the Departmental Committee. That report recommended the creation of a supreme Finance Council and the appointment of a smaller Senate, the latter to have power to delegate the performance of such duties as it thought fit to its standing committees and other bodies. As is explained in the article, the standing committees would be five in number—the Academic Council, the Council for External Students, the Collegiate Council, the University Extension Board, and the Matriculation and Schools Examination Board. These again would be authorized to delegate executive power to subordinate bodies, and if this were done the administrative working of university education in London would be greatly facilitated. At present the colleges and constituent units of the University have no direct representation on the Senate, which is the supreme governing body, although many of the problems urgently calling for consideration directly concern the colleges and institutions which form part of the University. The Departmental Committee consequently recommended the establishment of a Collegiate Council, to consist of representatives of the seven chief colleges in London, of representatives of the medical schools, and of such other schools of the University as the Senate might determine, these representatives being chosen by the schools and not

nominated by the Senate. Such a body, which would meet under the chairmanship of the Principal, would be able to discuss, among other matters, inter-institutional education questions.

The report of the Departmental Committee undoubtedly affords a new point of departure. It remains to be seen what course the President of the Board of Education will take, for the whole matter is now, in view of the recent action of the Senate and Convocation, once more in his hands. Lord Eustace Percy has a great opportunity, for if he acts in accordance with the recommendations of the Majority Report of the Departmental Committee he will, we feel confident, have a large measure of approval and support, especially from the medical schools and colleges in London. The two large medical colleges of St. Bartholomew's and Guy's have already expressed themselves in favour of the recommendations of the Majority Report of the Departmental Committee.

BARBITURIC DERIVATIVES AS DANGEROUS DRUGS.

ON February 24th, 1925, Sir John Anderson took the chair at a conference of representatives of the Home Office, the Ministry of Health, the pharmacists, and the British Medical Association, held to discuss the measures necessary to obviate the dangers arising to the public from the unrestricted sale of veronal and other drugs derived from barbituric acid. The Home Office experts produced copious evidence of deaths caused, particularly by veronal, sometimes suicidal, but perhaps more frequently from an accidental overdose when taken for sleeplessness. It was stated that in London experience showed that in this respect veronal was the most dangerous drug in the *Pharmacopoeia*. The representatives of the British Medical Association agreed that it was desirable to prohibit the retail sale of these drugs to unauthorized persons except on a medical prescription, but the chemists' representatives were opposed to this unless doctors were at the same time forbidden to supply the drugs, even to their own patients, and were required to order them by prescription, except in emergency or in districts where no chemists were available. To this the Association representatives took strong exception as being an interference, on a side-issue, with an undoubted right of dispensing doctors, and especially, as there was no evidence of any untoward effects arising from the use of the drugs supplied in this way.

The Home Secretary has now taken steps to make regulations under Part III, Section 8 (2), of the Dangerous Drugs Act, 1920, to include amongst the drugs therein specified: "Diethyl-barbituric acid and other alkyl, aryl, or metallic derivatives of barbituric acid, whether described as veronal, proponal, medinal, dial, or by any other trade name, mark, or designation, and any preparation, admixture, or other substance containing any of them." The effect of the new regulations is fourfold. In the first place, they will make it unlawful to supply by retail any of these drugs except (a) to a duly qualified medical practitioner, (b) for use in hospitals or similar public institutions, (c) to persons authorized by the Secretary of State, (d) on or in accordance with a prescription given by a duly qualified medical practitioner. In the second place, prescriptions for the drugs must be dated and signed by the practitioner and bear his address, and they must specify the name and address of the patient and the total amount of the drug to be supplied on the prescription. In the third place, where doctors dispense

their own medicines and make an entry in their day-book with particulars of the drug and the name and address of the patient and the date of supply, no further record is required. There is no obligation to keep any record of purchases of these drugs. Fourthly and lastly, the drugs may not be supplied more than once on the same prescription; provided that, if the prescription so directs, the drugs may be supplied on more than one but not exceeding three occasions, as directed in the prescription, at intervals to be specified in the prescription.

The Council of the British Medical Association carefully considered the whole question at its meeting on April 7th, 1926, and, being convinced of the necessity of restricting the sale of these drugs, decided to raise no objection to the issue of the new regulations, believing that they would cause the minimum of inconvenience to members of the medical profession compatible with the objects to be attained.

THE "BRITISH MEDICAL JOURNAL" AND THE STRIKE.

CIRCUMSTANCES beyond our control made it necessary that the last issue of the *BRITISH MEDICAL JOURNAL* should appear with two dates—"May 8th and 15th, 1926." As we explained briefly in an annotation at page 838 of that issue, the material was in course of preparation for printing when the general strike stopped all work at the machine printers' office (where the *JOURNAL* is printed on rotary presses) on the morning of Tuesday, May 4th; and we have now to add that work was not resumed there until the afternoon of Monday, May 17th. Thus a fortnight passed during which machine printing was at a standstill. The compositors in our own printing department at Tavistock Square (where the type for the *JOURNAL* is set) were called out by their trade union on May 6th; they returned to duty on May 13th, but owing to failures of electric power only a limited amount of mechanical typesetting could be undertaken, and difficulties from this and other causes still continue. We had hoped that after the calling off of the general strike on May 12th the work which stopped at the machine printers' office on May 4th would be taken up again rapidly, and that all copies of our last issue would be printed and distributed by the end of last week. This hope was not fulfilled, and publication was delayed until May 18th. The result of all these breakdowns and disappointments is that members of the British Medical Association and subscribers to the *BRITISH MEDICAL JOURNAL*, instead of receiving separate *JOURNALS* for May 8th and May 15th, have received this week a belated issue bearing the dates May 8th and 15th, and will receive two or three days afterwards another *JOURNAL*—our present issue—dated May 22nd, which falls short in several respects of what we should wish to give our readers. Nevertheless, we feel sure that these shortcomings will be overlooked. Another effect of the strike which may be mentioned here was the cancellation or postponement of all the meetings of committees and subcommittees of the British Medical Association which had been fixed for the present month. The Medical Secretary's department has notified these changes of plan to all concerned. The Council meeting arranged for June 9th will be held on that date.

TISSUE CULTURE.

THERE is no need to emphasize the importance of a study of the inherent capacities of cells as regards their power of growth, differentiation, and dedifferentiation; the study is rendered possible by the method of isolating groups of cells from their normal surroundings and their vascular and nervous connexions in the body and either regrafting them

into the living organism or cultivating them in artificial media *in vitro*. Good work has already been done in this direction, not the least interesting being the observation that two distinct types of growth may be distinguished in tissue cultures *in vitro*. In one type, termed by Thomson "uncontrolled," the growth is irregular, showing no tendency to the production of body structures; in the other, "controlled," type the proliferating cells group themselves in definite forms, reproducing more or less closely some organ or part of some organ of the body. This capacity for self-differentiation has been proved by Braus, Harrison, and others to exist in the undifferentiated limb-buds of amphibia; Thomson observed that the whole chick embryo increased in size during cultivation *in vitro*; Chlopin has described a progressive differentiation of various mammalian tissues; and Maximow has observed an organotypic growth in portions of rabbit embryos. Considering the interest of the subject, however, this type of growth has at present received relatively little investigation. A contribution to our knowledge has recently been made by Strangeways and Fell in a communication to the Royal Society on experimental studies on the differentiation of embryonic tissues growing *in vivo* and *in vitro*. They succeeded, by an improved technique, in cultivating *in vitro* the undifferentiated limb-buds of fowl embryos of seventy-two to eighty hours' incubation, and were able to trace the formation of cartilage, white fibrous tissue, and typical epidermis in the mass of undifferentiated cells. Further, in some of the experiments it was possible to distinguish the early stages in the development of a normal limb-skeleton, the cartilage assuming an axial arrangement in the limb-bud and becoming subdivided into two and sometimes three segments. In the grafting experiments, in which the limb-bud was inoculated into the subcutaneous tissue of the chick, nothing corresponding to the normal limb-skeleton was obtained, a result which is sufficiently explained by the migration of leucocytes into the limb-bud and other modifying influences of the surrounding living tissue. Two main differences are noted by the authors between the histological composition of the growths *in vitro* and that of the normal limb—namely, the absence of differentiated muscle and the absence of bone; but no suggestion is offered as to the cause of this interesting fact. The successful results obtained in these experiments will doubtless stimulate further research in this subject.

ENCEPHALITIS LETHARGICA.

THE increase in recent years in the number of cases of encephalitis lethargica is disquieting, and is noted in the reports of some medical officers of health. Thus, Dr. R. Veitch Clark states that the number of notified cases verified in Manchester during 1924 was 244, and that the deaths numbered 52. In view of the unfortunate mental and moral disabilities which not infrequently follow in its train, and its very high mortality, especially in the young, a fuller knowledge of its epidemiology is urgently called for, and inquiries, both central and local, have been set on foot. An extensive inquiry into the 1924 epidemic in Manchester has been made by Dr. W. St. Clair McClure, whose interesting and instructive report accompanies that of Dr. Veitch Clark. Dr. McClure reports that during 1924 282 persons were notified as suffering from this disease, and extended observations resulted in 244 of them being accepted as true cases. The remainder included cases of influenza, tuberculous meningitis, cerebro-spinal fever, cerebral abscess, bronchopneumonia, chorea, and typhoid fever. In the majority of cases the diagnosis was unmistakable, but in an infant it was not so easy, and in old people symptoms due to senility and to cerebral softening caused some difficulty. Examination of the cerebro-spinal fluid had proved of the greatest value in excluding

meningitis. Persons of both sexes were attacked with almost equal frequency. All ages were attacked, but the incidence was heaviest upon those under the age of 20. School attendance was not found to have any noticeable influence upon the incidence. It was not until the epidemic of encephalitis had subsided that influenza of a severe type began to prevail. Special inquiry and study had produced no evidence of the interrelationship of these diseases; nor was the relationship of epidemic hiccup to encephalitis definitely determined. Hiccup might occur as one of the symptoms of encephalitis. In Manchester an epidemic of hiccup preceded the encephalitis epidemic. The attacks consisted of persistent hiccup lasting three to ten days, unaccompanied in the majority of cases by other symptoms. So far as was known, none of the patients so affected had afterwards developed post-encephalitic symptoms. There was no definite evidence that the two affections were associated, although such a possibility was not excluded. In regard to the initial symptoms of encephalitis lethargica, vomiting occurred at the beginning of the illness in 10 per cent. of cases, and headache in 36 per cent. Pronounced lethargy, with or without nocturnal insomnia, was present in 75 per cent. Insomnia and delirium without lethargy were a marked feature in about 30 per cent. Paralysis of one or more cranial nerves occurred in 40 per cent. of cases, nystagmus in 10 per cent., and diplopia in 44 per cent. Twitching movements simulating chorea occurred at the beginning of the illness in 31 per cent. of cases. In a considerable number of cases diplopia and some drowsiness were the only symptoms observed. It was considered too soon as yet to determine the end-results. Dr. McClure examined 55 patients whose illness had begun six months previously. Of these 19 were totally incapacitated, 26 partially so, and 10 had recovered. During 1920 and 1921 50 cases of encephalitis had occurred. Of these, 23 had died, and examination of the 22 survivors revealed total incapacity in 5, the disease rapidly progressing towards complete helplessness; 7 cases had recovered, and the remaining 10 were mostly able to follow their employment. Dr. Eustace Hill, medical officer of health for Durham County, refers to the remarkable increase of the notifications of encephalitis—from 7 cases in 1923 to 110 in 1924. This he ascribes partly to better diagnosis; 44 deaths occurred, compared with 11 in 1923. Dr. Hill believes that the disease is spread by mild unrecognized cases or by carriers.

RADIUM TREATMENT IN GYNAECOLOGY.

THE annual report for 1925 on radium treatment at University College Hospital, London, prepared by Dr. Leslie H. Williams, has been issued. It refers mainly to cases of cancer of the cervix and of the body of the uterus, and to menorrhagia at or about the menopause. As it is but four years since this treatment was instituted there are not yet any "five-year cures." Of 46 cases, inoperable when first seen, only 4 are cures, and of these 3 are of but two years' duration and 1 of one year. Six other cases are still alive, but with recurrence of the disease, and 36 cases have died. In all cases the evidence goes to show that the effect of radium was to improve vastly the patient's general condition for some months. Of 9 operable cases of carcinoma of the cervix 5 remain apparently cured, but the duration of the cure does not exceed twenty-seven months in any one case; 3 are alive with recurrences, and 1 is dead. Of 17 cases in which radium was combined with the Wertheim operation, 9 are alive and well, 6 of them for more than three years after the first treatment. The use of radium in cancer of the body of the uterus has proved thoroughly discouraging. In menopausal haemorrhage it is regarded as an "infallible cure." The value of radium treatment for fibroids is still a disputed question, but at

this hospital the results on the whole have been satisfactory. The report is full and frank, and provides material of value in the gradual formation of opinion as to the use of and indications for radium.

HOUSES OF PITY.

Dr. JOHN MORRISON HOBSON is already known as a writer about Surrey, and we may venture to surmise that it was his interest in Whitgift's Hospital in Croydon which has led him to study the history of other charitable institutions for the old and needy. As he points out, the word "alms" is only a corruption of the Greek word meaning pity, and the almshouses which are scattered up and down this country may well be called by the name derived from the Latin *pietas*, for they were mostly erected as much from motives of piety and regard for the founder's own soul as of pity for the bodies of the poor. Beginning with a chapter on lazarethouses, which are now happily obsolete, Dr. Hobson proceeds on a territorial plan, county by county, to refer to all the almshouses of which he has found records, and to describe those which are still in existence. It is a remarkable fact, to which he draws attention, that the favourite number with founders of such charities was thirteen. Again and again we find in this book that number as the sum of the original poor brethren. As he remarks, it was obviously considered a lucky number, because it was that of the company who sat down to the Last Supper. Latter-day superstition, which is so much more rampant in the twentieth century than it was in the Victorian age, has made thirteen an unlucky number, because the first to rise from a dinner party of thirteen was likened to the Iscariot, but there was nothing of this in the ages of faith when many of our houses of pity were founded. Many of these, alas! have lost their endowments by the fault of fraudulent or careless trustees and negligent public bodies, but it is comforting to think that those which remain are well and honestly administered, and that even such abuses as those at Rochester and Winchester, of which Trollope pointed the moral in *The Warden* (of Hiram's Hospital), have disappeared, and cannot be revived under the vigilant care of the Charity Commissioners. Naturally, Whitgift's Hospital occupies more space in this book than any other single charity, but very many are adequately described and illustrated by charming photographs and reproductions of old prints. We congratulate Dr. Hobson on the production of a beautiful book and a scholarly study of his subject, which redounds to his credit and does honour to our profession.

MODERN ENGLISH.

MANY of us have hardly yet recovered from the shock which our complacency suffered by a study of *The King's English*, in which the Fowler brothers exposed the mistakes of some of the best known writers and of the editors of journals of the first class. At the same time, although their criticisms made one almost despair of writing correctly, they did not fail to point out the way of improvement, by which we may hope to have profited. The *Concise* and the *Pocket Oxford Dictionaries*, by the same authors, followed, and added to the services rendered by them to the literary public. Unhappily, Mr. F. G. Fowler fell a victim to tuberculosis acquired on military service before he could take part in the actual writing of yet another book, *A Dictionary of Modern English Usage*.²

¹ *Some Early and Later Houses of Pity*. By John Morrison Hobson, M.D., B.Sc. London: G. Routledge and Sons, Ltd. 1925. (Med. 8vo, pp. xi + 199; 40 figures. 10s. 6d. net.)

² *A Dictionary of Modern English Usage*. By H. W. Fowler. Oxford: The Clarendon Press; London: H. Milford, Oxford University Press. 1926. (Cr. 8vo, pp. viii + 742. 7s. 6d. net.)

which has just been published. This book is likely to be as useful as either of its foregoers. It consists of a large number of essays on the meaning and uses, including pronunciation, of English words, arranged alphabetically, but in the case of some important subjects a number of words are to be found under one heading. For instance, the reader who seeks information on "vers libre" will find himself referred to "technical terms," under which heading he will find an essay of thirty pages which contains—arranged alphabetically within it—many examples of kinds of versification, as well as rhetorical, grammatical, logical, and other terms used in modern English. This article and others, such as those on pedantic humour, misquotation, battered ornaments, and elegant variation, will repay study. "Meticulous" has more than a page to itself, the tenor of which may be guessed from the opening sentence: "What is the strange charm that makes this wicked word irresistible to the British journalist?" The elegant variationist gets some hard knocks in the article on "Case" for his slipshod and unnecessary use of "in the case of," whereas the usefulness of the word in its right place is not disputed. "False quantity" includes consideration of some medical terms, and the attitude of the author towards pedants is reflected in its closing sentence, which, moreover, has a medical interest. Thus: "Let the scholar plead his case; but since the ailment that he long insisted on our calling *angina pectoris* was discovered to be *angina* after all, his pleadings are suspect." Quotations might be multiplied, and it is hard to know when to stop. It is enough to say that everyone who writes and everyone who cares for the beauties and the healthy development of the English language should possess a copy. The reading of it is a mental tonic and stimulant, for its closely reasoned arguments are not for the slack-minded and inattentive reader, but are worth the needful effort of concentration.

THE LAWS OF MUSCULAR MOTION.

THE Croonian Lecture of the Royal Society was delivered by Professor A. V. Hill, F.R.S., on May 20th. He began by saying that in all kinds of contractile tissues there are certain similar, or analogous, processes, so that in discussing properties of striated muscle very general phenomena were being dealt with. He went on to describe the methods available for the investigation of muscle, and discussed the recent work on chemical reactions of breakdown and recovery, and the part played by glycogen, lactic acid, and phosphate. The individual response could be split up into separate phases of contraction, relaxation, and recovery. This might be described as the "time-scale" of muscle. He gave an account of recent work on the effects of shortening or lengthening on heat production, and discussed the possibility of the utilization of the potential energy of active muscle for recovery. The question arose why, if physiological response of muscle undergoing stretch be less than that of muscle allowed to shorten, tension at any given length is so much greater during stretch than during shortening. The answer, he thought, provided an important clue to the nature of the contractile process. He concluded by considering the "viscous-elastic" phenomena in human muscular movement.

AMERICAN MEDICAL LIBRARIES.

SOME interesting particulars with regard to medical and other special libraries in the United States have been gathered by the League of Nations Committee on Intellectual Co-operation. The greatest American medical library—perhaps the greatest medical library in the world for purposes of historical research—is the library of the

Surgeon-General's Office at Washington. It contains 304,000 volumes, and, thanks to its printed catalogue, and especially to its very numerous analytical references, the library is declared by the Committee on Intellectual Co-operation to be the best existing example of the bibliographical method applied concretely to the organization of records of intellectual work on a large scale. In Washington there are three other medical libraries—one of them at the naval medical school, another a library of public health, and the third a collection of works on deafness. In New York there are ten medical libraries, three of them of the first order. In Boston six such libraries exist, including the library of the Harvard Medical School. Chicago has three medical libraries, of which the largest is the Rush library, with 25,000 volumes. These are supplemented by another Chicago institution, the John Crerar library, with about half a million books, covering, however, not only medicine, but social sciences and technology. In California there are only two medical libraries, and those not of the first order. In North America there is a Medical Library Association, which has (or had recently) a Canadian president. The committee also refers to the promotion in various fields, though rather casually, of the method of making abstracts. The most typical and extensive example of the system in America is in chemistry, and the same thing is now being carried through in the field of the biological sciences. The publication of these abstracts is promoted by the National Research Council. Of the general libraries in the States the Library of Congress, with upwards of three million volumes, and increasing at the rate of 90,000 a year, is the largest. New York public library, with 2,500,000 books, is the leading municipal library, and Harvard has the principal university library, though at one point or another it is being run close by Yale and Columbia. Harvard spends nearly £30,000 a year on books, and adds 90,000 volumes to its presses. Another line of American investigation undertaken by the League committee is the ascertainment of the number of foreign medical students at American colleges and universities. The number of such students is just under 400—a larger number than in any other faculty except engineering. The majority of these medical students come from China, Japan, the Philippines, the West Indies, and Canada. Only five students from Great Britain and one from Ireland were studying medicine in the United States when the figures were taken. Of the foreign students in dentistry, numbering in all 252, eleven came from Great Britain.

As already announced, the Norwegian Red Cross has established twenty-one medical stations in Norway for the treatment of seamen. An international agreement relating to the treatment of venereal diseases among merchant seamen has been signed by a number of countries. The Red Cross scheme is more general in scope. Under it a medical officer in every port would treat seamen for maladies falling within his province, and refer others to hospitals and specialists. The Norwegian Red Cross has invited delegations from its fellow societies and other organizations to a conference to be held in Norway from June 28th to July 5th, when visits will be paid to Oslo, Bergen, and Trondhjem. The King of Norway will preside at the formal opening of the conference, and the subjects to be discussed include accidents, tuberculosis, and venereal diseases among seamen, the social conditions of seamen in foreign ports, and international co-ordination for the improvement of health conditions in the merchant service. The delegates will be given opportunities to study the Red Cross medical stations for seamen, and special demonstrations will be arranged for them. Further information may be obtained from the Norwegian Red Cross, 44, Akersgaten, Oslo.

THE THEORY OF THE CANCER VIRUS.

IN view of the widespread interest aroused by the experiments put forward last summer by Dr. Gye and Mr. Barnard in support of the view that cancer is due to the operation of a filterable and cultivable virus, the following extracts from a recent communication by Dr. James B. Murphy of the Rockefeller Institute for Medical Research, New York, may prove of interest. The article appeared in the *Journal of the American Medical Association* of April 24th, 1926 (p. 1270). It begins as follows:

"In a series of papers published between 1911 and 1916 Rous and his associates described a group of transplantable sarcomas of the chicken which could be transmitted from fowl to fowl by means of a cell free filtrate. The nature of these agents was not determined, but the natural deduction was that they belonged to the class of ultramicroscopic organisms. The main objection to this deduction was the high degree of specificity both in the animals affected and in the type of differentiation induced in the tissue. From these points it seemed more likely that the agents were closely associated with the mechanism controlling cell growth and differentiation than with an extraneous organism.

"Recently, Gye has reported experiments which he interprets as proving the presence of a living organism as the cause of malignant disease. According to him, this organism is active only in conjunction with a specific chemical factor which determines the animal species and tissue infected.

"The basis for this theory is as follows: A piece of one of the chicken sarcomas mentioned above, when placed in a special culture medium and incubated in the absence of oxygen, in the course of a few days loses its power to produce a tumour. If, however, the clear supernatant fluid from such a 'culture' is mixed with a fresh filtrate of the chicken tumour in which the tumour producing agent has been killed by chloroform, this mixture is now capable of inducing a typical malignant tumour of the chicken. Furthermore, similar 'cultures' of rat, mouse and even human neoplasms in conjunction with the chloroform killed extract of the chicken sarcoma are equally potent in inducing a malignant change in the tissues of chickens. Gye reports that the organism of the chicken tumour may be subcultured through a number of generations and still be active when injected along with the so-called specific chemical factor. It is significant that these subcultures were made with the same type of medium employed for the initial 'culture,' but with the addition of a generous supply of embryonic tissue.

"The fundamental nature of the problem involved has led us to examine the experimental proof on which this theory is based. The only source of the so-called chemical factor up to the present has been a filterable chicken tumour. The supposed organism has been obtained from a variety of neoplasms, but in Gye's original publication no mention was made of control cultures of normal tissues."

The technique employed in Dr. Murphy's experiments was similar to that used by Dr. Gye. In the first place "cultures" were made from chicken sarcoma or other material in the suitable medium—yielding the supposed cancer virus. Secondly, the chicken sarcoma was ground up with sand in Ringer's solution and filtered, the filtrate being treated with chloroform in order to kill the "virus"—the resulting fluid containing then the so-called "chemical factor."

In three series of experiments it was found that "cultures" made from mouse placenta, rat placenta, and chicken embryo acted just as well as "cultures" made from chicken or mammalian cancers when added to the chloroform-killed filtrate of the Rous sarcoma (the "chemical factor"). Several additional experiments of the same nature were performed in which tumours resulted from the treated filtrate mixed with fluid from "cultures" of embryo or placenta. In all cases the chloroformed filtrate alone proved inactive.

Dr. Murphy's article concludes as follows:

"Apparently the power to activate a chloroformed filtrate cannot be considered as proof of the action of a living organism, for cultures of embryonic tissue or placenta are just as potent in this respect as so-called cultures of malignant tissues.

"Two possibilities present themselves in explanation of the results attained. First, that the causative agent of the chicken

tumour is in the nature of an enzyme-like substance which is inactivated by chloroform and may be reactivated by a diffusible substance from malignant tumours, embryonic tissues, and placental tissues. The second possibility is that the chloroform treatment does not destroy but simply attenuates the causative agent to a point at which unaided it is too weak to induce a tumour, but in conjunction with some injurious or stimulating substance supplied by the 'culture' it becomes effective. The fact that a great excess of chloroform so completely destroys the agent that no reactivation is possible is rather in favour of the latter possibility. Further experiments are in progress to elucidate these points.

"Anaerobic 'cultures' of chick embryo and rat placenta have proved just as effective as so-called cultures of malignant tumours in activating chloroform treated filtrates of a chicken sarcoma. The necessity of assuming a cultivated living organism in the interpretation of Gye's results is eliminated."

WILLIAM OSLER.

THE MEMORIAL VOLUME.

BOTH on his seventieth birthday and after his death six months later numerous appreciations of the many-sided character of that much beloved physician William Osler were published, and last year Professor Harvey Cushing's *Life* of his teacher, friend, and hero was widely welcomed. If, as might perhaps happen, some will wonder what is the real need of the *Sir William Osler Memorial Volume* of more than six hundred pages, now brought out by the International Association of Medical Museums, the answer is given in the first sentence of the poem written by his colleague of Cambridge, the late Sir Clifford Allbutt—"I was under the belief that I knew William Osler well, intimately, almost as a brother; now I am learning how much I was mistaken. I did not know the half of him." Among the numerous movements which were initiated or furthered by Sir William Osler the International Association of Medical Museums, founded in 1911, was one of the most recent, and yet its activities are the same as those which much occupied his early days as a teacher in Montreal. It is therefore appropriate that Dr. Maude E. Abbott of McGill University, Montreal, the secretary of the association, should have gathered together a hundred and twenty appreciations and reminiscences of this much regretted master. During the six years of its preparation the work has grown under her hands and, containing as it does sidelights on every phase of Osler's life pilgrimage and activities, is a valuable sequel and supplement to Professor Harvey Cushing's fine *Life*. The contributors are, of course, mainly from America and this country, but France (Pierre Marie), Italy (Marchiafava), Germany (Sudhoff, Aschoff), and far-off China (Wu Lien-Teh (G. L. Tuck)), are also represented. Some of the articles have appeared elsewhere, such as the late Weir Mitchell's poem "Books and the Man" (1905), and some of those from Baltimore. An attractive feature is that among the 102 illustrations thirty show Osler either alone or in groups, and that many of the others show the titles of his books and papers.

In 1921 Miss M. W. Blogg, librarian of the Johns Hopkins Hospital, brought up the number of Sir William Osler's published books and articles to the large total of 1,195 titles, and now an expanded, classified, and annotated bibliography, based on Miss Blogg's, has been compiled by Drs. Abbott, Krumbhaar, Miss Blogg, Dr. Malloch, and edited by Dr. Fielding H. Garrison and Dr. H. W. Cattell. This occupies more than 130 pages and is divided chronologically into four periods—the Canadian, two American (Philadelphia, Baltimore), and the English; and by subjects into seven rubrics—natural science, pathology, clinical medicine, literary (including history, biography, and bibliography), medical education, public

¹ Bulletin No. IX of the International Association of Medical Museums and Journal of Technical Methods. *Sir William Osler Memorial Number: Appreciations and Reminiscences*. Privately issued at 836, University Street, Montreal, Canada. 1926. (64 by 94, pp xxxvii + 632; 102 illustrations. Price £2.)

welfare activities, and volumes edited; they show his early interest in natural science and comparative pathology, in human pathology a little later, in clinical medicine in his prime, in literary, biographical, bibliographical, and educational matters in later life, and in public welfare to the end. In accordance with his expressed preference for bio-bibliographical presentation rather than dry lists of titles, explanatory notes and pages of important monographs and articles have been introduced. There is also a bibliography of writings about Osler occupying twenty pages and containing 460 items. The wonderful and widespread activities of Osler's fifty years (1869-1919) of professional life are only matched by the universal affection he aroused, as is proved by the contents of the appreciations from men and women in all ranks of his profession, from his colleagues, and from his innumerable students. In fact, he was even more attractive as the man than as the clinician, the teacher, or writer. Both Sir Clifford Allbutt and Professor W. H. Welch compare him with Boerhaave, and his Baltimore colleague says that there are perhaps no two physicians in history whose spirits were more akin to Osler's than Conrad Gesner and Boerhaave, and that Osler remarked to a friend about admitting Gesner to the company of Leonardo da Vinci, Paracelsus, Vesalius, Paré, Agricola, and Gilbert as the representatives of the sixteenth century in his *bibliotheca prima*, "I am not sure that this fellow should go into the *prima*; but I love him so much that I must put him there. Besides, he is the father of bibliography." In explanation, it may be mentioned that Osler's library, destined for McGill, was divided, as Dr. Mackell tells us, into *bibliotheca prima*, *secunda*, *historica*, *biographica*, *bibliographica*, *incunabula*, and *manuscripts*.

Some of the most interesting articles are those dealing with early Canadian days; his life-long friend, F. J. Shepherd, says, and this may comfort others who were not pre-eminent as students: "Lectures did not trouble him much, and he never took elaborate notes as it was the fashion to do in those days. He took no high place in his class, but received a special prize for his graduation thesis on account of its great originality." Dr. E. J. A. Rogers of Denver, who had known him from 1866, describes his influence as a schoolboy and his life as a young professor at McGill. His relative, Mrs. H. C. Osborne, also speaks of Bill Osler, "the baby professor," in the early seventies giving away his coat to a drunken beggar, and saying on another occasion, "I whistle that I may not weep." When translated to Philadelphia in 1884 he quietly opened an "office" with the innovation of not having any office hours and seeing patients by appointment only; they were more interesting than lucrative, frequently doctors or members of their families. Dr. George Dock tells the story of the most pious and venerable member of the medical faculty who invited Osler to church, and on his guest's arrival in the pew inquired about Mrs. Osler (Osler did not marry until 1892, some years after he went to Baltimore), and then received the startling information that "Mrs. Osler is a Buddhist and would not come." Dr. Finney and Dr. Thayer, who knew "the chief" from 1889, when the Johns Hopkins Hospital opened its doors, Dr. Claribel Cone even earlier in the Baltimore period, and others, including his "first probationer," add their tributes, Thayer's poem being truly worthy of its subject. It is difficult to refrain from quoting Dr. Cone's comparison of his presentation of a case as "a masterpiece as rich in suggestion, as universal in appeal as a Giotto, a Rembrandt, or a Giorgione." Of the Oxford period Drs. A. G. Gibson and Archibald Malloch give accounts based on a most intimate experience, the first named from 1905, and the latter during the war and his last days.

Dr. Maude Abbott has carried out a great work—surely a labour of love—with complete success, for this volume may be said to fulfil the closing sentence of the veteran W. W. Keen's contribution: "In a long life I have never seen so many and such whole-hearted tributes to any other scientist. All classes of men and all countries have united to do him honour. Those who knew him best feel the loss most deeply."

HUMPHRY ROLLESTON.

Ireland.

ROCKEFELLER FOUNDATION GRANT FOR IRELAND.

THE chairman of the board of the Meath Hospital, in the course of a letter to the press, says that a statement appeared in a recent issue of the *Irish Statesman* that a quarter of a million pounds had been ear-marked by the Rockefeller Foundation Fund for Ireland, and that advantage had not been taken of the offer because medical schools and universities could not agree upon a scheme. Such an erroneous statement ought not to be allowed to pass without correction. The amount applied for was a million and a quarter pounds, to be expended in Dublin upon the erection, equipment, and partial endowment of a central hospital to take the place of five of the principal hospitals on the south side of the city, with the primary object of furthering medical education and research. Sir William Taylor, who was chairman of the Amalgamation Committee, has written to the *Irish Times* to correct an inaccurate report of what he said at the general annual meeting of Sir Patrick Dun's Hospital with reference to this scheme. The representative of the Rockefeller Trust visited the hospitals last year, and, he understood, reported favourably on the application, but the governors of the Trust had postponed its consideration on account of the present uncertainty with regard to medical education in the Irish Free State. In connexion with this subject the following facts were interesting. At the last meeting of the board of the Meath Hospital a communication was read from the medical board to the effect that since no students had applied and none was available for the position of resident medical pupil for the period April to July, 1926, other steps should be taken to carry on the work of the hospital. Further, he was informed that the number of first-year medical students in Trinity College, Dublin, for the last year (1925-26) was 36, as against 61 in the previous year, and that in the school of the Royal College of Surgeons the number was 39 as against 58, while the number of first-year medical students in Belfast had largely increased during the same period.

LOCAL AUTHORITIES BILL (IRISH FREE STATE).

The Minister for Local Government and Public Health recently introduced to the Dail a bill called the Local Authorities (Officers and Employees) Bill, 1926, described as "An Act to establish a Commission charged with the duty of selecting the persons to be appointed to situations in the employment of local authorities, and to make other provisions for ensuring the appointment of suitable persons to such situations, and also to make better provision for controlling the duties, suspension, removal, and other conditions of service of persons holding such situations." The bill provides for the establishment by the Executive Council of local appointments commissioners, not more than three in number, whose duty it shall be to recommend, with a few specified exceptions, the persons to be appointed by the Minister concerned to all offices under local authorities. Moreover, it is provided that:

"Subject to such exceptions as are or may be made by or under this Act, the Commissioners shall select every person to be recommended by them to the Minister under this Act solely by means of competitive examination conducted according to regulations made by the Commissioners;

"Every such competitive examination shall be open to all persons desiring to attend the same who possess or claim to possess the qualifications prescribed by or under this Act for the office in respect of which the examination is held and pay the fees prescribed by the Commissioners in respect of such examination."

The principal exception to the above is contained in the following provision:

"Whenever the Minister requests the Commissioners to recommend a person to appointment to an office to which this Act applies, and the Commissioners, with the concurrence of the Minister are of opinion that, having regard to the nature of the duties of that office, the knowledge and experience necessary for the efficient performance of those duties, and the qualifications prescribed under this Act for that office, the person or persons to be recommended for appointment to that office cannot be satisfactorily selected by competitive examination, the Commissioners may dispense with the competitive examination required

by this Act and may select the person or persons to be recommended by them to the Minister by such means and in such manner as they think proper."

Other clauses deal with the power of the Minister in regard to the duties, tenure, removal, etc., of officers.

Scotland.

EDINBURGH MEDICAL FACULTY BICENTENARY.

In our last issue we published particulars with regard to the ceremonies by which the bicentenary of the Faculty of Medicine of the University of Edinburgh is to be commemorated on June 10th and 11th. An official draft programme has now been issued, but the information we have already given stands good. The guests will assemble at a dinner in the upper library of the old College at 8 p.m. on Thursday, June 10th, and the graduation ceremony, at which Sir George Newman is to give an address, will take place in the M'Ewan Hall at 10.30 a.m. on the next day, Friday, June 11th. At noon there will be a service in St. Giles's Cathedral, and at 3.30 p.m. the Department of Experimental Surgery will be opened by the Secretary for Scotland at a meeting in the M'Ewan Hall. After the dinner that evening in the hall of the Royal College of Physicians of Edinburgh the Lord Provost and magistrates of the city of Edinburgh will give a reception in the Royal Botanic Garden. Among the official guests are representatives of the following universities: Oxford, Sir Archibald Garrod, F.R.S., Regius Professor of Medicine; Cambridge, Sir Humphry Rolleston, Regius Professor of Physic, and Professor J. T. Wilson, F.R.S.; Durham, Professor R. Howden, M.B., D.Sc.; Dublin, Professor T. G. Moorhead; Belfast, Dr. R. W. Livingstone, vice-chancellor; Copenhagen, Professor Johannes Fibiger, M.D., rector; Glasgow, Professor Robert Muir, F.R.S., and Professor Ralph Stockman, M.D.; St. Andrews, Professor P. T. Herring; Birmingham, Professor Edmond W. W. Carlier and Sir John Robertson, C.M.G., M.D.; Toronto, Professor Alexander Primrose, C.B. Other representatives are Professor Wilhelm Wernstedt, Medico-Chirurgical Institute, Stockholm; Sir John Rose Bradford, M.D., F.R.S., President of the Royal College of Physicians of London; Dr. R. M. Buchanan, President of the Royal Faculty of Physicians and Surgeons of Glasgow; Professor T. H. Wilson, President of the Royal College of Physicians of Ireland; Mr. R. Charles B. Maunsell, President of the Royal College of Surgeons in Ireland; Dr. Andrew Balfour, C.B., director of the London School of Hygiene and Tropical Medicine; Sir Holburt Waring, vice-president of St. Bartholomew's Hospital Medical College; Professor T. B. Johnston, M.D., dean of Guy's Hospital Medical School; and Dr. W. Aldren Turner, C.B., King's College Hospital Medical School.

GLASGOW POST-GRADUATE MEDICAL COURSES.

Under the auspices of the Glasgow Post-Graduate Medical Association arrangements have been made for a general medical and surgical course and some special clinical courses to be held during the summer months. Commencing on August 16th a whole-time course will be conducted for a month in a number of the general and special hospitals; the mornings will be devoted to general medicine, surgical diagnosis, and minor surgery, and each afternoon two special subjects will be dealt with in the special hospitals of the city. At the Royal Infirmary, Glasgow, clinical courses in surgery and dermatology will be held in June, and in anaesthetics during August, September, and October. At the Western Infirmary, Glasgow, there will be during June and July courses in clinical gynaecology; dermatology, including physiotherapy, radium, and carbonic acid snow treatment; radiology; venereal diseases; and disorders of the throat and nose. The Royal Hospital for Sick Children has arranged a course for medical and surgical diseases of children, from June till October. At the Glasgow Royal Maternity and Women's Hospital and the Royal Samaritan Hospital for Women courses in clinical obstetrics and clinical gynaecology will be conducted, the former from the middle of September to the

middle of October, and the latter during June, as well as in September and October. There will be a series of demonstrations on diseases of the ear, nose, and throat at the special hospital, beginning on September 14th. Clinical assistantships are available at several hospitals. Further information may be had from the Secretary of the Post-Graduate Medical Association, The University, Glasgow.

SCHOOL FOR INVALID CHILDREN.

The Lanarkshire Education Authority has recently established a special school for invalid children, which was formally opened on May 5th by the Rev. Alexander Andrew, vice-chairman of the authority. Sir Henry S. Keith, chairman of the authority, presided, and gave an address, in which he made reference to improvements that had taken place in recent years for children who were incapacitated in one way or another from gaining the natural advantages offered by the ordinary education. The school, which is known as the Drumpark Special School for Invalid Children, is pleasantly situated in grounds at Bargeddie, about two miles west of Coatbridge. The building is of brick, and contains fourteen classrooms, equipped with all modern appliances, and all facing towards the south. It is intended to provide for over 250 children who are physically defective and for 80 mentally defective children. The grounds surrounding the school extend to five acres, and the total cost has been approximately £25,000.

ST. ANDREWS UNIVERSITY HONORARY DEGREES.

At the installation of the Rector of the University of St. Andrews the Senatus Academicus decided to confer the honorary degree of LL.D. of the University upon several distinguished persons. The Rector chosen is Dr. Fridtjof Nansen. The following is the list of recipients of the degree: Dr. Nansen, G.C.V.O., Norway; Viscount Cecil of Chelwood; Professors Bjorn Helland-Hansen and Vilhelm Bjerknes, University of Bergen; Sir T. W. Edgeworth David, University of Sydney; Professor J. Norman Collie, University College, London; Dr. Knud Rasmussen, Copenhagen; and Captain Otto Sverdrup, Norway.

England and Wales.

THE STRIKE EMERGENCY IN LONDON.

THE only services of the London County Council which were discontinued in consequence of the general strike were the tramways and Woolwich ferry. The vast and complicated educational services of the Council were carried on with normal efficiency, though under difficult conditions. The school medical service was maintained at practically full strength. London ambulances had to answer a largely increased number of calls owing to the many street accidents occurring in an unexampled traffic situation. Requests were received from maternity hospitals that patients might be conveyed in these ambulances in the absence of other means of transport, but it was found impossible, owing to the other demands upon the ambulances, which are primarily for street casualties, to undertake to provide extra facilities for such cases. Special arrangements were made, however, with the British Red Cross Society and the St. John Ambulance Association to deal with maternity cases, as well as with other cases in which the borough medical officers of health were prevented by lack of transport from carrying out their usual practice.

Provisional plans for local emergency medical services were prepared by a number of Divisions of the British Medical Association, in consultation with the head office and with the police; also by the Royal Society of Medicine in the Cavendish Square area. Happily, these plans did not have to be put into operation. The Ministry of Health and the Home Office were offered the services of the British Medical Association in any capacity that might be found useful, and expressions of thanks have been received from both Departments. During the strike a large number of the Association's central staff were engaged in some form or another of voluntary part-time public service.

Hospital services in London were carried on in general

without even temporary hindrance. On inquiry at St. Thomas's we were informed that the strike had made no difference whatever with regard to supplies or services, and the same appeared to be true of other hospitals generally, with the exception of the London Hospital, which suffered a good deal from the cutting off of electric current and had to close its out-patient department for a time. The hospitals in districts, more especially east and south-east, where minor disturbances and conflicts occurred had to deal with casualties more numerous than serious. Even building and other contract work at hospitals did not cease during the emergency period.

RELATIONSHIP OF THE LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY TO THE UNIVERSITY OF LEEDS.

To any member of our profession who has lived for many years in one of the large provincial towns, and especially to anyone engaged in teaching in its medical school, the relationships which exist between the various bodies whose aim is the development and dissemination of medical knowledge cannot fail to be of interest. It is because a new bond of union has been established between the Leeds and West Riding Medico-Chirurgical Society and the University that some reference may again be made, here to the development of the society. As has been pointed out before (JOURNAL of August 20th, 1921) the society was founded on the old Leeds Medical Club, with the late Dr. Chadwick as president and the late Dr. West Symes and the late Mr. A. F. McGill as joint secretaries. From the beginning, efforts were made not only to promote the interchange of knowledge and experience by the holding of meetings, but as much as could be spared from the subscriptions was devoted to the purchase of books and periodicals. An arrangement was made with what was then the Leeds School of Medicine for the housing of these books and periodicals in the library of the school on the payment of a small annual rent, the school making itself responsible for the books being catalogued, kept in repair, and circulated. There was further this advantage to the two bodies concerned: there was a practical amalgamation of the two libraries, and though the books which constituted the joint library were indeed separately credited to the two bodies they were circulated among all those who had the right to use either library. It is of interest to recall that the library of the medical school probably had as its nucleus the small library of the General Infirmary. This arrangement was continued with the establishment of the Yorkshire College, and finally with that of the University of Leeds. It has, of course, been of the greatest advantage to both. The University has a library greatly enriched by the annual purchases of the society, and the members of the society, the University staff, and the students have all access to a much finer library than would have been possible had some such arrangement not existed. To secure the continuance of this and to lead to the further development of the library, the following agreement has been made. The society has arranged to transfer to the absolute possession of the University all its books and volumes of bound periodicals. These are to be lodged as heretofore in the library of the medical school. The society will also pay an annual sum to the University which has been fixed at a figure which satisfies each. The society will be spared the necessity of purchasing any more books and the expense of binding them, for this will be undertaken by the University, who will see to it that the library is as well supplied by periodicals in the future as in the past. When the great advantages which attach to membership of this most flourishing provincial society are considered one wonders that the membership is not greater than it actually is. The subscription is one guinea for Leeds members and half a guinea for those beyond a certain radius. The privileges of membership are the full use of a growing and valuable library, with all the freedom of access which is enjoyed by the members of the University and with the power to take out books, and free access to the reading room with its large collection of periodicals. The library is kept open for the convenience of members on those evenings when meetings are held.

Then the other advantages of membership are, of course, those which arise from the ordinary activities of the society. About a dozen meetings are held during the months from October to May, and these include usually two special clinical evenings and two pathological evenings which are always attractive. The general meetings and the special clinical meetings of the society are held at the General Infirmary, which adjoins the medical school of the University, and the society has, through the heads of the various departments of the University, every facility which can arise from the free use of lanterns, apparatus, and specimens. There is no better way, and certainly none more useful to the individual, for former students of the school—whether they be graduates of the University or not—to keep up their connexion with the scene of their studies than by joining this society and by assiduously attending its meetings.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

The annual meeting of the King Edward's Hospital Fund for London to receive the accounts and report for 1925 was held at St. James's Palace on May 14th, the President, H.R.H. the Prince of Wales, taking the chair. Lord Revelstoke, the treasurer, reported that the total of the ordinary distribution of £245,000 during the year marked a record, and had been met entirely out of income; there was a good prospect of maintaining this level in future years if the receipts from legacies, subscriptions, and donations remained at about the present figure. The British Charities Association had increased its grant from £15,000 to £20,000, Lady Strathcona had contributed £5,000, and two anonymous gifts of £6,000 and £2,250 had come in; an additional anonymous donation of £7,000 received more recently would be of great assistance in the distribution of the present year. The Earl of Donoughmore, chairman of the Management Committee, moving the adoption of the annual report for 1925 of the General Council, called attention to the conferences held between the King's Fund and various associations with reference to the provision of pensions for hospital officers and nurses. We gave some details of the draft scheme on December 19th last (p. 1195). This scheme, besides enabling members of hospital staffs to make adequate provision for old age, would also benefit the hospitals, since it would enable them to stabilize their finances by providing for future liabilities on an instalment plan, and it would render the hospital service more attractive to the officers and nurses. It was suggested that the assistance offered by the King's Fund might be a maximum sum for seven years of £20,000 a year, or 25 per cent. of the expenditure by the hospitals on the approved scheme, whichever was the smaller. This amount should be provided as far as possible by contributions received in response to a special appeal, and be increased if sufficient funds were obtained in this way. Lord Burnham, chairman of the Propaganda Committee, referred to the very valuable support received from the British Broadcasting Company, and Mr. L. L. Cohen, chairman of the Hospital Economy Committee, presented a report on the new edition of *The Revised Uniform System of Hospital Accounts*, to which we referred in our last issue (p. 843). The Prince of Wales spoke of the loss to the Fund caused by the death of Lord Stuart of Wortley, one of its honorary secretaries since its inception twenty-nine years ago. He referred at some length to the report of the Management Committee on the subject of pensions for hospital officers and nurses, indicating how hospital efficiency was impaired through lack of an adequate pensions scheme. There seemed to be a widespread agreement that the advantages justified the additional expenditure involved, and it was to be hoped that the scheme would commend itself to the supporters of the hospitals and of the King's Fund. It would enable hospitals to provide in a businesslike way for an essential part of their expenditure, and it would remove a heavy burden of apprehension from the members of the nursing profession. His Royal Highness mentioned that the hospitals would have suffered financially owing to the recent national emergency, but he trusted there would be a general determination to ensure that the loss should be only temporary.

YORK FEVER HOSPITAL.

The Health Committee of the York City Council has recommended extensions and improvements at the Fever Hospital and Fairfield Sanatorium. The York Division of the British Medical Association, which had previously sent a deputation to the Health Committee of the Corporation to call attention to the inadequacy of hospital accommodation in York for epidemic diseases, appointed four of its members (Dr. J. G. Craig, chairman of the Division, Dr. W. A. Evelyn, Dr. H. E. K. Reynolds, and Dr. J. C. Lyth) to attend a meeting of the York City Council on May 3rd. Dr. Reynolds indicated the urgent necessity for the provision of accommodation for severe cases of non-notifiable infectious disease. There was, he said, no provision in York for isolating a bad case of measles, and there was accommodation for only about sixteen cases of scarlet fever and sixteen of diphtheria. After discussion, an outlay of approximately £30,000 was approved for the necessary extensions; this will involve an increased rate of 1½d.

THE BETHLEM HOSPITAL SITE.

At the meeting of the London County Council on May 18th approval was given to the Bethlem Hospital Bill (as now proposed to be amended), which provides *inter alia* for the confirmation of an agreement between the governors of the hospital and Viscount Rothermere for the sale and purchase of the site of the hospital and grounds, and for the vesting of the whole of the site, or in certain circumstances a part only, in the London County Council as an open space. It was stated that, in the event of the whole site being vested in the council as an open space, the expenditure that would devolve upon the council was estimated at £16,550 for the lay-out and incidentals, and £3,000 a year in respect of subsequent maintenance.

LONDON COUNTY COUNCIL PUBLIC HEALTH ESTIMATES.

The expenditure for the financial year 1926-27 for purposes under the administration of the Public Health Committee of the London County Council is estimated at £456,600. This includes a sum of £116,530 for the residential treatment of tuberculosis (a decrease of £4,110 on the previous year), £18,600 on dispensary treatment (an increase of £1,100), £97,305 on the diagnosis and treatment of venereal diseases (an increase of £1,300), and £136,000 on grants to boards of guardians in respect of Poor Law medical expenses (an increase of £11,000). The Council, however, has no control over the amounts of the last named grants, which depend upon certificates issued by the Ministry of Health. These sums do not entirely cover the expenditure of the Council on public health, certain further provisions being voted under other committees, especially in regard to lying-in homes and to infant life protection.

Correspondence.

CERVICAL CANCER AND VENEREAL DISEASE.

SIR,—In the report¹ of the meeting of the North of England Obstetrical and Gynaecological Society held on March 19th in Liverpool it is stated that Miss Ruth Nicholson showed three cases of carcinoma of the cervix in women undergoing treatment for syphilis and gonorrhoea, and after mentioning three references she concluded by stating that "These were the only cases and references she had found recorded."

May I be permitted to direct attention to what I have stated in my book on *Cancer of the Womb*, concerning the etiology of cervical cancer? Discussing the relationship of venereal disease to cancer, on page 17 it is written:

"Syphilis is held by some to play an important part, but there is no well authenticated proof that it does so in the uterus, as cancer does not appear to be more common in those who have contracted syphilis. There is more evidence in favour of gonorrhoea as a predisposing cause of cervical cancer, for by the produc-

tion of chronic cervical gleet it favours those cell changes which lead to cancerous formation. I have met with several cases in which the relationship was clinically established."

I have seen and described cases of cervical cancer in syphilitic women where the manifestations of syphilis were in the tertiary stage, but whether or not the primary sore was situated in the cervix could not be determined. I also pointed out (*ibid.*, p. 52) that a primary cervical sore is not rare. This statement was challenged by some of my critics, but Fournier's statistics show that of 249 genital chancres in the female 13 were cervical. I have not yet seen a cervical gumma, but a photograph (*ibid.*, Plate xiii) represents a cervical cancer removed from a woman who had tertiary syphilis. Whether her syphilis predisposed to the development of cancer could not be determined.

It is unfortunate that the venereal clinics for women have been separated from those devoted to gynaecology, for the importance of venereal disease as an etiological factor in the diseases of women is apt to be overlooked or misinterpreted. The relationship of venereal disease to cervical cancer is much more likely to be determined by a study of the women seeking relief for cancer in the gynaecological clinic than by a study of those seeking relief for venereal disease in whom cancer is accidentally discovered.—I am, etc.,

F. J. McCANN, M.D., F.R.C.S.

London, W.1, May 12th.

"RECOVERY AFTER MASSAGE OF THE HEART"—AND, OR, OTHER MEANS?

SIR,—Mr. Girling Ball records an exceedingly interesting case of restoration of the heart's action after stoppage during the performance of a major surgical operation (*BRITISH MEDICAL JOURNAL*, April 24th, 1926, p. 732): "the patient suddenly stopped breathing and his heart ceased to beat." The measures adopted were as follows: (1) gentle massage of the heart through the diaphragm at the rate of 60 a minute, while (2) artificial respiration was maintained; (3) an injection of 10 minims of a 1 in 1,000 solution of adrenaline into the heart muscle through the chest wall. After an interval of three minutes heart contractions began, and gradually a normal but somewhat accelerated rhythm was established. The breathing started shortly after the heart began to beat. The surgical operation was then restarted and completed within forty minutes. The result was a complete success.

The object of my writing is to ask why this admirable achievement is attributed to heart massage and to this alone, and next to draw the attention of those, who are interested, to a paper which appeared in the *Lancet* of March 24th, 1923, in which the whole problem of resuscitation after systemic death—that is, cessation of heart and respiration—is dealt with at length; Dr. Carl Bodon of Budapest is the author. He discusses the records of ninety cases collected by him in which a variety of medicaments were employed by intracardiac injection—including camphor, caffeine, the digitalis glucosides, adrenaline, pituitrin, and strychnine. Need it be said that the successes of such treatment in these desperate cases (especially in cases of sudden death from medical causes) are minimal, if we look for permanent results, but his own striking case (medical) of complete cure, and a sufficiency of temporary rallyings, will be found to encourage us to adopt intracardiac injection in increasing measure in such cases. Of the drugs above mentioned adrenaline has given the best results in doses of 1 c.cm. of 1 in 1,000; this was the reagent Dr. Bodon used. A long needle should be used (8 cm., just over 3 inches), and the site of election for puncture is the fourth left intercostal space, on the upper edge of the fifth rib close to the sternal border. The paper must be consulted for careful and detailed directions. It is held that intraventricular injection is to be aimed at, and not injection into the walls of the heart. In Dr. Bodon's case the heart beat appeared within a few seconds.

On the evidence before us we cannot exclude adrenaline as at any rate sharing in the triumph; may it not have been the chief cause? At what relative stage was it administered?—I am, etc.,

London, W.1, May 12th.

HARRINGTON SAINSBURY.

¹ *BRITISH MEDICAL JOURNAL*, May 1st, 1926, p. 765.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

SIR,—The letter of the Bishop of Singapore on the subject of mental irritability and breakdown in the tropics, in your issue of March 13th, has interested me very much, and in compliance with his request for the experience of others living under similar conditions in the tropics I am writing to give him the results of my personal experience and observation. I regret to say that I am one of the victims of this unfortunate and unpleasant trait, inasmuch as I am a medical officer in the local medical service and in the enjoyment of private practice, and to anyone similarly engaged in a tropical colony it is a great handicap to be at all liable to outbursts of temper. In my own case I can only attribute this irritability in my disposition to working under mental and physical high pressure for many years at a stretch, in a position of great responsibility during nine years, with a period of furlough in a neighbouring colony of six weeks' duration. This colony (British Guiana) is situated just a few degrees above the equator, and its coastlands are below sea-level. The only means of obtaining a change of altitude is to go for a period either to the neighbouring colony of Barbados or else to Great Britain or Canada; this is so much recognized by the Government of this colony that assisted passages are granted to public officers to enable them to proceed on furlough to northern climes.

The late Colonial Secretary of this colony and now Governor of Hong-Kong (Sir Cecil Clementi), as the result of his travels in the interior of this colony, was the first to point out the advisability of establishing hill stations in the interior of this colony to enable public officers and other residents to spend short but frequent periods of furlough for the benefit of their health. Nothing, however, has been done in this matter, due chiefly to the expense of travelling and the lack of proper quarters for residential purposes. The only provision in this direction is the trip to the Kaietur Falls, which can be done under tolerable conditions of travel in about four or six weeks (return passage); but its considerable monetary outlay is beyond the reach of the ordinary colonist.

In short, the great cause of mental irritability is the same daily monotonous grind, carried on under conditions of great physical exhaustion, without the possibility of a change of surroundings, even of a few days' duration, from time to time.—I am, etc.,

Q. B. DE FREITAS, M.R.C.S., L.R.C.P.,

New Amsterdam, April 15th.

British Guiana Medical Service.

SIR,—With regard to the recent correspondence on irritability in the tropics perhaps one more observation may be worth consideration.

A good deal of notice is taken of heat and light chiefly because they are obvious, but there is another factor—namely, barometric pressure—which is not often taken into account. I can only speak of this part of the world, but here the barometer varies very little from 29 in. the whole year round. I believe that one of the things the European body misses in many parts of the tropics is the constant, steady, and comparatively wide variation which is always occurring over Great Britain and a large part of Europe.—I am, etc.,

M. JACKSON, W.A.M.S.

Colonial Hospital, Sierra Leone, April 15th.

SIR,—In reply to the question of the Bishop of Singapore, in the JOURNAL of March 13th, allow me, please, to say that I think the causes are: (1) The exhaustion of the reserves of the nervous system by the excessive and unaccustomed stimuli of the tropics—light, heat, flies, the strange languages and customs, the appalling moral atmosphere in view of what one is accustomed to; (2) the inability of some white folk to take things easy and not worry; (3) the ridiculous customs as regards food, dress, and hours of work. Fancy wearing top hats and frock coats, and so forth, to functions in the tropics, and working on steadily through the hottest hours of the day.

May I add one word of warning? No one who has

suffered in the late war from shell shock or any type of nervous breakdown ought ever to come to the tropics. It is absolutely asking for trouble.

There are other factors, too, but your other correspondents have touched on these. Dark-coloured glasses are very helpful.—I am, etc.,

L. D. PARSONS,
Superintendent, Government
Lunatic Asylum.

Angoda, Ceylon, April 20th.

Obituary.

STEPHEN PAGET, M.A., F.R.C.S.,

Consulting Aural Surgeon, Middlesex Hospital; Vice-Chairman,
Research Defence Society.

We deeply regret to have to record the death, on May 8th, of Mr. Stephen Paget, who was for many years well known and liked in London and greatly respected throughout the profession for his courageous defence of experimental medicine.

He was born in 1855, the fourth son of Sir James Paget, to whom he bore a striking physical resemblance and whose literary abilities he inherited. He was at Shrewsbury School and Christ Church, and throughout his life bore the impress of Oxford. Another impress he bore was that of his father's home, which sheltered a large, united, and able family. James Paget in his prime was in the habit of working with his family about him, helped and not hindered by the music of his wife, who was an accomplished musician. Though he laboured far into the night, helped by a secretary—a place for some time held by Stephen Paget—at the preparation of lectures and other writings and in completing his correspondence each evening, he was a friend of most of the great men in literature and science during the later part of the Victorian era, when some very great men were working and writing. Among them were Tennyson, Browning, George Eliot, Lowell, W. E. Gladstone, Pusey, Ruskin, Tyndall, Huxley, Matthew Arnold, Virchow, Pasteur, and Darwin; among his close friends in the medical profession were Bowman, Sharpey, Sir John Simon, Sir Andrew Clark, and Sir Thomas Smith. To know such men in his father's house was a privilege which the son thoroughly appreciated and enjoyed to the full.

Stephen Paget received his medical education at St. Bartholomew's Hospital, to which his father was at that time consulting surgeon, and after serving as house-surgeon there went out into the world. His first independent appointment was that of surgeon to the Metropolitan Hospital; afterwards he was surgeon to the West London Hospital, and in 1897 was appointed aural surgeon to the Middlesex Hospital. At the outbreak of the great war he lectured to soldiers for the War Office all over the country, on hygiene, typhoid inoculation, and kindred subjects; the strain was too great for a constitution never very robust, and his health entirely broke down. In 1916 he partially recovered and went to Petrograd in charge of the Anglo-Russian Hospital for the winter of 1916-17. He had some years previously given up practice as a consultant, and in 1918 finally retired and went to live at Limpsfield, Surrey, devoting himself to writing and to the management of the Research Defence Society, which he was mainly instrumental in founding and of which he was honorary secretary.

On the first page of the first minute-book of the Research Defence Society the following entry occurs: "A meeting of 'Professor Starling's Committee' was held at 70, Harley Street, at 5 o'clock, on Monday, Jan. 27th, 1908. Present, Prof. Cushman in the chair, Sir Victor Horsley, Dr. Deceor, Dr. Head, Dr. Leonard Hill, and Mr. Paget. Also, Lord Justice Fletcher Moulton and the Hon. Sydney Holland [now Lord Knutsford]. At the proposal of the Hon. Sydney Holland, all present, excepting Lord Justice Fletcher Moulton, agreed to form a Society, to be called The Research Defence Society. Mr. Paget was appointed Hon. Secretary."

Thus began perhaps the most vigorous chapter in the life of Stephen Paget: it was through his initiative that the Research Defence Society was born; it was through his boundless energy in its service that it grew, and that now

it can justly claim to have played an important part in bringing the general public to realize the importance of research in medicine to the community, individually and collectively. Mr. Paget has described the birth of the society as follows:

"Professor Starling's Committee had been careful to put things fully and plainly to the Commission (the Royal Commission on Vivisection). The opportunity must not be lost; the general public must be taught the rights of the matter. Then, in January, 1908, when all the evidence had been given and published, and Professor Starling's Committee had served its purpose, it seemed a pity to break such good machinery, and out of that committee was formed the Research Defence Society. . . . People were sick of antivivisection: the Brown Dog case had made them wonder at the ways of its followers. People wanted and welcomed a fighting society which would tell them the truth about experiments on animals made in this country under the conditions of the Act."

This "fighting society" found in Paget its ideal champion and leader. To him, imbued by nature with love and charity for all men, disease and pain were evils, works of the devil, to be combated with all the means at our disposal. Evil also must be any movement or action which tended to perpetuate the ignorance out of which these misfortunes arise. It is not surprising, therefore, that the antivivisection agitation, with its methods of lying and calumny, aroused in Paget a righteous indignation and a burning desire to do battle for the truth and to further the divine work of research. How well he carried out his self-imposed task can be read in the records of the Research Defence Society.

He wrote innumerable pamphlets, lectured, debated, organized meetings, edited the journal *The Fight Against Disease*, and was indefatigable in his efforts to contradict the false impressions laded out to the public by the antivivisection societies. He realized that, left unchallenged, the so-called facts put in print by his opponents might do incalculable harm to the progress of medical science, and laboured with a religious zeal in the cause he championed. Even during the last years of his life, when physically weakened by illness, he retained his vigour for any cause associated with the objects for which the society was founded. He had an encyclopaedic knowledge of all persons, subjects, and tactics connected with the opposition, and had carefully prepared notes for the continuation of his work should he be unable to carry on.

Stephen Paget was the "vital spirit" of the society from the very beginning, and his personality permeated all its literature. All members of the medical profession, and research workers in particular, may well feel proud of and indebted to this famous author and surgeon, who devoted so many years of his life to overthrowing the obstacles deliberately placed in the way of medical progress.

Paget's reputation as a writer was established by the publication in 1901 of the *Memoirs and Letters of Sir James Paget*. The volume consisted of two parts; the first was an autobiography bringing the story, with notes by the editor, down to 1865; it included references to the succession of illnesses which caused him to resign from the office of surgeon at St. Bartholomew's in 1871. The second part was made up mainly of his letters, with notes by the editor, to which were added several chapters on his later years. In the following year Stephen Paget edited the volume of his father's *Selected Essays and Addresses*. In 1912, in co-operation with the Rev. J. M. C. Crum, he wrote the life of his brother, Francis Paget, Bishop of Oxford. After his retirement he undertook the biography of Sir Victor Horsley, published in 1919, and in 1921 the life of Canon Scott Holland, his father's friend and his own. While still in practice he had written a book (1896) on the surgery of the chest. In 1897 he contributed to a series of medical biographies, then being issued, a life of John Hunter, and in the same year issued an independent volume on *Ambroise Paré and his Times*. In 1908 appeared *Confessio Medici*, a book of essays which was found very helpful by many members of his profession. He early showed an interest in what has been called the antivivisection controversy by publishing a book entitled *Experiments on Animals*, a third edition of which appeared in 1906. In 1912 he published another volume on the same subject with the title *For and Against Experiments on Animals*, and followed this up in 1914 by

Pasteur and After Pasteur. He was in great request as a writer in the periodical press, and was for many years a not infrequent contributor to our columns. He was a member of the British Medical Association, and at the Annual Meeting in London in 1910 was vice-president of the Section of Laryngology. He had constant ill health for the last ten years of his life, but had the companionship and devoted ministrations of his wife, a daughter of Dr. Edward Burd of Shrewsbury, who had been one of his father's pupils. During these years his indomitable courage kept him always busy till a second cerebral haemorrhage brought him the rest he had long wished for.

S. G. CAMPBELL, C.M.G., M.D.,
Durban.

We regret to have to record the death, on March 12th, of Dr. S. G. Campbell, who was not only one of the leading medical practitioners in Natal, but also one of its chief citizens. He was a son of William Campbell, who came from Scotland in 1815 and was one of the pioneers of the sugar industry, owned one of the first railways in South Africa, and built wharves. He was a staunch advocate of technical education, and founded the first technical school—a point of considerable interest, for his son, the subject of this notice, was one of the founders of the Natal Technical College, which has been described as the best monument to his memory. He devoted a great deal of time to its development, and was rewarded by seeing the institution expand so rapidly that in 1909, when he was its president, it became necessary to erect a new and larger building, which was completed in 1912. Dr. Campbell continued his efforts until it was completely equipped and the prospects were good for a further extension suitable to the needs of a university college. It was in recognition of his work for education that the honour of C.M.G. was conferred upon him two years ago.

Dr. Campbell received his early education in the colony, but afterwards went to Edinburgh, where he graduated M.D., and practised for a short time in Glasgow. Shortly after his marriage there he returned to Natal, and, after working for some years in association with Dr. A. McKenzie, entered on independent practice. His medical work was interrupted, or perhaps it should more correctly be said transferred to another sphere, during the Boer war. He was in Ladysmith during the siege as surgeon to the local forces; later on he was the first commanding officer of the Mounted Infantry Company of the Durban Light Infantry. Dr. Campbell was an enthusiastic Volunteer, and when the native rebellion broke out in 1906 he took the field in his capacity as major of the D.L.I., and while in command of a convoy escorted by a composite force of about 150 men successfully repelled a fierce attack by the native impis. During the great war Dr. Campbell served again in the care and relief of the sick and wounded. He was remarkably successful as a medical practitioner, but in addition to the very active interest he took in all educational questions he was ever ready to assist in movements for the betterment of the public health; after his return to Durban from Edinburgh he was for a time medical officer of the Durban Corporation, and later in life gave his aid to such organizations as the Child Welfare Society and the Red Cross.

When Dr. J. A. Macdonald, at the request of the Council of the British Medical Association (of which he had until the previous year been chairman), visited South Africa in the autumn of 1921 he was everywhere very cordially received, but nowhere more cordially than in Natal; he was for ten days the guest in Durban of Dr. Campbell, then president of the Natal Coastal Branch of the British Medical Association. The primary object of Dr. Macdonald's visit was to attend the medical congress in Durban, of which Dr. Campbell was president. Dr. Macdonald had a most kind and flattering reception from the congress, and Dr. Campbell's hospitality and readiness to help knew no bounds. Dr. Campbell was equally hospitable and equally helpful to the Medical Secretary, Dr. Alfred Cox, during his recent visit to South Africa. His hospitality, Dr. Cox tells us, was famous even in a city where hospitality is one of the prime virtues regularly

practised. He took a deep interest in Dr. Cox's mission, and his advice with regard to the reorganization of the Natal Coastal Branch was of very great value. Dr. Campbell (Dr. Cox adds) was a man of great wit and charm, kept open house, and a visitor to it was always sure of meeting interesting people in a delightful atmosphere.

Dr. Campbell is survived by his widow and six children, a daughter and five sons, one of whom was associated with him in practice. With them great sympathy is felt, and the funeral was attended by a very large assembly, including representatives of the many local institutions with which Dr. Campbell had been associated, the Principal and a representative body of the staff and students of the Technical College, the town clerk and town treasurer, and the medical officer of health.

We may conclude this brief notice of his life's work by quoting the following sentences from one of the many tributes to his memory published by the local press:

"His tastes, like his sympathies, were catholic. He loved several kinds of sport; he was deeply concerned in politics, both municipal and national; he had all a Scotsman's veneration and affection for the 'land of brown heath and shaggy wood,' and he had also that saving grace of humour in the fullest plenitude. As a speaker on almost any subject he was entertaining as well as instructive, and he had always a high purpose in view."

Mr. CHARLES ERNEST PRONGER, who died on April 2nd at his residence in Harrogate, received his medical education at St. Thomas's Hospital, where he obtained the L.R.C.P. diploma in 1876 and the F.R.C.S. in 1891. He was for some time assistant demonstrator of anatomy at St. Thomas's. After a period of general practice in Barnstaple, during which he held the post of surgeon to the Barnstaple and North Devon Infirmary and consulting surgeon to the Barnstaple and North Devon Dispensary, Mr. Pronger removed to Harrogate in 1892, where he built up an extensive consulting practice in ophthalmic surgery. He was consulting ophthalmic surgeon to the Harrogate Infirmary, the Yorkshire Home for Chronic and Incurable Diseases, and the Northern Police Orphanage. He founded the eye department at the Harrogate Infirmary, and collected the necessary funds. Mr. Pronger made a special study of refractive errors, and was one of the first in this country to emphasize the importance of correcting minor irregularities. He pointed out that the grosser errors did not trouble the patient so much as the minor degrees, since in the latter case the eyes were constantly being strained in the endeavour to overcome the fault, an effort which was not made when the refractive error was greater. He was an enthusiast in this particular field, and won wide popularity by his success in relieving migraine, headaches, neurasthenia, and mental depression due to ophthalmic causes. He was the author of two monographs—one entitled *Slight Errors of Refraction and their Influence on the Nervous System*, and the other *Insomnia and Suicide*. He also published a paper on vertigo and its relation to errors of refraction. He took a keen interest in golf, and was at one time captain of the Harrogate Golf Club. He leaves a widow, but no children.

Dr. WILLIAM DODGSON BARROW, who died on April 10th, at the age of 55, in the Royal Lancaster Infirmary, was a member of a well known family which for more than a century has been prominently associated with the public life of Lancaster. He received his medical education in Edinburgh, where he graduated M.B., C.M. in 1893. In the same year he obtained the diplomas M.R.C.S.Eng. and L.R.C.P.Lond., and in 1897 became a Fellow of the Royal College of Surgeons of Edinburgh. His early appointments included those of assistant demonstrator of anatomy at Edinburgh, house-surgeon to the Borough Hospital, Birkenhead, and ambulance surgeon to the Royal Southern Hospital, Liverpool. He then returned to Lancaster, and was house-surgeon at the Royal Lancaster Infirmary 1898-99, and additional visiting medical officer from 1900. In 1903 he became honorary anaesthetist, and in 1909 an honorary medical officer to the Infirmary. During the war he was a member of the medical

board, and chairman of the finance committee of the Prisoners of War Care Committee. He was elected to the Lancaster Town Council in 1922, and served on various committees. He was for many years a member of the British Medical Association, and was honorary treasurer of the North Lancashire and South Westmorland Branch from 1904 to the time of his death. He was also a member of the Executive Committee of the Lancaster Division of this Branch from 1913 to 1926. He took an active interest in sport, and associated himself with the local Rugby football club, the cricket, bowling, and tennis club, and the golf club.

Dr. ARTHUR BENJAMIN WINDER died at St. Anne's, Lancashire, on April 22nd, aged 68. He was educated at the University of Edinburgh, where he graduated M.B., C.M., in 1884, and proceeded M.D. in 1892. After serving as assistant to the ear and throat departments of the Edinburgh Royal Infirmary and as medical officer of health for Thurstonland, Yorks, he commenced practice in Blackpool about thirty-five years ago, and was very successful. At the outbreak of the war he received a commission in the R.A.M.C., and was instrumental in establishing the Station Road Red Cross Hospital. He was subsequently promoted to major and appointed medical officer in charge of the x-ray and electrical department of the King's Lancashire Convalescent Centre, Blackpool. Dr. Winder, who removed to St. Anne's about a year ago, was created a justice of the peace in October, 1922. He was a member of the Blackpool Division, and took great interest in golf, having been captain of the Blackpool Golf Club on two occasions. He is survived by his widow.

Dr. EDWARD GURDON FREDERICK, who died on April 27th, after a long illness, received his medical education at King's College Hospital, taking the diplomas M.R.C.S.Eng., L.R.C.P.Lond. in 1896. Dr. Harold Beadles (Romford) writes: I have known Dr. Frederick during practically the whole of his professional career. For the last three years he practised at Seven Kings, but previously he had spent over twenty years in the dock district of West Ham. Those who have lived there will know of the hard work that falls to the lot of the professional man in such a district. Dr. Frederick had, nevertheless, always found time to devote to the interests of his fellow practitioners, and had been an active member of the Stratford Division of the British Medical Association since its inception. He was a member of the executive committee almost from the start, and chairman during the year 1921-22. He was one of the representatives of the Division at the Annual Meeting at Bath last year, and was diligent in his attendance at meetings of the Metropolitan Counties Branch Council.

Dr. ARCHIBALD BURNS GEMMEL died suddenly on April 28th. His health had been indifferent for some months past, and there is little doubt that the pressure of work during the strenuous years of the late war had left its mark. He was born in Dunoon, Argyllshire, sixty-four years ago, studied medicine in Glasgow, obtained the diplomas of L.R.C.P.Ed. and L.R.F.P.S.Glasg. in 1883, and became M.R.C.S.Eng. in 1884. After holding residential appointments in Glasgow and in Rangoon, Dr. Gemmel settled in general practice in Liverpool. He was a keen Volunteer, and became surgeon to one of the local Volunteer regiments of those days; which, six years before the war, became the Territorial Force of the city. At the outbreak of the war he became officer commanding the 1st Western General Hospital, and held the rank of lieutenant-colonel during the war. Under him the Infectious Diseases Hospital at Fazakerley formed the central hospital of the Western Command. Some thirty-two Liverpool hospital physicians and surgeons, as officers *à la suite*, were under the military authority of Dr. Burns Gemmel. Such a post demanded great tact and judgement, especially towards men of high standing in their profession and quite unversed in military routine. Friction at times was inevitable, but

on the whole the machine worked satisfactorily. Later on Dr. Burns Gemmel saw service in Boulogne and Marseilles, being in charge of similar hospitals. At the end of the war he was made C.B.E., and resumed private practice. Dr. Burns Gemmel leaves a widow, a daughter, and a son, to whom we desire to express our regret in their bereavement.

The Hon. Sir H. A. A. NICHOLLS, formerly principal medical officer of Dominica, West Indies, and well known for his work on tropical diseases, has recently died at the age of 74.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons rose on May 20th until June 1st. The chief business of the week has been the second reading of the Finance Bill, but the recent general strike has reduced parliamentary activities. Few questions were asked, and the meeting of the Parliamentary Medical Committee projected for May 19th was postponed. The Select Committee on Nursing Homes sat that day to take evidence from the chief medical officer of the London County Council.

Recreation Grounds in Urban Areas.

On April 28th the Hon. E. Cadogan opened a debate on the provision of recreation facilities in urban areas. In moving that the Government should insist on adequate provision of these facilities in town-planning schemes, and if necessary should confer greater powers, he said that in the report of the Royal Commission on National Health Insurance reference was made to the fact that the British Medical Association in its evidence doubted whether under a limited expenditure the best results in improvement in public health could be expected on the lines of National Health Insurance. The Association had suggested that, with an equivalent expenditure, better results might be expected from the application of the money for "proper housing and town planning, with due provision for recreation." The Minister of Health, said Mr. Cadogan, could not afford to ignore that testimony. By support and encouragement of athletics in industrial areas of great cities Parliament could not only improve the breed of mankind, but also its "moral qualities." He urged that any application for a grant from the Unemployment Grants Committee which had recreation grounds for its object should receive favourable consideration. He regretted that the Office of Works had incurred the charge of not being sympathetic towards the recreative needs of the public.

Mr. Campbell said that in the three years' plan of the London County Council Education Committee which was now running the Committee had specially arranged to have sites for elementary schools with ample playing ground. Of every £100 spent by the country on education only £2 4s. went on the school medical service. Money spent on schemes for recreation and playing fields would not in the long run be expensive, because they would save on doctors' bills. Mr. Morgan Jones said that in the years 1923 to 1925 the lowest figure for the loss of work through ill health in any one year was not below 70,000,000 weeks. Lady Astor said there was no more pitiable sight than the arrest of children for playing in the streets. They must provide healthy recreation for girls as well as for boys.

Sir Kingsley Wood pointed out that the Public Health Act, 1925, gave more power to urban and rural authorities, and also to county councils, to acquire, lay out, and maintain land for the purpose of games and recreation. During 1924-25 the Ministry of Health sanctioned an expenditure of nearly £1,250,000 on the provision of open spaces. The Minister was considering whether procedure for the acquisition of land for such purposes could not be made more expeditious. In many localities where people were living in disgraceful conditions housing must, however, come first. He was sure the House would agree with him in thanking Lord Rothermere for the gift of the site of the Royal Bethlehem Hospital to be a playground and a park for Southwark. Mr. Cecil Wilson said that unless the Ministry of Health dealt with the smoke nuisance the value of some of the open spaces would be destroyed. They had an area in Sheffield where there was not a tree within a mile, because trees could not grow there as the result of the effect of the smoke upon them. Mr. Hopkinson asked whether this generation was town planning for a greatly increased population, or, as he hoped, for a vastly decreased population. The House agreed with the motion calling for adequate provision in town-planning schemes for the reservation of open spaces.

Coroners Bill.—In the House of Commons, on May 12th, the Coroners (Amendment) Bill was read the second time.

Midwives and Maternity Homes Bill.—The Midwives and Maternity Homes Bill was given a second reading in the House of Lords on May 17th. The Marquess of Salisbury, Lord Privy Seal, explained that the measure amended the Midwives Acts of 1902 and 1918, and provided for the registration and inspection of maternity homes. It also enacted that no person, except in

a case of sudden or urgent necessity, should attend a woman in childbirth except under the direction and personal supervision of a duly qualified medical practitioner. The Archbishop of Canterbury said that the bill exempted from registration premises for the conduct of which a duly qualified medical practitioner resident therein was responsible. This, he suggested, might be an undesirable loophole. Lord Knutsford said that he did not see why hospitals should be excluded from inspection, and Lord Salisbury promised to give consideration to these points before the Committee stage.

Treatment of Tuberculosis.—On May 11th Sir J. Gilmour told Dr. Shiels that he had no exact information as to the extent to which pneumothorax treatment was practised in connexion with tuberculosis schemes. He was advised that medical opinion was not unanimous as to the value of this particular form of treatment, and its use, generally and in individual cases, must necessarily be left to the discretion of the responsible medical officers of the local authorities. X-ray installations for diagnostic purposes had been provided, or were in course of being provided, in fifteen institutions belonging to local authorities or combinations of local authorities. Local authorities which had not provided facilities of their own made arrangements with the authorities owning these institutions or with voluntary hospitals or other bodies which had the necessary facilities. On May 11th Sir J. Gilmour told Dr. Shiels that facilities for the treatment of tuberculosis by ultra-violet radiation (light treatment) had been provided, or were in course of being provided, by each of the four large cities in Scotland, the Middle Ward District Committee of Lanarkshire, the burghs of Greenock, Paisley, Motherwell and Wishaw, Coatbridge, Falkirk, Kirkcaldy, the county council of Ross and Cromarty, and the following combinations of local authorities: the Fife and Kinross Joint Sanatorium Board, the South-Eastern Counties Joint Sanatorium Board, and the Dumfries and Galloway Joint Sanatorium Board. The facilities so provided by local authorities were, by arrangement, in some instances available for neighbouring areas, and the facilities provided at certain voluntary institutions were also available to local authorities. The nine first mentioned local authorities and the burgh of Kilmarnock also provided, or were in course of providing, light treatment in connexion with their schemes of maternity service and child welfare. The Minister of Health, replying, on May 12th, to Dr. Shiels, said that in England, out of the 152 local authorities concerned, at least 115, according to information in his department, made arrangements for x-ray examinations, and at least 59 had arrangements available for pneumothorax treatment. It was possible that such arrangements existed in some of the other areas. In Wales, arrangements for both purposes had been made by the Welsh National Medical Association, with which all the local authorities in Wales contracted for the provision of treatment for tuberculosis.

Ultra-Violet Rays.—On May 17th Mr. Chamberlain, Minister of Health, informed Mr. Day that he had not received any evidence of injury resulting from the use of ultra-violet rays by unqualified persons. If the hon. member was aware of any specific cases in which such injury had arisen he would be glad if he would furnish him with particulars with a view to further inquiry.

Naval Appeal Tribunal.—On May 17th, Mr. Bridgeman, First Lord of the Admiralty, told Sir B. Falle that very careful consideration had been given to the question of an independent appeal tribunal for officers and men invalidated from the navy. The establishment of tribunals to deal with cases arising during the war was an innovation, but it was no doubt justified by the extraordinary conditions of the time—namely, the conscription of the majority of the adult male population, the arduous conditions of war service, and the difficult and complex medical questions involved. Under post-war conditions the same necessity did not, however, exist. Under existing conditions the service medical history of every man was well known, from the date of entry onwards throughout his career. The duties expected of him and the conditions under which they were performed were well known to the medical officers of the service, and he could not admit that any outside tribunal or referee was more competent to determine whether a man was physically fit for retention in the service or not, and whether a disease was attributable to the service or not, than they were. The decisions of local surveying officers were always subject to review by the medical authorities of the Admiralty, and any officer or man who was aggrieved by the decision in his case could appeal to the Board of Admiralty, with the result that his case was thoroughly investigated again. He felt sure that, on reflection, Sir B. Falle would agree that it would be quite impracticable to remit the question whether an officer or man was fit for retention in a fighting force to any authority outside the department. As to the other issue, the hon. member could not fail to recognize that the surveying medical officers were independent and unprejudiced judges, who could not have any personal interest whatever in the matter to prevent them from giving each case the most sympathetic consideration possible. He was, therefore, convinced that there was no justification for establishing a general right of appeal beyond the Board of Admiralty in these cases, and though he undertook to consider the possibility of making exceptions to the general rule in special cases, he found it impossible, after full consideration, to support any such proposal. Satisfied as he was that a general right of appeal was unnecessary, he had come to the conclusion that to single out any one or more diseases as affording grounds for exceptional treatment could have no other result but to create a sense of grievance among those who were invalidated for other diseases or injuries. He had consulted the Secretary for War and the Secretary for Air, and they, fully

endorsed the conclusions he had reached. He regretted, therefore, that he could not recommend any departure from the present rule that the decisions of the Board of Admiralty must be final.

Hours of Work in Industry.—On April 30th Mr. Mackinder moved the second reading of the Hours of Industrial Employment Bill, whose purpose was to provide a forty-eight hour week for all persons employed in industrial undertakings. Dr. Drummond Shiels drew attention to the researches of the Industrial Fatigue Research Board, working under the Medical Research Council, and quoted from the report by Dr. Vernon on "The significance of output in industrial efficiency," which appeared in the report of the Board for 1924. Dr. Vernon reported that reductions of hours in munition works was followed by improvement in working speed, but that three or four months were required to gain equilibrium with the shortened hours. Sickness time fell off steadily with the reduction of hours in munition works, and in the last three years lower rates of sickness had been shown in factories where a forty-four hour week was worked. Dr. Shiels thought these researches suggested that the working efficiency of the country would not be reduced by the passage of the bill before the House. Dr. Vernon Davies said that varying industries received their maximum efficiency from varying hours of labour. There should be a scientific particular question, and also into the would pay employers to inquire seriously workpeople and see that the hours worked were economically the best. Mr. Betterton (Parliamentary Secretary, Minister of Labour) said that the Conference of Ministers of Labour from Western European Countries which met in London had presented a report on hours of labour just after Easter. This report was before the Government. It raised great difficulties, but would receive very careful consideration. He suggested that to press the bill might prejudice the issue. The House divided, and rejected the bill by 186 to 119.

Railway Accidents during the Strike.—On May 18th, Colonel Ashley, Minister of Transport, told Mr. C. R. Morrison that between May 4th and 14th the railway companies reported the occurrence of six accidents to trains. As a result, four persons were reported to have been killed and thirty-five injured.

Notes in Brief.

A general memorandum under the Clean Meat Regulations has been issued to all meat traders in Southwark.

There were 244 deaths due to influenza in London in January, February, and March of this year.

The Minister of Health states that he hopes it will be possible to introduce a Rural Housing Bill this session.

Universities and Colleges.

NATIONAL UNIVERSITY OF IRELAND.

A MEETING of the National University of Ireland, for the purpose of conferring degrees and other academic distinctions, was held on May 15th in the Council Chamber, Earlscourt Terrace, Dublin. Dr. Denis J. Coffey, President of University College, Dublin, and Vice-Chancellor of the University, presided.

The following degrees and diplomas were conferred:

M.D.—E. T. Freeman, D. A. MacFlecan.
M.B., B.Ch., B.A.O.—P. H. Cummins, C. F. Carey, J. Coghlan, J. J. Craig, T. Daly, E. R. Devlin, Alice M. Duff, T. Duffy, P. Dwyer, J. F. J. Kelly, Kate A. Moran, Marguerite S. O'Mahony, Eileen M. O'Neill, J. I. N. O'Sullivan (*in absentia*), K. Phelan, T. J. A. Ryan, J. Vesey, G. J. Waters.
D.P.H.—J. J. McCann, Mary J. McEvoy.

UNIVERSITY COLLEGE, GALWAY.

The following degrees and diplomas were conferred on May 12th:

M.D.—A. J. W. Compton (*in absentia*).
M.B., B.Ch., B.A.O.—T. W. McDonagh, M. McEnroy (*in absentia*), P. Naughton, F. O'Sullivan.
D.P.H.—J. O'Dea, B.Sc., M.B.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A MEETING of the comitia of the Royal College of Physicians of London was held on May 13th, when the President, Sir John Rose Bradford, was in the chair.

Fellowship.

The following, having been elected to the Fellowship at the meeting on April 29th, were admitted as Fellows:

Sir Henry John Forbes Simson, K.C.V.O., M.B.Ed., Wilfred Edgecombe, M.D.Lond., Harold Pritchard, M.D.Lond., Frederick George Thomson, M.D.Lond., William Johnson, M.C., M.D.Lond., Charles Wilfred Vining, M.D.Lond., Richard Robins Armstrong, M.D.Camb., John Josias Conybeare, M.D.Oxf., John Cuthbert Matthews, M.C., M.D.Camb., Julian Lionel Priston, M.B.Lond., John Alexander Drake, M.D.Lond., Francis Richard Fraser, M.D.Ed.
Under By-law XL (b): Arthur Edwin Boycott, M.D.Oxf., John Thomson, M.D.Ed.

Two licences were granted.

Sheffield University Celebration.

Professor Arthur J. Hall was appointed representative of the College at the forthcoming celebration of the coming of age of the University of Sheffield.

The following additional by-law, having been moved for the

second time by the Registrar, was passed:

...not Examining Board or be character, conduct, or on which, in the opinion of the candidate unfit to become a member of the College shall be submitted to them by

The President then dissolved the comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary Council meeting was held on May 13th, when the President, Sir John Bland-Sutton, was in the chair.

Fellowship.

Mr. George Buckston Browne and Mr. Thomas Herbert Bickerton were introduced and admitted Fellows.

Walker Prize.

Dr. William Ewart Gye was introduced and presented with a cheque for £100 (the Walker Prize for 1921-25), together with a document declaratory of the award.

Cartwright Medal.

Dr. J. Sim Wallace was introduced and presented with a cheque for £85 and the Cartwright Medal in bronze, together with a document declaratory of the award.

Diplomas.

Diplomas of Membership were granted to 190 candidates. (The names were published in the report of the comitia of the Royal College of Physicians of London, published in our last issue, p. 851.)

Appointment of Representatives.

Sir H. J. Waring was appointed to represent the College at the celebration on June 10th and 11th next of the bicentenary of the foundation of the Faculty of Medicine of the University of Edinburgh.

Sir Berkeley Moynihan was appointed delegate to the celebration, on June 30th, July 1st and 2nd, of the coming of age of the University of Sheffield.

Conjoint Examinations.

A report from the Committee of Management was read and adopted. (An abstract of the report was printed in the report of the comitia of the Royal College of Physicians of London, published in our last issue, p. 852.)

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At the monthly business meeting of the President and Fellows, held on May 7th, Michael Gallagher was admitted to the Licences in Medicine and Midwifery of the College.

The following were nominated for Professorships in the schools of surgery of the Royal College of Surgeons in Ireland: *Midwifery*, Andrew Hope Davidson, M.D., F.R.C.P.I.; *Medicine*, George B. Nesbitt, M.D., F.R.C.P.I.; *Pharmacology*, Leonard Abrahamson, M.D., F.R.C.P.I.

Dr. Thomas Gillman Moorhead, Regius Professor of Medicine in the University of Dublin, was appointed to take the place of the King's Professor of Materia Medica and Pharmacy as visiting Physician to Sir Patrick Dun's Hospital.

The Services.

TERRITORIAL DECORATION.

THE KING has conferred the Territorial Decoration upon the following officers of the R.A.M.C.(T.A.): Lieut.-Colonels Alfred W. Moore, O.B.E., and Philip H. Mitchiner; Majors W. F. Denning, H. E. S. Richards, M.C., and A. L. S. Tuke, M.C.; Captain (Major Prov.) H. Pinto-Leite; Captain A. C. M. Savage.

DEATHS IN THE SERVICES.

Fleet Surgeon Hugh Winckworth Macnamara, R.N.(ret.), died at Peppard, near Reading, on April 16th, aged 66. He was educated at Newcastle-on-Tyne and Westminster Hospital, and after taking the M.R.C.S. in 1880, and the L.R.C.P.Lond. in 1882, entered the navy as surgeon on August 21st, 1883, attaining the rank of fleet surgeon in August, 1903, and retiring on December 10th, 1913. He had seen service in most parts of the world. Soon after entering the navy he served in the dispatch boats *Helican* and *Surprise* in the Mediterranean. The Duke of Edinburgh, who was then Commander-in-Chief in the Mediterranean, often used the *Surprise* for paying official visits. He next served on the *Excellent* in the gunnery school at Portsmouth, in 1890-93, and later at Gibraltar, and on the *Cordelia* in the West Indies. When the Orient liner *Ophir* was transferred temporarily to the navy, and fitted out to convey the King and Queen, then Prince and Princess of Wales, to India in 1901, Macnamara was her principal medical officer. He afterwards served in China, on the *Albion*, and in the *Royal Arthur* and *Euryalus* in the West Indies; in June, 1910, he joined the *King Alfred* in the Home Fleet, and from September, 1912, till his retirement, fourteen months later, was on the *Lion*, Admiral Beatty's flagship.

HERBERT JONES TESTIMONIAL.

We published in our last issue the second list of subscriptions to the fund started by the Herefordshire Medical Society to recognize the great work done by Dr. Herbert Jones for the profession and for the public health services in particular. We have now received from Dr. John Steed (Staunton-on-Wye, Herefordshire), the honorary treasurer of the fund, a third list, with an intimation that it is proposed to close the fund at the end of this month. We hope that before this its dimensions may be considerably increased.

THIRD LIST.

£5 ss.—Dr. R. Veitch Clark.
£2 ss.—Dr. R. A. Dunn (Hereford).
M.P., Drs. C. (Oxford), *1.
£1 ss.—Drs. (Association), .
mond, Surrey
*A. Wellesley
*A. J. Lavid, *S. C. Mostyn, *A. A. Musson, G. H. Pearce (Bacon),
*R. M. F. Picken, R. W. C. Pierce (Guildford), *Maitland Radford,
*W. Sison, *C. O. Stallybrass, *John Tate, Alfred E. White (Wellington).
10s. 6d.—Drs. J. H. Garrett (Cheltenham), *M. C. R. Grahame, Algernon
E. L. Wear, C.M.G. (Leeds).

*Through the Editor of *The Medical Officer*.

Medical News.

THE next session of the General Medical Council will commence on Tuesday, June 1st, when the President, Sir Donald MacAllister, Bt., K.C.B., M.D., will take the chair at 2 p.m.

DR. F. J. BROWNE, assistant physician to the Edinburgh Royal Maternity Hospital, whose important paper on the etiology of accidental haemorrhage was published in our issue of April 17th, has been appointed to the University Chair of Obstetric Medicine tenable at the Medical School of University College Hospital, London.

THE lecture by Professor Joseph Barcroft, F.R.S., on recent work on the spleen, which was announced to be given on May 6th at St. Mary's Hospital Institute of Pathology and Research, Paddington, W.2, has been postponed till Monday, May 31st, at 5 p.m.

A MEETING of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, Russell Square, W.C.1, on Friday, May 28th, at 3 p.m., when Dr. J. E. McCartney, Director of Research Laboratories, Metropolitan Asylums Board, will read a paper on some problems in infectious diseases.

THE Cavendish Lecture will be delivered before the West London Medico-Chirurgical Society by Professor G. Elliot Smith, M.D., F.R.S., on Friday, May 28th, at 8.30 p.m. at the Kensington Town Hall, and will be followed by the annual conversation of the society. The subject of the lecture is "Vision and evolution." It will be preceded by a reception by the President at 8 o'clock. Tickets may be obtained for members of the medical profession and their friends through members of the society.

AT the next social evening of the Royal Society of Medicine, which will take place on June 1st, Mr. Frederick Hobday, O.M.G., F.R.C.V.S., president of the Section of Comparative Medicine, will give an illustrated address on "Our animal friends as patients."

IN connexion with the postponed Nation's Health Exhibition at Leicester, which will now open on May 26th, a conference has been arranged by the British Social Hygiene Council for June 3rd, at 2.15 p.m., when Colonel L. W. Harrison will give an address and show the film he has prepared for the council to illustrate the diagnosis and treatment of syphilis. The conference will consider later in the afternoon what further steps can be taken to prevent congenital syphilis, and the opening address will be given by Dr. N. Cruickshank.

AS already announced, the twelfth International Physiological Congress will be held at Stockholm on August 3rd and three following days. The subscription of a member is twenty Swedish crowns, and this and all other communications with regard to the congress should be addressed to the Secretary, Dr. G. Liljestrand, Karolinska Institutet, Stockholm, Sweden. A typewritten abstract, of not more than 280 words in length, of any paper proposed to be read should be sent to him not later than May 31st. The Swedish consulates will visé passports free of cost on production of the membership receipt. Particulars about travelling rates and tours can be obtained from the office of the Swedish State Railway, 21, Coventry Street, W.1.

DR. ALDO CASTELLANI has returned from America, where, at the invitation of the authorities of the Tulane University, New Orleans, he organized a tropical medicine division in the Medical School. During his visit he delivered the Gehrman Memorial Lecture series at the University of Illinois; and at the annual meeting of the American Medical Association at Dallas, Texas, last month was awarded the gold medal, the highest recognition which can be given by the association. The award "was based on the excellent investigation in comparatively unexplored fields of medicine and for the perfection of the display" of specimens in the annual medical exhibition.

THE seventh annual International Neurological Reunion, organized by the Neurological Society of Paris, will be held on June 1st and 2nd at the Salpêtrière. The subject of discussion will be the clinical methods of examining the sympathetic system and their value. Further information may be obtained from the general secretary of the Neurological Society, Dr. O. Crouzon, Librairie Masson et Cie, 120, Boulevard St. Germain, Paris VI. This reunion will follow a congress on legal medicine in Paris, on May 27th to 29th, and the annual reunion of the Medico-Psychological Society on May 31st.

A PARTY of medical students from the University of Birmingham visited the brine baths at Droitwich, under the guidance of Dr. Douglas Stanley, on Saturday, May 15th. The methods of using natural brine baths were explained by members of the medical profession in Droitwich and by representatives of the baths management.

ACCORDING to *La Medicina Ibera*, although medical instruction at Lisbon can be traced back to the Middle Ages, the faculty of medicine, whose centenary was recently celebrated, was not founded until 1825, in the reign of Juan VI. The faculty now possesses twenty chairs, including one for medical ethics.

PROFESSOR ETTORE MARCHIAFAVA has recently received a gold medal from the Italian Government for his services to public health.

A CHAIR of medical jurisprudence and social medicine has been founded at the medical faculty of Lille University.

ACCORDING to the *Revue Franco-Russe de Médecine*, there are 5,163 medical practitioners in Leningrad without employment.

DURING 1925 612 cases of epidemic encephalitis were notified in the Ukraine, the largest number being at Ekaterinoslav, Pavlograd, and Zaporogie.

THE Cambridge University Press announces for early publication a book by Dr. Henry Head on *Aphasia and Kindred Disorders of Speech*, in two volumes. Volume i contains an historical sketch of the progress of knowledge in this subject, an account of the new methods of examination employed by Dr. Head, and the results of his clinical observations. Further sections are devoted to cerebral localization of function and to theoretical conclusions as to the nature and causes of aphasia. Volume ii gives a series of clinical reports of cases each of which illustrates one or more aspects of the problems dealt with in volume i.

THE Office International d'Hygiène Publique has recently published some interesting information relating to the prevalence and mortality of scarlet fever in Bulgaria, Czechoslovakia, Poland, Manchuria, and South Africa, supplied by the official delegates of those countries. Dr. Ivan Golosmanoff, the Bulgarian delegate, provides a table of the incidence of scarlet fever in Bulgaria during the last twenty years which shows that the annual average of cases from 1906 to 1922 was 4,200. In some years, such as 1907, 1914, and 1923, the disease assumed an epidemic character, and 6,355, 6,923, and 15,913 cases were notified. The annual average mortality from scarlet fever in Bulgaria has ranged from 12 to 20 per cent. The fact that the mortality was higher in one department (Petritch), where there was no hospital, seems to indicate that hospital isolation has some influence in lowering the mortality. According to Dr. Prochazka, the delegate from Czechoslovakia, there has been a considerable fall in the mortality of the disease in that country within the last thirty years (from 20 per cent. in 1893 to less than 5 per cent. after the world war). It is claimed that owing to more careful medical attention the mortality has always been less in Bohemia than in Moravia and Silesia. The death rate in Poland is relatively high; Dr. W. Chodzko states that since 1919 the mortality has ranged from 8.7 to 13.2 per cent. The value of vaccine prophylaxis is illustrated by the fact that of 2,654 children who received Garbitchewsky's vaccine only five contracted the disease. Four of these had a very mild attack and one died of pneumonia. On the other hand sixteen of those who were not vaccinated contracted scarlet fever in the course of the next six weeks. Dr. Tsurumi, the Japanese delegate, reports that in Manchuria the mortality from 1911 to 1919 ranged from 2.5 to 23.8 per cent., and states

that there were grounds for the belief that the disease had been introduced by the Russians during their occupation of the country. Not the least interesting of the reports is that by Dr. J. A. Mitchell, Director of the Health Service of the Union of South Africa, who states that the disease is almost exclusively confined to the European population, and that the natives are almost entirely refractory to it. On the whole the character of scarlet fever appears to be milder in South Africa than in Great Britain. The season and climate have a considerable influence on the predominance of the disease. Epidemics invariably occur in the cold months of the year, and the activity of the disease invariably declines when the hot weather commences. Scarlet fever is most prevalent in Capetown; at Port Elizabeth, where the climate is a little warmer, it is considerably less prevalent; at East London, where it is hotter still, there is even less scarlet fever; and lastly at Durban, where the climate is semi-tropical, the disease is relatively rare, except among children who have come from Johannesburg or other localities in the High Veldt in the incubation stage.

THE sixth annual congress known as the Journées médicales de Bruxelles, which will be held at Brussels from June 26th to 30th, will be presided over by Professor Jean Demoor, director of the Institute of Physiology at Brussels. It is expected that the attendance will exceed that of last year, which was over 1,500. In addition to numerous lectures and demonstrations by specialists from many countries, an international exhibition of applied art and science is being arranged, special classes being reserved for medical journalism and works of art by medical practitioners. The King and Queen of the Belgians will receive the members at the royal castle of Laeken; a dinner will be held in honour of Marshal Lyautey in appreciation of his services to medical progress in the French colonies; and a performance will be given of Rimsky-Korsakof's *Le Tsar Saitan*. Further information may be obtained from Dr. R. Beckers, 62, rue Froissart, Brussels.

A SOCIETY for the study of the history of medicine has recently been founded at Lemberg in Poland.

DR. GREGORIO MARAÑÓN has been elected president of the Spanish Medico-Chirurgical Academy.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9865, and 9864** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Facillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

LETTERS, NOTES, ETC.

LIGHTNING PAINS IN TABES.

DR. S. E. DEXTER (Hull) sends the following note: Dr. Washington Isaac (*JOURNAL*, May 1st, p. 814) writes of a patient who suffers severely from the lightning pains of tabes dorsalis. May I suggest that he tries 10 or 15 grain doses of acetylsalicylic acid. For several years I was in medical charge of a home for chronic cases, most of which were nerve cases, and one of them, a patient with tabes, suffered at times most severely from lightning pains; this went on for some years. He was always much more relieved by 10 grains of acetylsalicylic acid than by any other drug. It relieved his pain much more quickly than even an injection of morphine, which, indeed, he would refuse if he could get the other drug.

ECHINOCOCCAL CYSTS IN CAMELS.

DR. J. BURTON CLELAND (Professor of Pathology, University of Adelaide) writes: In reference to Dr. J. C. Milne's note (*BRITISH MEDICAL JOURNAL*, December 19th, 1925, p. 1206) in connexion with this subject, and the reply of Dr. G. W. Sudlow (January 9th, 1926, p. 76), the following further references may be of interest.

In an article entitled "Trypanosomiasis and other diseases in camels" (*Transactions of the eighth session of the Australasian Medical Congress*, 1908, vol. ii, p. 305, and also *Bulletin No. 34*, Department of Agriculture, Western Australia, 1909) I have recorded the occurrence of hydatid cysts in four camels which had recently been imported into the north-western part of Australia from Karachi in India. The following is an extract from this paper:—

Other Animal Parasites found in the Imported Camels.

"Hydatids (*Taenia echinococcus*).—In post-mortem examinations on four of the camels hydatid cysts were found in each. In one there were about a dozen cysts, some as large as a goose's egg, in the lungs. In the other three there were up to half a dozen, ranging to the size of a hen's egg. Single cysts were found in the livers of two. Two of the cysts were degenerating and becoming calcified. In one a large number of daughter cysts, about the size of a grain of sago, were present. In some brood capsules were conspicuous. Scolices were numerous, and also the rounded concentric bodies like starch grains. Considering the number of cysts present, and the fact that two were degenerating, it hardly seems possible that the camels can have gained the infection in Western Australia during a stay of five months, especially as, in the only two bullocks I have seen slaughtered here, the liver and lungs were unaffected, and stockmen here are not apparently aware of the presence of hydatids in this part."

UTERINE AND MAMMARY CANCER IN HOLLAND.

PROFESSOR H. W. METHORST, director of the Dutch Central Statistical Bureau, and Dr. H. T. Deelman, who recently have investigated the mortality due to uterine and mammary cancer in Holland, have published a statistical summary of their results in the *Nederlandsch Tijdschrift voor Geneeskunde* (1925, p. 1178). The general death rate in Holland is stated to have shown a regular and well marked fall since the middle of last century (from 25.56 per 1,000 in 1840-49 to 9.60 in 1924). The birth rate also showed a regular, though less pronounced, decline (from 33.54 to 24.89). The mortality from various causes was generally diminished, but not from cancer; this might perhaps be attributed in part to more correct diagnosis; longer duration of life might also be a factor, since cancer shows a predilection for the elderly. As in other countries, the mortality from mammary cancer is constantly higher in the unmarried than in the married; while uterine cancer is much less frequent among the unmarried, cancer of the body of the uterus shows a preference for unmarried and childless old women, while cancer of the cervix occurs chiefly in young women who have borne children. Since 1905 the mortality from uterine cancer in Holland has risen from 13 to 14.9 per 100,000 of the female population, and the mortality from mammary cancer from 9.9 to 13.3 in 1923. In 1924 the figures were 16.8 and 14.6 respectively. With the exception of North Brabant, where the mortality from uterine cancer has fallen from 10.4 to 10.1, all the provinces in Holland have shared in the increase. The likelihood of death from uterine and mammary cancer generally increases with age. Uterine cancer showed a moderate increase among the unmarried up to the 59th year, and then a fall until the 64th, succeeded by a moderate rise up to the 74th year, followed by a fall until the 79th, and, lastly, a rise after the 80th year. In married women uterine cancer showed a continuous slight rise up to the 69th year, followed by a considerable rise up to the 79th year, when a fall occurred. Mammary cancer in unmarried women showed a pronounced rise in each age group up to the 54th year; this was succeeded by a fall until the 59th year, followed by a rise, except from the 64th to the 69th year. In married women mammary cancer showed a slight rise up to the 59th year, followed by a fall from the 60th to the 64th, and then a slight increase until the 69th year, when the rise became more pronounced.

MEDICAL GOLF.

In the final of the Medical Golfing Society's spring tournament Mr. Joseph Cuning defeated Dr. E. Ravensworth Hart at the nineteenth hole, and thus won Mr. T. P. Kolesar's cup.

A BROADS CAMP FOR BOYS.

DR. F. CHAMBERLAIN, secretary to the Cadet Department of the Broads Cruising Association, announces that a camp will be held for public school boys between the ages of 14 and 18 on the Norfolk Broads for a fortnight from Saturday, August 7th. In addition to the provision of a pleasant holiday, full opportunities are given for learning watersmanship and small boat sailing. The charge for the fortnight is 7 guineas, and for one week 4 guineas. Further information may be obtained from Dr. Chamberlain, 127, Aylsham Road, Norwich.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 52, 53, 55, 57, and 58 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 188.

Observations

OR

THE THERAPEUTIC ACTION OF ULTRA-VIOLET
LIGHT UPON THE EYE.

BY

W. STEWART DUKE-ELDER, M.A., M.D., F.R.C.S.

(From the National Institute for Medical Research, and the Ultra-Violet Clinic, Royal London Ophthalmic Hospital.)

Of late years, owing largely to the work of Leonard Hill and his co-workers, the treatment of general disease by ultra-violet light is being rapidly put on a scientific basis, but hitherto no serious attempt has been made in this country to investigate how far it might be utilized in the treatment of diseases of the eye. To this paper, which is a preliminary report of the experience gained at the Ultra-Violet Clinic of the Royal London Ophthalmic Hospital, I must prefix an acknowledgement of my indebtedness to the Medical Research Council for opportunity and financial aid in this work, and to Professor Leonard Hill and Sir John H. Parsons for much stimulating help and encouragement. The preliminary nature of the paper must be emphasized. The method of treatment cannot as yet be said to be altogether out of the experimental stage, and sufficient experience has not yet been obtained to dogmatize absolutely on its indications and limitations, or to assign to it its ultimate value in our therapeutic armamentarium. The present paper is based on the treatment of seventy cases, and it is hoped that later, when larger statistics have been gathered, fuller and more authoritative reports will be published. At the present moment, however, it is felt that results of sufficient interest have accumulated to warrant publication, largely in the hope that the knowledge of them may stimulate others to supplement them out of their own experience.

At present the therapeutic action of ultra-violet light is largely a mystery which presents theoretically many interesting and elusive problems. The clinic has outrun the laboratory, for the stimulating effect of this form of radiant energy upon the normal individual, and its therapeutic influence in many diseased states, cannot be denied. It is already well known that ultra-violet light, particularly of wave-lengths 2,500 to 3,000 Angström units, exerts a very definite biological action on the skin, whose apparent signs are the production of an erythema followed by death and desquamation of the outermost layers, and that thereby activities of great therapeutic value are called into being. These activities are comprised partly of electrical forces set free in the change of potential involved in atomic disintegration, and partly of chemical factors, the result of the destruction or partial destruction of the cell proteins, the products of whose death and disruption, being set free into the general circulation, increase the non-specific immunity of the body, much in the same manner as the production of homoproteins presumably plays the leading part in the chemical mechanism of defence and immunization against disease generally. In the benefits of these activities the eye shares in common with the rest of the body.

In the treatment of eye diseases ultra-violet light may be utilized in two ways: applied as general light baths to the skin of the body generally, or applied locally to the eye itself. We shall refer to the first as "general phototherapy," to the second as "local phototherapy."

GENERAL PHOTOTHERAPY.

The technique employed by the writer in the administration of general light baths is based on that elaborated by Leonard Hill and Eidinow¹ at the National Institute for Medical Research. This method of procedure aims at giving the optimum intensity of radiation over the optimum area of body surface as gauged by the estimation of the bactericidal power of the blood. So far as we are aware at present, this is the only systemic effect of radiation which submits itself to scientific estimation on whose basis we can regulate our treatment. Hill, Eidinow, and Colebrook²

have shown that after exposure to ultra-violet light this property of the blood is increased, sometimes to a marked degree, the effect being due in large measure to the formation and biological action of photochemical products liberated from the leucocytes. Further, Colebrook² has demonstrated that excessive dosage diminishes the haemo-bactericidal power, an effect which can be correlated with the mental and physical depression which too large doses of ultra-violet light almost invariably produce. The total effect produced varies with the intensity of the radiation and the area of skin exposed; and, going a step further, Eidinow¹ has shown that the optimum effect is obtained with radiation of such intensity as produces a mild erythema extending over an area of about one-quarter of the body surface.

Individuals vary largely in the degree of their susceptibility to light, and therefore the routine procedure adopted is to estimate first the reaction of the patient by a determination of the duration of exposure required to produce the faintest recognizable erythema. This "minimal erythema dose" is obtained by exposing small areas of the inner surface of the arms or of the back to the mercury vapour lamp at about one metre distance for periods of two, three, and eight minutes. The following day the areas are observed, and dosage commenced whose duration is judged from the standard thus obtained. Thereafter, during the course of the treatment, the body is divided into four areas—the chest and front of the abdomen, the back, the front of the legs, and the back of the legs—and each of these is irradiated on alternate sittings. The patient attends the clinic on three days a week, and in this way practically the whole body is irradiated once in ten days. The object of each dose is to produce the faintest perceptible erythema, after which there is a fine desquamation of the cuticle. This desquamating skin is very opaque to the ultra-violet rays, and to irradiate it would be largely a waste of time; further, the newly exposed skin is extremely sensitive, and gives a strong reaction. The ten days' interval between successive treatments of the same part brings the alternating areas up for re-exposure after the stage of desquamation has passed, and when fresh but not too sensitive skin is exposed. By this routine an optimum reaction is obtained automatically over an optimum area; an optimum increase of the haemo-bactericidal power is induced; and with this—as far as we can judge—an optimum general effect is obtained from the course of treatment.

Sensitiveness varies largely with individuals, and moreover with different parts of the body in the same individual; the back and hams are practically always more easily affected than the front of the body. The dose is therefore regulated for the individual, and varied with the area exposed to suit the case. After some time a certain amount of immunity develops. As a general rule the initial dose is two to three minutes with the mercury vapour lamp (K.B.B., atmospheric, 200 volts, 2 to 3 amperes), and works up fairly rapidly to twelve or fifteen minutes, where it remains for a very long time, since the small dose given and the method of alternately resting the skin keeps it in a condition of "light sensitiveness."

CLINICAL CONDITIONS.

As in the other parts of the body, so in the eye, the diseases most amenable to treatment are the chronic inflammatory. This, in fact, is one of the most satisfactory aspects of phototherapy in ophthalmology, for in many of these cases little can be done by the ordinary methods of treatment at our disposal. The experience gained points to the view that in the earlier acute stages general phototherapy very frequently does more harm than good, and that relapses are prone to occur. The best time to commence treatment appears to be immediately after the acute symptoms have passed off, before the disease can be definitely labelled "chronic," and before the lesion is complicated by the accumulation of massive organized deposits, or restoration rendered impossible by extensive tissue degeneration and destruction.

In the eye cure, from the patient's point of view, is placed on a much higher standard than elsewhere in the body. By him the end-result is interpreted in terms of the vision finally obtained, and whereas elsewhere the

formation of a cicatrix is welcomed as a desirable termination deserving to be considered a satisfactory cure, in the eye such a culmination too often renders the organ useless, and is therefore interpreted as a failure. For this reason it is important to get the cases under carefully supervised treatment as early as is safe. In many chronic cases improvement has been slow, and, although in some the rate of progress has been astonishing, in others the treatment has been a question of weeks or months, calling for no little patience on the part of all concerned. Experience has shown that this should never be allowed to tempt one to increase the dosage beyond the limits already outlined. With the ease with which it lends itself to examination, and the importance the patient places upon slight changes in subjective symptoms, the eye lends itself to the appreciation of slight changes for better or for worse more readily than most organs of the body; and I am convinced that the best results are obtained by rigidly refraining from "pushing" the treatment, but rather allowing what is really a natural cure of the disease to act slowly, and gradually, and naturally.

In all cases, almost from the commencement, the marked general tonic effect is evident. Almost invariably, whether the eye condition clears up or not, one is told that the patient feels better and stronger and is generally more fit, that the appetite increases, sleep improves, and weight is put on. Particularly is this seen in children, and more especially in the sun-starved creatures that the hospital largely caters for. Not only is the stimulation confined to the physical state, but usually the mental state responds as well—indeed, in the assessment of the progress of treatment this factor leads one easily astray: the influence of the undoubted psychological effect of the treatment at the clinic, the unfortunate popular belief that ultra-violet light is a cure-all for everything, and the general mental and physical tuning up, delude the patient into thinking that rapid progress is being made, and it is easy for the observer to be led to share in his enthusiasm.

Tuberculous Lesions.

The affection which gives the readiest response is ocular tuberculosis in any of its forms. The importance of this is realized when it is remembered that tubercle of the eye is one of the most depressing and hopeless diseases in ophthalmology. With the methods of treatment ordinarily used the history of such a case is too often one of gradual and relentless deterioration, ending ultimately in blindness or in the excision of the eye for pain. The effect of light treatment at the clinic has been most encouraging, and the patients have uniformly improved from its commencement—as a general rule slowly, sometimes with remarkable rapidity. No case would seem to be too bad to be altogether despaired of, and it would seem not unreasonable to hope that the prognosis of this disease may be completely altered.

Of the 70 cases on which this paper is based, 9 were labelled clinically as tuberculosis—that is, they showed lesions which appeared typically to resemble tuberculosis, had a positive von Pirquet reaction, and other sources of infection were excluded. Eight cases of irido-cyclitis have made, or are making, most satisfactory progress; two examples may be cited.

A woman, aged 37, had had recurrent attacks since 1914; the disease was steadily progressive in spite of all methods of treatment—tuberculin, arsenic, etc.; the left eye was excised in 1920 for pain and raised tension. When ultra-violet light treatment was commenced vision of the right eye was reduced to bare perception of light. After ten weeks' treatment (general and local), intermitted with rest periods, the massive keratitis punctata has completely disappeared, the eye is quiet and white, she can see to get about the streets of London unaided, and is rapidly improving.

A woman, aged 23, who had massive keratitis punctata, ciliary injection, and nodules on the iris, has, after thirteen treatments, a perfectly quiet and white eye, with no clinical pathological evidence.

The remaining case of the nine, a woman aged 23, was of tuberculous dacryocystitis. Five years ago she was under the care of Rollier in Switzerland, under whose treatment the disease cleared up. A relapse occurred eight months ago, and in spite of surgical treatment an open discharging wound persisted. After four weeks' treatment the wound has healed, and all signs of activity have disappeared.

Phlyctenular Kerato-Conjunctivitis.

The other disease in which startlingly good results have been obtained is phlyctenular ophthalmia, especially the type which is met with in so chronic and recurrent a form

in the debilitated and sun-starved children of large cities. The ready and rapid improvement in these cases is remarkable; after a few days' treatment most of the distressing symptoms have disappeared and the photophobia has gone; after a few weeks' treatment a child whose eyes have been in a chronic state of intermittent irritation for years will clear up, and the general health will improve in a remarkable manner. Relapses, however, have occurred in a few cases, and the end-results have not been sufficiently long observed to allow one to dogmatize on the permanency of the improvement derived from one course of treatment; but the relapses are easily controlled by a repetition of another course of irradiation. The most satisfactory method of dealing with these cases would appear to be the establishment on a large scale of municipally owned centres in the more congested and badly housed areas of the large cities, where these children could receive at regular intervals throughout the year some of the benefits of the open air and sunshine which they so sadly lack.

Infective Irido-Cyclitis.

Cases of infective irido-cyclitis show on the average a much less dramatic response to ultra-violet light treatment, and a response which varies very much from case to case. Excluding the tuberculous lesions, the series comprises 29 cases, all of which were of considerable severity, and the majority of which were of very long standing before they were referred for treatment at the clinic. Of these, 5 have improved so rapidly as almost to be considered as cured within a few weeks; 12 have shown a slow and steady betterment; in 8, apart from the usual improved general condition, the eye lesion appears to have made little or no progress; and 4 have definitely got worse during treatment. In 3 of these 4 the reason is now obvious—that treatment was undertaken while the disease was too acute. Thus 60 per cent. showed an improvement, of which proportion in 30 per cent. it was extremely satisfactory; 40 per cent. have reacted disappointingly, but the majority of these, it must be admitted, were of very long standing; all were considered as quite intractable to the ordinary methods of treatment, and most were sent only as a last resort. On the average, therefore, the results of treatment, as judged on a statistical basis, are to a high degree unfair. At the present stage sufficient experience has not been accumulated to lay down any definite rules of general value as to the indications or contraindications—if any—on which to base a selection of cases.

Sympathetic Ophthalmitis: Choroiditis.

The one case of sympathetic ophthalmitis which has been treated improved so rapidly that in three weeks the eye looked quiet and the injection and practically all the keratitis punctata had disappeared. Three cases of choroiditis have been treated. One, a case of many years' standing, showed no apparent change; the other two rapid and marked improvement.

It is to be remembered that in all these cases the usual routine treatment with atropine, etc., was persisted in throughout; tuberculin was given to some of the tuberculous cases, arsenic to the sympathetic, and in the infective iritis any focus which could be detected was dealt with, and its removal attempted in the usual manner.

LOCAL PHOTOTHERAPY.

The media of the eye share the property of all living matter of being transparent to some wave-lengths of the energy spectrum and opaque to others. Those waves to which the eye is practically transparent pass through the media without exerting more than a correspondingly negligible effect upon them, either pathologically or therapeutically; it is only those waves which are absorbed which can have any action—a generalization which applies here as elsewhere in the physical universe. In the ultra-violet region of the spectrum it may be taken that all waves shorter than 2,950 Angström units are completely absorbed by the cornea, and that above this level an ever-increasing percentage is transmitted, until at the region 3,100 to 3,150 A.U. practically all are transmitted to the underlying lens and iris. The lens absorbs all radiation incident upon it below 3,200 A.U., practically all that below 3,500,

and continues to absorb an ever-diminishing amount up to a limit which varies with the age and the degree of sclerosis, but which may be taken to average 4,000 A.U.; the retina is reached, therefore, by practically all the incident radiation in this spectral region above 4,000, and by some of the incident radiation down to wave-lengths as short as 3,200. The pigment in the iris absorbs all wave-lengths that fall upon it, and degrades the energy into heat.

That part of the incident energy which is absorbed produces a reaction which may be either thermal or abiotic, depending on the length of wave. By the use of suitable filtering screens it has been determined that in the cornea³ the upper limit of wave-length for abiotic response is about 3,050 for the intensities of radiation that can be used clinically, but since comparatively great intensities are required to produce any observable reaction with rays above 3,000, the latter figure may be taken for all practical purposes as the liminal wave-length. Radiation with rays above this produces a thermal lesion, resulting in a burn if sufficient intensities be used; waves shorter than this produce, after a definite latent period, the characteristic symptoms of photophthalmia, with a typical abiotic tissue reaction of desquamation of the epithelium and destruction or partial destruction of the underlying cells. Not only is there a critical threshold of wave-length, but also of energy intensity required to produce a response, which I have found to be on the average, for the production of a mild reaction, slightly under 2 I.K. (infusoria killing) units—that is, such an amount as is obtained from a mercury vapour lamp (K.B.B., atmospheric; 200 volts, 2 to 3 amperes) at a distance of half a metre in two and a half minutes, which corresponds to slightly less than the intensity required to produce a minimal erythema on the skin. In doses under this intensity, short-waved radiation, while it produces no irritant action, seems to have some therapeutic, and certainly some analgesic, action; doses of this intensity produce a temporary abiotic reaction; higher intensities involve a marked photophthalmia, and may, in extreme cases, result in the production of an opacity, which, although becoming highly vascularized and to a large extent disappearing in a few weeks, is often to some degree permanent.

In the lens³ the radiation which is absorbed causes changes of exactly similar nature in the proteins of its fibres, the long thermal rays more readily than the shorter abiotic. These changes result in the coagulation of its proteins or in an increase in the lability of their colloid system, so that they are more easily coagulable by other influences—an occurrence which involves the formation of an opacity, or the production of a state wherein an opacity may be induced more readily than normally. In the iris, owing to the absorption of the pigment, a thermal effect is easily produced, which completely masks any abiotic action, and involves hyperaemia, congestion, and even the production of an iritis if sufficient intensities be employed; but when the pigment is lacking, as in the albino, or where very mild intensities are used, an abiotic effect can be obtained, since most of the incident energy above 2,950 A.U. reaches it. The lens protects the retina³ so completely that an abiotic reaction here is very difficult to elicit within reasonable limits of intensity of radiation; but the absorption of the pigment makes it easy to produce a marked thermal lesion even with the shorter visible rays.

In radiating the eye directly, therefore, when an irritant effect on the cornea, conjunctiva, or lids is aimed at, rays shorter than 3,000 A.U. are used, or, in practice, the whole of the spectrum from the mercury vapour lamp. When a mild abiotic effect or an analgesic action on the cornea is desired, rays of 3,000 and longer are used; the mercury vapour lamp has two strong bands at 3,020 and 3,050 A.U. In radiating the interior of the eye the infra-red rays are inadmissible in any quantity, owing to their potent action in causing opacity in the lens and destructive thermal lesions in the retina and iris. The visible rays are also inadmissible on account of their discomfort, due to glare, and, when in great intensity, of their heating effect on reaching the pigment of the retina. The region of the spectrum between 3,000 and 4,000 would appear to be the least noxious, since here the heat effect is at a minimum, the luminosity

is low, and there is still a considerable amount of abiotic energy, although not of a strength so great as to exceed the threshold for producing the distressing symptoms of photophthalmia. It might be argued that to use these indiscriminately would be reasonably safe, especially in the relatively small and intermittent doses used clinically, derived from sources of small extensity subtending a small solid angle, and therefore involving no great energy concentration in the lens; but these waves are to a large extent absorbed by this tissue, and it is very probable that in the formation of all forms of cataract the common and fundamental process is the absorption of radiant energy³; moreover, in the present case we are dealing with pathological eyes wherein lenticular degeneration readily occurs. All rays, therefore, should be controlled so that the lens is excluded from their path of incidence.

Passow¹¹ has recently sought to overcome the difficulty of obtaining a strong abiotic effect without the attendant photophthalmic symptoms by the use of visible light with sensitizers (Bengal blue, etc.), and Löwenstein¹⁰ and others have used fluorescein in a similar manner. Our knowledge, however, of the action of sensitizers is at a stage when their use should be resorted to with caution, for, although good results may be obtained at the time, unpleasant after-effects may possibly ensue. The formation of cataract by the injection of these substances has been referred to elsewhere,³ and Leonard Hill and Campbell,⁶ on similar treatment of the mesentery, constantly found the formation of capillary thromboses. Even on the local application of such substances to the surface of the cornea it is more than probable that they will be rapidly absorbed into the interior of the eye, when we consider the rapidity with which substances such as atropine, when administered externally as drops, are found to act upon the iris. Until, therefore, substances with a higher selective bacterial affinity are elaborated, the use of sensitizers would appear to be fraught with possible immediate danger to the retina, and probable ultimate danger to the lens.

The technique I employ is as follows. The mercury vapour lamp is used in preference to any form of carbon or metallic arc, owing to the smaller emission of heat rays. In diseases of the lids and conjunctiva, where an irritant abiotic effect is desired, a screening apparatus bearing a quartz director 8 in. long and curved half an inch from the tip at an angle of 140 degrees, concentrates all the emittent rays from the mercury vapour lamp into a parallel beam issuing from the director tip. The director is carried by a flexible spring holder, so that there is considerable play at its distal end, with which the cocaineized and everted lids are slowly massaged, sufficient pressure being applied at the same time to render the parts temporarily anaemic. It has a rounded end, so that it can be inserted into the recesses of the fornices. In conditions such as trachoma, where a stronger effect is desired, the lids are everted and held so as to cover up the cornea completely, and the direct light of the lamp concentrated on the conjunctiva at a focus by a lens system of quartz. In the treatment of corneal lesions, where a similar irritant action is required, the director is held obliquely almost touching the cornea, its bent tip being at such an angle that none of the rays reach the pupillary aperture. Where an irritant effect is not required, but a mild abiotic and sedative action, filtered light is obtained by passing it through a Chance's filter and concentrating it to a focus with an ordinary glass lens, rays above 5,000 A.U. and below 3,000 being thus excluded.

It has been shown that the dose of light necessary to produce pathological effects visible microscopically on the cornea is slightly less than that required to produce a minimal erythema on the skin. The latter standard is therefore first obtained, and the local dose thus gauged. In conditions where the urgency of the case forbids waiting for the twenty-four hours necessary to obtain this standard (as in corneal ulcers) the average dose of two and a half minutes at the working distance (1/2 metro) is given, and the individual dose calculated in the usual way in the meantime. Local treatment is usually accompanied by a course of general light baths should the condition at all seem to require it, these reinforcing its action, and giving the patient the benefit of the general tonic effect.

We propose to differentiate the treatment of the external

eye (the cornea and conjunctiva) and the lids from that of the internal eye by the terms "external" and "internal" phototherapy.

EXTERNAL PHOTOTHERAPY.

Diseases of the Lids.

Chronic blepharitis, squamous or ulcerative, has been found to respond extremely well to ultra-violet therapy, especially the type so commonly met with in debilitated children, which is characterized by continual relapses, and lack of response to the usual local medicaments. In young children the quartz director is used to the everted lid margin; in older people light is concentrated thereon by the quartz lens. In some cases complete healing results from one or two applications of ten minutes to a quarter of an hour; in all those treated cure was eventually obtained. In the more chronic cases, after some months, lashes which have fallen out regrow.

Diseases of the Conjunctiva.

In the treatment of diseases of the conjunctiva the reaction aimed at is one of tissue irritation and destruction, and coincidentally of bacterial destruction. Initial doses of five minutes are given, and the patient is seen the next day and the effect observed. If the reaction is good its subsidence is awaited; if not, a dose of ten, fifteen, twenty, or even thirty minutes is given, depending on the lesion. In doses of five minutes' duration an acute conjunctivitis starts in about eight hours, and lasts for forty-eight hours; after high doses of thirty minutes the latent period is shorter, and the inflammatory symptoms may remain for a week. A whitish-yellow false membrane forms which, if an attempt is made to remove it, re-forms during the first few days, but which ultimately falls off, leaving fresh unscarred conjunctiva exposed. The absence of corneal damage does away with the distressing symptoms of photophthalmia, and the patient is little incommoded.

Chronic catarrhal conjunctivitis, in the two cases treated, cleared up after six and eight sittings. Three cases of *trachoma* have given most satisfactory results. An acute exacerbation in one case cleared up after two applications; the other two have very much improved after six sittings, the effects of which compare very favourably with the deep scarring caused by prolonged copper applications. One case of *vernal catarrh* showed slow but very satisfactory progress.

Diseases of the Cornea.

In the treatment of corneal lesions one of two effects may be aimed at—an irritating effect on the tissues produced by the shorter waves, or a sedative effect produced by the milder abiotic influence of rays over 3,000 Å.U.

Corneal ulcers have been found to respond very favourably to treatment by radiation; especially is this so in the case of marginal ulcers. The two cases of hypopyon ulcer so far treated became quite quiet after the third exposure. The quartz director is used, and a beam of unfiltered light is played obliquely over the ulcer, the time of exposure being regulated to be slightly less than that required to produce a minimum erythema on the skin of the back or the inner surface of the arm. If the condition appears so urgent that it is not desirable to wait for this, an average initial dose is given arbitrarily of two and a half minutes at the distance worked at (1/2 metre), and the individual dosage calculated in the usual way in the meantime. The ulcer heals with a considerable amount of localized opacity formation, which becomes highly vascularized, and to a large extent clears up, thus corresponding in its behaviour to the opacities produced on the experimental irradiation of the cornea of the rabbit.³ It is possible that the therapeutic action is largely one of irritation and increased vascularity, but it is also probable that abiotic action, involving the production of photochemical products from the injured corneal cells, play a part also. Hertel⁸ demonstrated that bacteria suspended in a quartz cell in the anterior chamber were rendered immobile by ultra-violet light; but Verhoeff and Bell,¹² on the other hand, showed that these rays cannot kill bacteria within the cornea without causing severe injury to that structure. Confirming this, I have found that the freshly excised cornea of the rabbit completely protects staphylo-

cocci sown on agar from the lethal action of light, and also that if the anterior chamber is injected with a culture of the same organism, and thereafter the eye be exposed to radiation of an intensity which causes the formation of a definite opacity, the aqueous shows on culture a growth no less abundant than that obtained from unradiated controls. It is probable, therefore, that direct killing by ultra-violet light of the bacteria responsible for the ulcer does not enter largely into the question, and it is here especially where a sensitizer—could a safe one be found—which would attach itself to bacterial protein in preference not only to the corneal tissue but also to blood, would be of immense advantage.

Corneal opacities have been reported as partially clearing up with ultra-violet radiation. While it is possible that the increased vascularity which follows radiation might have this effect in a recent condition, I have so far been unable to substantiate this claim.

Phlyctenular keratitis, in addition to being treated with general baths, is much benefited by the local application of light. One striking feature is the almost immediate, although temporary, relief which radiation with the filtered rays brings on in the photophobia and blepharospasm.

Interstitial keratitis, to judge from the ten cases treated, is little influenced either by general or by local treatment, although the photophobia is relieved, and the general condition much improved.

Acne, on the other hand, responds very favourably to the treatment. In the two cases treated, the distressing and damaging lesions on the cornea were greatly benefited, and recurrences have been so far warded off. Short exposures with the quartz director, or longer exposures to filtered rays, together with skin baths directed especially to the associated lesions on the face, have been found to clear up both the eye and the facial condition. Where, however, dense corneal opacity and infiltration have been caused by repeated attacks, these residua have remained while the active process has died down.

One case of *episcleritis* of unknown etiology completely resolved after three radiations of five minutes' duration of unfiltered light concentrated by a quartz lens.

INTERNAL PHOTOTHERAPY.

A number of writers on the Continent have reported very favourably upon the treatment of *iritis* and chronic *irido-cyclitis* by local radiation alone; Koeppé,⁹ using filtered and concentrated long ultra-violet rays, is particularly enthusiastic over this method of treating tuberculous lesions, and with its use he has obtained very satisfactory results. I have never yet relied upon this method alone, since it seems reasonable to add to any effect it may have the undoubted aid of general baths. In three cases of *iritis* which were being treated by general phototherapy, periods of a fortnight were selected, when, in addition to the general treatment, filtered rays were focused upon the iris for periods of ten minutes three times a week. In each case the patients asserted that considerably more improvement followed than by raying the skin alone, and the appearance of the eyes certainly did not belie their statements.

Choroiditis and *chorio-retinitis* have been similarly treated locally by Koeppé,⁹ Poyales,¹² Birch-Hirschfeld,¹ and Stock,¹³ and they report good results. It would seem, however, that caution is to be observed in such treatment; general light baths do such patients good, and it seems that to focus light of an abiotic nature into the eye in such intensity that it will have any marked action is running an unjustified risk of laying down future trouble in the lens.

Up to the present the procedure adopted has been to accept for treatment any case that promises to do well at all, and all cases wherein the usual methods of therapy have failed. Such a method of selection obviously involves a proportion of disappointing results, since advanced and almost hopeless cases predominate; but the failures are no less valuable than the successes. Later, when methods of technique have been standardized, and results of greater statistical value have been collected and are compared with those of others, it would seem reasonably safe to predict that an agent of considerable value will have been added

to our therapeutic armamentarium—an agent which, although not by any means a general panacea, is the more valuable in that many of its successes are those very chronic and difficult cases in which the prognosis has hitherto been so hopeless.

A bibliography of the literature of ultra-violet therapy in ophthalmology is appended.

It is a pleasure to thank the members of the staff at Moorfields for their cordial assistance and advice, and for according me the privilege of making use of and reporting their cases.

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DEATH FROM FULMINATING PNEUMONIA AFTER BRIEF NITROUS OXIDE ANAESTHESIA.

BY

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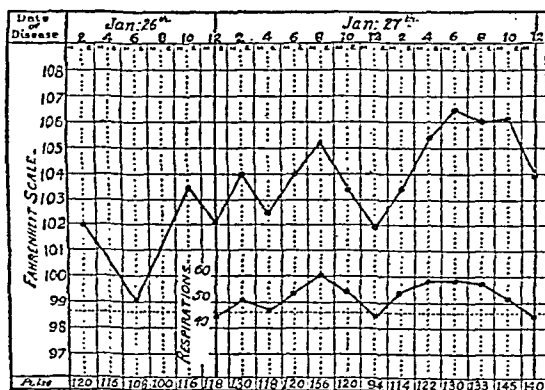
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An apparently healthy lad was anaesthetized with nitrous oxide and the stumps of a molar tooth extracted. He never recovered consciousness and died in thirty-seven hours. The main features of this remarkable case are as follows.

A.B., aged 17, the brother of a dental student of Liverpool University, was seen by a dentist in June, 1923; he unsuccessfully attempted to remove two stumps of a lower molar tooth. A local anaesthetic was used. Six months later the jaw was x-rayed at the Liverpool Dental Hospital and an appointment made for extraction. On Saturday, January 26th, 1924, the patient came to the hospital as arranged. At 11 a.m. he was anaesthetized with pure nitrous oxide, and the stumps extracted without difficulty. The administration of the anaesthetic and the extraction took a minute or slightly more.

The patient began to recover from the anaesthetic, but soon went a "nasty colour, then black," and collapsed. As air failed to enter the lungs properly he was placed on the floor and artificial respiration resorted to; 15 minims of ether were injected subcutaneously. A few minutes later Dr. Earlam, a house-surgeon at the Liverpool Royal Infirmary, was summoned. He found that the patient was cyanosed. There was a gag in his mouth; but owing to an unusual deformity of the lower jaw the chin was pressing on the larynx. On removing the gag and pulling the chin forward, breathing became much freer.

At 1.30 the patient appeared to be progressing satisfactorily, but was still drowsy, so he was put to bed in the Royal Infirmary under the care of Dr. Douglas Bigland; the temperature was then



102°, and the pulse 118 (see chart). Soon after admission he had a generalized convulsion, lasting one or two minutes. At 3 p.m. the convulsions recurred for about fifteen minutes with incontinence of urine and faeces; they were so violent and persistent that a strait-jacket was necessary.

The patient was treated with wet packs, and the temperature fell a little, but at midnight it was again 102°; the respirations were 45 (see chart). Lumbar puncture was then performed; the fluid, though under slightly increased pressure, appeared normal, but unfortunately the tube containing it was broken immediately afterwards. Throughout January 27th there were no more convulsions, but the coma persisted and the temperature rose still higher; the respirations were about 50. The breath smelt strongly of acetone, and the urine was found to contain a large quantity of it, but no sugar, no albumin, and no urobilin. More wet packs were employed, also intravenous salines, insulin, and adrenaline. The skin became a peculiar "yellowish tinge," and the patient died at 12.15 a.m., January 28th, thirty-seven hours after the anaesthesia.

Necropsy.

The post-mortem examination was made fourteen hours later by Dr. Howell Evans, lecturer in pathology, Thompson Yates Laboratory, Liverpool University.

The brain was congested and contained a few punctiform haemorrhages; the membranes were normal. The thymus was big "but not definitely enlarged." The tonsils were not enlarged. The trachea and bronchi were intensely congested; there was no blood and no other foreign body present in them nor in the larynx. The lungs (weight, right 1 lb. 4 oz., left 1 lb. 8 oz.) showed moderately extensive early lobar pneumonia of both bases, especially the left—portions were red and sank in water; the margins were moderately emphysematous. Petechial haemorrhages were present on both pleura, but no fibrin. The heart, stomach, intestines, pancreas, and suprarenal glands were normal. The liver (weight 4 lb.) was congested and soft. The spleen (weight 7 oz.) was dark and softer than normal. The kidneys (weight 6 oz.)

were congested. Some of the mesenteric glands showed caseating tubercle with commencing calcification. The mandible was malformed and underdeveloped, particularly posteriorly; it had no angle, for the ascending and horizontal rami lay in a practically straight line.

Bacteriological Investigation.

Direct examination at the Thompson Yates Laboratory of the juice of the consolidated portion of the lungs showed many organisms like pneumococci. The colonies of bacteria on a Petri plate culture, using "chocolate" agar* as a medium, were approximately 70 per cent. pneumococci, 25 per cent. *Staphylococcus aureus*, and 5 per cent. streptococci. The presence of pneumococci was also demonstrated by inoculation of lung juice into a mouse; it died in three days and the organism was isolated from the peritoneal fluid. The pneumococcus cultures were bile-soluble, and when tested with type serums proved to belong to Group IV. The streptococcus was non-haemolytic. No bacilli of the influenza group were found, though specially looked for.

Histological Investigation.

Consolidated portion of a lung showed great congestion; the alveoli were more or less completely filled with exudate, which consisted chiefly of red cells; fibrin was scanty; the bronchioles contained many leucocytes. There was no pleurisy. Numerous pneumococci were demonstrated in the alveoli by Gram's stain, but no streptococci or staphylococci.

The polyhedral cells of the liver showed much fatty degeneration, the fat being deposited in small droplets round a central nucleus. The kidney showed marked cloudy swelling, and some congestion.

Examination of the Brain.

Though death was clearly due to fulminating pneumonia, yet, "to make assurance doubly sure," the brain was examined microscopically, to eliminate the possibility of encephalitis or other lesions. This was because the writer once made a *post-mortem* examination on an infant aged 6 months who died unexpectedly thirteen hours after a talipes tenotomy. A big thymus of 27.4 grams suggested status lymphaticus; but a microscopical examination of the brain—normal macroscopically—revealed encephalitis lethargica. Ether was the anaesthetic. (Glynn and Dun, 1923, Case 2.) Nevertheless, a section of A.B.'s cerebral cortex—also examined by Dr. G. A. Watson, pathologist to the Rainhill Mental Hospital—showed neither meningitis nor encephalitis. There was, however, a diminution of Nissl granules in the nerve cells—indicating exhaustion from the fits and toxæmia.

1. The Unusual Virulence of the Pneumonia.

Coroners and even medical men often fail to realize that sudden and unexpected death is not infrequently due to acute bacterial infection; so the cause may be overlooked *post mortem*. Death from pneumococcal pneumonia sometimes occurs in six or seven hours, therefore before the development of lung consolidation, particularly in children and young adults (McGowan and McNeil, 1913; Glynn, 1913; Glynn and Dun, 1923; also Wilson and Glynn, 1926).

A. B. was infected with Group IV pneumococcus. But the mortality of Group IV pneumococcal pneumonia is lower than that of the two other common types; for in 17.6 per cent. of 1,993 English and American adults it was contracted with 22.9 per cent. Type I and 35.2 per cent. Type II (Glynn and Digby, 1923, M.R.C. Special Report No. 79, Table XXXIV).

The streptococci found in the sputum most probably did not increase the virulence of the pneumonia because they were non-haemolytic; also because they were present in relatively small numbers—namely, 5 per cent. in culture; besides pneumococci only were found in the lung section.

Glynn and Digby have produced evidence that the streptococci they cultivated from the sputum of 77 per cent. of 92 adults with pneumococcal lobar pneumonia, usually exert "little or no pathogenic effect" and were "confined to the trachea and bronchi" (Table XXXVI, also Table XXXV, pp. 132 and 155). They also cultivated the sputum of 26 adults with pneumococcal lobar pneumonia who eventually died, and found streptococci in 73.1 per cent. and *Staphylococcus aureus* in 7.6 per cent. The relative distribution of the pneumococci, streptococci, and *Staphylococcus aureus* in the positive plate cultures was 70.4, 19.5, and 25 per cent., which is similar to that in A. B.'s sputum—namely, pneumococci 70 per cent., streptococci 5 per cent., and *Staphylococcus aureus* 25 per cent.

The unusual virulence of A. B.'s pneumonia was probably due to the patient's low "resistance," and also to the partial asphyxia from the anaesthetic and from the subsequent respiratory obstruction by the deformed jaw, and lastly to the acidosis. It is interesting that even partial

asphyxia with non-irritating gases may produce severe pulmonary congestion (David, 1912; Yandell Henderson, 1926).

2. The Date of the Onset of the Pneumonia.

The lad's health had been good; but on Thursday evening, January 24th, he complained of headache, and his mother found the temperature "a little over 99°." Next day, however, he appeared to be in normal health, so the temperature was not taken; he played bridge till 2 a.m. On the following morning a friend who met him going to the Dental Hospital for the extraction noticed that he was "very flushed." Probably, therefore, the lad's temperature was up at the time of the anaesthetic, especially as it was 102° three hours later.

Now the incubation period of pneumococcal lobar pneumonia, though short, appears to be two to three days or more (Osler and McCrac, 1907). It would also take at least one to two days for the pneumonic consolidation, found *post mortem*, to develop (Aschoff, 1921). Most probably, therefore, the disease had actually begun before the anaesthesia, and the lungs were in the first or congested stage of the inflammation. The usual initial pleurisy and rigor were absent, otherwise the patient might have realized that he was ill and his chest affected. It is interesting that the initial rigor is less frequent in Group IV pneumococcal lobar pneumonia than in the other two common types—namely, 42.9 per cent., contrasted with 77.8 per cent. Type I and 52.6 per cent. Type II (Special Report No. 79, Table XLIV).

3. The Epileptiform Convulsions.

They probably signified the entrance of many pneumococci into the general circulation. It is well known that acute pneumonia in young children is sometimes ushered in by convulsions; but the lad A. B. was 17. Nevertheless, convulsions occurred in a boy of 15 who died of fulminating pneumonia seven hours after the first symptom (Glynn, 1913, Case 2).

4. The Ketosis.

This was severe and first noticed about 11 a.m. on January 27th. It presumably signified acidosis—confirmed by the fatty degeneration of the liver. The ketosis was not the result of the anaesthetic. It was partly due to starvation; the patient had a light breakfast of tea and toast the day before and no food afterwards, except glucose injections at 1 p.m. and 6 p.m. on January 27th. It was also partly due to the fever and to the toxæmia. Terminal acidosis frequently occurs in dying persons.

5. The Source of the Infecting Organisms was most probably Autogenous.

This is because Group IV pneumococcus is the "type" commonly present in the saliva. Pneumococci were demonstrated in 43.5 per cent. of 485 specimens of saliva; 67.4 per cent. of the positive specimens contained Group IV pneumococcus—some of those containing other types were from pneumonia contacts (Special Report No. 79, Table XX). Non-haemolytic streptococci are invariably present and *Staphylococcus aureus* sometimes present in normal saliva.

SUMMARY.

An apparently healthy lad of 17 was briefly anaesthetized with pure nitrous oxide and two molar stumps extracted without difficulty. But he never recovered consciousness. Three hours later his temperature was 102°; then epileptiform convulsions occurred, and finally acidosis and hyperpyrexia. He died of pneumococcal lobar pneumonia thirty-seven hours after the anaesthetic.

The bases of both lungs showed early red hepatization; the pneumococcus was of Group IV and therefore probably an autogenous infection. Most probably the pneumonia had begun at the time of the anaesthesia, especially as the patient was indisposed two days before.

The virulence of the pneumonia was probably due to the patient's low "resistance" and also to the partial asphyxia from the anaesthetic and the subsequent temporary respiratory obstruction by the deformed jaw, and lastly to the

* Chocolate agar is a mixture of agar and boiled blood; it is especially suitable for growing bacilli of the influenza group (W. Levinthal, *Zeit. f. Hyg. u. Infectiönskrankh.*, 1918).

But for the *post-mortem* examination, death might have been attributed to an extraordinary susceptibility to nitrous oxide poisoning.

I wish to thank Dr. Douglas Bigland for kindly giving me the notes of the case.

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A NEW SYSTEM OF TREATMENT OF DIABETES MELLITUS.

BY

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THE following is an outline account of a method of treatment which, although not claimed as a cure for diabetes, has been employed in over 160 cases of varying degrees of severity with considerable success since 1923.¹

If insulin be administered in large doses before the two principal meals of the day, over unbroken periods, it has been observed that a certain summation of effect can be obtained. That the actual basal trouble is diminished in intensity is shown by the progressive lowering of the "ketonic threshold value"—the point at which ketonuria appears when a patient is placed on a diet containing a known quantity of protein and fat and no carbohydrate. This value is expressed as the patient's blood sugar content at this moment, and is a direct method of expressing the intensity of the basal factor at any given period.

This action of insulin can be pushed to such an extent that the patient may be transformed, metabolically speaking, into a normal person whilst under its influence; this condition being capable, in favourable cases, of persisting for variable periods after the cessation of injections. This experience led to the idea that treatment might be attempted in the form of "series" of injections, somewhat in the same way that syphilitic courses are arranged. The results which have been obtained appear to justify the adoption of this method of treatment, at any rate in a majority of cases.

Advantage is, further, taken of the fact that the patient is temporarily transformed into a normal individual to increase considerably the ingestion of carbohydrate which can, under the influence of the large doses of insulin administered (80 units per twenty-four hours), be easily tolerated and utilized to improve the general condition and resistance of the patient. It is found that in spite of the fact that, in certain instances, the regime is increased to almost normal proportions, the urine becomes sugar-free, and the blood sugar falls to the region of the normal in a short time.

It is considered that every case of diabetes mellitus presents two essential elements: (a) a basal, or metabolic, element; (b) a renal element.² The former consists in the defective power of the tissues to consume glucose in normal ratio to their blood sugar content—for quantitatively this consumption is often found to be equal to the normal. The renal element is a phenomenon similar to that observed in cases of "renal glycosuria," but with the basal element superimposed.

These two elements may be combined in varying proportions, the preponderance, or otherwise, of the renal element tending to determine the clinical type of the disease (*D. gras*, or *D. maigre*). This being so, it is found advisable, when fixing the initial regime of a diabetic patient, to estimate approximately the intensity of this renal factor; since it is found experimentally that in any given case the time taken for the glycosuria to become normal is in inverse ratio to the importance of the renal diabetic

element. This is estimated very simply by comparing the blood sugar of the patient taken whilst fasting with his twenty-four hourly output of urinary sugar. If the difference is considerable, the renal element is said to be pronounced, and the carbohydrate content of the diet is modified somewhat in consequence, in order to allow of the glycosuria becoming normal in a minimum of time. It is seldom, however, found necessary to reduce it below a daily ration of about 100 grams, whilst if the renal element is found to be of moderate importance only, a ration of between 150 and 250 grams may be allowed from the start.

The insulin "series" is then commenced, the injections being given twice a day by the intramuscular route, generally into the buttock, and before the principal meals of the day in which most of the carbohydrate is massed. Hospital out-patients bring with them the 150 grams of milk which is specially introduced into their regime for the purpose, and which they drink immediately after the injection, by this means avoiding the risk of hypoglycaemic accidents which might otherwise intervene before they could reach their homes. Accidents of this nature, it may be mentioned, have been observed in only 7 cases amongst the 50,000 or so injections given between 1923 and 1925.

When the glycosuria has been *nil* during a minimum period of fifteen days, and if the blood sugar is within reasonable limits, the injections may be suspended, pending a return of the symptoms, which must be carefully watched for; a further "series" being commenced under the same conditions as the former on the slightest indication. In this way the free intervals between the series will be found gradually to increase, whilst the duration of the series can be progressively diminished to a minimum of about ten days, until a patient with a basal trouble of moderate severity, who has come under treatment early, may be enabled to go three months or so at a time without insulin. Longer than this it is not considered advisable to permit the patient to go, although it is occasionally quite possible—two patients, for instance, having actually been able to dispense with insulin for over a year without return of their symptoms. In the intervals between the "cures" the diet is modified merely to the extent necessary to maintain the glycosuria and blood sugar at the same level as they were whilst the patient was receiving insulin.

Indications.

It is considered that every case of diabetes mellitus presents an indication for treatment by insulin, however slight it be. Contrary to the classical conception of insulin as "a useful adjunct to diabetic treatment," insulin is here considered as the factor *par excellence* of the treatment, dietetic methods being only of secondary importance, and never insisted on to the degree which is at present usual; certainly never to the detriment of the patient's general condition.

In states of pre-coma and coma insulin is naturally indicated, although it is not considered to be by any means the best indication from the point of view of ultimate results, since so much damage is frequently sustained by essential viscera, such as the kidney or the heart, during the presence of a state of acidosis, that delayed collapse is frequent even after apparent cure.

In cases of mild diabetes of the type known clinically as "*gras*" it is considered that insulin treatment should be instituted even when the glycosuria can be controlled, as it generally can, by dietetic methods alone. This is particularly true in the presence of any of the ordinary diabetic complications, such as pruritus or carbuncle. It is in cases of severe diabetes (*maigre*), with acetonuria, that this treatment finds its best indication, if the patients come under observation early,⁴ since in these cases a very real benefit will generally result from repeated "cures," at increasing intervals if this be found to be possible.

Results.

The immediate results of this system of treatment are estimated as the result of observations of (1) the ketonuria, (2) the glycosuria, (3) the general condition of the patient, and (4) his blood sugar content.

1. The effect on the condition of ketonuria, if present, is extremely marked. The ketone bodies of the urine result, it is generally believed, from the incomplete oxidiza-

tion of fatty acids, this incomplete oxidization resulting from (a) the inability of the body to utilize carbohydrate adequately, or (b) an insufficient supply of carbohydrates to enable the body to oxidize the fatty acids completely to their final products (Rübner and Zeller). In the former case the defect of metabolism is remedied by insulin, whilst the latter eventually does not arise, owing to the high content of carbohydrate in the ration allowed.

2. The glycosuria can, in the average case, and in spite of the large amount of carbohydrate allowed, generally be abolished in a short time, any considerable "renal diabetic element" being compensated for as explained above.

3. The improvement in the general condition of the patient is considered, under this system, to be an even more important criterion of progress than a lowering of the blood sugar content, and is generally very noticeable; the first effect observed being usually a disappearance of the weakness and lassitude so characteristic of the diabetic. If the patient be weighed at the same time every morning the weight will nearly always be found to augment progressively; whilst the suppression of such symptoms as polyuria, polyphagia, and insomnia, together with the possibility of his leading a normally active life, generally has an important psychological as well as physical effect on the patient.

4. The blood sugar will always fall to a level approaching the normal, this being all that is considered absolutely necessary.

Of the remote effects of this treatment less can, naturally, be asserted, although the diabetic process appears in many cases to have been arrested for various periods—as, for example, in the case of the two patients mentioned above who were free from all symptoms for over a year, after several insulin "cures"; such cases, however, form a minority of the whole, the average free period being considerably shorter. Actually no case is allowed to go for more than about three months without receiving insulin, a new series being commenced automatically at the end of that period, whether any direct indication be present or not.

In certain cases, nearly always children, who have come under treatment late, it is found impossible to suspend the injections of insulin at all; these cases can, however, be brought to, and maintained in, a condition in which they can continue their normal lives and activities. The younger the patient the more necessary does it appear to start such a treatment early, and not to waste time on dietetic methods which seem, in most cases, to have little or no effect on the basal dietetic factor, but which merely suppress the symptom of glycosuria, and sometimes that of hyperglycaemia.

Finally, owing to the minimum of restrictions, both dietetic and otherwise, imposed on patients submitting to this regime, it is found to be easier to persuade them to continue on it over long periods than it would appear to be under some other methods of treatment.

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A CASE OF PATENT DUCTUS ARTERIOSUS.

BY

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THIS case, apart from its rarity, presents several features of interest.

A man, aged 31, a wine-merchant's cellarman since the war, a gymnasium instructor during the war, and a gardener before the war—all occupations involving heavy physical strain—has had gradually increasing shortness of breath for nine years, occasional short attacks of stabbing pain over the heart, mostly at night, for six years, and palpitation caused rather by worry than by exertion. He has never had rheumatic fever, scarlet fever, or syphilis, never had a severe blow on the thorax, never felt anything "give way" in his chest during an effort.

His heart is nearly normal in size, but a little dilated rightwards. The apex beat lies just inside the left mammary line—in the erect position it beats behind the sixth rib, but this is due

to cardiopneumosis, since, in the recumbent posture, it is found, as normally, in the fifth space; but the right margin of its dullness in the erect position is 1½ inches to the right of the mid-line—that is, about an inch too far to the right. There is no excessive impulse anywhere and no thrill. In the second and third left intercostal spaces there can be made out, at least after exertion Gerhardt's "ribbon dullness."¹ There is a loud, roaring, continuous murmur, the entire cardiac cycle, with marked systolic position. On re-

the entire cardiac cycle, with the second left space by sternal border, in the erect noteworthy change in this murmur is a movement of its area of maximum loudness about 1½ inches leftwards. The murmur rapidly lessens in loudness as one recedes from this maximum area, except downwards along the left sternal border and the adjoining third, fourth, and fifth spaces. But it is faintly heard over almost the whole chest, front and back. In the area of maximum loudness there is no audible second sound, but lower down, at the levels of the third, fourth, and fifth spaces, there is heard an accentuated and sometimes reduplicated second sound. Over the aortic cartilage and up the right carotid a clear second sound is audible, not reduplicated and nearly free from the continuous distant rumble of the murmur just described. At the sixth left space in the mammary line, in recumbency, the rumble is sometimes quite lost and then a second sound is clearly heard without reduplication or murmur. Fig. 1 shows most of these signs.

The pulse is regular, about 84, rather sudden but not collapsing, and pulsation is certainly more visible than usual in the neck up to the ears and at the elbow. The left pulse is slightly smaller than the right. Here are tracings of both pulses taken with the lowest pressure of a Dudgeon's sphygmograph; they do not suggest aortic regurgitation (Fig. 2). The blood pressure is low—110 systolic and 55 diastolic. The pulsus paradoxus, described by François-Franck,² is absent in this case.

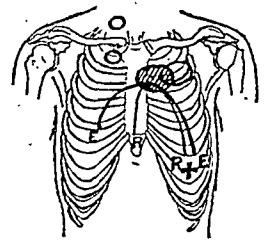


FIG. 1.—E E=Outline of cardiac dullness in erect position. R R=Outline of cardiac dullness in recumbent position. Shaded area=area of murmur in erect position; unshaded area outside=area of murmur in recumbent position. + =Spot where the second sound was free of all murmur. O=Spots where the second sound was nearly free of the distant murmur.

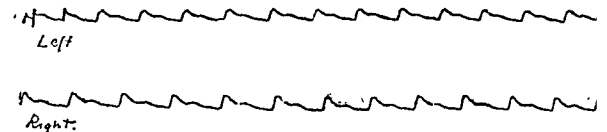


FIG. 2.

The respirations are quiet (20), the temperature constantly subnormal (I had him six weeks in hospital), there is no enlargement of spleen or liver, no sign of embolism, no haemorrhage, no daily changes in the murmur. Except for pyorrhoea (which has to be seen to) there is nothing else abnormal in any structure. There is no clubbing of fingers, no polycythaemia, but after exertion there is slight cyanosis of the fingers.

Diagnosis.

The murmur is, as Gibson of Edinburgh² first insisted, pathognomonic of patent ductus arteriosus—that is, a continuous murmur, with systolic augmentation, only dying out in the end of diastole; here I do not lose it at any point of the cardiac cycle. It has received the names of the "tunnel murmur" and the "machinery murmur." It is quite different from any other murmur with which I am acquainted. But it is said to be also produced by the opening of an aortic aneurysm into the pulmonary artery. The history of this case makes that diagnosis unlikely, and the x-ray examination definitely negatives it (Fig. 3).

Patent ductus arteriosus, then, accounts for the murmur. And in support of that diagnosis we find (1) the Gerhardt "ribbon dullness," (2) accentuated and divided second sound lower down, (3) unequal pulses (with, in this instance, low arterial tension, a feature not hitherto noted, I think, but likely to be common in this condition), some enlargement of the right heart, together with x-ray observation of dilatation and unusual pulsation of the pulmonary artery.

But it has been suggested that this might be a case of aortic regurgitation with an unusual dislocation of the murmur, because there is some visible pulsation in the neck. Apart from the facts that the murmur is absolutely different from any produced by aortic regurgitation and that such dislocation of an aortic murmur must be ex-

tremely rare (except in case of transposition of the heart), this idea is negatived by the further facts that the aortic second sound is nearly free from rumble over the aortic cartilage and sometimes quite free from any murmurish sound below the apex in recumbency, whereas there is no second sound at all over the area of maximum murmur.



FIG. 3.

With regard to the visible pulsation in the arteries, I do not know of any reference to it in other cases of this sort. Probably this is due to its usually slight degree. It should be remembered, however, that patent ductus arteriosus is itself a form of aortic leak—not, indeed, into the left ventricle, but into the pulmonary artery—and may, if free, be expected to produce a sufficient difference between the systolic and diastolic pressures to cause visible arterial pulsation. But these pressures would both be probably low as they are here, since the systolic pressure is not reinforced by the contraction of a powerful hypertrophied left ventricle (as is the case in ordinary aortic regurgitation) and the leak is continuous through both systole and diastole.

It may be asked how one can be sure that the divided second sound over the lower spaces is pulmonary. For a full exposition of the reasons I must refer to a previous paper.³ The current explanation of the division of the second pulmonary sound in mitral stenosis, or other diseases which increase the pressure in the pulmonary artery, can be easily disproved by mapping out its area of audibility and often by palpating the shock of the closure of the pulmonary cusps, which, like the sound, is reduplicated. The sound is produced by asynchronous closure of the pulmonary cusps themselves. This fact has a real value, as in such a case as this, in distinguishing a second pulmonary from a second aortic sound, because, owing to its thicker walls, the aorta rarely dilates at its orifice sufficiently to put its cusps on the stretch. Unequally-sized cusps when the orifice is stretched must become unequally deep and so cause their thud of closure asynchronously.

But it might be suggested that the rumble here is really a double murmur due to regurgitation accompanying a congenital pulmonary stenosis. That is excessively rare. Also the rumble does not in the least resemble a double murmur. Further, the maximum of the diastolic murmur would not be in the second space. And lastly, the second pulmonary sound would require explaining; its accentuation and reduplication make any regurgitation there extremely improbable.

Prognosis.

Prognosis is the most important point in the case. Patent ductus arteriosus is the one congenital lesion which ever undergoes spontaneous cure. But that is in early life. Cases which persist into adult life may, however, live to considerable ages; 30 does not appear to be a very unusual age, and Walsham⁴ has recorded a case which died

at 47, and Hale-White⁵ one which died of angina at 53 with a ductus as large as the anterior tibial artery. Other cases at lesser but considerable ages are mentioned in Abbot's able article in Osler and McCrae's *System of Medicine*.⁷ Will this patient live so long? The pulmonary artery tends to become atheromatous under the strain, and sometimes begins to leak, as was clinically followed in Thayer's⁶ case, quoted in Laubry and Pezzi's valuable work on congenital heart disease. Here, as has just been said, there is no evidence of regurgitation.⁸ Some die, as in Hale-White's case, of angina, and here anginoid pains are present. The serious feature, indeed, is that disabling symptoms are already in existence. But the conditions of strain of work have been very bad, and his improvement, since he has rested, is considerable. In any form of congenital heart disease one must never forget the curious special liability to infective endocarditis. We can only hope that, with continued rest (seeing that he looks robust), the existing symptoms may subside.

Treatment.

The treatment has been by rest, at first in bed, now at home, avoiding all strain, good feeding, and, in the way of drugs, small doses of sodium iodide, arsenic, and digitalis, with larger doses of strychnine.

Lastly a word about the effect of change of posture. I have seen four cases of patent ductus. The first was shown by the late Dr. Gibson at a meeting of the Association of Physicians at Edinburgh, when he corroborated the effect I found—namely, that the practically continuous murmur heard in the erect position became definitely discontinuous in recumbency. Another case, seen last May at the London meeting of the same association, showed the same change, which was verified by several present. In the other two cases, this and that of a boy seen in private some years ago, posture made no change in the duration of the murmur. The point is not merely academic, for in recumbency the murmur, if it is discontinuous, is less distinctive and might be mistaken.

I have to thank my colleague, Dr. Miller Muir, for the trouble he has so kindly taken with the x-ray examination, and my house-physician, Dr. Durrans, for the pulse tracings.

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THE MENTAL CONDITION NINE YEARS AFTER MENINGITIS TREATED BY FREQUENT VENTRICULAR PUNCTURE.

BY

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THE following is an account of the mental condition of a child who was under my care in the Royal Free Hospital in 1917, suffering from a severe attack of meningitis at the age of 5 months. She recovered, and is now 9 years of age.

The onset, with pyrexia, constipation, and fretfulness, was not recognized as that of cerebro-spinal fever until towards the end of the first week, when the tense fontanelle and staring eyes suggested the diagnosis. Lumbar puncture was then performed and abundant fluid with large numbers of pus cells and meningococci was obtained. Antimeningococcal serum was given intrathecally and puncture was repeated on the second and fourth days. Unfortunately on the fifth day no fluid could be obtained from the spinal canal, and it became necessary to relieve the tension by puncture of the right lateral ventricle through the lateral angle of the fontanelle. During the next three weeks the intracranial pressure remained very high, and the ventricle was punctured almost every day, yielding sometimes as much as 100 c.cm. of fluid; this was partly replaced by small doses of antimeningococcal serum. In all 30 c.cm. of serum were given. After the first few days meningococci ceased to appear in the fluid, which gradually became clearer. As the tension relaxed ventricular puncture was made at longer intervals, and was stopped at the end of five weeks. By this time a fair degree of hydrocephalus was noticeable, the head measuring 17½ inches, but the pyrexia and vomiting had ceased and the general condition was much improved. The only complication was a fluid swelling of the right knee-joint. The infant was sent home in good condition.*

* The case was described in a paper on cerebro-spinal meningitis by Dr. Helen Mackay (*Lancet*, January, 1920).

I saw her again when she was about $3\frac{1}{2}$ years of age; she was a bright little thing, but with an unduly large head, happy, and clean in her habits, though decidedly backward, talking and acting more like a child of 18 months than a normal child of 3.

I did not see her again until last summer, 1925, when she was $8\frac{1}{2}$ years of age. She then appeared well grown, robust, and inclined to be too fat. She had a squint and her vision was obviously defective. Unfortunately she had been taken to an optician and supplied with glasses which were quite incorrect. Hearing was good. The limbs seemed perfectly normal; there were no signs of spasticity or weakness, etc.

Mental Condition at 9 Years.

Beyond observing that she was a great chatterbox, an untrained person might have been in her company for some time without noticing any abnormality. The child evidently enjoyed life very well, had bright eyes and a frequent smile, laughed easily and scarcely ever cried. Her chatter was incessant, but had very little novelty in it, as she constantly repeated herself and would ask the same questions over again, making little attempt to record the answers in her mind. She was immensely inquisitive. She was imitative, and often in speaking to adults would exactly imitate the tone and attitude they adopted towards her. The result was sometimes exceedingly funny. She had a good memory, both for incident and for words and figures learnt by heart, but her reasoning powers were very poor. She evidently disliked having to make the necessary effort to reason, so avoided it as much as possible. When asked an unexpected question she would often turn to someone else for an answer rather than trouble to think it out herself. The same may be said for her powers of concentration; nothing occupied her mind for more than a few minutes. She was an affectionate child, sweet-tempered, and eager to please, but fickle and overtrusting.

Her upbringing had not been on the right lines. She was the eldest of the family, and from an early age had been given all kinds of domestic work to do in the house, including the care of her brothers and sisters. She was willing and able in her household jobs, but unfortunately none of the work called for any exercise of the mind. Her parents' social status was such that the school attendance officer did not step in, and any attempts at education were home-made and spasmodic. Six months ago she had barely mastered the letters of the alphabet. Her mother was affectionate but dominating, and asked for implicit rather than reasoned obedience.

During the last six months the child's mental outlook has definitely improved. She has been living away from her family, among children older than herself, attending a day school and at the same time having the help and individual attention of a good teacher. Her reasoning power is being deliberately stimulated and encouraged. She can now read and write easy words and sentences. She is learning to play games with other children. Music has always been a delight to her, and she is now being taught to play the piano; to this she gives all the power of concentration she possesses, and is evidently going to do well. The error of refraction has been corrected with suitable glasses. I have tested her with some of the intelligence tests. According to Binet's series she has a mental age of about 8, but I consider that these tests have too low a standard and do not require much reasoning power. On the other hand, she gets low marks in Ballard's picture tests for children of 6, obtaining only 35 out of a possible 100 marks. These tests demand considerable powers of accurate observation, and accuracy is not the child's strong point. As a matter of fact, her development has been irregular and therefore not comparable with any particular age. It is not a case of simple retardation—indeed, this rarely is so with mentally deficient children.

The prognosis seems to be very fair. The child will probably never have much depth of character and must always have someone to lean upon. Her chief danger when she passes puberty will be her affectionate trusting nature and her desire to please. The morality of the mentally defective is only on the surface, and the child could easily be led astray. She will, however, be able to carry out all the ordinary duties of a woman's life. Her parents are both exceptionally clever and intellectual people, and there seems no reason why she should not marry and have clever children. She reminds me of the mental condition of a mild case of spastic diplegia, in the tractability of temper, absence of any tendency to viciousness, and good response to treatment. She has an equally hopeful outlook if her education can be continued on sensible lines.

It has seemed worth while to record this case, which occurred at the time that frequent withdrawal of cerebrospinal fluid and daily administration of antitoxic serum were first being practised in the treatment of cerebrospinal meningitis. The case is exceptional—first, in having recovered at all after such an early attack, and secondly, in having suffered comparatively little brain damage in spite of repeated ventricular puncture. There can be little doubt that, if the fluid had been allowed to collect, the resulting hydrocephalus would have produced a hopeless imbecile.

A CASE OF HYDATID CYST OF ORBIT:

REMOVAL OF CYST WITH PRESERVATION OF EYE AND VISION.

BY

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I TAKE the above title from Mr. J. B. Lawford's paper, read before the Ophthalmological Society of the United Kingdom in December, 1894 (vol. xv of the *Transactions* of the Ophthalmological Society of the United Kingdom)—it so accurately fits the case I now describe. In this paper Mr. Lawford says: "It probably falls to the lot of few men to operate on many cases of orbital hydatid cysts."

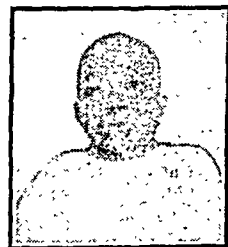
A healthy-looking Kaffir girl, aged 8, was sent to me by Dr. J. de Villiers, medical officer of health. Her parents accompanied her, and gave me the following history. About two years ago they noticed an enlargement of the right eye. It gradually increased, without any complaint of pain or discomfort from the child. On inspection the right eye was protruded about half an inch, and also displaced down and outwards; it was limited in its upward and inward movements, and showed a marked external strabismus. The upper lid was puffy and oedematous, mostly to the nasal side, but could cover the eyeball completely. Backward pressure caused no pain, and did not reduce protrusion; nor was the latter perceptibly increased with the head below body level. Tension was normal; no pulsation or bruit present; pupil active and normal, as also were conjunctiva and cornea. Right vision= $\frac{6}{9}$ (about), left vision= $\frac{6}{6}$. The ophthalmoscope showed the media clear. The only abnormality was a haziness of the edge of the right disc as compared with that of the left. A swelling of bony hardness was felt about the right trochlea.

On admission to the Settlers' Hospital she was x-rayed by Dr. R. Temple Harrison, who reported a uniform shadow in the right orbit with porosis of bone at the inner side above. The whole right orbit was about three-sixteenths of an inch below the level of the left. On further examination I felt a soft, bag-like mass upward and inward where the swelling was greatest. This could just be grasped by fingers pressed deeply above the lid, but slipped quickly away—a factor I thought definite enough to allow a diagnosis of hydatid, even with absence of the usually associated symptoms.

Under a general anaesthetic an incision 1 inch along the upper orbital margin was made. Cautious dissection disclosed at the inner side a pearly grey, glistening, flaccid structure, closely surrounded by orbital fat, with numerous fibrous attachments. A syringe was ready, and about a teaspoonful of clear watery fluid was withdrawn. Immediate boiling showed it to be albumin-free. So deeply and firmly was the cyst attached to the orbital apex that I feared to go beyond a gentle effort at removal, though I got down fairly close to its origin.

With a small Volkmann's spoon I scraped it out thoroughly. The inner lining came away in pieces like coagulated white of egg. Even after this scraping moderate traction failed to move the sac. I wiped it out freely and firmly with gauze moistened with tincture of iodine, going down to the base, inserted a rubber drain, and sewed up. A small amount of orbital fat was unavoidably lost. The bleeding, though troublesome, was perhaps less than one would expect. Dissection was kept as close to the orbital roof as possible so as to avoid injury to the muscle cone.

I estimate the cystal capacity at about two teaspoonfuls. The sac showed little progress in closing, even with a gradually shortened drain, and, in about three weeks, swelling in the original position, with oedema of the lid, again appeared, and so closely resembled the first picture that I suspected a similar cause. However, on opening up again, I could find nothing but the old sac, which, I concluded, had become obstructed and distended. This time I removed it thoroughly, though to do so meant much more disturbance to the orbital apex than on the first occasion. The muscle origins of the superior rectus, and levator palpebrae superioris from the annulus of Zinn surrounding the optic foramen, with their nerve (oculomotor), within the annulus, could hardly escape injury when the implantation area was dealt with.



A skiagram taken two weeks after the first operation with a probe passed to the cyst bottom showed the point very close to the optic foramen.

Between the first and second operations I had the advantage of reading Mr. D. J. Wood's paper in the *British Journal of Ophthalmology* (January, 1925). Here he described three cases of orbital hydatid which he had seen during the last few years. This experience, judging by the literature on the subject, must be unique, for authorities are agreed as to the comparative rarity of the condition.

Microscopic examination of the scrapings showed the presence of hooklets. I am indebted to the Department of the Director of Veterinary Research, Pretoria, for the report that the parasite was apparently *Echinococcus granulosus*.

The condition of the patient four months after operation was as follows: Right vision=6/6. General health excellent; no squint; occasionally fixation (binocular) is not well maintained, and a slight outward deviation can be detected. She has no discomfort, and admits to no diplopia. Proptosis, though much less, persists, and the eye, as before, is on a lower level than the other; in fact, owing to orbital asymmetry, its position has been little altered by the operation.

All ocular movements are good and free, except up and in; here the horizontal level is barely exceeded. An unfortunate feature is paresis of the levator palpebrae superioris. This I attribute either to injury of the superior division of the third nerve—which supplies both levator and superior rectus muscles—or to trauma of their combined tendinous origin in the apex, done, no doubt, during the second operation, when the implantation area was removed. However, within the last week or so I have noted with pleasure a distinct improvement in levator function. The hard swelling in the trochlea region persists.

Points of interest in the case were:

1. Absence of pain and head symptoms.
2. Flaccidity of cyst; reported cysts usually tense.
3. Presence of hooklets. "Presence of heads and hooklets is noted in only a small minority of cases of human echinococci."—(Leuckart's *Parasites of Man*.)
4. The marked orbital asymmetry—congenital, no doubt.

LITERATURE.

Trans. Ophth. Soc. of United Kingdom, vols. xv (Lawford), xvii (Hill Griffith), and xxiii (Werner).

Casey Wood in his *System of Ophthalmic Operations*, p. 858 et seq. summarizes the literature of the subject and mentions that up to 1910 over a hundred cases had been reported.

ABDOMINAL CASES ILLUSTRATING IMPORTANT SURGICAL PRINCIPLES.*

BY

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THE following four cases considered together illustrate different conditions, and convey valuable surgical lessons.

CASE I.—Rupture of Spleen.

A woman, aged 37, was seized with violent pain in the left side of the abdomen and chest after getting out of bed to pass urine at 8 a.m. on March 22nd. The pain shot down to the upper part of the left leg. When seen by Dr. Dykes at 9 a.m. she was so collapsed that he would not sanction her removal to the hospital. Later in the day she improved sufficiently to be sent there, and arrived between 3 and 4 p.m. On admission she was very blanched and restless. Her pulse could not be felt at the wrist; her heart sounds were very feeble, and 150 to the minute. The temperature was subnormal, the abdomen painful and tender. The uterus reached up to the umbilicus, and other signs of pregnancy were present. She had not menstruated since October. There had been no haemorrhage in the vagina. A tentative diagnosis of ectopic pregnancy had been made, with which I did not agree. She was suffering from intraperitoneal haemorrhage.

She was immediately taken to the theatre and the abdomen was opened by a right paramedian incision 6 inches long, starting just above the umbilicus. When the peritoneal cavity was opened it was found to contain about 4 pints of blood and clots. The uterus was intact, the tubes and ovaries were normal. No bleeding point could be discovered in the omentum or the mesentery. Both kidneys and the liver were normal. On further examination a bleb about 2 inches in diameter was found on the spleen near the splenic notch, and blood was issuing from an aperture in this bleb about the size of a No. 1 catheter.

The spleen was removed, the blood and clots were sponged out, and the wound was closed in layers. A pint of normal saline solution was infused. The patient gradually improved and, except for an acute attack of parotitis, made an uninterrupted recovery.

On examination of the spleen after the operation a tear 1½ inches long was found under the bleb. It is difficult to account for the rupture of a spleen that appeared to be normal. A portion of the organ was submitted to the pathologist for examination and he reported it normal.

There was no history of any injury, and I cannot conceive that the act of getting out of bed to pass urine would cause the rupture. When I thought the matter over it occurred to me as possible that the rupture might have been due to excessive violence during the act of coition. The woman had gone as house-keeper to a very strong, virile man, and she was apparently five months pregnant. I interviewed the man, and ascertained that coition did take place that morning between 5 and 6 o'clock. I think it is more than possible that the rupture of the spleen occurred at that time. The bleeding was under the capsule of the spleen and the action of getting out of bed caused the bleb to burst.

CASE II.—Perforated Gangrenous Appendix.

A man, aged 50, was seized with violent pain in the epigastrium at 5 p.m. on March 15th. When Dr. Robinson saw him he was so collapsed that it was not thought wise to send him to the hospital. Later in the evening his condition had improved sufficiently to render his removal justifiable. He arrived at the hospital about 9.30 p.m. He stated that the pain had come on without any warning, and that he had vomited frequently since it began. The abdomen was immobile and rigid all over. His pulse was 72, temperature 96°. The diagnosis was perforation of the stomach or duodenum. When I saw the patient the rigidity appeared to me to be more marked to the right of and below the level of the umbilicus, and I expressed the opinion that the perforation was in the appendix. I performed an operation immediately. When the abdomen was opened cloudy fluid escaped. There were numerous old adhesions binding the appendix down behind the caecum. The appendix was gangrenous with a perforation at its tip. The abdominal cavity was mopped out and drainage tubes were inserted. While sewing up the abdomen I remarked to the house-surgeon that there might be a perforation of the stomach or duodenum as well as of the appendix (I believe one or two instances of this are on record), but it was such a very remote possibility that I did not consider a further exploration justifiable, as it might cause the patient's death. He made an uninterrupted recovery.

CASE III.—Obstruction of Intestine by a Band.

A woman, aged 45, upon whom I had operated twelve years before for tuberculous peritonitis, was sent into the hospital on the evening of December 17th, 1925. For twelve months she had been suffering from pains in the abdomen and loss of flesh, and for the past four days from diarrhoea and vomiting; the vomiting had increased considerably in the last twenty-four hours.

The abdomen was found to be distended and rigid. The condition had been tentatively diagnosed as a recurrence of the tuberculous peritonitis. I did not agree with this diagnosis, and expressed the opinion that it was probably an obstruction of the small intestine due to a band. On opening the abdomen I immediately found a band, which partially obstructed the small intestine. But the gut was not extremely distended immediately above this band, and consequently I felt that there must be another constriction higher up. On tracing the intestine I found another constriction, by which the bowel was completely obstructed. This constriction was divided, and the patient made an uninterrupted recovery. If I had not continued my exploration she would certainly have died.

CASE IV.—Abdominal Haemorrhage probably due to Rupture of Omental Vein.

In June, 1925, I operated for Dr. Smeeton Johnson upon a boy, aged 10, who was suffering from the effects of an accident. The abdomen was full of blood, but I was unable to discover where the bleeding came from. Before closing the abdomen a drainage tube was inserted into the peritoneal cavity. I thought the haemorrhage was probably due to the rupture of a vessel in the omentum, which had become sealed. This supposition was strengthened by the fact that there was no more bleeding, and the boy recovered. I had had a similar case in a man many years before.

Case I illustrates the necessity of exploring every possible source of a haemorrhage found in the abdomen, and of dealing adequately with it if it is discovered. To plug the region of the supposed source of a haemorrhage with packing is not surgery. When the source has been found and controlled the abdomen must be sewn up.

Case II illustrates the reverse procedure. When a perforated organ is found in an acute abdominal case it is not right to seek for another lesion, although there is a possibility that it might exist. The further exploration might cause the death of the patient; it is certain that a surgeon who regularly adopted such tactics would have a very high rate of mortality.

Case III illustrates the supplementary truth that even in an acute abdominal case the surgeon must not desist from his efforts until he is satisfied that he has found the root cause of the trouble.

Case IV illustrates the fact that though the cause of haemorrhage into the abdominal cavity must always be looked for, cases do sometimes occur in which it is not possible to find it. In these cases a tube should be inserted into the peritoneal cavity to give immediate warning should any further bleeding occur.

* These cases were described at a meeting of the Kidderminster Medical Society on Friday, April 9th, 1926.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PERNICIOUS ANAEMIA FOLLOWING INTESTINAL OBSTRUCTION DUE TO STASIS.

IN March, 1922, one of us (C. L. G. C.) reported in the *BRITISH MEDICAL JOURNAL* (March 4th, p. 347) a case of obstruction, due to stasis, with the following particulars.

"A. B., a woman aged 55, was under . . . care . . . for five months suffering from vomiting [commencing April, 1921]. This occurred two or three times during the day; it had no relation to meals and no distinctive features. She had no pain; the pulse and temperature were normal, and the tongue was clean. She was thin and very sallow. The examination of the abdomen was negative. Constipation was a salient symptom throughout, and aperients were continually required. Dieting and rest in bed for two months relieved her condition so that she was able to go about. She, however, vomited occasionally, and retained a very sallow colour. Generally she had lost weight.

"During August her condition became much worse. On the 25th there was very frequent vomiting, a rising pulse rate, and the abdomen was slightly distended. The next morning the vomiting had become continuous, the abdominal distension was much more marked, and there was very marked peristalsis. Dr. Denyer, physician to Hull Royal Infirmary, agreed that she had intestinal obstruction, and that immediate operation was necessary.

"I opened the abdomen the same evening, and found all the colon immensely distended, but there was no obstruction in the rectum nor any part of the colon. Examination for other causes proved negative. The central incision was closed and a temporary colostomy made. The vomiting stopped immediately, and she has never vomited since. Full-sized motions were passed by the rectum after the fifth day, and some faeces through the colostomy wound. The sallow colour has disappeared. She has gained weight, and is obviously in better health than she has been for years. The weight, which at the operation was 5 st. 10 lb., was 7 st. 1 lb. on February 18th [1922].

"The case seems to fall into the group of cases of intestinal atony following stasis and bacterial toxæmia, well described in Nothnagel's *Encyclopædia*."

Subsequent History.

She remained well until August, 1923, when she consulted us again because of "shortness of breath." She was then intensely anaemic and lemon-tinted, and had occasional vomiting of bile. The colostomy wound was closed, excepting for a minute hole, which allowed a small quantity of liquid faeces to be discharged after aperients had been taken.

The blood was examined, with the following report (date August, 1923): White blood corpuscles 3,000 per c.mm. Blood films: great poikilocytosis with numerous megalocytes; microcytes also seen. Megaloblasts and normoblasts common. Polychromasia and basophil stippling frequently seen. A typical pernicious blood picture.

Two months ago (December, 1925) she again came under our care, when we found her bedridden, very breathless, and, if possible, still more anaemic and lemon-tinted than before. We again had a blood test, as follows: White corpuscles 3,000 per c.mm. Red corpuscles 22,000,000 per c.mm. Haemoglobin 40 per cent. Colour index 1.1; colour of serum, golden yellow. Blood film: poikilocytosis very marked; anisocytosis; many microcytes. Anisochromia marked, polychromasia and basophil stippling; few megaloblasts and normoblasts. Typical pernicious anaemia.

There was never any discharge from ear, nose, or vagina, and all teeth had been extracted fifteen years before the present illness. Nothing has been done for the patient, as she refuses all treatment.

The case seems to show direct association of stasis with bacterial or chemical toxæmia, and subsequent development of pernicious anaemia. The absence of any malignancy is shown by the operation, the five years' duration, and the blood pictures. The intestinal obstruction was due to chemical or bacterial toxæmia, and certainly not to any mechanical means; and, although the obstruction was relieved by the operation, yet the toxæmia still persisted to produce the pernicious anaemia.

C. L. GRANVILLE CHAPMAN, F.R.C.S.Ire.,
S. E. DUFF, M.B.Belf., F.R.C.S.Ed.,
Surgeons, Grimby and District Hospital.

RELATIONSHIP OF HERPES ZOSTER AND CHICKEN-POX.

WE are at present attending a female child, aged 8 months, suffering from typical chicken-pox and herpes. The herpetic rash was most marked in the intercostal spaces on the left side of the chest and on the posterior aspect of the thigh. A brother (aged 6) and a sister (aged 4) were recovering from chicken-pox, and the mother stated that when seven months pregnant with the last child she suffered for a month from shingles, and was in hospital for that period.

Numerous cases have been reported of a child developing herpes a few weeks after other members of the family had had chicken-pox; but we believe this is the first reported case in which both rashes appeared at the same time.

L. E. GREEN DE WOOLFSON, L.R.F.P.S.,
W. H. SMITH, M.B., Ch.B.
Birmingham.

SOME ten years ago I published a case which I considered undoubtedly to prove some connexion between herpes zoster and varicella, and have, of course, seen many similar instances in the *JOURNAL* since. Here is another.

On April 3rd last I saw an elderly woman who was suffering from a very severe attack of herpes zoster. Sixteen days later an only grandchild, aged 4, living in the same room, developed a profuse rash of varicella. No source of infection, other than from the grandmother, could be traced.

Enfield.

HOWARD DISTIN, M.B.

PULMONARY TUBERCULOSIS IN OLD AGE.

IN the *JOURNAL* of December 26th, 1925 (p. 1223), Dr. A. P. Ford describes the case of a patient who developed pulmonary tuberculosis at the age of 77.

I have recently seen a woman who had good health until she was 65 years of age, when she developed pulmonary tuberculosis and died within six months. A few weeks before she contracted the disease her sister, whom she had been nursing, died of consumption. She knew of no history of tuberculosis in her father's or mother's families, but two of her brothers and four sisters had died of consumption at the following ages: 30, 44, 76, 76, 78, and 81.

London, W.1.

L. S. T. BURRELL.

SEPTIC SORE THROAT COMPLICATED BY ERYTHEMA NODOSUM.

A SERIES of cases of ulcerative tonsillitis with unusual sequelae has been observed amongst the staff and women patients of the Lingfield Colony. Thirteen cases of tonsillitis with more or less severe pyrexia and an unusual amount of exudation occurred in quick succession, the incubation period being apparently only a few days. An unusual symptom which occurred in five of the cases, and appeared on the third or fourth day of the illness, has been an eruption of erythema nodosum over the front of both legs. Scattered papules were first observed, many of which coalesced, forming large raised irritable patches. Oedema was sometimes present. The erythema lasted a week or more and on fading left a brown stain. Most of the cases had enlarged glands in the posterior triangle of the neck. One case (with erythema nodosum) had a mass of enlarged glands in the supraclavicular region which threatened suppuration, but finally resolved slowly. Two of the cases (not showing erythema nodosum) developed a transient rash on the trunk and limbs, and one of these, a girl who had previously been known to have a systolic murmur at the apex, suffered from precordial pain, rapid pulse, and a soft double systolic murmur which led one to fear the onset of infective endocarditis. She has, however, after three weeks' illness made a fair recovery.

Examinations were made from swabs from several of the throats, but the Klebs-Loeffler bacillus was not found. Cultures have been made from three of the swabs. The bacteriological report was to the following effect:

"Strains from Cases I and II would be classed as the *Streptococcus anginosus* of septic sore throat and scarlet fever; and the strain from Case III as *Streptococcus salivarius*. The only difference between the two is the ability, present in the first type, to develop haemolysin."

Cases of tonsillitis, of only moderate severity, have occurred at intervals in the children's homes during the past few months. Three months ago a boy was removed to the local fever hospital suffering from an apparently typical attack of scarlet fever, but no second case was observed. Can any light be thrown on the diagnosis?

I am indebted to Dr. J. Tylor Fox, the superintendent of the Colony for Epileptics, Lingfield, for permission to make this report.

ELEANOR SHEPHEARD.

The Colony for Epileptics, Lingfield, Surrey.

Reports of Societies.

HUMAN PROTOZOA.

At a meeting of the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine held on May 13th, with the President, Sir WILLIAM PROUT, in the chair, Professor R. W. HEGNER, Professor of Protozoology in the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore, gave an address on the biology of host-parasite relationships among the human protozoa.

Professor Hegner said that at the present time protozoology was for the most part being investigated by zoologists, who were primarily interested in the parasite, and by medical men, who were interested mainly in the host. A programme had been arranged which attempted to bring these two points of view together. The events that occurred during the course of an infection were considered in the following order: (1) Transmission from host to host was brought about by the behaviour of the host or intermediate host and not by the action of the parasite. (2) The distribution and localization of protozoa within a host, including both primary and secondary sites (for example, entamoeba carried through the digestive tract of the host, and by the blood stream to other organs), were largely due to the activity of the host. (3) The host offered a certain degree of passive (natural) resistance to the invasion of the protozoan, and the protozoan likewise resisted the defences of the host. (4) Changes in the host caused by the parasite brought about symptoms and caused pathological changes in the tissues and the building up of active (acquired) resistance. While the symptoms were well known, the cause of these symptoms was obscure and little was yet understood about the resistance. (5) Residence in the host likewise modified the parasite, which might also build up an active resistance and might change in its degree of aggressivity. (6) Host-parasite adjustments occurred during an infection, resulting in latency, the carrier condition, and relapse. (7) The host might be aided in its resistance to the protozoan by biological and chemical therapy and hindered in various ways. (8) The method of escape from the host determined the maintenance of the races of parasitic protozoa. (9) Host-parasite specificity involved the study of host susceptibility and parasite infectivity. (10) Protection from parasitic infections might be afforded to individuals (personal hygiene) and to communities (public health) on the basis of a thorough knowledge of the biology of host-parasite relationships. The programme, as outlined, had been primarily designed for the study of the human protozoa, but might be used as well for other parasites.

Professor R. T. LEIPER congratulated Professor Hegner on his very stimulating and suggestive address. The suggested programme, of course, was based upon the protozoa, but it contained many points of interest to the helminthologist. The helminths were a very different group of animals and much more active in their migration behaviour than were the protozoa; the scheme, therefore, could not be applied in its entirety to the worms, but many of its points were of great importance to the other branches of parasitology.

Professor HEGNER, in a brief reply, agreed that the helminths were more active migrants than the protozoa.

In a paper on some aspects of therapeutic malaria, Dr. G. DE M. RUDOLF said that benign tertian malaria was generally used for the artificial inoculation against general paralysis of the insane instead of the malignant form, which was not only more dangerous but often was not effective. The period of incubation in these cases was related not only to the method of injection but also to the number of parasites injected. Various factors affecting the course of the malaria were discussed. A natural immunity was found in some cases. Atmospheric conditions might affect the malaria treatment. Dr. Rudolf then demonstrated the alterations and deviations from the normal temperature chart of malaria which he had found in patients with general paralysis of the insane. The treatment gave very successful results, especially in

patients in whom the disease was not of long standing. His own results indicated that about 60 per cent. of the patients with the disease of less than eighteen months' standing were discharged, while only 8 per cent. of those who had had the disease for a longer period were successfully treated; on the average nearly 40 per cent. of all cases were discharged.

DIATHERMY IN THE TREATMENT OF PNEUMONIA.

At a meeting of the Section of Electro-Therapeutics of the Royal Society of Medicine on May 21st, Dr. H. EATON STEWART of New Haven, U.S.A., an officer in the United States Navy, gave an address on diathermy in pneumonia. Dr. ALASTAIR MACGREGOR presided.

Dr. Eaton Stewart said that he was unaware that any work had been done on the subject when he started his own in 1921, though he discovered later that as far back as 1906 two American workers had experimented along this line. In 1921, at the Marine Hospital in New York, during an epidemic of pneumonia, it was determined to make an experimental trial of diathermy. The experiment was delayed until a case arrived which appeared to have otherwise no possible chance of recovery. This case, that of a merchant seaman, was believed to be hopeless, and diathermy was given, 2,000 milliamperes for twenty minutes, through the chest, front and back. The clinical improvement was immediate, and the man made an uninterrupted recovery. It was recognized, however, that this might have been an accidental success, and in order to make a study of scientific value a systematic plan was followed for checking the results, and every third case was used as a control. Of 41 cases treated by diathermy in that first series 17 per cent. died, and the results in general were so favourable that they led to a trial of diathermy by a number of workers, who also found that the reduction in mortality compared with the average in similar cases was most definite. The technique varied very little from the first. The electrodes used were of flexible enamel, covered with heavy shaving-soap lather, and were placed directly on the skin. In the treatment of a single lobe in an adult electrodes of 5 in. by 7 in. were usual, and for two adjacent lobes the size might be 6 in. by 8 in. Flexible electrodes of German silver in the form of chain metal had been used, and had the advantage of adapting themselves to the irregular shape of the chest, but there were certain practical disadvantages attending their use. Experience had also shown the value of using a lower milliamperage than had been thought suitable at first, and the tendency was towards quite small amounts of current. A very usual application was 1,200 to 1,400 ma for thirty or forty minutes. The frequency of application in hospital cases was limited by the exigencies of the institution, and in the cases which formed the subject of the earlier reports two treatments daily were the maximum that could be given; but in private practice severe cases were treated every four hours. In desperate cases the intensity of the current and the duration and frequency of application were all increased. An impression had gained ground that it was advantageous to have the cardiac area included in the current pathway, even when that area was not affected, and this was borne out by his own experience. The reports so far collected related to between 300 and 400 cases, a sufficient number to justify an answer being given to certain questions, though not sufficient for dogmatic statements. A remarkable fact was that in about 97 per cent. of the cases treated the temperature had dropped by lysis. In many cases the temperature began to fall as early as the second or third day. A lessening of cyanosis when this was present had been an almost invariable accompaniment of the treatment. The pulse rate fell slightly as a rule. The respiratory rate was lessened on an average about five a minute, owing to the decreased pain and the increased pulmonary circulation. Perspiration was considerably increased, and this, when not too profuse, probably helped matters by toxic elimination. The deep heat produced by diathermy hastened resolution. In any statements on mortality it was necessary to be very conservative, because the disease was one in which the

death rate in different epidemics varied widely. In the cases under review, however, it could be said that the death rate had been about halved. This average death rate of 12.9 per cent. was based upon a total number of cases which represented all types of the disease, including streptococcal lobar pneumonia, and occurring at all seasons of the year. No cases, not even those which were moribund, had been refused treatment, and every case which survived to receive a second application was included in the figures. Of the cases in which diathermy was applied before the third day there were only two deaths in the entire series.

Dr. E. P. CUMBERBATCH said that during a recent visit to the United States he had asked each clinician whom he met what he thought of this treatment, and he found a high opinion entertained with regard to it in every instance. He had not come across one clinician who doubted its efficacy. He added that although there had been earlier workers on the subject, even in the United States, the treatment of lobar pneumonia by electrotherapeutic means would always be associated with the name of Dr. Eaton Stewart.

Dr. W. J. TURRELL, who thought that the chief value of Dr. Eaton Stewart's work was that he had carried this method over from the region of the theoretical to that of the practical, said that there had been a great reluctance on the part of clinicians to take up the treatment in this country. One obstacle to the adoption of the method here was the lack of a suitable portable apparatus. A feature of the cases chronicled which was surprising was that 97 per cent. of them should terminate by lysis.

Dr. C. B. HEALD spoke of a number of cases—one of acute lobar pneumonia, two of delayed resolution, and four of bronchopneumonia—in which he had seen quite definite results follow this treatment. The first case he had ever treated, and one which gave him confidence, was the case of a small child, breathless with bronchopneumonia, upon whom the effect of the treatment was at once most beneficial. A feature to be noted about the improvement which followed diathermic applications was an alteration in the type of breathing; the inspiration, instead of being, so to speak, vertical and dropping sharply, spread out and became longer. He also mentioned the relief of embarrassment and the restful sleep induced. He regarded this as a genuine form of treatment which could be fearlessly given.

Dr. G. B. BATTEN said that Dr. Cumberbatch, after his recent visit to the States, reported that in America the open spark-gap type of diathermy instrument was commonly used. The speaker wondered whether there was any real difference in the resulting current, apart from convenience in instrumentation, as between the open and closed spark-gap. With regard to the effect of heat applied to the chest, some years ago he had occasion to make a *post-mortem* examination of a patient who had had pneumonia, and he found that the effect of a mustard poultice which had been applied had extended to over one inch depth in the chest wall. The administration of deep heat, therefore, seemed to be entirely rational.

Dr. EATON STEWART, replying on the discussion, said that in the States there were several types of portable apparatus. Three or four reliable machines were procurable for about 250 dollars each. Most of these machines were made for currents of 75, 110, and 220 volts. The American Medical Association had lately formed a committee on physiotherapeutics with the object of standardizing the various factors of voltage and frequency, and it was hoped to arrive at a good deal of definite knowledge as a result of its work. As between the open and the closed spark-gap *per se* he did not think there was much to choose. He was glad to find that the value of this treatment in pneumonia was readily recognized in this country. The very large percentage of cases in which there was a fall by lysis was certainly remarkable, and the fall by lysis was a factor in early recovery and increased vitality. In the series of 300 or 400 cases there had been only eleven or so in which the fall had been by crisis or semicrisis. Five or six of the large hospitals in New York were now using this treatment in a routine way, and it was no longer regarded as in the experimental stage.

Reviews.

AVIATION MEDICINE.

MAJOR L. H. BAUER of the United States Army Medical Corps has compiled an excellent textbook, entitled *Aviation Medicine*,¹ for the use of flight surgeons of the U.S. Army Air Service.

He gives a detailed account of the methods used in selecting pilots, discusses the physiology of aviation stress, and in the third section gives advice on the care of flying personnel and prevention of accidents. The book is well illustrated, and the extensive references to the investigations of British, French, Italian, and American workers will make it valuable to all medical men concerned with aviation.

The American methods in selecting pilots are briefly as follows:

Organic diseases are excluded, vasomotor instability is tested by a composite test called "the circulatory efficiency test," which is a combination of the ordinary exercise tolerance test and the difference between the systolic blood pressure taken standing and reclining. Marks are given for satisfactory pulse rates and for a normal rise in blood pressure when the subject assumes the erect position. The total score of marks varies from a maximum of 18 to a minimum of -11.

The pilot is classified as regards ability to fly at altitudes, by causing him to rebreathe into a spirometer until he shows signs of distress. By estimating the percentage of oxygen in the spirometer it is possible to eliminate individuals who are sensitive to lack of oxygen. This test, the author states, takes the better part of an hour to carry out, and during half of the time, whilst the pulse, blood pressure, nervous system, respirations, and mental state are being tested, it necessitates a personnel of at least four attendants and medical examiners.

Vision is tested for acuity and refractive errors, colour perception, field of vision, and accommodation. Judgement of distance is tested by estimating the relative position of two vertical rods at a distance of 20 feet. Ocular muscle balance is also tested by the Maddox rod test. Convergence power and accommodation are also estimated, but no reference is made to any test for neglect or suppression of vision due to fatigue. The description of the examination of the nose, throat, and ear is interesting because of the full account given of the Bárány rotating chair test. The author states that in his opinion equilibrium in the air is a function of the whole proprioceptive mechanism, and that it is very questionable whether reliance can be placed on the Bárány tests in an experienced aviator. "The whole subject," he says, "has been unduly stressed in proportion to its relative value in aviation." Stability of the nervous system is regarded as exceedingly important. Not only is a thorough neurological examination made, but a personality study of the candidate's temperament is carefully carried out.

The section on the physiology of flying deals with the effect of oxygen want at altitudes, and of cold, wind, and speed. Major Bauer refers to the Pulitzer race of 1922-23, when the winners stated that they became dazed or temporarily unconscious when turning at high speed (243 to 266 miles an hour), and regards cerebral anaemia due to centrifugal force as the cause.

The question of fatigue and staleness of the pilot are considered in the last section, where references are made to the investigations of Birley, Flack, and Bowdler in the reports of the Medical Research Council (Air Medical Investigation Committee) in 1918.

Major Bauer describes a condition of neuro-circulatory asthenia, or "effort syndrome," with symptoms of loss of interest in work, constant fatigue, distress on slight exertion, poor muscular control, nervousness, inattention, and carelessness. He attributes it to excessive flying, high altitudes, and war stress, and states that it is accompanied by deterioration in flying ability, particularly in landing. Physical signs are present in the form of increased heart rate, exaggerated response to exercise, and exaggerated responses of blood pressure. Reflexes are increased and coarse tremors of hands are noted. This condition of staleness may be prevented by suitable means, and the author concludes by giving some useful advice to flight surgeons with regard to keeping their pilots in good physical condition.

¹ *Aviation Medicine*. By Louis Hopewell Bauer, A.B., M.D. Published by authority of the Surgeon-General, Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1926. (Med. Sec., pp. xv + 241; 35 plates. 34s. net.)

PUBLIC HEALTH LAW IN THE UNITED STATES.

THE international health work of the League of Nations, and the series of interchanges of visits of public health officers between country and country, is proving of real value in widening knowledge of disease prevention and health promotion throughout the civilized world. But conducted group visits of brief duration are much the better if supplemented by subsequent study relating to the country visited. Regarding the United States especially, with its enormous territory, its great population, and its numerous States, each self-governing yet related to a Federal Government performing important functions for the whole vast area, the student of public health is especially in need of assistance if he is to form a true conception of the scheme as a whole. Incidentally such guidance is admirably afforded by an important work that has lately reached this country from America.² The author, Dr. JAMES A. TOBEY, is qualified both in medicine and in law, and the volume has a preface by an authority, Dr. Charles V. Chapin, whose name is well known over here. The work, which relates wholly to the United States, is not a student's grind book for examinations, and is not burdened with details of individuals Acts or sections, whether State or Federal. It claims to be an exposition of fundamental legal principles applicable to public health procedure, and the claim is justified. The Earl of Derby is quoted approvingly as having declared that "sanitary instruction is even more important than sanitary legislation," and Dr. Chapin agrees with the author that "only matters, which it is intended to enforce should be placed in a local sanitary code, and then these should be enforced and not be permitted to become decorative only."

Differences in the point of view as between England and America naturally crop up in the course of the volume. The author thinks it an unnecessarily narrow restriction to require that a health officer should have a qualification in medicine. "An individual with a Dr.P.H. granted by a first-class school of public health is for that matter much more logically trained to administer a health department than is a physician with no public health experience or training." But these last words beg the question. The sound position, surely, is that a medical degree or diploma should be the foundation on which specialization and a diploma in public health are built, as in the case of other specializations, including osteopathy, which has lately been under incidental reference in the press of the old country.

Dr. Tobey's work is well designed and well arranged. The American plan of government, executive, legislature, and judiciary, is explained, also the Federal constitution and the State constitution. The chief feature is that government is based on definite written constitutions, not as in England, which has no written constitution. A chapter is devoted to the police power and its application to public health, a point being made that, before the constitution of the United States was adopted, individual States possessed the power of health protection. Local health departments are formed for county, city, town, and village areas within a State, and have appropriate powers and duties. Special powers include school hygiene, vaccination, and control of milk, foods, and drugs. The control of communicable diseases is under State laws and local regulations. Under "social hygiene" venereal disease in relation to ophthalmia neonatorum, quarantine, marriage, the repression of prostitution, are discussed, and the functions of "moral courts" are explained. Mental hygiene has a chapter to itself, dealing, *inter alia*, with definitions of insanity, administrative control, guardianship, crime and mental disorders, examination of prisoners, juvenile courts, irresponsibility, the sterilization of prisoners, and the immigration laws in relation to the mentally defective. In a chapter on health officers and employees, a scale of minimum salaries for full-time qualified officers begins with 2,500 dollars (say £500) a year for populations under 10,000, and rises to 10,000 dollars (£2,000) for populations of a million and a half and upwards. Security of tenure does not seem to be so

well guarded as for whole-time officers in this country. Another chapter is devoted to discussion of liability and legal responsibility for injury or damage arising out of public health activities of corporations, health officers, physicians, schools, etc. Various cases are given in illustration of the findings of the courts. The drafting of health legislation and the enforcement of the law has each a chapter to itself. Then follows a very convenient concluding chapter of summary and comment, constituting a useful synopsis of the book as a whole. Finally comes a series of four appendixes, the first of them being a complete copy of the written constitution of the United States, with amendments. Also a long table is given of cases decided in the various courts of the United States. The index is in two divisions—individuals and subjects.

It will be gathered from this account that the work contains a mass of information which, though not relating to this country, may be useful both to health authorities and their officers, as showing the lines which are being followed in the great republic in respect of matters which are being dealt with in one fashion or another by every civilized country in the world.

REPRODUCTION IN THE RABBIT.

MR. JOHN HAMMOND's book *Reproduction in the Rabbit* is issued in the series of Biological Monographs and Manuals edited by Dr. Crew and Mr. Cutler. Professor MARSHALL has written a foreword, and also a chapter on the formation of the corpus luteum.

The book deals with many matters relating to the physiology of reproduction in the rabbit. The question which may have chief interest from the point of view of human physiology is probably the relation between ovulation and sexual intercourse. It is well known that in the majority of mammals ovulation takes place spontaneously, and whether copulation occurs or not: but in some species, such as the rabbit and the ferret, the Graafian follicles do not rupture and discharge their ova without the stimulus set up by sexual intercourse. In the rabbit, however, pseudo-pregnancy may be induced under experimental conditions, as by allowing copulation with a male rendered sterile by vasectomy: when this happens ovulation takes place, succeeded by the formation of corpora lutea, and the consequent growth changes occur in the uterus and mammary glands. Mr. Hammond has proved by a series of experiments that in the domestic rabbit there is no regular oestrous cycle, the animals generally continuing in a state of oestrus for prolonged periods, during which copulation can occur, succeeded by ovulation and pregnancy. It is supposed that owing to there being no corpus luteum to regulate the time when the follicles ripen, this process can occur at any time under suitable conditions. In this respect, according to Mr. Hammond, the rabbit resembles the domestic fowl and is quite different from the great majority of mammals.

The book is illustrated with twenty plates, each containing several photographs showing the condition of different organs throughout the sexual cycle.

EXPERIMENTAL PSYCHOLOGY.

THE second part of Dr. C. S. MYERS's *Text-Book of Experimental Psychology*, describing laboratory exercises, has now reached its third edition.⁴ Many new exercises, especially in the higher mental functions, have been introduced; these have been devised by Mr. F. C. BARTLETT, who succeeded Dr. Myers as director of the Cambridge University Psychological Laboratory. Mr. Bartlett's name, therefore, appears with that of Dr. Myers on the title-page. The student of psychology is advised to concentrate his attention upon the methods which he is instructed to employ, and upon getting a clear conception of the nature

² *Reproduction in the Rabbit*. By John Hammond, M.A. Cantab. With a Foreword and Chapter on the Formation of the Corpus Luteum by F. H. A. Marshall, F.R.S. Biological Monographs and Manuals—No. IV. Edinburgh and London: Oliver and Boyd. 1925. (Demy 8vo, Pp. xxv + 210; 20 plates. 15s. net.)
⁴ *A Text-Book of Experimental Psychology*. Part II, Laboratory Exercises. By Charles S. Myers, M.A., M.D., Sc.D., F.R.S., and F. C. Bartlett, M.A. Third edition. Cambridge: The University Press. 1925. (Demy 8vo, pp. 121; 40 figures. 7s. net.)

² *Public Health Law: A Manual of Law for Sanitarians*. By James A. Tobey, M.S., LL.B. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1925. (Demy 8vo, pp. xviii + 304. 20s. net.)

and range of experiment in psychology. He must not be depressed by the fact that the ideal experiment, in which all the conditions are thoroughly under control, cannot be performed. "The experimentalist in psychology," says Dr. Myers, "must be a psychologist"—a statement worthy of remembrance by the lay amateur psychologists who now abound. The experiments described are divided into four sections. The first series gives a training in the technique of psychological experiment, both qualitative and quantitative. The exercises in the second section are directed to a study of the special senses. The third section contains a number of typical exercises on perception and the higher mental processes. Section IV describes additional experiments in the study of the senses and of mental activities, together with an exercise in statistical methods. The whole course of study is very clearly and completely set forth.

ESSENTIALS OF PHYSIOLOGY.

FOR the physiologist there can be few tasks more difficult than to decide what are and what are not the essentials of that science. The late Professors BAINBRIDGE and MENZIES carried out this selection with such discretion in their *Essentials of Physiology* that Professor LOVATT EVANS, the editor of the fifth edition,⁵ has had to reject very little that was superfluous; and he has added nothing that is non-essential.

The reader must bear in mind that this condensed work is not an introduction to elementary physiology, but a presentation of all such subjects as an examiner is likely to ask about. It is a handbook for students who want to revise their work, not an exhaustive treatise for experts. Furthermore, the student is supposed to have some acquaintance with both histology and biochemistry, for there is very little of the former, and the latter is dealt with quite early in the book. If the chemistry is to be studied thus early, then food and diet might well have followed immediately. It does not seem well to postpone until so late as is done here the chemistry of diet, digestion, and absorption. The student is not given early enough an adequate conception of metabolism. The chemistry of the blood, as is proper, is described early. Some topics are excellently done, such as the vascular mechanism and the account of diabetes and insulin; both of these are absolutely up to date. The subject of tissue respiration is another the treatment of which is as thorough as the small space allotted to it will allow. The reference on page 2 to what "are called vitalistic interpretations of physiological phenomena" is, however, too short to be other than imperfect if not obscure. The exceedingly important topic of the relations between the members of the biologic trinity—affectability, stimulus, and response—might with advantage have been more fully discussed. It is owing to hazy conceptions of their relations that we find sometimes in the writings of medical men, even of great clinical experience, a good deal of confusion as regards the exact meaning of stimulus, vital property, and response.

Considering its great practical and theoretical importance, the existence of the problem of the reality of nerve energy, a term used by physiologists and by clinicians alike, might have been recognized. No mention is made of the tracing of a muscle in a state of voluntary contraction which displays events of the order of ten to twelve a second and not any so rapid as fifty. This latter figure is obtained by the delicate galvanometric method; and some attempt might have been made to correlate this "fifty a second" with the earlier observations by the coarser method. In view of the great significance in clinical work of the understanding of "referred" sensations and pain, the treatment of this subject might have been fuller, and would have been the better for a diagram. We are glad to see the practically important subject of sleep discussed; but we can hardly agree with the rather too agnostic conclusion as to its causation. Many of the diagrams, being bold and distinct, are very helpful; those

on colour vision are especially good. We are glad to notice the frank recognition of the influence of the psychic and emotional factors on the flow of gastric juice.

This excellent presentation of the facts of physiology is what it purports to be, and may be recommended to the student with the utmost confidence.

THE HOUSE-FLY.

A SMALL manual by Major AUSTEN of the British Museum (Natural History) on *The House-Fly*⁶ and its dangers, together with a description of the means of combating them, is a veritable *multum in parvo*, meriting the highest praise. Many a medical man will find in it things which it is not only advisable but necessary for him to know, and he will do well to make a note of them to recommend to the educated among his patients at the present time when measures can most effectually be taken to prevent the usual summer invasion of these pests. The majority of persons regard the house-fly as a nuisance, but few among the laity are aware of the real dangers which may result from neglect of efforts to prevent them. The book opens with an interesting account of the life-history of the house-fly and of the differences which exist between it and others bearing a more or less close resemblance to it. The author then proceeds to enumerate some of the most important of the diseases which may be transmitted by the agency of this insect, basing his remarks on his wide general knowledge, supported by his experiences in the great war. A brief but interesting section speaks of the natural enemies of the house-fly—the ant, *Pheidole megacephala*, which destroys many eggs, larvae, pupae, and newly emerged adults; the larva of the muscoid fly, *Hydrotoea dentipes*, which feeds on the larvae of the house-fly, but which, in addition to being easily reared in captivity, is not troublesome to man and does not visit human dwellings; wasps, which attack adult flies; and the fungus, *Empusa muscae*, which also destroys many adults.

The causes of a "plague of flies" in a locality are next stated and used as the basis for formulating rational means of prevention and extermination. The last twenty-three pages, comprising one-third of the book, is devoted to detailing measures of control directed against the fly in its various transmigrations from the egg to the adult; on the ways of preventing breeding, or, in the later stages, hatching; and a final note on general precautions for preventing the entrance of flies into houses, or their access to food, and for obviating the conveyance of infection from the sick to the healthy. In a sentence, the book is one which cannot be too widely read by the educated public, and its low price brings it within the reach of all.

NOTES ON BOOKS.

DR. ALBERT WILSON has written a book, *Rambles in North Africa*,⁷ which it is rather difficult to classify. It can hardly be called a book of travel, it is not wholly a diary, and not exactly a guide-book, although to read it would be a useful preparation for visits to Algiers and Tunis. It appears to be the fruit of several trips the author made with his two daughters. He prepared himself by reading up the history, ethnology, and geology of these countries; and so presents his readers with a good deal of information a less methodical holiday-maker might neglect to acquire. The volume is well illustrated by forty-eight photographs, which are excellently reproduced.

The fourth volume of *Allen's Commercial Organic Analysis*⁸ deals with resins, rubber, and essential oils. The subject of essential oils is split up. An article by Nelson and Russell is entitled "Special characters of essential oils"; another by E. J. Parry bears a title referring to their general characters and the methods of analysing them; and under still another heading the same authority discusses them with reference to

⁶ *The House-Fly: Its Life-History, Importance as a Disease Carrier, and Practical Measures for its Suppression.* By Major E. E. Austen, D.S.O. Second edition. London: British Museum (Natural History), 1926. (54 x 81, pp. 68; 12 figures. 1s.)

⁷ *Rambles in North Africa.* By Albert Wilson, M.D. Edin. London: Jonathan Cape, Ltd. 1925. (Med. 8vo, pp. 296; 43 plates. 12s. 6d. net.)

⁸ *Allen's Commercial Organic Analysis.* Vol. IV. Edited by Samuel S. Sadtler, S.B., Elbert C. Lathrop, A.B., Ph.D., C. Ainsworth Mitchell, M.A., F.I.C. Fifth edition, entirely rewritten. London: J. and A. Churchill. 1925. (Roy. 8vo, pp. x + 648; 9 figures. 30s. net.)

⁵ *Bainbridge and Menzies' Essentials of Physiology.* Fifth edition. Edited and revised by C. Lovatt Evans, D.Sc. Lond., F.R.S., M.R.C.S., L.R.C.P. London: Longmans, Green and Co. 1925. (Demy 8vo, pp. viii + 536; 197 figures. 14s. net.)

their constituents. This strange division of the subject may have been occasioned by the fact that the contributors live on opposite sides of the Atlantic, but this seems an insufficient reason for placing the articles in different parts of the book, separated by others on resins and on india-rubber and kindred substances. This drawback is perhaps not very serious, for the several articles have somewhat different aims, and it is easy to find any required items of related information in the different parts. There is a useful table, arranged in alphabetical order, summarizing the important characters and constituents of all essential oils. The chief purpose of the work, which is to characterize materials in order to enable authentic specimens to be distinguished from spurious, has been consistently followed, and has been fulfilled in high degree. Descriptions of the nature of the source, of the methods of production, and of the qualities that render the materials adapted to their special uses, add to the value of the articles. The adulterations which experience shows may be encountered are cited, and the analytical methods by which sophistication can be detected are described. The volume is a fitting member of the series of which it is a part.

PREPARATIONS AND APPLIANCES.

Combined Bone and Plate Holding Forceps.

MR. K. F. D. WATERS, M.B., Ch.B.Oxon. (St. Stephen's Hospital, Fulham Road, S.W.), writes: I have had in use for nearly two years a combined bone and plate holding forceps, which has given every satisfaction.

The forceps consists of two blades made on the principle of the well known Peters forceps for large or small bones. The blades are adjustable and held where desired by a spring rack at the end of the handle. The advantages are that as soon as the fragments have been manipulated into position the clamp can be locked instantly and maintain the correct alignment while the bone is secured with the plate, which is slipped under the groove in the upper blade without disturbing the position of the fragments. The operation thus becomes much easier and shorter and no assistance is required, except to help in bringing the fragments into apposition. This forceps was made for me by J. H. Montague, 69, New Bond Street, W.1.

THE DEFINITION OF BLINDNESS.

BY

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THE Ministry of Health has recently issued a circular on the definition of blindness in relation to the training and employment of the blind¹ which is of much importance to ophthalmic surgeons and to those who have to do with the administration of the Education Acts and the Blind Persons Act. The chief part of the circular is the promulgation of a precise numerical definition of blindness. The definition is said to be that contained in the report of the Ophthalmological Section of the Royal Society of Medicine of 1915.² A part of that report is quoted in the circular and sandwiched between a prefix, which reads: "The report states that precise numerical formulae of visual acuity are useful as guides," and an affix: "It is accordingly the practice of the Minister to regard persons whose visual acuity, after correction of refractive errors, is greater than 6/60ths (Snellen), as not being blind, unless the defect of eyesight includes such special conditions as a great contraction of the field of vision." The report of the Royal Society of Medicine, as arranged in this circular, appears to furnish a sure foundation for this decree of the Ministry. When the terms of the report are verified it is found that the Ministry has made a somewhat disingenuous use of that document. In fact, it has used it in just the opposite fashion to that those who drafted it intended. The whole relevant portion of the report reads thus:

"... Let the definition read '*too blind to perform work for which eyesight is essential*,' and his case is covered.

"The Committee has carefully considered the advisability of supplementing the foregoing definition by numerical standards expressing degrees of blindness. Experience shows that persons whose acuity of vision (refractive error being corrected) is below one-twentieth of the normal (3/60 Snellen) are usually unable to perform work requiring eyesight, while persons with

vision better than one-tenth (6/60 Snellen) are usually able to perform some such work. Persons with intermediate degrees may or may not be able; much depends on intelligence and bodily strength, and much on the nature of the blindness. A person whose so-called blindness depends on defects in the centre of the visual field may fail to reach a given standard and yet be able to perform some kinds of work requiring eyesight, while another person suffering from great contraction of the field of vision may surpass the same standard and yet be unable to walk alone or to do any kind of work requiring eyesight."

"The Committee is of opinion that the numerical limitations mentioned above are likely to be useful as preliminary guides, but that until experience has been gained through the working of the Act they should be regarded as purely tentative. The certifying authority should not be bound by any precise numerical standard."

The part of these paragraphs quoted by the Ministry in its circular are those between the heavy black lines¹¹ interposed in the extract. The opening part of the second paragraph is omitted; that is immaterial. But what does matter is the complete suppression of what is really the essential part of the report shown in the third paragraph, which concludes: "*The certifying authority should not be bound by any precise numerical standard.*" (Italics mine.)

Such a use of the report of the Royal Society of Medicine by a Government department of such high standing as the Ministry of Health is little short of amazing. The report does suggest that there may possibly come a time when some revision of the definition of blindness may be desirable in the light of experience. The Ministry must be in possession of a large volume of records. It would have been reasonable for the Ministry to have referred this collected material to the same body as drafted the report, and to ask for suggestions in the light of that material. Or, alternatively, the Ministry might have stated that in view of its own accumulated experience it considered that the definition should now carry a hard and fast numerical formula; that would have been a strong position to assume. Its action, as shown in this circular, is indefensible, since it is based upon an alleged opinion which was not only not formulated, but explicitly denied.

Blindness is relative. Strictly speaking, a man is blind if he has no perception of light. Ability to distinguish light in any degree removes him from the group of the totally blind. Such a definition is useless in a civilized community. Economic blindness may, and does, allow of considerable degrees of sight—sight that will not only be a comfort to its possessor, but also of utility. Possession of perception of light is an incalculable comfort; ability to judge the position of a light is greater; power to count fingers greater still; and each advance brings not only more comfort but some additional freedom of action. Yet none of those valuable degrees of sight renders its possessor economically sighted—that is, his sight does not bring him within the ranks of those who live by sight. He is for all purposes of his daily work blind. With advancing degrees of sight—for example, the ability to define the shape of objects—approach is made to economic sight. The point at which this sight becomes sufficient to enable work to be done by sight is the limit of economic blindness. That point is not and cannot be a numerical standard of vision which is an unrelated formula. It can only be related to work, which is variable both in time and place.

The relativity of visual standards is well known when these are applied to sighted persons. There is no fixed standard for all. In naval affairs perfection is the standard, yet even here allowance is made for the clerical staffs. The standard for the soldier is lower, and it is lower in times of war than in peace. The standards for children vary with age. The standards for vehicle drivers vary with the railroad and the road car. In setting these standards the prime reference is not to some hard and fast formula but to work, or the nature of the work to be done.

Since experience has shown that this must be so among the sighted, there can be no grounds for ignoring a like necessity in dealing with those at the other end of the scale who are alleged to be economically blind. A fixed standard, such as is promulgated in the circular of the Ministry, does this very thing. It assumes that a visual acuity of 6/60 is the dividing line between economic blindness and sight—for the whole country; for those born blind;

¹ *Welfare of the Blind: Training and Employment of the Blind: Definition of Blindness.* Ministry of Health, Circular 681. London: His Majesty's Stationery Office, 1926. Price 2d. net.

² *Proceedings of the Royal Society of Medicine, Section of Ophthalmology, Report on the Definition of Blindness, July 21st, 1915.*

for those blinded in later years; and for all causes of blindness (with the exception of limitation of field of vision). That assumption is the antithesis of our manner of dealing with the sighted.

The change inaugurated by the Ministry from the original agreed definition, "Too blind to perform work for which eyesight is essential," to the rule of thumb of 6/60, will be viewed both with relief and disgust. Measuring human capabilities is confessedly one of the most difficult forms of judgement. That judgement can only be gained by progressive, strenuous, and continued mental exercise and comparative examination. To require an ophthalmic surgeon to judge whether an alleged blind person is economically blind on the original definition is to require him to exercise all his trained faculties of judgement. To tell him to find out whether or no the same person sees 6/60 is to set him a technical task and no more; he may even do this without any consideration of the purpose of the test, for it calls for no examination of the facts of life outside his consulting room. However many such cases he may examine his judgement of economic blindness is not advanced. The good observer is likely to suffer a declension in judgement; the mere technician will remain as he is. I heard someone say: "The 6/60 definition helps the fool," and I would add—it leaves him a fool. The 6/60 definition may be held to be an administrative convenience; it favours comfortable docketing. That is true. But it is a poor reason for supporting it. It is on a par with the yearning of some minds for a tabular list of diseases with a parallel list of cures. A simple plan for the simple-minded. Administrative convenience is not to be ignored.

But is this 6/60 definition really an administrative convenience? I do not think it is. It is likely to lead to more difficulties and more hard cases than the fluid original definition of the Royal Society of Medicine, and with each hard case there will be an outcry against the administration. Under the Royal Society of Medicine's definition the administration takes the opinion or opinions of qualified doctors and acts thereon; under the 6/60 definition the administration assumes the responsibility, for it has set the standard.

Hard cases are most likely to occur in industrial centres where a high organization of work makes disabilities most serious; and also because in these centres complaints are more easily advertised. A man in the country with 6/60 vision can do work for which sight is essential; the Ministry's definition will accept him as blind. A man in a great city with a little more sight than 6/60 in one eye, the other as likely as not excised, cannot get work for which sight is essential; no one will employ him when there is a good-sighted competitor at hand; yet the Ministry's definition counts him as sighted and employable as a sighted man. A man who never had more than 6/60 vision all his life is in an incomparably better position by use and custom than the bewildered adult who has just suffered a grave reduction of previously good sight through disease or accident. Yet the Ministry's definition lumps both together. It would be easy to add to this demonstration of the inequalities of the 6/60 definition of blindness, and of the likelihood of increasing administrative difficulties that will arise therefrom.

It is to be hoped that further experience may lead the Ministry to modify its circular, and possibly substitute for the somewhat mutilated extract of the report of the Royal Society of Medicine an extract which will show the finding of that report in its true relations. The repeated publication of this finding (as quoted earlier in this paper) would be of service.

Further, it would be of service to ophthalmic surgeons if the Ministry would publish a series of cases passed as blind, with the clinical findings upon which the decision was based. The advantage would be still greater if the Ministry of Health would do this conjointly with the Board of Education, the latter department citing cases certified for "blind training." The publication of a short and representative series of cases would do more to help isolated workers than any rule of thumb formula, just as in another sphere "case law" is the inevitable exposition of the wisdom of the Legislature. Such a joint publica-

tion is the more necessary seeing that the circular shows that the Board of Education has agreed that—

"No student should be admitted to a course of training designed for persons who are too blind to perform work for which eyesight is essential in accordance with the interpretation of that definition indicated above, unless in the opinion (based on competent medical advice) of the managers of the institution and of the local education authority or other contributing body, he either is, or there is a reasonable prospect that by the time his training is ended he will be, blind within the meaning of the definition."

This paragraph of the circular concludes with a most weighty recommendation:

"It is of great importance that local education authorities and managers of special schools for the blind should arrange for the case of every child to be brought under review during the last year of his school life from this point of view, in order to ensure that the provision made for his training or other form of after-care shall be appropriate to his needs."

Some workers for the blind are inclined to think—once blind always blind. This is not true. Diagnosis must be subject to revision, for conditions may change. A child blind from interstitial keratitis may in later years attain serviceable sight. A child with congenital eye defect may be seen at such an age that vision cannot be satisfactorily determined. It may properly be certified as blind for educational purposes at the time, but the decision must be revised repeatedly. I remember the case of a boy with dislocated lenses who was in a provincial school for the blind until the age of 16 years, then he was seen in London, and excellent vision was obtained by the supply of cataract glasses. I hasten to add that the case occurred twenty years ago, and at the time there was no ophthalmic surgeon attached to the school, and that I have seen no similar case since. The requirement that there should be an examination of children in schools for the blind in the last year is the minimum; it would be better if the revision were annual. When education authorities have no choice between a school for the blind and an elementary school difficulties will arise, but where they have established "myope classes" there is no difficulty in securing suitable transfers and making trial of different educational methods. The formation of myope classes becomes an urgent necessity under the new conditions.

Another point of importance is referred to in the circular. The Minister "regards it as essential also that only visual factors should be taken into account, and that other bodily or mental infirmities predisposing to incapacity should be disregarded." A cripple may be unemployable, but that is no reason for certifying him as blind. One such improperly certified may possibly exclude a really blind person from opportunities of training of which he is in urgent need, and of which he may be able to take full advantage.

Irrespective of the criticism I have ventured to make of the action of the Ministry regarding the definition of blindness, there can be no doubt that the circular is one which demands the study of all ophthalmic surgeons.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee thirty cases were considered and £488 voted to twenty-eight applicants.

Daughter, aged 49, of M.D. Edin. who died in 1919. She has tried to maintain herself, but owing to ill health and bad eyesight has had to give up work, and is now living on her capital, which only brings in £17 per annum at the present time. Friends gave £12, and she received £2 10s. as a lady help for two months. Voted £20 in four instalments.

Daughter, aged 70, of M.R.C.S. who died in 1868. Applicant worked as a children's nurse for twenty-four years, and as a housekeeper until a recent illness; she is now unable to do anything. Is applying for the old age pension, but her only income is £2 17s. 6d. a year; she lives with a friend who is unable to keep her. Voted £25 in twelve instalments.

Daughter, aged 62, of L.S.A. who died in 1914. She has a small nursing home, but only received from patients £103. She has borrowed money to meet rent, which is £56, with rates £20. Voted £10.

Widow, aged 55, of L.S.A. who died in March over 80 years of age and needed constant attention. The Fund granted her £15 to meet out-standing rent and to carry her on whilst seeking work.

Widow, aged 40, of M.B. Glas. who died in 1924. Her son, aged 15, is now apprenticed to a firm of engineers. He is in charge of a guardian as the applicant is lying seriously ill in an infirmary. The guardian was voted £25 in twelve instalments towards maintenance of the boy.

Daughter, aged 44, of M.R.C.S. who died in 1906. She has been an invalid since his death and is looked after by a nurse, who receives 15s. a week for her maintenance. £175 has been granted since 1919, and the annual grant of £25 in twelve instalments was renewed.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos Street, Cavendish Square, W.1.

British Medical Journal.

SATURDAY, MAY 29TH, 1926.

THE WHITE MAN IN THE TROPICS.

THE question of the ability of white people to colonize a tropical country and make it a place of permanent residence has been much debated for many years. The general verdict has usually been adverse, given by those who have held positions of responsibility for considerable periods in the districts of which they speak and write, either in Government service or in the employment of commercial firms, and their opinion has sometimes been supported by scientific men who have carried out physiological and biochemical investigations regarding the effects of climate on the constitution of the European. On the other hand, we have some important practical examples to the contrary effect, among them a large unpremeditated experiment in acclimatization in Queensland, where a large resident pure-blooded white population has been bred up during the last seventy years. On the eastern coast alone there are more than 100,000 such.

In most tropical countries the white man is an official of one sort or another, an overseer of labour, a temporary sojourner and not a lifelong resident, content to pass the time and put up with discomforts and the use of makeshift dwellings and appliances, and carry out his duties with the ever-present vista before him of a comfortable retirement to a temperate clime when the time of his service expires. Such men are no true criterion of the adaptability of the white man to the tropics, for there is amongst them no true community of interest, no true civic pride, while the lack of home comforts is a constant source of complaint, and the collar-work in surroundings perhaps not too congenial produces unwittingly a psychological impression of the country which is biased and unjust.

If the lot of the exiled man is hard, that of the white woman is even harder in its mental and psychic stress. Woman's main interests all the world over are vested in her children, her home, her friends, and outside pursuits. Many white women in the tropics are averse to having, or even refuse to have, children because they have been told that pregnancy, and especially parturition, is fraught with more risks and disastrous consequences than at home. The majority of those who do have children do not suckle them, but leave them largely to the care of native nurses, and send them home when they arrive at the most engaging age for fear of the climate or the moral influence, and there is for months prior to this separation the strain of deciding whether her duty is to leave her husband and watch the growing child, or risk sacrificing the affection of her child in order to carry out her duties to her husband. The second interest, her home, is in ninety-nine cases out of a hundred left almost entirely to be run by native house-boys, whose language she rarely troubles to learn, who, she knows, are probably cheating her and wasting an already too slender income—an ever-present anxiety and source of worry. Thirdly, her outdoor interests are few; many of them are trivial duties which she feels must be performed; she suffers, in fact, from the effects of lack of physical exercise, worry, and ennui.

In the face of this we have the striking contrast

presented by the inhabitants of white Australia, the incontrovertible fact of a white people thriving and successful to the third generation. How are we to account for the difference? The essentials may be summed up almost in a sentence. The European here is not a mere sojourner looking forward to the time when he can retire to Britain for a well earned rest; there is no subordinate native race to supervise as his chief or sole occupation in life; the residents are working men and women carrying out, unaided, every task that life thrusts upon them, from the most laborious household duties to the higher grades of mental effort.

Twenty years ago, when Kanaka labour was forbidden in the cane-fields, the knell of the sugar industry in Queensland was thought to have been sounded. The yield in that year (1905-06) was 152,259 tons. Since that date there has been none but white labour, yet in 1922 the yield was 288,000 tons, an increase of more than 80 per cent., and white Queenslanders to the third generation are carrying on their work as in temperate climates, but show no indications of any detrimental effects. Dr. Cilento states¹ in a recent report that in Townsville there are "no labour-saving devices, no special laundry facilities, and the housewife has to go out and purchase her meat and groceries and carry them home, chop wood for fires, milk several goats, get ready the meals, dress and send the children off to school, and then set about sweeping and house-cleaning," and yet she keeps perfectly fit. In fact, Queensland has a lower death rate than the Commonwealth as a whole, and the infantile mortality is lower. In 1913 the death rate in Queensland was 10.4 and the infantile mortality 63, as compared with 13.8 and 108 respectively in Great Britain. A long discussion took place at the Australasian Medical Congress in 1920, and the conclusion reached was that no inherent or insuperable obstacle could be found in the way of permanent occupation of tropical Australia by a healthy indigenous white race. The whole question is fundamentally one of applied public health, the two essentials being physical exercise and work, and preventive medicine. Apart from heat exhaustion, heat-stroke, sun-stroke, and ocular conditions such as glare-asthenopia, the pathological effects of climate *per se* are few. Confirmation of the Australian findings is seen in the records of the long history of white families resident in Kisar in the East Indies, in Cuba in the West, in Espiritu Santo, and Santa Katharina. Also, by far the greater part of the morbidity and mortality amongst the Americans in the Philippines is ascribed to nostalgia, isolation, tedium, excesses, and parasitic infections. Gorgas in Panama bore similar testimony.

It is largely the persistence in habits unsuited to the climate that is the cause of the discomforts and dangers of tropical residence; much of the morbidity attributed to climate is in truth the result of faulty habits. Among such habits may be mentioned wrong methods of clothing, producing discomfort and heat exhaustion; the stimulant effect of new scenery and food, causing increased appetite and leading to over-eating; while the heat and excessive perspiration make the acquirement of the drink habit easy, and foster a tendency to laziness. Diminished lung metabolism throws more work on the liver, and physiological hyperaemia passes into pathological congestion and

¹ *The White Man in the Tropics*. By R. W. Cilento, M.D., B.S., D.T.M., and H. Dir. of Tropical Medicine. Commonwealth, 1925. Service Publication (Tropical) I. H. J. Green, 1926. (Roy. 8vo, pp. 168; 22 figures.)

upset of function, with its resultant symptoms. The alkalotic blood state produces a sense of fatigue and depression, which should be neutralized by muscular effort. The irritability and neurasthenia ascribed to climate are not confined to the tropics, but will occur in all places where overfeeding, lack of exercise, excesses, monotony, and absence of creative interest are rife. In the tropics, with more leisure, the patient realizes his "state of drift," tries to adjust matters, feels jaded and loses his self-confidence, and the syndrome is aggravated. The climate is only a contributory factor; the cause of the "camelious hump" is not having enough to do, at any rate physically; the remedy is obvious, and its efficacy has been proved in Queensland and elsewhere. This seems to be the general outcome of the very interesting correspondence in our columns aroused by a letter from the Bishop of Singapore on mental irritability and breakdown in the tropics, published last March (p. 503). The similarity of the opinions expressed is on the whole remarkable, for the letters have been founded on experience gained during medical practice in many parts of the tropics. The question is really one for clinical decision, for it must be remembered that the climatic conditions vary greatly in the tropics, and consequently the specialized observations, physiological and biochemical, recorded by laboratory workers are not applicable generally.

There is a widespread belief that tropical climate is responsible for a definite anaemia, and that the pallor is a sign of ill health; this has no true foundation. The pallor of the tropical resident is due to ischaemia, from heaping up of the surface epithelium—significant only of an adaptive protection. On the contrary, it is more correct to say that a ruddy complexion in white residents in the tropics is a probable sign of ill health or alcoholic excess.

Shibboleths die hard, and the old saying that the white man in the tropics loses 25 per cent. of his energy yearly, and is, therefore, good for nothing at the end of four years, is often quoted. If he tries to keep up European habits and customs as regards clothes, meals, hours of work, and omits all common-sense precautions, this is probably true; but if he is properly housed, properly clothed, and takes reasonable care in the way of personal prophylaxis, works hard, and has a hobby which entails exercise, and if public health measures regarding water supply, drainage, and refuse disposal are attended to by a conscientious health officer, it has yet to be proved that the white race cannot live and thrive as well in the tropics as in a temperate climate.

COLOUR-BLINDNESS.

THE name of Edward Nettleship is among the great ones of ophthalmology. He was in the succession of Bowman, von Graefe, and Donders, but his mind was of a philosophical cast, and he was particularly interested in hereditary defects, and comparatively early in life he retired from practice in order to devote himself entirely to the study of this subject. His pupils founded a medal in his honour, which, at his request, is awarded for the encouragement of scientific and ophthalmic work. His best memorial, however, has been erected by Professor Karl Pearson, who has devoted one of the fine volumes of *The Treasury of Human Inheritance*¹ to the subject of hereditary

diseases and anomalies of the eye, to stand as a Nettleship Memorial Volume and record of Nettleship's own work and that of his immediate students and friends. Part I, which was published in 1922, and was reviewed by us in the issue of March 17th, 1923 (p. 472), contained an account of the life of Nettleship and dealt with the subjects of retinitis pigmentosa and allied conditions, congenital stationary night-blindness, and glioma retinae.

Part II, which is now published, is devoted to colour-blindness, and under the capable authorship of Dr. Julia Bell exhibits to the full the high standard of workmanship that we are accustomed to expect from the Cambridge University Press. The volume, indeed, may be considered as an *édition de luxe*, which will give equal satisfaction to the bibliophile and man of science. An excellent reproduction of C. Turner's engraving of the portrait of John Dalton by Lonsdale forms an appropriate frontispiece, since Dalton was the first to give a scientific description of colour-blindness. Dalton, however, was not the first to recognize the affection; the credit of the earliest observation appears to belong to Dr. Turberville of Salisbury, who, writing in 1684, states that "a maid two or three and twenty years old came to me from Banbury, who could see very well, but no colour beside Black and White." A few more cases were recorded in the course of the next hundred years without attracting notice, and it was not until 1794 that Dalton observed the anomaly in his own vision and made a scientific study of the subject, thus inaugurating an epoch of research, not only into colour-blindness, but into colour-vision itself. He tells us how his attention was drawn to the subject: "I was always of opinion that several colours were injudiciously named. The term pink in reference to the flower of that name seemed proper enough; but when the term red was substituted for pink, I thought it highly improper; it should have been blue, in my apprehension." An interesting account is given of Dalton's observations, and one of the most attractive features of the whole volume is a letter to him on the subject from Sir John Herschel. This letter, which is in the possession of Professor Pearson, and is now published in its complete form for the first time, affords a notable insight into the fine nature of the writer. Numerous references to the views of thinkers of ancient and modern times, from Plato downwards, add interest to the volume, and particularly noteworthy is the discreet manner in which Galen deals with the difficult subject of colour-vision; "I would explain to thee in few words," he says, "O thou hideous blasphemer of Nature, if I did not well know that thou would'st contradict when I came to explain the act of vision." With many interesting details of this kind the authoress introduces the subject in a brief historical sketch, and then proceeds to a discussion of the main subject under the headings of normal colour-vision, congenital total colour-blindness or achromatism, and congenital colour-blindness or dichromatic vision.

The characteristic feature of total congenital colour-blindness is held to be an inability to recognize any tints but black, white, and grey; and although such cases are rare, and there is considerable difficulty in demonstrating a total inability to recognize colours, there are a few instances on record which appear to prove that the condition does exist. The problems connected with this form of colour-blindness have reference to the relation it bears to certain symptoms that usually accompany it, more especially amblyopia, photophobia, and alterations in the visible spectrum; to the probable nature and seat of the anomaly; and

¹ *The Treasury of Human Inheritance*. Edited by Karl Pearson, F.R.S. Eugenics Laboratory Memoirs, XXIII. Francis Galton Laboratory for National Eugenics, London. Volume II: *Anomalies and Diseases of the Eye* (Nettleship Memorial Volume). Part II: *Colour-Blindness*. By Julia Bell, M.A., M.R.C.S., L.R.C.P. Cambridge: The University Press; London: H. K. Lewis and Co. Ltd., and Wheldon and Wesley, Ltd. 1926. (Roy. 8vo, pp. 125-267, 4 plates, 1 portrait. 45s. net.)

to the anatomical changes that accompany it. With regard to the first point, five cases are cited in which there is definite evidence that total colour-blindness may be associated with perfectly good vision, although it is exceptional for the visual acuity to be higher than one-third of the normal. In this connexion a comparison with the changes met with in albinism are instructive. Albinism exhibits a syndrome closely resembling that of total colour-blindness, except that colour-vision itself is retained. In this condition the fovea is absent or imperfectly developed, and Dr. Julia Bell suggests that if the amblyopia and other symptoms common to the two diseases are due to this defect, we must look for some further defect in achromatism to account for the absence of colour-vision; and that possibly the presence of central scotomata and the alterations in the visible spectrum observed in achromatism have a bearing on this point. There seems to be no doubt that the spectrum seen by the totally colour-blind is identical with that seen by the normal eye under the condition of dark adaptation—that is to say, the red end of the spectrum is shortened, the brightest region is displaced from the yellow towards the green, and the stimulative action of the short-waved rays is much increased. It would appear that in this condition the macular region is not functioning, and that vision is carried on in the peripheral areas; such would seem to be the case, for instance, in retinitis pigmentosa. The eye is in an irritable state, the pigment is withdrawn from the percipient elements, and the retina is sensitive to slight stimulation. It is possible, therefore, that total colour-blindness is due to the fact that stimuli from any wave-length produce vibrations affecting too wide an area, and thus tend to bring about a sensation of all colours, and so of white and grey.

With regard to the anatomical changes associated with total colour-blindness, the observations are meagre. Two cases only are on record in which a microscopical examination was carried out; in one the eye and optic nerve were normal, and the colour-blindness was attributed to some central lesion; in the other the cones of the foveal region were found to be imperfectly developed. Hereditary influences play a very limited part in the causation of congenital total colour-blindness, for about 20 per cent. of all recorded cases appear to have no similarly affected relatives and show no other hereditary defects. On the other hand, a very high proportion of cases are the offspring of consanguineous parents, and this factor is almost certainly of great significance.

The more common form of colour-blindness—dichromatism or congenital colour-blindness—contrasts sharply with the total form, in that it is strongly inherited, belonging to that group of inheritable diseases which is mainly manifested in males and transmitted by their unaffected daughters, but not by themselves directly to their sons. Dichromic vision is usually considered to be characterized by a defect in the recognition of both red and green, the defect being more marked sometimes as regards the red, sometimes as regards the green, and in either case with varying intensity. Much controversy has centred round the question whether the mental picture normally stimulated by yellow and blue does in fact correspond to the two colours seen by dichromates. According to the theory elaborated by Edridge-Green it does not. He appears to consider that in the evolution of colour-vision the first two wave-lengths to be differentiated as colours are those at the extreme ends of the spectrum, and that the power to react specifically on

stimuli from these regions is what is retained by the dichromic eye. Dr. Julia Bell devotes considerable space to the discussion of the question, and finds difficulty in accepting this conclusion. Perhaps the most forcible argument against the Edridge-Green theory is afforded by cases of unilateral colour-blindness, since in them the affected eye can be tested against the normal one. Careful examination of what appear to be genuine congenital cases seems to leave little doubt that the two retained fundamental tones are yellow and blue. Other characteristics of dichromic vision are its persistence, its frequent association with perfectly normal vision for form, and an enhanced sensibility for gradations of light and shade; the colour sense also appears to be definitely changed in character under artificial light. With regard to inheritance, although rare in women, ninety-one cases of its occurrence in the female are on record. Further, it has been asserted that for colour-blindness to become manifest in women the father must be colour-blind, the mother must be a carrier, and the sons of the colour-blind woman must be colour-blind. Dr. Bell is able to deny this assertion, in so far that the record of one sibship contained three colour-blind females, whose father had normal colour-vision; and in several cases colour-blind women have been demonstrated to have sons with normal colour-vision.

THE MEASUREMENT OF X-RAY DOSAGE.

THE annual Mackenzie Davidson Memorial Lecture, under the auspices of the Röntgen Society and the Section of Electro-Therapeutics of the Royal Society of Medicine, was delivered on May 20th by M. Alexandre Dauvillier, D.Sc., of Paris. The subject of the lecture was the measurement of x-ray dosage, and the lecturer described at length certain experiments of his own. An international committee on dosage was formed as the result of the Congress of Radiology held last year in London, and no doubt the committee will find much material in Dr. Dauvillier's lecture, even though the result may be to give them a keener appreciation of the extraordinary difficulties in the way of arriving at definite international units of measurement of x-ray doses. Dr. Dauvillier began by pointing out that the thermal, chemical, and biological actions of x rays are all due to the ionization produced by the fast-moving electrons which are liberated in the rays in matter, whether the matter be solid, liquid, or gaseous. From the biological point of view the simplest hypothesis, he said, was that the ionization resulted in electrical neutralization of the essential intracellular colloids. For a given absorption of energy this ionization was independent of the speed of the radio-electrons; therefore the action of x rays was not governed by their wave-length, a point which was also borne out by the critical examination of certain experimental work. The question was how the action of the rays, which was proportional to the ionization produced in the material irradiated and to the energy of the radiation, varied for each unit of volume of the irradiated area. It had been shown that in deep therapy the scattering of x rays was a much more important factor than the selective absorption. The therapeutic problem of dosage might, he thought, be stated in the following terms: given a lesion at known depths from various specified points on the surface, what should be the period of irradiation under given geometrical and electrical conditions to cause the absorption of sufficient energy to bring about the desired biological reaction? The work of Dessauer and others had shown that deep doses could not be calculated from a knowledge of the intensity of the incident radiation and the absorption

coefficient of the tissues. The rays of short wave-length necessary for deep therapy in order to get the requisite penetration were scattered far more than they were absorbed by such light substances as air, water, and the living tissue, and experiment showed that these scattered rays played a considerable part in the magnitude and distribution of what the lecturer called "isodosic surfaces." The volume effect resulting from this scattering might in certain cases treble the dose calculated from the geometrical law. Such doses could only be determined by experiment, and the lecturer proceeded to describe experiments in which a vessel of water—the "water phantom"—possessing an absorption practically the same as that of the tissues was used. In this vessel a small ionization chamber filled with air was set, and was attached to an electrometer. A number of different empirical units had been proposed for measuring the quality and quantity of α rays, but with the exception of those of Villard and Szilard, which were unfortunately impracticable for other reasons, none of them was suitable for adoption as an international standard. Such a unit should be applicable equally to radium therapy and phototherapy, and easily reducible to the centimetre-gram-second system. The ideal method would be a spectroscopic one, but this had certain practical difficulties, and in addition a spectrogram gave no clear idea of the distribution of energy according to wave-length. Nevertheless, M. Dauvillier thought that the practical problem of a spectroscopic unit might be simpler than the theoretical, for the reason that the rays used in treatment were usually filtered and so extended over only a limited range of wave-lengths. It seemed as though it would be sufficient for medical requirements if the rays were characterized by an effective wave-length determined by measuring the coefficient of transmission through a given filter. It would be easy then to characterize the quality of α rays which had passed through filters by their effective wave-lengths expressed in Angström units, or, better still, in the X units of Siegbahn, which are thousandths of an Angström. He also discussed methods of arriving at the quantitative measurement, for which it is necessary to know both the intensity or power of the rays and the energy or total dose absorbed, the biological action depending on both these factors. Here the construction of a standard ionization chamber was necessary, by comparison with which dosimeters could be graduated; but there were very stringent conditions which dosimeters must satisfy, and these he laid down. He believed that the expedients he proposed, although they were yet too novel to have received the consecration of practice, were capable of realization, and that the problem of dosage was already on the way to a precise solution.

THE COLLEGE OF NURSING.

THE letter signed by the medical members of the Council of the College of Nursing will, we feel confident, make a strong appeal to the medical profession. It is almost unnecessary to insist on the deep debt owed to nurses, and none are better able to estimate the exacting nature of their work than those engaged in the practice of medicine and surgery. They know also how true it is that the remuneration nurses receive is not comparable to that obtained in many other walks of life, and that their working life is short; there is no general pension fund for them, although they themselves have made gallant efforts to remedy this deficiency. We believe that many more members of the medical profession than have already done so will be willing to subscribe to the endowment fund now being established, for £878 has been received without any very general appeal. The amount required is £100,000, and of this £67,000 has already been raised, £35,000 by

the members of the college and their friends. The college, which has now over 25,000 nurses on its register, has forty-one branches, seven residential and other clubs, and two convalescent homes. The college awards scholarships for post-graduate work; it has a loan fund, and a scheme for insurance against sickness and accident. The object of the college, which was founded in 1916, is to provide a central organization, to raise the standard of training and examination, to promote the higher education of nurses, and to attract to the nursing profession the best type of woman. The qualification for membership is three years' training, and the council is elected by nurses on the register. Donations may be sent to Dr. Comyns Berkeley, the honorary secretary, at the College of Nursing, Henrietta Street, W.1. The appeal says "donations of any amount," but we suspect that such appeals sometimes fail to attract all the support they deserve because people are shy of sending small donations. One way of getting over this is to find somebody in each town or district who would be willing to receive small donations and send them in a lump sum. The house of the College in Henrietta Street is to be opened by the Queen on Monday next, May 31st.

THE DECLINE OF TYPHOID FEVER.

It has been maintained with some show of reason that the decline of typhoid fever in Britain is simply a result of the general improvement in the purity of drinking-water. In lands less blessed than ours with water sources the incidence of the disease continues high. In our own country the decrease of typhoid and the increase in purity of water have proceeded side by side. This, however, is not the whole truth. Typhoid fever, while greatly diminished in Britain, is by no means totally extinct, as we have had occasion to point out several times during the past year or two; when it occurs, epidemically or otherwise, it may show itself in areas whose water supply is quite above suspicion. Pure water is good for the control of typhoid, but not by its purity alone. There are other forces at work. An interesting commentary on some of the influences which affect the spread of typhoid has been published by Dr. John T. Wilson, lately medical officer of health for Lanarkshire, in his review of the prevalence of typhoid fever in the county from 1891 to 1924. Various outbreaks which took place in Lanarkshire during these thirty-four years are set forth in order. A few of them only, dated before the water resources of the area had been developed, are traced to drinking-water. For the recurrent prevalences of the earlier years of the period and incidental outbreaks later, the main cause ascribed is personal contact in the presence of low standards of living, associated with the employment of the conservancy method for the disposal of excreta. Milk infection also played its part on a number of occasions. During the seven quinquennia beginning in 1891 and ending in 1924 the annual average numbers of cases of typhoid fever in Lanarkshire, on a population at the census of 1911 of 302,615, were 560, 422, 357, 258, 130, 93, and 65 respectively. This progressive decline reflects the sanitary progress of the county over the period, including especially the general provision of public water supplies. Collected on high hill gathering grounds and piped to the houses of the people, these supplies are pure, abundant, and accessible. Their purity is indicated by the fact that water-borne infection practically ceased on their introduction. Their abundance and accessibility are among the other forces to which reference is made above. A copious and convenient provision of water disposes to personal and household cleanliness, and enables the degrading and dangerous conservancy methods of disposal to be superseded by the water-carriage system. Standards of living almost inevitably rise, and amenity

replaces *squidori*. The purest water, if limited in amount, could never produce these results. If plenty, however, be combined with purity the whole area of supply becomes an unfavourable field for the propagation of typhoid by contact. Among cleanly people, with cleanly ways and living in cleanly quarters, the risk of infection by carriers or missed cases or cases nursed at home—the last exceptional in well organized districts—is very greatly reduced. Some populations on whom the benefit of water, pure and plentiful, has been bestowed may be slow to rise to their opportunities; but once a satisfactory standard of living has become general the elimination of typhoid fever from this or any other country, even apart from the aid received from specific methods of control, will be notably accelerated.

THE HEALTH OF NEW DELHI.

IN a discussion at the Royal Society of Arts on May 7th, with Lord Hardinge of Penshurst in the chair, Sir Hugh T. Keeling, a member of the Delhi Imperial Committee, who has been chief engineer in the construction of the new Delhi, gave some account of the health conditions of the future capital of India. He said that one of the reasons governing the choice of the site, south of the old city, capital of the Mogul Empire, in preference to the other suggested site to the north, was the greater healthiness of the southern position. In deciding on the site the committee, of which the late Sir C. P. Lucas was chairman, had before it a malarial survey made by Captain (now Lieut.-Colonel) S. R. Christophers, I.M.S. (*Malaria in the Punjab. Scientific Memoirs . . . of the Government of India, 1911*), which showed a spleen rate for the northern site of 90 per cent., and for the southern of 26 per cent., so that from this point of view the northern site was out of the question, and a further consideration was that the northern site was subject to floodings from the Jumna. From the commencement of the work on the new Delhi a health officer was attached to the staff in order to look after the health of the people employed, and especially to prevent the breeding of the anopheles mosquito, with the result that the spleen rate, which in 1911 was 26 per cent., was now considerably under 15. Sir Hugh Keeling also stated that the labour force employed on the works numbered at the outset 29,000, and after the war, by which time the preparation of the site had been almost finished, the labour force on the site itself and at the quarries, which were rather more than a hundred miles away, was from 15,000 to 20,000. The health administration had succeeded so well in keeping this army of labourers free from epidemics of cholera and plague that from the commencement of the work until the speaker left it last year the only epidemic experienced on the site was the Spanish influenza of 1918. Cholera and plague had visited the surrounding regions, but neither had been experienced in an epidemic form within the area of the building operations of the new city or at the quarries. He put this down to the watchfulness of the health staff and to the fact that from the first a filtered water supply had been installed. Moreover, since "Baby Week" was established in India the infant population of the area involved in the building of the new Delhi had carried off the best prizes and the majority of the prizes, and had completely "knocked out" the infants of the old city adjacent. The population of new Delhi was now something over 30,000, the majority being workmen and their dependants. The centre of the new city, the parliament house, is four miles from the famous Kashmir Gate. Lord Hardinge told a picturesque story of how, while the site was being discussed, he rode out to the Raisina Hill, from which he saw the wonderful panorama of old Delhi—the domes and the minarets of Jama Masjid, the rose-coloured sandstone of Humayun's

tomb, Safdar Jang's mausoleum, and other superb buildings, with the Jumna, like a streak of silver, in the foreground. It was a wonderful vision, and he said at once that the top of the hill must be the site of Government House. But the top of the hill was a restricted space for the residence of a viceroy and his staff. The Indian engineer, however, proved equal to the occasion; he sliced off the top of the hill, and formed a plateau for Government House and secretariats, from which the city of Shah Jehan will be visible, to remind the British rulers of India's mighty past, even as Sir Edwin Lutyens's buildings, it is to be hoped, will embody Indian unity and the traditional colonial policy of Britain. One of the architects of Delhi, Mr. Herbert Baker, stated that the climate is tolerable for only seven months of the year. Sir Hugh Keeling took exception to this, and said that only from about the third week in May to the end of July is the really uncomfortable time in new Delhi. He himself during thirteen years had never been away from the place except during June and July, and he had done eight or nine hours' work a day without experiencing any damage to his health or any personal discomfort. He predicted that the new Delhi would be the headquarters of the Government of India all the year round, with the exception of the two central months, when the Government would camp at Simla.

CLAIMS IN RESPECT OF MINER'S PHTHISIS.

WE have received a copy of the recommendations of the Miners' Phthisis Medical Bureau of Johannesburg, of which Dr. W. Watkins-Pitchford is chairman, with regard to the character of the medical evidence in support of claims for benefits by miners or the dependants of deceased miners. The matter is of some general interest, since medical practitioners in Great Britain are not infrequently called upon to give certificates of the present health, or the cause of death, of men who have previously worked as miners in the Transvaal. The Medical Bureau of Johannesburg is often required to adjudicate upon claims for benefit based upon the assertion that a miner is suffering from, or has died from, silicosis or tuberculosis, and in the absence of definite medical particulars the bureau and the claimants are at a considerable disadvantage. An accurate description of the signs and symptoms observed during the illness of the miner is of great value, but cannot by itself be taken as conclusive evidence of the exact cause of the illness or death. It is, for example, impossible in most cases to detect clinically the existence of an underlying silicosis in the presence of extensive tuberculosis. The Medical Bureau, therefore, asks that the following steps should be taken by medical practitioners in attendance on miners seriously affected with miner's phthisis, or other diseases to which silicosis is believed to predispose or contribute. The sputum should be examined for tubercle bacilli by experts, repeatedly if necessary, and the certificates sent to the bureau should state definitely that the sputum was expectorated in the presence of the medical practitioner. If the miner is resident in the Witwatersrand area he should be examined during life by the bureau clinically, bacteriologically, and radiologically. In many cases the foregoing procedures will enable the bureau to place the miner in the pensionable stage of miner's phthisis during life, and thus secure his position and that of his dependants. In the case of a miner resident outside the Witwatersrand area who has not previously been registered by the bureau as suffering from silicosis or tuberculosis, a good instantaneous x-ray negative of the chest should be obtained and certified by the radiographer as being that of the miner in question. Such a negative usually affords conclusive evidence of silicosis, and may indicate also the presence of tuberculosis. In the event

of death in cases in which these steps have not been taken, or the results have been inconclusive, it is suggested that the exact condition of the lungs should be determined at a necropsy by an expert pathologist, preferably attached to some public institution. If the examination is made within the Union of South Africa the Miners' Phthisis Act, 1925, requires that the lungs should be forwarded to the bureau for examination. In cases outside the Union the lungs, certified by the medical practitioner as being those of the miner, should be examined by an expert pathologist, whose detailed report should be sent to the bureau. A necropsy is not necessary when silicosis has been already certified by the bureau, or definitely revealed by an x-ray examination during life, and in which, in addition, proof of the presence of tubercle bacilli in the sputum has been obtained. In all other cases a necropsy is recommended, since it is often the only means of deciding whether a slight degree of silicosis, previously incapable of being detected, is associated with tuberculosis. The evidence afforded by such an examination may, therefore, be of decisive importance in a claim by the dependants of the deceased miner.

FIFTEENTH CENTURY FRENCH TRACTS ON THE PLAGUE.

A WORK entitled *Remedies against the Plague*,¹ recently published under the editorship of Dr. A. C. Klebs of Noyon and Mlle E. Droz of Paris, is the first volume of the Scientific Documents of the XVth Century, a collection which will comprise a series of portfolios relating to medicine, astronomy, cheiromancy, surgery, natural science, mathematics, and pedagogy, and will appear simultaneously in English and French in an edition limited to 500 copies of each work. The present volume contains within its beautifully printed covers five facsimiles of the earliest French tracts on plague printed in the fifteenth century, followed by historical notes by Mlle Droz, and a list of all the incunabula on plague (130 in number) compiled by Dr. Klebs. The first facsimile is that of a poem entitled "Le Regime de l'Epidimie et remede contre icelle," by Jean Jasme, otherwise known as Johannes Jacobi, chancellor of the University of Montpellier, and contemporary of the more famous Guy de Chauliac. The poem, which is incomplete, consists of ninety stanzas of ten octosyllabic lines describing in a pedestrian strain the causes, symptoms, prevention, and treatment of plague. The editors have discovered in the Bibliothèque Nationale at Paris a second manuscript of the poem containing the missing strophes, from which we learn, not only the name of the author, but also that it was written in the year 1357 and read before the clergy at Montpellier. The second and third facsimiles are taken from the "Remede tresutile contre fièvre pestilencieuse," which is a translation of Jacobi's "Tractatus pestilentiae." The safeguards against plague recommended are simple living, moderation in food and drink, avoidance of crowds, frequent washing of the hands with water and vinegar, and airing and disinfection of the house. The remedies include drugs, diet, spiritual consolation, blood-letting, and evacuation of the buboes. The fourth facsimile is that of the title and colophon of "Le Regime contre epidimie et pestilence" of Thomas Le Forestier of Arranches, who was the first to describe the sudor Anglicus which broke out in London in 1485; and the fifth facsimile is from the "Regime contre la pestilence" written by several Bâle physicians, and printed at Lyons by Claude Nourry about the year 1519. Dr. Klebs and Mlle Droz are to be warmly congratulated on the production of this work, which will be of interest to every medical historian and prove indispensable to the student of the medical literature of the fifteenth century.

¹ *Remedies against the Plague*. The earliest French tracts printed in the fifteenth century. Facsimiles, notes, and lists of all the incunabula on Plague. Paris: E. Droz, 1925. (9½ x 7¼, pp. 56. 100 fr.)

AUTO-EXPERIMENTERS.

MEDICINE has been described as a noble profession but as, not to put it lower, a disastrously bad trade; some might regard it as also a dangerous trade, for the worry, hurry, and scurry over meals favour the incidence of angina pectoris, which has been called "the doctor's disease," and of duodenal ulcer. In addition the exposure to infection may well play a part in making the average duration of life among the healers of bodily ills so much less than that of those who save souls. In an interesting article on "Men who have experimented on themselves" Professor Fraser Harris touches on the risks which those who fight disease take in the day's work, just as the sailor and soldier do, and recalls the days before the discovery of antidiphtherial serum, when the expulsion of mucus and membrane at the then frequent tracheotomies might infect the saviour of the child's life. He goes on to relate instances of impaired vision from prolonged microscopical work, from the time of the young Dutchman Jan Swammerdam down to a friend of his own who suffered for his energy in search of the spirochaete soon after Schaudinn's announcement of his discovery. He refers to Dr. J. S. Haldane's and Professor Joseph Barcroft's self-sacrifice in connexion with carbon monoxide and diminished oxygen pressure, to Professor Leonard Hill and his students sitting in such a stagnant atmosphere that cigarettes would not light, and to Chittenden's minimum protein dietary. He also refers to a most distinguished neurologist whose name is left blank, and is stated to have "cut his own ulnar nerve at the elbow and observed the phenomena for himself"; this has some resemblance to "A human experiment in nerve division," giving the observations made with the late Dr. Rivers on the sensory phenomena following division of the radial and external cutaneous nerves in Dr. Henry Head's left arm on April 25th, 1903. To the well known story of Sir James Y. Simpson's experiments with chloroform he adds an account of the butler's enthusiastic administration of the new anaesthetic in "a rich guid willie-waught" of champagne to the cook, who in a few moments was prostrated on the kitchen floor, and his advice to his master: "Stick to the chlory, Sir James, stick to the chlory."

DR. A. J. CLARK, professor of pharmacology at University College, London, has been appointed to succeed the late Professor Cushny at Edinburgh. Professor Clark is a graduate of Cambridge (M.B. 1910, M.D. 1914), and received his medical education at St. Bartholomew's Hospital. After serving as lecturer on pharmacology at Guy's Hospital, he was appointed professor of pharmacology in the University of Capetown; from there he was translated to University College, London. He is the author of a work on *Applied Pharmacology*, and of numerous contributions to the *Journal of Physiology* and other scientific periodicals. He served during the war, and received the Military Cross. It is expected that he will take up the duties of the chair in Edinburgh next October.

WE regret to have to record the sudden and unexpected death of Dr. E. H. Bradford of Boston, Massachusetts, one of the pioneers of orthopaedic surgery in Boston, and author, with the late R. W. Lovett, of *Orthopedic Surgery*, a standard textbook of the subject. He had retired from practice some time ago.

WE much regret to announce the death of Dr. E. S. Reynolds, Emeritus Professor of Clinical Medicine in the University of Manchester, and consulting physician to the Manchester Royal Infirmary. A memoir will appear in an early issue.

Union of South Africa.

[FROM OUR CORRESPONDENT IN CAPE TOWN.]

PROPOSED NEW GENERAL HOSPITAL, CAPE TOWN.

A CONTROVERSY has been raging as to which of two sites should be selected for the new general hospital. At a fully attended meeting of the medical profession, held in September, 1923, it was decided unanimously to press for the site at Groot Schuur, on the estate of the late Cecil Rhodes. Within the last few months an alternative site, on what is known locally as Hare's Brick Fields, Salt River, has been recommended by Dr. Robert Sharp. At a meeting of the public, convened by Dr. Sharp, and held in the library of the City Hall on the evening of April 1st, 1926, the pros and cons of the respective sites were argued by various speakers, prominent among whom were Sir Carruthers Beattie, Principal of the University of Cape town, Dr. Sharp, Dr. H. A. Moffat, and Mr. F. K. Wiener. The mayor, Mr. F. W. Fish, was in the chair. The following resolution was eventually adopted by an overwhelming majority:

That this meeting of Capetown citizens urges the Hospital Board to proceed with all dispatch with the building of the hospital on the Groot Schuur site.

On the following Tuesday, April 6th, a special meeting of the Western Branch of the British Medical Association was held to sound the opinion of the profession, and after a debate, which was maintained at a very high level, a resolution in favour of the Groot Schuur site was adopted by 57 votes to 1. On the following day the Cape Hospital Board finally committed itself to the Groot Schuur scheme by 20 votes to 6. Notwithstanding organized opposition on the part of a section of the public which may be anticipated, it is hoped that at last a new general hospital, worthy of the mother city, will soon become an accomplished fact.

DR. REITH FRASER.

Very widespread sympathy has been extended to Dr. A. Reith Fraser, lecturer on venereal diseases at the University of Capetown, on the occasion of his recent illness. For the past four years Dr. Fraser has acted as honorary secretary of the Western Branch of the British Medical Association, and it is almost entirely due to his tireless energy, to his extraordinary talent for organization, and to his personal charm of manner and tact, that the Branch finds itself in a most flourishing condition, with a membership exceeding 230. Acting on medical advice, Dr. Fraser has relinquished—only temporarily it is hoped—his secretarial duties. His many friends, both within the profession and without, wish him a speedy return to health.

AN HISTORIC PUBLICATION.

There has been presented recently to the library of the local Branch of the British Medical Association a copy of the first medical journal to be published in South Africa. This is the gift of Mr. Walter Floyd, dental surgeon, of Capetown. The full title is the *Capetown Medical Gazette*, or *Journal of the Medical Sciences*; it was edited by the late Dr. H. A. Ebdon, and published by Messrs. Pike and Philip, St. George's Street, Capetown. The presentation consists of four paper-covered quarterly parts, constituting vol. i. The date of its appearance was January, 1847, and the price per part is given as one shilling and sixpence. It is not known whether any other copies exist. It is fitting that this landmark in the history of South African medicine should find a home in the library of the oldest established medical organization in the country. Prominent features in the *Gazette* are a letter from a correspondent, urging the establishment of a lectureship in chemistry, probably the first attempt to plant the seeds of a medical school in South Africa (p. 15); a reference to the proposal to form a medical society in Capetown (p. 32); a letter urging the State licensing of midwives (p. 63), of more than passing interest at the present moment, in view of the fact that legislation dealing with this matter is now before Parliament; and a plea for the development of the Cape as a sanatorium for invalids from India (p. 82). In his introductory remarks contained in the first number

the editor writes, "In Capetown itself difficulties have also long obtained as regards the social relations of the members of our profession, many of whom, although inhabiting the same town, are virtually as little known to each other as if separated by the sandy wastes and mountain barriers of the interior. This injurious state of feeling has been fomented and perpetuated by a combination of unfortunate circumstances, dividing into discordant sections a body of men whom the common weal, not less than their own individual interests, ought to maintain in harmony and friendship."

VISIT OF THE MEDICAL SECRETARY OF THE BRITISH MEDICAL ASSOCIATION.

When, on the conclusion of his tour through South Africa, Dr. Alfred Cox sailed from Capetown, on Friday, March 26th, he took with him the best wishes of a wide circle of friends in the Cape Peninsula. That his visit is to bear fruit, and that abundantly, is a foregone conclusion, but it behoves every individual member of the British Medical Association to do his or her utmost to bring about that solidarity in the profession which he preached so assiduously. The fusion of the two contending medical organizations, happily brought about, will be a monument to the magnitude of the task he has successfully completed. In the area of the Western Branch of the British Medical Association steps are already being taken to inquire into the feasibility of forming Divisions on the lines suggested in his report to the South African Committee. There are many who will look forward with pleasure to renewing acquaintance with Dr. Cox on future visits to the Old Country.

England and Wales.

THE BARTLET CONVALESCENT HOME, FELIXSTOWE.

THE official opening of the Bartlet Convalescent Home at Felixstowe, by Sir Arthur Churchman, M.P., an ex-president of the East Suffolk and Ipswich Hospital, on May 20th, is the latest link in the chain of medical service which began in 1836, when the father of the late Dr. J. H. Bartlet was appointed the first member of the honorary staff of the hospital on its establishment. Dr. J. H. Bartlet, who died in 1917, devoted himself during his life to the improvement of the hospital, and one of his most earnest desires was to provide a convalescent home for its patients. He bequeathed about £200,000 for this purpose, and additional sums, amounting to £30,000, were received from other sources. The purchase of the land and the building of the home cost over £90,000, leaving a balance for investment for the maintenance of the home. The building, which was fully described and illustrated in the *East Anglian Daily Times* (May 21st), is self-contained and under one roof, though divided into three distinct portions—the administrative block, the convalescents' dining hall (a large room with a barrel vaulted ceiling), and the ward block, facing south, and so placed as to secure the greatest amount of sunshine and shelter from the wind. The four wards in this block will accommodate about sixty patients; the ventilation, lighting, and other arrangements are of the most modern type, and the comfort of patients has been considered in every respect. In the grounds undulating paths with easy gradients enable them to leave the wards in wheeled chairs, pass through balconies, and travel through the gardens. Eight shelters have been constructed so that patients can sit out of doors in all states of the weather. Dr. J. H. Bartlet, whose generosity has thus presented to the East Suffolk and Ipswich Hospital so valuable an extension, was a fellow student of the late Lord Lister, and when surgeon to the Ipswich Hospital was one of the earliest exponents of antiseptic methods in this country. He was a J.P. of the borough of Ipswich and mayor in 1894-5, when the British Association paid its second visit to the borough. Dr. Bartlet's grandfather began medical practice in Ipswich in the first decade of last century, so the local medical connexion of this family is of unusually long duration.

NOTTINGHAM CHILDREN'S HOSPITAL.

A satisfactory feature of the annual report for 1925 of the Nottingham Children's Hospital is the continued increase of subscriptions, which has resulted in there being a balance of £230 on last year's working. It was stated at the annual meeting on May 18th that when the new wing was completed it would nearly double the accommodation for patients, and a materially increased income would be required, but it was believed that the progressive policy of the hospital would be generally approved and supported. In consequence of some difficulties that have been experienced, it would not be possible to complete the new wing in time for the Annual Meeting of the British Medical Association, as had been previously hoped. During the past year a considerable increase in treatment by ultra-violet rays had been possible, and a new lamp had been given to the hospital. Owing to the necessity of closing the Portland Ward three times on account of infectious disease, the admission of urgent cases had been considerably delayed, and the figures of the annual report reduced. The total number of new out-patients was 6,458, and of in-patients 666. In the heliotherapy department 286 patients had been dealt with, the average number of attendances each month being 2,232. The old x-ray apparatus was now inadequate, and a new outfit was to be provided when the out-patient department had been completed.

BIRMINGHAM HOSPITAL SATURDAY FUND.

Sir David Brooks, chairman of the Birmingham Hospital Saturday Fund, announced at its annual meeting that since its inception fifty-three years ago over £1,000,000 had been collected by the fund in aid of the city hospitals. The total subscriptions last year amounted to £62,126, which was £4,366 in excess of the subscriptions during the previous year; this money had been paid in voluntarily by the workpeople of the city. Last year an effort had been made to raise the weekly subscriptions from 1d. to 2d.; many subscribers had responded, but there were others who had not yet been able to increase their donations. The chairman hoped, however, that before very long it would be possible to raise in this way an annual sum of £100,000. The convalescent homes had been hampered by a debt of £20,000, and a special appeal had therefore been made for an additional 1d. a week for half a year. As a result of that effort, aided by other donations, about half the debt had already been paid off. In Birmingham there was a smaller number of beds in proportion to the population than in any of the other large cities of the kingdom. The chairman appealed, therefore, for an increased effort to provide the additional accommodation that was required. He said that new buildings on the outskirts of the city would be preferable to extension of those in the central area. A complete scheme of hospital treatment in the city ought soon to be established, so that a greater economy in treatment might be obtained by providing more hospitals for special diseases in which prolonged treatment was required.

LUNACY IN LONDON.

The Mental Hospitals Committee of the London County Council reported on April 27th the annual returns of insane persons for whose accommodation the Council is responsible. On January 1st the number (excluding insane patients in the institutions of the Metropolitan Asylums Board and in Poor Law guardians' institutions and those boarded out with relatives and friends) was 19,308 (7,960 males and 11,348 females), an increase of 181 males and 67 females during the year. Of this number, 18,790 are in the London county mental hospitals—17,558 of them as rate-aided patients, the remainder on the private list, with the exception of 13 chargeable to the Prison Commissioners. In addition to the patients for whom the Council is directly responsible there were, on January 1st, 156 insane persons resident in Poor Law guardians' institutions, 89 boarded out by boards of guardians, and 4,975 chronic harmless patients accommodated in the Metropolitan Asylums Board's institutions (excluding cases dealt with under the Mental Deficiency Act). The number of chronic lunatics accommodated by the board is the lowest recorded

since 1890. The total number of insane persons chargeable to the London rates, together with criminal lunatics and private patients in the county mental hospitals, was 24,528 on January 1st, as compared with 24,330 on the corresponding date in 1925.

Scotland.

EDINBURGH MEDICAL STUDENTS AND THE STRIKE.

DURING the general strike a large number of students attending the University took the places of men on strike in matters such as driving tramcars, occupying posts on the railway, in power-houses, and other places for which their special knowledge or technical training eminently fitted them. In view of the fact that they were doing work of national importance, they were freed by the University from attendance on their classes and from any prejudice which they might suffer by inability to take part in examinations. So successfully did they carry out the work which they undertook to do that at a meeting of the board of managers of the Royal Infirmary, Edinburgh, held on May 17th, it was reported that seven letters had been received from strike committees and trade unions protesting against what was characterized as "black-legging" by university students during the general strike, and threatening in retaliation the withdrawal of workers' contributions to the infirmary. It was pointed out by Sheriff G. L. Crole, one of the managers, that the board had no jurisdiction over the students, and it was suggested that the unions should receive a reply to that effect. Sir Malcolm Smith, who presided, said that he thought the letters had been written under a misapprehension. It was suggested by one manager that the board should voice its sympathy with the trades council and other similar bodies; but the chairman, in reply, pointed out that to begin to express sympathy for one or other side was a very delicate thing for such an institution to do, and it was agreed that replies should be sent to the effect that the board had no jurisdiction over the medical students. This action of strike committees seems to be part of the general policy, for a similar letter was addressed to Guy's Hospital and received a similar reply.

That the action of the Edinburgh students is regarded in a different light by other observers is shown by a letter the Principal of the University has received from Mr. Thomas Cowan (shipowner), who has, before this, shown himself in various ways a generous supporter of public institutions in Edinburgh and Leith. His letter to the Principal was as follows:

"As convener of the Emergency Committee of the Leith Dock Commission, which dealt with the exceptional circumstances arising out of the general strike, I am greatly impressed by the enthusiasm, the initiative, and the working capacity of the 270 students who gave their much valued assistance in relieving the congestion of dock traffic. They worked splendidly, and demonstrated afresh the grit and pluck of our university youths. Personally I would like greatly to show my appreciation of their splendid efforts in the great recent national emergency, involving the very basis of constitutional government, and to this end I enclose you a cheque for £10,000 for the general purposes of the university."

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

The examination of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, has just concluded with the following results: Out of 148 candidates who appeared for the examination, 134 passed. Of the successful candidates, 18 were trained at the Royal Maternity Hospital, Edinburgh, 40 at the Royal Maternity Hospital, Glasgow, 6 at the Maternity Hospital, Aberdeen, 15 at the Maternity Hospital, Dundee, 13 at the Queen Victoria Jubilee Institute, Edinburgh, and the remainder at various recognized institutions.

HOME RELIEF OF INCURABLES.

The annual meeting of the Royal Society for Home Relief of Incurables was held in the Council Chambers, Edinburgh, on May 11th. Lord Provost Sir William Sleight,

who presided, said that this society needed all the encouragement that the city could give. Its work had been very successful during the past year. The society aimed at making small grants to a large number of people who were struggling with adverse conditions arising from ill health. The amount paid to annuitants during the year in grants of £10 had been £4,863. The Dunlop Cancer Fund, which was administered by this society, paid to annuitants grants of £16 a year, and the amount thus paid out had been £1,598. Unfortunately, very few of the sufferers from the malady with which this fund dealt lived to receive the full year's annuity. The society had now been carrying on this excellent work for over 120 years, and it was well supported by the generosity of the public, which he hoped would continue, so that the directors might be enabled to provide for the many appeals for assistance which they received.

GLASGOW RED CROSS SOCIETY.

Colonel Adington, county director of the City of Glasgow Detachment of the Scottish Branch of the British Red Cross Society, presided, on May 5th, at the annual general meeting of this branch. In reviewing the work of the Glasgow detachment, the county director stated that the effect of the natural inactivity which followed the termination of the war-time increase in work was still to be seen. Those members, he said, who had done excellent work during the war had not the same incentive now to continue training, and also the opportunities for practical work were few in number. The training of the individual was now, therefore, not so advanced as it might be, and commandants had great difficulties, which they were doing their best to overcome. With a renewed supply of keen probationers it was hoped that the existing difficulties would in time be overcome, and that new detachments would be formed.

NEW WEST OF SCOTLAND HOSPITAL.

At the monthly meeting of the Dumbarton Town Council held on May 16th, Provost Garrick presiding, a report was submitted regarding the joint small-pox hospital to be erected at Duntocher at a cost of £12,000. Of this sum, £6,000 is to be paid by the corporation of Glasgow, and £6,000 by the combined local authorities in Dumbartonshire. Each authority will pay for the treatment of its own cases. The hospital is to have sixteen beds, but the foundations of an emergency ward of fourteen beds will be laid. The scheme is smaller than was at first thought necessary; the city of Glasgow only comes into it as the port authority for cases of small-pox arising on the River Clyde.

Ireland.

VITAL STATISTICS FOR NORTHERN IRELAND.

DURING the quarter ending March 31st, 1926, 7,062 births were registered in the twenty-seven superintendent registrars' districts in Northern Ireland, equivalent to an annual birth rate of 22.1 per 1,000 of the estimated population, as compared with the corresponding figures of 18.2 for England and Wales and 21.6 for Scotland. The deaths registered during the quarter numbered 5,299, representing an annual rate of 16.6 per 1,000, as compared with 13.6 for England and Wales and 14.8 for Scotland. The birth rate was 0.7 above that for the corresponding quarter of 1925, and 0.4 below the average rate for the first quarters of the ten years 1916-25. The death rate was 3 below that for the corresponding quarter of 1925, and 3.6 below the average rate for the first quarter of the previous ten years. Of the deaths registered 18.6 per cent. occurred in public institutions, and 10.5 per cent. of the total deaths registered were uncertified, there having been neither a medical attendant during the last illness nor an inquest held by a coroner. The number of successful primary vaccinations registered in Northern Ireland during the quarter under review was 5,359. The birth rate for county boroughs and urban districts (which contain nearly one-half of the total population for Northern Ireland) was

27.1 per 1,000 of the population; the birth rate for the remainder of Northern Ireland was 18.5 per 1,000. The death rate for the county boroughs and urban districts was 17.7 per 1,000, and for the remainder of Northern Ireland 16.3.

ULSTER MEDICAL SOCIETY.

The annual meeting of the Ulster Medical Society was held in the Medical Institute, Belfast, on May 13th. The president, Mr. James A. Craig, F.R.C.S., occupied the chair. The report of council showed a very full and successful winter's session; it recommended the purchase of an epidiascope, and some renovations in the building. The report, which stated that there were 189 fellows and 67 members, was adopted unanimously. The honorary treasurer's report showed a credit balance of £394. The following officers were elected for the ensuing session: President, Dr. M. J. Nolan, resident medical superintendent of the Down District Asylum; vice-presidents, Mr. P. T. Crymble, F.R.C.S., and Dr. J. C. Loughridge; honorary treasurer, Dr. J. T. Lewis; honorary secretary, Dr. R. M. Beath; honorary editing secretary, Dr. J. A. Smyth; honorary librarian, Dr. W. L. Storey; Council, Drs. R. Marshall, G. G. Lyttle, R. J. Johnstone, M.P., P. E. O'Flaherty, W. Burns, and J. W. Peatt.

MEMORIAL TO DR. H. J. BOYD AND HIS WIFE.

A beautiful and dignified memorial in the form of a lich-gate has been erected at the entrance of the ground of the historic church at Hillsborough by the numerous friends of the late Dr. Henry J. Boyd, who had been forty years medical officer of the dispensary, and of his wife. The gate, which is of solid oak and red tiled, was dedicated on May 15th by the Lord Bishop of the Diocese. In addition to numerous friends and parishioners a large number of medical men were present. Dr. Boyd had been on the select vestry for forty years, and had held all the lay offices of the parish. Mrs. Boyd was one of the founders of the Hillsborough Sick Nursing Society and of the local branch of the Child Welfare Society.

Correspondence.

THE UNIVERSITY OF LONDON.

SIR,—In your editorial with this title you say: "Our information is that medical opinion in the University is not in accord with that now expressed by the Senate and by Convocation" (which have passed resolutions rejecting the Majority Report of the Departmental Committee). "... We understand that the Board of the Faculty of Medicine, the Committee of Medical Members of the Senate, and the Board of Advanced Medical Studies have given definite expressions to their views in favour of the recommendations in the Majority Report of the Departmental Committee."

May I point out that the sole body which has authority to speak for "medical opinion in the University" is the Faculty of Medicine itself, and the Faculty has not as yet been consulted in the matter. The "Committee of Medical Members of the Senate" has no statutory or constitutional sanction. The "Board of the Faculty" derives its authority wholly from the Faculty; its function is to prepare a case for the consideration of the Faculty, which alone can decide any medical issue. Until the Faculty has pronounced its decision no other body whatsoever has any constitutional sanction to express an opinion for it.

When the Haldane Report came out in 1913 the procedure adopted was very different from the irregular action which has now been taken by the bodies which you name. In 1913 the Board of the Faculty of Medicine held something like twenty-four meetings to discuss that Report. It drew up a reasoned statement, which was finally submitted to the Faculty, and which was not published until the Faculty had considered and confirmed it at a large meeting called for the purpose. All the meetings of the three bodies which you name were called during the

recent strike. The meeting of the Committee of Medical Members on May 5th was attended by four persons, three surgeons—members of the Council of the Royal College of Surgeons (the most cliquy and unrepresentative body probably in existence)—and one physician. The three surgeons supported the Majority Report; the physician did not vote. The three surgeons have as little right to speak for the Faculty of Medicine, which numbers over 500, as the three tailors of Tooley Street had the right to speak for the "People of England" on a certain famous occasion.

The meeting of the Board of the Faculty of Medicine (held the day after the meeting of the above committee) was attended by only eight persons, including the surgeons who had spoken for the Committee of Medical Members. The vote even of this small meeting was not unanimous; the Report of the Departmental Committee was a mere item in a long agenda; it was entirely impossible in the very short time at the disposal of the meeting to discuss the report in any detail. The action taken by the Board of the Faculty on this occasion was unconstitutional, and contrasts very unfavourably with the action, described above, taken by the Board in 1913.

The meeting of the Advanced Board was again a very small meeting. It comprised the same ubiquitous surgeons already mentioned, who flit across the boards like the supers who vainly endeavour to represent an army on the stage of a small provincial theatre, the same persons crossing the footlights several times in succession. The impression which your remarks give that these three bodies speak for the medical profession or for the Faculty of Medicine of the University of London is, I submit, an erroneous one.

Your statement that "colleges and constituent units of the University have no direct representation on the present Senate" is incorrect. The two largest colleges of the University—University College and King's College—have sent four representatives, directly elected by these colleges, to the Senate for the last twenty-six years. Those members who have sat upon the Senate, as I have, for the past twenty years can testify to the inconvenience of direct representation of colleges. There have been two "bloes," consisting of representatives and supporters of these colleges, which by their feuds and intrigues have materially added to the difficulties of conducting the business of the Senate.

Your editorial complains that the medical representation on the present Senate, which is the supreme governing body, is "only a small minority" (one-sixth) of that body. Since you hold these views it is surely inconsistent that you should support the Majority Report, for this eliminates all medical representation from the supreme Council, and even cuts down the statutory representation on the new Senate (which becomes a merely advisory body, without any real power) from one-sixth to one-seventh. As a matter of fact the present Senate has a medical representation of one-fifth, because certain other than medical bodies have elected members who are medical men. For these reasons I find it difficult to understand how any instructed medical opinion can support the Majority Report.

I think that your editorial is again a little biased in its presentation of the case of the medical schools. You record the decisions of St. Bartholomew's and Guy's Hospitals, which support the Majority Report, but you omit the decisions of the London Hospital and St. George's Hospital, both of which were reported to the Senate at the same time as the decisions from Guy's and St. Bartholomew's, as objecting to the Majority Report. Your information would appear to have been rather carefully selected, and does not seem to include all the facts. Only four of the twelve medical schools have so far submitted any opinion on the Departmental Committee's Report; of these four two want, and two do not want, the Majority Report; and there seems as little foundation for the opinion expressed by your editorial that the medical schools are preponderantly in favour of the Majority Report as there is for the suggestion that the Faculty of Medicine of the University is in agreement with that Report.—I am, etc.,

London, May 24th.

E. GRAHAM LITTLE.

Sir,—Those who wish to see the University of London developing into a co-ordinated group of schools and colleges engaged in the diffusion and advancement of knowledge will welcome the attention you have drawn to the report of the Departmental Committee, whether they agree or disagree with your conclusions.

The recommendations of the Committee, if carried into effect, will have a most profound influence upon the medical schools and upon the Faculty of Medicine, and it seems particularly unfortunate that neither the schools nor the Faculty of Medicine have been given either time or opportunity for the adequate consideration of the proposals. My own school received a letter from the Senate on April 27th requesting that comments upon the report might be submitted in time for the consideration of the Senate at its meeting on May 10th or 11th. The members of the Board of the Faculty of Medicine received copies of the report on April 30th, the Board met on May 4th, the first day of the strike, and the attendance was very small. The consideration of the report was one item of a long agenda, but the Dean stated that it was necessary to arrive at a decision on that day.

In these circumstances and without debate the report was approved by a majority. The Committee of Medical Members of the Senate is a body which in recent years has usurped unconstitutionally the functions of the Board of the Faculty of Medicine, and its opinion cannot be accepted as necessarily representing the opinion of the Faculty.

The opinion of the Faculty was not taken by the Departmental Committee, nor was the Faculty asked whether it wished to modify the considered report upon the proposals of the Haldane Commission, which it prepared with great labour in 1913 and 1914, and presented to the Senate in the latter year with a request that it might be submitted to the Board of Education. That this report was not considered by the Departmental Committee is obvious from Section 8 of its report, in which it states that no responsible body desired to give evidence in favour of modification of the existing system of admitting external students to the examinations for university degrees, though in 1914 the Faculty of Medicine expressed strongly its opinion that degrees in medicine should be granted only to those who had spent at least three years of their professional education at some school of the University. There are many other points in the report which show that the Departmental Committee was not in possession of the considered opinion of the Faculty delivered on the last occasion when it was allowed the statutory rights of discussion.

The object of this letter is to urge that the Faculty of Medicine, aided by its board, should be invited to prepare a considered opinion upon the report of the Departmental Committee in so far as the proposed changes seem to affect for good or ill its academic interests. The Faculty may be willing to accept Fascist principles and to hand itself over to the control of an autocratic Principal and financial council without academic interests, and a Senate without the power of the purse; but an opportunity for debate should be afforded.

The medical schools may be trusted to look after their own interests, but I should like to point out that the Government grant for the technical instruction of medical students concerns a large number of students who are not undergraduate members of the London University. The Departmental Committee did not seem to appreciate this point when it stated that the present system of distribution of the grant by a committee of the Treasury is entirely indefensible.

The Departmental Committee suggests that the medical schools should surrender to the University not merely the control of a large part of their income but also a considerable measure of their autonomy, yet does not suggest any noteworthy advantages in return; it does not propose any system whereby the majority of the students might become undergraduates, or offer to reserve the London degree for those who have been educated in London, and scorns the suggestion that the schools should be incorporated in the University.

Surely, Sir, discussion is desirable.—I am, etc.,

London, W.1, May 24th.

CECIL WALL.

FATAL HAEMORRHAGE FROM THE LIVER IN AN
INFANT FIVE DAYS OLD.

SIR,—Mr. J. Allan Berry (p. 825) will find in a paper I wrote thirty-five years ago,¹ on visceral haemorrhages in stillborn children, notes of 37 cases of hepatic haemorrhage: of these, 24 were on the upper surface, 8 on the lower surface, 3 on both surfaces, and 2 at the posterior edge. In one case the blood had burst through the capsule into the peritoneum. In another case (hydrocephalus) strong traction had been made and the liver was ruptured with free haemorrhage into the peritoneum. In the paper mentioned I have also noted rupture and haemorrhage from the suprarenals in three cases. The injuries are illustrated by coloured drawings. Mr. Allan Berry's case is especially interesting in that it points to the large size of the child (10 lb.) as a factor in the causation of these haemorrhages, and particularly because the child was delivered by the natural forces and survived for five days.—I am, etc.,

London, W.1, May 19th.

HERBERT R. SPENCER.

THE ETIOLOGY OF ACCIDENTAL HAEMORRHAGE.

SIR,—The work of Dr. F. J. Browne (BRITISH MEDICAL JOURNAL, April 17th, p. 683) supports the modern opinion that the toxæmias of pregnancy are caused by a preceding primary toxæmia; but there is much against this view. In respect of accidental haemorrhage, Dr. Browne admits that "in some cases" a definite history of trauma can be obtained; but he pushes trauma aside as "probably coincidental." He believes that nephritis is necessary, that this produces toxæmia, and the toxæmia the bleeding. The bleeding is "caused by endogenous poisons held up in the circulation by the acutely damaged kidney."

But according to FitzGibbon² certain cases of accidental haemorrhage occur without nephritis. Nephritis is only prominent in those cases in which the bleeding is largely concealed and in which the badly termed "apoplexy" of the uterus occurs. But FitzGibbon did not see that the distension of the uterus (by the bleeding) compresses the kidneys and causes the "nephritis" or its exaggeration. Thus, in some cases, albuminuria has been absent with the onset of the bleeding, but present later.³ Dr. Browne, however, easily gets over this difficulty: he lays stress on the absence of albuminuria in nephritis; we cannot depend (he says) on the presence or absence of albumin in the urine; we must use other tests. But it has been denied that in the toxæmias of pregnancy the blood picture, as regards non-protein nitrogen, is changed⁴; and that eclampsia is due to a rise of endogenous poisons in the blood from faulty visceral action.

"Nephritis," certainly, predisposes to accidental haemorrhage—but by determining a rise of systemic blood pressure. This tends to rupture placental sinuses, but their integrity is conserved by the intra-amniotic pressure which, during uterine relaxations, depends on the tonicity of the abdominal wall and diaphragm. Thus in primigravidae, in whom the abdominal wall and diaphragm are in better condition than in pregnant multiparae, even when a state of "nephritis" exists (as in pre-eclampsia), accidental haemorrhage is less likely and occurs less often than in the pregnant woman already the mother of many children.

The predilection of eclampsia for primigravidae and of accidental haemorrhage for pregnant multiparae seems to suggest that both are due to the same cause (as you observe); not, however, to a toxæmia, but to a pressure. In the one, the increased intra-abdominal pressure, the average of which is raised by profoundly disturbing the renal and hepatic function, produces toxæmia; in the other, in which the average intra-abdominal pressure (perhaps) is not raised, but in which excursions due to activity occur, the latter, by rupturing mechanically

placental sinuses, leads to accidental haemorrhage. When the blood cannot sufficiently escape from the uterus, the organ distends and is only prevented from bursting by the resistance of the abdominal wall and diaphragm, the tonicity of which with progressive distension of the abdomen is increased. The increased intrauterine pressure causes the changes in the uterine wall (haemorrhages and necrosis); the increased extrauterine (but intra-abdominal) pressure causes the viscera to be unduly compressed. Hence the same changes occur in these viscera as in straightforward pre-eclampsia with the rise of toxæmia and even convulsions.

The changes in the urinary bladder in cases of persistent retroversion of the gravid uterus support my opinion. Here we have a toxæmia, and a change in the bladder wall—even to its necrosis. That this change is produced mechanically will be admitted; the passage of a catheter and the rectification of the uterine position in the early stages stops the process—just as escape of blood, preventing the uterine distension in accidental haemorrhage (however it cause a grave anaemia), prevents not only the change in the uterine wall (extravasation of blood plus necrosis), but also the rise or exaggeration of visceral change. In accidental haemorrhage the changes in the uterine wall are produced mechanically, just as are the changes in the bladder wall in the case mentioned. In the latter there is no question of the play of a preceding or associated toxæmia. Similarly, in accidental haemorrhage there is no reason to posit the rise and play of a preceding toxæmia.

There is, indeed, reason to discredit the effect of "nephritis." When women with nephritis become pregnant they more often abort than go to near term; the continuance of the pregnancy to the later months (when accidental haemorrhage commonly arises) shows that the kidneys up to that time were fairly efficient.—I am, etc.,

Rugby, May 16th.

R. H. PARAMORE.

POSTERIOR GASTRO-JEJUNOSTOMY WITH
JEJUNO-JEJUNOSTOMY.

SIR,—I read with interest Mr. Gillon's note in your issue of April 24th (p. 738) again recommending posterior gastro-jejunostomy with jejuno-jejunostomy for pyloric and duodenal ulcers—because when, in 1914, he advocated it I began to perform it and continued to do so from time to time. I hoped to confirm his view that it prevented the occurrence of that dire complication the peptic or anastomotic ulcer, of which before that date I, like other surgeons, had had my share.

I find now that in a series of over 500 gastro-enterostomies I have performed this particular variety as a primary operation in 80 cases, employing clamps, not removing any mucous membrane, and using the finest chronic catgut as suture material. The results over a period of almost twelve years are as follows. Of the 80 patients, 10 cannot be traced, 4 have died, 1 has developed pulmonary tuberculosis, and 1 cancer of the stomach; altogether 16 cases which may be eliminated.

This leaves 64 available for an estimate of the value of the operation. Of the 64 cases, 47, or 73 per cent., remain so far completely cured; they eat everything, take alcohol in small or larger amounts, and most of them smoke to excess. Eight patients (12 per cent.) are much improved, but suffer some discomfort at times, 3 have marked pain and sometimes vomiting, and may be considered as probably having peptic ulcers; 6 of the 64, or 9 per cent., definitely developed peptic ulcers, for 5 of them were operated on again by myself, one for a gastro-colic fistula; the sixth suffers from the typical diarrhoea and foul eructations found in such cases, though as yet he has not been operated on again.

This operation therefore in no way protects the patient against the anastomotic ulcer. Though apparently it is more "physiological," most surgeons believe that the absence or great reduction of bile in the stomach which the entero-anastomosis produces may be a predisposing cause of the secondary anastomotic ulcer.—I am, etc.,

Huelva, Spain, May 16th.

IAN MACDONALD, M.D.

¹ *Obstet. Soc. Trans.*, vol. 33 (for 1891), 1892, p. 203.² FitzGibbon: *Ante-partum Haemorrhage*. Reported in the *BRITISH MEDICAL JOURNAL*, 1926, i, 573.³ Young and Miller: *The Aetiology of Eclampsia*, *Proc. Roy. Soc. Med.*, *Obstet. and Gyn. Sect.*, 1921, vol. xiv, 253.⁴ Mackenzie Wallis: *Toxæmias of Pregnancy*, *Journ. Obstet. and Gyn. of the Brit. Emp.*, 1921, vol. 28, 11.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

SIR,—“What is the cause of the upset of mental balance which is so common in the tropics?” Such is the question propounded by your correspondent in the *BRITISH MEDICAL JOURNAL* of March 13th, 1926.

Twenty-five years' residence in a subtropical climate (20° to 23° lat.) in the upper reaches of the River Plate Valley (here called Rio Paraguay), with a summer temperature of 90° to 110° in the shade, has allowed of many observations on the causes that mostly contribute to nervous breakdown in European immigrants. The majority of the latter are more or less educated people of the middle classes and live in good circumstances. Probably no one single cause can be given as accounting for any case of mental breakdown, and it will be well to consider some of the minor things that contribute towards producing a condition of the nerves in which the European will fall a ready victim to the specially tropical causes of nervousness, neurasthenia, and insanity. The causes to be considered are:

Personal.—The habits of life of a man have a great deal to do with the stability of his nervous equilibrium, and bad habits lay the foundations for the future breakdown. The abuse of alcohol need only be mentioned, its evil effects are so very evident. The abuse of tobacco ought to be condemned; the nervous, sleepless man will get control of himself again and sleep 7 nights if he gives up his evening smokes. Sexual excess and masturbation are of greater frequency in hot climates than in temperate, and many a nervous wreck has been produced thus within a very short period of residence in the tropics. Want of society, or absolute loneliness, or too prolonged residence in one place, sooner or later lead to a state of mind in which the white man may go crazy unless he gets a change.

Pathological.—Slight chronic ailments that worry or depress, chronic malarial infection with neuralgia, headaches, etc., chronic intestinal infections, mucous colitis, chronic dysentery, intestinal parasites, congestive conditions of the liver—many such ailments, although not unfitting a man for duty, render him a very easy victim to the specially tropical causes of nervous excitation and irritation. Many cases of suicide can be traced to the depression produced by the knowledge of the incurability of diseases such as leprosy. The white leper, when he has tried everything within his reach in vain, puts a bullet through his head.

Social.—Ignorance of the native language, unwillingness or incapacity to acquire it, inadaptability to and want of consideration for the customs of the natives, very often produce an attitude of suspicion and unreasonable contempt towards the people, leading to a feeling of hostility and fear which sooner or later lands the European in difficulties. The Spanish-Indian-American very soon discovers the mental attitude of his white overseer towards him, and is prepared to anticipate any crazy act of overbearing authority. The native very generally gets his knife or bullet in first, as one knows from the numerous cases of murders of European officials, managers, etc. From the racial point of view it is well for the white man to try from the first to neutralize the natural antagonism between himself and the native by acquiring the language of the latter, getting to know the character of the people, making allowance for their ignorance and failings, and observing a reasonable and friendly attitude towards their customs. The worry of dealing with native employees, house servants, etc., will thus be greatly diminished and one very common cause of mental irritation be partially removed. The employer will be able to sleep without a revolver under his pillow, and go out in the dark without a thought when a native calls him in the night.

Climatic.—The depressing effect of continuous high temperature will in time weaken the mental powers and nervous system of the white man, but sun and heat in themselves alone have no special effect. Combined with any or many of the minor causes mentioned above, they speedily lead to serious manifestations of nervous breakdown. There have been cases of men suffering badly from neurasthenia, who can give no history of any other

probable cause than their having had a splitting headache after standing bareheaded in the midday sun for a few minutes, and never having felt right after. Unsuitable or excessive clothing in the great heat produces a feeling of oppression and worry and irritation that is immediately dispelled by a change into lighter clothes. The tropical moon has such a powerful effect upon all forms of life that towards and during full moon the nervously disposed person requires to take greater care of himself and keep himself under greater restraint than at other times. Epileptics, lunatics, and alcoholics all have their condition aggravated during full moon. Children with intestinal parasites, especially ascaris, suffer more from convulsions then than at other periods. Europeans are unwilling to believe what the natives tell them about the moon and many other things, but they find later that the natives are often right.

Perhaps the thing that acts most powerfully on the nervous system in these parts is the north wind. This is a very dry, hot wind blowing south-westerly from Brazil through Paraguay to the Argentine. It dries up everything it comes across. Its effects upon animals of all kinds are most extraordinary. All the domestic animals, horses, cattle, dogs, fowls, suffer in the same way as man does. Its effect in weakening the higher centres and inhibiting the control over the lower functions is most alarming. Everybody's nerves are on edge. The most trivial incident, a word in jest misunderstood may lead to murder. An older native, meeting a younger of a slightly better class saluted him with “Why, boy, you've got to look almost like a man,” got a bullet from the boy and fell dead. During a north wind the number of woundings and murders is greater than at any other time. When native dances are allowed during north wind, we lie listening for the shots, or for the footsteps of those running to fetch help for a knifing case. The commonest remark for a European during north wind, when he can speak at all without snarling, is “I'll be crazy in another day if the wind don't change.” It does not matter where one is, indoors, outdoors, in the shade, in the sun, in town or in the country, the north wind gets one everywhere. Many a good man remembers with considerable regret afterwards the mad things he has said or done during his north wind fits of passion and crazy outbursts of unreasoning anger.

It is during the blowing of the north wind that suicides and murders and all sorts of tragedies happen in these countries. It may be that in other tropical countries there are similar winds or atmospheric changes that affect the nervous system in the same way, and from which there is no escape. It is, therefore, to be recommended that the minor causes of nervous and mental breakdown, such as those mentioned under the headings of “personal,” “pathological,” and “social,” be avoided or guarded against or provided for, as they all render the white man more or less unfit to stand the strain of the specially tropical conditions that cause mental breakdown.—I am, etc.,

J. W. LINDSAY, M.B.

Belén, Paraguay, South America,
April 20th.

THE PRESERVATION OF EGGS.

SIR,—In your issue of May 8th and 15th last (p. 847) Dr. H. E. Jones claims to have found that an indifferent gas—CO₂—is an effective preservative of eggs.

More than a quarter of a century ago I accidentally learned that a remarkable number of persons in Britain—people in various grades of life and belonging to many different religious sects—have constantly practised the habit of collecting the eggs laid during the Good Friday of each year and putting them aside for use in making their puddings and other sweets at the following Christmas. The nests are carefully explored late on the previous Thursday evening, and any eggs then found are removed “lest they should go bad and thus haply infect those gathered on the Good Friday.” Moreover, each Good Friday egg must be absolutely clean; if at all dirty when taken from the nest it is carefully washed with warm water applied with a soft cloth, and then dried with another soft cloth. The eggs are then stored in any

convenient vessel and put aside; an ordinary open hand-basket and a corner of the chest of drawers in the spare bedroom are usually chosen for the purpose, and there the eggs remain until wanted for use.

I obtained a dozen eggs gathered on the previous Good Friday, another dozen of the previous Thursday, and a third gathered during the following week; this was in July, and Easter had fallen early in that year. I at once broke an egg taken from each dozen in turn. Each was quite good, and had all the visible appearances of an egg such as might have been laid the same day. The rest were then laid in three separate open cardboard boxes and placed on a table in an unoccupied bedroom, where they were exposed to the full rays of the hot afternoon sun. Thereafter I broke an egg from each dozen once in a week at first, and then once a month, until I came to the end. They were, one and all, quite good, apparently quite fresh, cooking and tasting like fresh eggs. These experiments, varied in many different ways, were continued for some years. And I have by me still a few of these eggs, now over twenty years old, the contents completely dried up, but without any sign of decomposition.

When one comes to think of it there is nothing very surprising in this. The egg laid by a healthy hen is, bacteriologically speaking, sterile, and its important contents are well protected by the vitelline membrane; but if the shell be at all dirty—that is, fouled by the faecal discharges of the parent bird—then dust and the ordinary moisture of the atmosphere soon ensure a penetration of shell and membrane by saprophytic organisms, and the germs of liquescent putrefaction speedily follow in their wake.

As I have been warned, the fluid contents of the shell begin to dry up after about the ninth or tenth month, and the drying thence proceeds at an accelerating rate. If the egg has been fertilized it does not respond to incubation after the lapse of three and a half to four months, as is usual; otherwise there is no difference between the fertile and infertile egg.

The alleged immunity of the "Good Friday eggs" is the outstanding feature of a very ancient legend, which appears to be most common among the Celtic peoples, and the pith of it lies in the belief that the thrice-repeated crowing of the cock which aroused St. Peter's remorseful conscience was rewarded by the assurance that each egg laid by its descendants on every ensuing anniversary of the first Good Friday should remain sweet and wholesome for the following twelve months. But there was one condition—the egg must be clean.—I am, etc.,

Hertford, May 25th.

C. E. SHELLY.

PITUITARY GLAND BY THE ALIMENTARY CANAL.

Sir,—The discussion in your columns on the action of pituitary gland on uterine contraction when given by the alimentary canal reminds me of my own experience with it.

In *New Serum Therapy* (Baillière, Tindall and Cox, 1905) I reported the definite action of antidiphtheria and anti-streptococcus serum orally administered on uterine contraction in labour, and cases were given. Two drachms of a low potency antidiphtheria serum orally in an exhausted uterus changed the whole aspect of the case in from ten to fifteen minutes or less by its restorative action on the uterine muscle, and ensured a normal and vigorous labour. That this was due to the pituitary content of these serums was confirmed by the occasional unaccountable failure of the serum to act, just as the pituitary fails at the present day.

The pituitary secretion is part of the non-specific resistance of the animal, and is developed in immunization to diphtheria and streptococcal infection to protect and restore the tissues affected, which are toxophile to these antigens.—I am, etc.,

Melbourne, March 31st.

D. MONTGOMERIE PATON.

GANGRENE IN THE NEWBORN.

Sir,—Dr. W. R. Grove will perhaps be interested to hear of a somewhat similar case to his own which is recorded on page 398 of Dr. John D. Rolleston's translation of August Ritter von Reuss's monumental work on *Diseases of the Newborn*. To quote verbatim:

"Foltanek has described a case of gangrene of the right foot which was observed on the eighteenth day, and which was obviously the result of an embolic process of unexplained origin. The case terminated in recovery after spontaneous amputation."

There is an excellent coloured drawing of the condition on the opposite page. The line of demarcation is seen just above the level of the ankle.

One other case mentioned by von Reuss is less fully described.

"Haas has seen gangrene of the toes develop in four weeks in an infant who had cyanotic discolouration of one of the lower extremities at birth."

Spontaneous gangrene is apparently an infinitely rare disease in the newborn infant, as Dr. Grove points out, and his almost complete immunity to embolism is all the more striking in view of the "comparatively" frequent occurrence of umbilical sepsis with involvement of either arteries or vein in the septic process.—I am, etc.,

Glasgow, April 27th.

J. INGLIS CAMERON.

THE COLLEGE OF NURSING.

Sir,—We venture to appeal to our colleagues in the medical profession for an object which we are confident will enlist their sympathetic consideration—namely, the endowment of the College of Nursing.

The College of Nursing was founded in 1916—to provide a central organization for the nursing profession; to raise the standard of training and examination of nurses; to promote the higher education of nurses; to attract to the nursing profession the best type of women. The qualification for membership is a three years' training.

The College, which now has over 25,000 nurses on its register, is recognized by the Ministry of Health as a training centre for the Health Visitors' Certificate. There are forty-one branches of the College, and seven residential and other clubs; there are also two convalescent homes. Scholarships to the number of forty-five have been awarded to members for post-graduate work. There is a loan fund, and a special scheme for insurance against sickness and accident. Free legal advice is available to members. There is a library open to all students of nursing, and books can be borrowed.

The Public Health and Sister Tutor sections were formed for those members who are engaged in these special branches of work.

The College is a most democratic body, the nurses on the register electing by postal ballot whomsoever they please to represent them on the Council, whether nurses, doctors, or laymen. One-third of the Council retires every year.

The headquarters of the College are situated in Henrietta Street, London, W.1.

To meet the cost of management of the College of Nursing an endowment fund of £100,000 is required. £67,000 has already been raised, and of this sum the members of the College themselves, with the help of their friends, have subscribed or collected over £35,000, to achieve which they have worked extremely hard.

Medical men and women are beholden to the nursing profession for much assistance. First as students in the wards, then many of them as house officers; all of them in their practices, and all of them when seriously ill. There are vast numbers of medical practitioners who are only too willing, and are always ready, to testify to the outstanding services the nursing profession has rendered them in their life's work. The work of a nurse is of an exacting nature, and it still does not command a remuneration comparable to that which obtains in many similar walks of life. Nurses in general have no pension fund to fall back upon, except such as they themselves may be able to subscribe to. The working life of a nurse is short, and nurses over a certain age find it difficult to secure engagements.

These are some of the dominant reasons why we think medical practitioners will be glad to contribute a sum, however small, to help the nurses to endow their College. Such donations would be a signal indication of the appreciation of the medical profession for the great and indispensable help it has received in the past, and will continue to receive in the future, from the members of the nursing profession. (The amount subscribed by members of the medical profession since the appeal was first issued is £878.)

Donations of any amount will be thankfully received;

they may be sent to the honorary treasurer, or any of the undersigned, addressed to the College of Nursing, Henrietta Street, W.1, from which an official receipt will be furnished.—We are, etc.,

(Signed) COMYNS BERKELEY, *Hon. Treasurer*;
E. C. PERRY, *Hon. Secretary*;
JOSEPH CATES,
JOHN GLAISTER,
EWEN J. MACLEAN,
D. J. MACKINTOSH,
Medical Members of the Council elected
by the Members of the College.

NATIONAL HEALTH INSURANCE AND THE EMPLOYMENT OF TUBERCULOUS PATIENTS.

Sir,—One of the greatest obstacles to the employment of tuberculous patients—both ex-sanatorium and others—is sickness benefit as administered at present under the Insurance Act.

Every tuberculosis officer must have on his books patients who are unfit for varying periods for whole-time employment, but who could work shorter hours or at lighter occupations with benefit in every way. It is, however, very difficult to persuade a man that it is to his advantage to earn 15s. a week doing light work about a farm or, say, 20s. as a part-time jobbing gardener, when he can get from 7s. 6d. to 10s. a week for doing nothing. The same is true of women who could often find work mending, knitting, and so on, before proceeding to something more strenuous and remunerative as their condition improves.

So far as many of the tuberculous are concerned, sickness benefit reproduces all the evils of the dole. Pulmonary and non-pulmonary cases are both affected. Instead of convalescence being a period of steady improvement, it permits the patient to degenerate into a state of chronic invalidism, until ultimately his only job is getting the weekly "line" from the panel doctor.

Of course, there are patients who rise superior to circumstances and return or attempt to return to their former work, but there is a residue of unemployables who need not have reached this unenviable position.

In this county of Roxburgh help has been forthcoming from two sources: first, the Post Office by employing tuberculous pensioners as part-time rural postmen has given several men suitable occupation, to their very great benefit; secondly, the mills will frequently take back patients for shorter hours if proper representations be made.

So far as the genuine invalid is concerned, I would like to see sickness benefit increased and extended, but it is evident that sickness benefit as drawn by many convalescents requires reconsideration. Some sort of sliding scale is required. The patient who can do some work and will not, should not be able to draw full benefit; whereas those who can and will earn a little should not be penalized by losing the whole allowance.—I am, etc.,

Newtown St. Boswells, Roxburgh, May 17th.

G. B. PAGE.

NAPOLEON'S PRIZE FOR RESEARCH ON CROUP.

Sir,—Dr. Parry (whose letter appears in your issue for May 8th and 15th at p. 847) cannot have sought very far. The history of the competition for this prize is perfectly well known. There were seventy-nine competitors, and the prize was divided between Jurine of Geneva and Olbers of Bremen, and more than one writer has given an account of the circumstances which led to Napoleon's action. The English reader will find an excellent summary of the affair in the book entitled *Diphtheria*, issued by the Medical Research Council in 1923.—I am, etc.,

May 18th.

E. W. G.

Sir,—The prize proposed by Napoleon for the best memoir on the croup was awarded in 1811, the successful competitor being Heinrich Wilhelm Olbers (1758-1840), a physician of Bremen. Olbers is better known as an astronomer, having discovered the minor planets Pallas (1802) and Vesta (1807); and in 1781 he had the honour of first rediscovering the planet Uranus. He also discovered five comets and made important researches on the probable lunar origin of meteoric stones.—I am, etc.,

Kiasa, co. Kildare, May 19th.

LEO H. FISHER, M.B., B.Ch.

Obituary.

SIR JOHN WILLIAMS, BT., G.C.V.O., M.D., F.R.C.P.,
Emeritus Professor of Midwifery, University College, London,
and Consulting Obstetric Physician, University College
Hospital, London.

WE regret to have to record the death on May 24th, at his house at Aberystwyth, of Sir John Williams, Bt., Emeritus Professor of Midwifery in University College, London.

John Williams, born on November 6th, 1840, at Blaenllynant, Carmarthenshire, was the third son of the Rev. David Williams, a Congregational minister who was also actively engaged in farming. The family always spoke Welsh when together, and until he went to school Williams rarely conversed in English. He received his general education at the Normal College, Swansea, and after a short time with a medical practitioner in Swansea entered University College, London, in 1861. He became obstetric assistant in 1864, and in the following year, after taking the diploma of L.S.A., house-physician. He took the diploma of M.R.C.S. in 1866, graduated M.B.Lond. a year later, and became M.D. in 1867. He was admitted M.R.C.P.Lond. in 1873, and was elected a Fellow in 1879.

When he had ended his term of office as house-physician in 1865 Williams returned to Swansea, where he engaged in general practice for a few years. In 1871 he was offered, and with some hesitation accepted, the appointment of assistant obstetric physician to University College Hospital; in 1883 he became obstetric physician jointly with Dr. Graily Hewitt, and, on that physician's retirement in 1887, professor of obstetric medicine in the College. He held the chair until 1893. He was honorary LL.D. of Edinburgh, Glasgow, and Aberdeen, and D.Sc. Wales, and was honorary fellow of numerous British and foreign societies. He received a baronetcy in 1894 and was made K.C.V.O. in 1902 and G.C.V.O. in 1911 when the foundation stone of the Welsh National Library was laid. He was Grand Cross of the Dannebrog Order of Denmark. Many distinctions were conferred on him by his grateful fellow countrymen, including the D.Sc. of the University of Wales and the presidency of the University College of Wales. Sir John Williams married Mary, the only daughter of Richard Hughes of Ynystawe; she died in 1915 without issue.

His Contributions to Gynaecology.

After settling in London he did not at first make very rapid progress in private practice. The specialty to which he devoted himself was in a state of transition. There were those, especially among the older practitioners, who deprecated operation and made great use of pessaries, and there were those who were ready—as some of their critics said even over-ready—to operate. Williams took a middle position; he did not hesitate to operate when he considered it justifiable, but he did not consider it justifiable for as many conditions and in as many cases as some others. His tendency towards conservatism was all the more influential because he was himself a skilful abdominal operator. In all the controversies of the time—and they were often bittered—he was a powerful ally of Dr. Matthews Duncan. It was perhaps partly through the influence of Duncan and of Sir William Jenner that Williams eventually obtained conspicuous success in private practice. He was appointed physician to Princess Beatrice of Battenberg and physician accoucheur to Queen Mary, and was in attendance at the birth of the Prince of Wales.

Sir John Williams was not a voluminous writer; his most important separate contribution to medical literature was his work on cancer of the uterus. For many years he took an active part in the work of the Obstetrical Society, which he joined in 1872; he passed through all the usual offices till he became president in 1887. It was to the *Transactions* of that society that his most important contributions were made. The first was entitled "The mechanical action of pessaries." These appliances were in great favour at that time (1876), but, as the discussion disclosed, the authorities of the day were at variance as to the simplest questions concerning the supports of the pelvic viscera and the mechanism of any artificial support.

In short, the pessary was then really an empirical agent in uterine therapeutics. In 1877 he read to the same society an important paper on "The pathology and treatment of membranous dysmenorrhoea." His conclusion was that the dysmenorrhoeal membrane was simply the decidua shed entire, instead of coming away in fragments as usual. In some cases it was cast without pain. It did not represent any essentially inflammatory condition, either of the ovaries or even of the uterus; metritis might be a result, or an accidental predecessor or concomitant, of membranous dysmenorrhoea, but was not its cause. The shedding of the entire decidua was, Williams maintained, the result of hyperplasia of connective tissue through imperfect evolution of the uterus at puberty or faulty involution after gestation. Though he admitted that the hyperplasia might be the product of acute inflammation, he was particularly reluctant to admit of any causal relation of inflammation to dysmenorrhoea. Very different opinions prevailed at the date when the paper was read; indeed, a distinguished authority declared, in discussing it, that stenosis of the os uteri was, at least in some cases, a cause of dysmenorrhoea, and that therefore the os externum should be divided with scissors and a galvanic stem applied, in order to "alter the nutrition of the uterus." The physiology of this "altering of nutrition" was never satisfactorily explained by its advocates, and Williams held that stenosis was charged with many things of which it was not guilty and often diagnosed where it did not exist. One of Williams's best services to gynaecology, well illustrated in this early communication, was his objection to take anything for granted or to defend a method by argument, rather than to determine what methods were needed to cure any morbid condition.

The nature of painful menstruation in all its varied forms was reviewed five years later in one of Sir John Williams's most elaborate works, his monograph "On the natural history of dysmenorrhoea," read at a meeting of the Obstetrical Society in the spring of 1882. Most of his views on the subject have been accepted, and those who opposed them were no doubt prejudiced through their belief in fallacious theories that favoured certain lines of treatment now quite abandoned. The vigorous debate which followed the reading of Williams's paper will throw much light on the views held by leading gynaecologists in the eighties; and it is recorded in full in the twenty-fourth volume of the *Transactions of the Obstetrical Society*. As far as oratory and preciseness of definition of opinions for and against the monograph are concerned, the discussion in question, in which men of much reputation, such as Barnes, Graily Hewitt, Gervis, and Galabin took a part, was of considerable merit, and gynaecologists of to-day might profit by reading through these all but forgotten debates.

Another contribution Williams made to the Obstetrical Society's *Transactions* (vol. xxvii, 1885, p. 112), "On the circulation in the uterus, with some of its anatomical and pathological bearings," proved of high practical value. He demonstrated, what was not at the time clearly understood, how the uterine arteries as they run up the sides of the uterus give out offshoots which encircle the body of the organ. From these arterial circles numerous branches run towards the mucous surface in a direction perpendicular to that surface, anastomosing freely and terminating under the mucous surface in conspicuous capillary loops. From these anatomical facts Williams drew several conclusions in regard to the disturbance of circulation caused by flexions and prolapses. It was still customary in 1885 for gynaecologists of the old and new schools to dispute about flexions. Williams, on the strength of experiments on the cadaver, as well as of clinical observations, insisted that a flexion, however acute, does not interfere with the flow of blood from the uterus. This important monograph included much that was original.

In the summer of 1885 Williams read instructive notes "On serous perimetritis," based upon three cases which he minutely analysed. The paper and the active discussion it excited were chiefly valuable for the light they threw on the symptoms and physical signs observed when serum is effused in association with pelvic peritonitis: none of the experts, not even Williams himself, was bold enough to state how far

serous perimetritis could be ranked as a definite if not a primary condition.

Sir John Williams distinguished himself greatly during the two years 1887-8 by his skilful conduct of discussions when he held the office of President of the Obstetrical Society. That he foresaw how ephemeral would be the fame of Apostoli's method, then attracting great interest, any worker interested in electrical therapeutics can learn on referring to Williams's scathing remarks when he presided during the discussion on several papers on electrolysis in gynaecological practice, in the summer of 1888.

In the autumn of 1886 Williams delivered the Harveian lectures before the society which bears that name. Two years later they were reproduced in book form as a treatise entitled *On Cancer of the Uterus*, a work adorned with fine illustrations by Professor Herbert Spencer, Mr. Frank Collins, and Mr. Burgess, and drawings of microscopic sections by Dr. Boxall. Williams discussed his subject thoroughly, according to the views of that period, but his verdict on operations, now that more radical measures have become general, has undergone modification. He asked, how much of the uterus could be removed by the minor or less severe operation? Could enough be amputated to ensure prevention of recurrence? Experience has sanctioned his reply to that question. He believed that it was possible to extirpate cancer from the uterus by supravaginal amputation; he maintained that in so far as the prevention of recurrence in the uterus itself was concerned, total extirpation of the organ presented no advantages over partial amputation. Williams, however, was judging Freund's and Czerny's total hysterectomies; Wertheim's more radical operation was not introduced until many years later.

As a public speaker he was not brilliant; but his remarks were always apposite, sensible, and courageous. At the bedside he spoke sometimes in a voice so low as to be inaudible by all the students standing around. But for his assistant and clinical clerks it was a valuable education to follow him and ascertain the correctness of the notes of the physical signs of the "present state" which he dictated in every case.

The National Library of Wales.

While still in the full tide of successful practice in London he retired to a country house he had acquired at Llanstephan in Carmarthenshire, under the shadow of the ruins of the castle of that name, near the mouth of the river Towy. When the National Library of Wales was established at Aberystwyth he went to reside there. Quite early in his career he had conceived the idea of collecting Welsh books, which he from the first hoped might eventually prove the nucleus of a national library. The hobby thus begun remained with him ever afterwards. It was his recreation and solace throughout his professional career in London, bringing him into relation with his fellow countrymen then on the council of the Cymmrodorion Society, and eventually on the council of the University College of Wales, Aberystwyth, of which he became vice-president in succession to one of the founders of the College, Alderman J. F. Roberts, the brother of that distinguished Welsh physician Sir William Roberts of Manchester.

The governors of the College had commenced to form a collection of Welsh books and manuscripts as early as 1873, and in that year, on the initiative of Sir Hugh Owen, it was decided at the National Eisteddfod in Mold to establish a Welsh National Library. From that time forward the library steadily grew, receiving gifts from all parts of Wales. For over thirty years Sir John Williams continued to purchase books, manuscripts, prints, and drawings destined to find a place in the Welsh National Collection. These included the priceless treasures of the Peniarth and Shirburn collections. The former is described in the report of the Historical Manuscripts Commission as consisting

"of 519 MSS. works in Welsh, Cornish, English, and Latin, four-fifths of them having originally formed the Hengwrt Collection brought together by the antiquary Robert Vaughan (1592-1667), afterwards passing by request to W. E. Wynne of Peniarth, Merioneth, and removed there in 1859. The present collection of

Peniarth is undoubtedly the premier collection of Welsh MSS. both in extent and in quality. Here we have the oldest MSS. of the Laws of Wales in Latin and Welsh, the oldest version of the Mabinogion and of the Arthurian and other Romances; the oldest and the only perfect copy of the Holy Grail; an early translation of a portion of the Gospel of St. Matthew; an immense body of poetry ranging from the Black Book of Carmarthen (the oldest of the Four Ancient Books of Wales, of which two others are in the possession of the National Library) down to the 18th century historical works current in the Middle Ages. We have here also not only the most extensive collection of pedigrees, but by far the oldest MSS., with authentic contemporary accounts and references to sources of information."

The Shirburn Collection was formed by the Rev. Samuel Williams and his son, the Rev. Moses Williams, F.R.S., between 1560 and 1740. A competent authority wrote of it:

"It consists of 154 MSS. in Welsh and Cornish, and a large number of books printed in Welsh before 1740. It is this collection of early printed books in the Welsh language which has made the Shirburn Library famous. Of 21 books known to have been printed in Welsh before 1600 it contains 15. (Four of the others either have been, or will be, placed in the National Library)."

With the addition of the Cwrtmawr, the Newtown, and the University College of Wales collections of MSS., either already included in or destined for it, the Welsh National Library at Aberystwyth had already become the foremost library of Celtic literature in the world.

The decision (1905) of the Special Committee of the Privy Council that the National Library of Wales should be established at Aberystwyth received the cordial assent of the people of Wales, who quickly contributed towards the cost of the buildings an amount sufficient, with the equivalent grant of the Government, to defray the entire cost of the buildings; all sections and classes in Wales contributed, including the quarrymen of North Wales and scores of workmen's clubs and institutes in South Wales. Gifts of books and MSS. have continued to come in from all parts of the country, and the library has, under the Copyright Act, received the same privileges with regard to books printed in the United Kingdom as are already enjoyed by the Bodleian Library, Oxford, the University Library, Cambridge, the Advocates' Library, Edinburgh (now the Scottish National Library), and the Library of Trinity College, Dublin. On January 1st, 1909, the Llanstephan Collection of books and MSS. was transferred to Aberystwyth, the University College collections about the same time, and the Peniarth MSS. almost immediately after.

The new buildings, designed by Mr. S. K. Greenslade, erected on the commanding site given by Lord Rendel on the Groggythan Hill, overlooking Aberystwyth bay, are worthy of the great library which is housed within them, and are a fitting symbol of the links which bind the people of Wales at home and abroad in a common allegiance to their native language, literature, and institutions. The Treasury made a grant of £4,000 per annum towards the maintenance of the library, to which a Royal Charter was granted in March, 1907, by H.M. King Edward VII. The object of the library as defined by its charter is—

"the collection, preservation, and maintenance of manuscripts, printed books, and other works . . . which may help to attain the purposes for which the University of Wales and its three Constituent Colleges were created and founded, especially the furtherance of higher education and of literary and scientific research."

Equally important is the function of the library in the circulation of duplicate copies of books for the use of lectures and tutorial classes held throughout the Principality. In the past literary composition in Wales has been the concern and recreation of the peasant and working man to a degree probably not reached in any other country. The National Library guarantees the perpetuation of this national characteristic. It fell to the lot of Sir John Williams to see the dream which he conceived in youth realized in a form surpassing his highest expectation. On July 15th, 1911, the foundation stones of the library were laid by King Edward VII and Queen Alexandra. It is generally recognized in Wales that the single-minded devotion Sir John showed to this great national object, the sacrifices he made for it, and his unflagging zeal and courage in its advocacy commended the National Library in a peculiar degree to the affection of the people of Wales. The beautiful reproduction of the Black

Book of Carmarthen edited by Dr. Gwengvryn Evans in 1906 is dedicated to Sir John Williams as "The first President of the Welsh National Library, the first in personal effort for its establishment, the first in personal sacrifice for its good, and the first in the importance of his contributions to its treasures."

By his character, even more than by his scientific work, he exercised a powerful influence upon obstetrics and gynaecology. With a less forceful personality than Matthews Duncan he was not less tenacious of right, and being himself a skilful operator he was able to judge better than a non-operating gynaecologist of the true value of operations.

Sir John Williams excelled as a host, was a good judge of wine and cigars, and gave delightful dinners at his house and at the Devonshire Club, which many will recall with pleasant memories. He was fond of fishing, and occasionally shot. He had the three qualities—honesty, kindness, and decision—which his master Jenner once said were the sole requisites for successful practice; but to these he added a thorough knowledge of his professional work, which Jenner humorously said was of no consequence, though he was an outstanding example to the contrary.

Dr. HERBERT SPENCER, his successor in the chair of obstetric medicine, has been good enough to send us the following tribute:

The death of Sir John Williams, advanced in years though he was, came as a great shock to his old pupils and friends. Those of us whose memory goes back to the days when he was a great teacher and a great practitioner in London will especially grieve at the loss of their old teacher, "Dr. John," and are in a better position than the younger generation of obstetricians to appreciate the value of the service he rendered to his specialty. He and Dr. Matthews Duncan were the great teachers in the seventies and eighties; but though Duncan was intellectually his superior, John Williams had the great advantage of being an operator, and it is not too much to say that it was his success as an ovariotomist at University College Hospital which was the chief factor in obtaining for obstetricians the right to operate at the hospitals of other medical schools, a right now universally recognized, to the great advantage of gynaecology. His teaching was widely extended owing to the fact that many of his assistants became obstetricians and gynaecologists in the hospitals of the London and provincial schools.

The chief records of his scientific work are to be found in the *Transactions* of the Obstetrical Society of London and in his Harveian Lectures on cancer of the uterus: all are characterized by accuracy and honesty of statement and soundness of judgement.

As a clinical teacher he set a good example of careful note-taking; as an operator he was quick, careful, and skilful—"un opérateur sûr de sa main," I heard a distinguished foreigner describe him.

But, important as were his contributions to obstetrics and gynaecology, it is not to these that his pupils revert on the sad occasion of his death. They think rather of his kind and lovable personality, his humanity, his geniality, and his hospitality, which we all used to enjoy so much. He was a great obstetrician and a great teacher; but above all a good and kind man and a delightful companion. Terse and true was his friend Champneys's dedication to him: "*Johanni Williams medico insigni, sodali dilectissimo.*"

Sir John Williams will be mourned by many; but by none more than by those who knew him best as pupils, colleagues, and friends. To them the words of Horace apply:

Multis ille bonis flebilis occidit
Nulli flebilior quam tibi.

ELDON HARVEY, O.B.E., V.D., M.R.C.S.Eng.,
L.R.C.P.Edin.

By the death of Dr. Eldon Harvey, on May, 4th last, the colony of Bermuda loses, not only one of its best known medical men, but also a man who, throughout a long life, had devoted himself to public affairs and the welfare of his native islands.

He studied medicine at St. Thomas's Hospital, and took

the diplomas of M.R.C.S.Eng. and L.R.C.P.Ed. in 1881. He then spent two years as a ship surgeon with the White Star Steamship Company in the China, Japan, and San Francisco Division, and afterwards returned to Bermuda, where he went into private practice. In 1891 he was appointed medical superintendent of the lunatic asylum, and was medical officer of health from 1894 to 1920; afterwards he continued as a quarantine and health officer. He was surgeon to the Bermuda Volunteer Rifle Corps from 1895 to 1919, when he retired with the rank of surgeon major, having received the Volunteer Decoration some years previously. He was secretary to the local Branch of the British Medical Association for many years, and was a delegate to the Annual Meetings of the British Medical Association at Bristol in 1894 and at Oxford in 1904, and to the British Congress on Tuberculosis in London in 1891. He had much to do with the founding and administration of the cottage hospital, of which he was surgeon in charge in 1895, and later used all his influence to get a general hospital built, with the result that the King Edward VII Memorial Hospital was opened in 1920; this institution will shortly have seventy beds, and has a training school for nurses which is of great value to Bermuda. In addition to his professional work, he found time to be a common councillor of the city of Hamilton for twelve years, and was a representative in the local House of Assembly from 1904 onwards, with one short break of a few months. He will be remembered with affectionate esteem, especially by many of his colleagues all over the world, as he had much to do with the Royal Navy and mercantile marine as quarantine officer, in which capacity he held the record of having kept only one ship waiting in over thirty years, and then only because no boat could attempt to put him on board.

Dr. HENRY DUTCH, who died on April 30th, aged 64, at his residence in London, was born in Dublin, and received his medical education at St. Mary's and the Middlesex Hospitals and Trinity College, Dublin. He obtained the diploma of L.R.C.P.Lond. in 1886, the M.D.Brux. degree in 1896, and the M.R.C.S.Eng. in 1897. He was clinical assistant to the Westminster Ophthalmic Hospital, examiner to the St. John Ambulance Association and the London County Council, resident midwifery assistant to the Coombe Hospital, Dublin, and house-surgeon to Guinness's Dispensary, Dublin. He was surgeon major to the 4th City of London Regiment, Territorial Force, and physician to Bacteroft Military Hospital in 1918; he served also on the medical board of the Duke of York's School. Dr. Dutch was a member of the Westminster City Council, and represented the Grosvenor Ward for twenty-five years. He was the inventor of a diagnostic appliance to which he gave the name of "auroroscope." He leaves a widow, and one daughter who is also a councillor of Westminster.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Registration of Nursing Homes.

THE Select Committee of the House of Commons on the registration of nursing homes resumed the taking of evidence on May 19th, Sir Cyril Cobb presiding. The witness was Dr. F. N. K. Menzies, medical officer of the London County Council, who gave evidence on the working of the system of compulsory registration and inspection of lying-in homes for which the L.C.C. had obtained parliamentary powers in 1916. He referred to cases of homes with no proper equipment and with unsatisfactory sanitary accommodation. In this class of place the nurses were untrained. There was some overcrowding. Sir Cyril Cobb asked why in the L.C.C. scheme of 1916 nursing homes under medical control were exempted from inspection. The witness said strong pressure was brought to bear on the Council and on Parliament by the medical profession. At present there were only nine such exempted lying-in or mixed homes in London out of 277, and their character was such that exemption was eminently reasonable. Each was vouched for by two independent medical men. His opinion was that if the present Committee recommended the inspection of nursing homes the same exemptions should apply. In 1920 the Council had obtained further powers in regard to the refusal of certificates and the issue of by-laws. It had found the latter power very useful. Since 1915 312 licences had been cancelled voluntarily. There was no general complaint that registration and the by-laws had increased costs. Ninety-nine homes were "mixed," for lying-in and general cases; he saw no objection to this. The inspection of maternity homes was done by four women inspectors who were responsible in London for the administration

of the Midwives Act. A sanitary inspector visited the homes to examine on lighting, space, sanitation, and proximity of nuisances. For mother and child they expected a cubic space of 950 feet; for the mother herself 800 feet after confinement and for women before confinement 600 cubic feet. The L.C.C. worked in complete co-operation with the borough councils, but up to the present had not delegated powers to the boroughs. In London the borough councils were the maternity and child welfare authorities, but the L.C.C. was the authority for the Midwives Act and for the Children's Act, 1918 (Part I). It had tried in Greenwich the experiment of consolidating all these powers into the hands of the borough councils, but had discovered that till Parliament authorized the delegation of powers under the Children's Act and under the Midwives Act the experiment was impracticable. Witness explained that there was at least an annual inspection of lying-in homes and that medical officers undertaking duties under the Midwives Act were instructed to inspect whenever their duties took them into the neighbourhood of a lying-in home. Answering the chairman, witness said he was in favour of the registration of nursing homes as apart from lying-in homes. He was not entitled officially to give evidence proving the need for this. He did not know whether the Council had received any representations in favour of the registration of nursing homes. Generally speaking, people who had lying-in homes were in favour of registration. Those persons conducting homes which they knew could not be approved had moved out of London into other areas.

Dr. Shiels asked whether, if doctors' nursing homes were, as witness said, all satisfactory, witness would explain why they should be exempted. Would the witness be surprised to learn that the Committee had evidence of doctors' homes which were not so satisfactory? Witness could not give an opinion. They had not made an absolute rule that there must be a certified midwife or a trained nurse in charge of all cases. He was satisfied with the competence of their women medical inspectors to judge the quality of nursing. He would have the strongest objection if the proposed bill for registration of nursing homes interfered with the powers which the L.C.C. had now got, which were working very well. Parliament would be well advised to trust more to the local authorities instead of always looking to the Minister of Health for action. The provision for lying-in at suitable institutions or registered homes in London was equal to 60 per cent. of the confinements—a very high figure.

Sir Richard Luce asked why, when there was a greatly increased tendency for women to be confined away from their own homes, there was little increase in the number of homes registered in London for lying-in. The witness replied that at least nine local authorities in London had established municipal maternity hospitals. Witness also remarked that nearly all local authorities throughout the country were appointing as assistant medical officers women who were thoroughly qualified to inspect maternity or surgical homes. The inspector should always be medically qualified, though a nursing inspector might supplement the work. Answering Dr. Davies, witness said he thought there were fewer infectious authorities among county councils than among other public bodies. He thought that there should be registration even when a medical practitioner took in one elderly patient, if that was for reward. A visit once a year would probably suffice for such a case. Inspectors must be trusted to use their powers with discretion. The L.C.C. inspectors had not found a lower standard in homes run by non-certified midwives than in homes run by certified midwives. He was certain that if the L.C.C. had carried out their inspection by trained nurses they would have had great friction. There had been only nine cancellations of licences since registration of lying-in homes came into force in London. Trafficking in infants was the reason in several cases. Others were for structural defect, serious neglect of infants, and bad character of the keeper of the home. Two were purely formal cancellations.

Dr. Menzies said that nursing homes which were attached to hospitals or had been specially designed, built, and equipped as private hospitals, and those which had been adapted from ordinary dwelling-houses, were used almost entirely for the care of acute cases or patients only requiring short periods of residence. They were generally expensive and only resorted to by persons of the middle and upper classes. They were patronized by leading members of the medical profession. Those adapted from ordinary dwelling-houses were owned and maintained very commonly by hospital sisters who had been encouraged to venture into the private nursing home business by the promise of professional support from the physicians and surgeons of the hospital to which they were attached. These homes often had many deficiencies, especially having regard to the high weekly fees demanded. They usually lacked an operating theatre, even of the most modest kind, operations being carried on in the patient's bedroom, which might not be suitable. Staircases might be narrow, crooked, and awkward, but the structure of the house made the provision of a lift impossible. The provision of a laboratory, x-ray room, and equipment for special purposes, such as electrotherapy, was almost unknown. Although the nursing staff was usually good, the domestic staff was often a greater difficulty than in private houses. Despite all these defects, such homes could not be said to be insanitary, nor were the patients inefficiently cared for medically or surgically. The patient simply paid a very big price for a comparatively poor service, which contrasted unfavourably either with the advantages offered the poorest class by voluntary hospitals and Poor Law infirmaries, or to the richest class by the highly expensive clinics such as those at Ruthin and Windsor. The patients who normally went into the nursing homes which he had described in London had at present no choice in the matter and were sent by eminent members of the medical profession. He doubted whether any by-laws which could reasonably be enforced by a local health authority would materially reduce the cost or improve the conditions of the ordinary private nursing home, but he did not think

Medical News.

OF recent years there has been a steady increase in the number of large industrial concerns in this country employing medical men and women to advise the management regarding factory hygiene, the prevention of avoidable accidents, illness, and industrial diseases, and to assist in promoting the general well-being of the staff and workpeople. The Council of Industrial Medicine, an association of British industrial physicians and surgeons, already has over forty members; it meets for discussion on the fourth Friday in each month at 12, Stratford Place, London, W.1. It is also the British section of the International Congress on Industrial Accidents and Diseases, which held its fourth meeting in Amsterdam last autumn, and will, it is hoped, meet in London at some future date. The council is anxious to co-operate with all British medical practitioners (at home and abroad) who are specially engaged in industrial medicine. It is aware that there are still a number of medical practitioners in Great Britain giving general or special medical services to industrial concerns with whom so far it has not succeeded in getting into touch, and will be grateful if any such will write to the Secretary, Council of Industrial Medicine, Federation of Medical and Allied Services, 12, Stratford Place, London, W.1.

THE Right Hon. Neville Chamberlain, M.P., Minister of Health, will distribute the prizes at the London Hospital Medical College on Monday, June 28th.

THE complimentary dinner to Sir St. Clair Thomson, President of the Royal Society of Medicine, which has been arranged by the Section of Laryngology, will take place at the Hotel Victoria, Northumberland Avenue, W.C.2, on Friday, June 4th, at 7.30 p.m. The dinner will be followed by a dance. The price of the dinner and dance, exclusive of wine, is 21s. Fellows and members of the other Sections of the Royal Society of Medicine are asked cordially to support the Section of Laryngology by applying for tickets for themselves and their guests (ladies may be invited). Applications for tickets should be addressed to Mr. Norman Patterson, 82, Portland Place, W.1.

THE annual dinner of the Harvelian Society of London will be held at the Connaught Rooms, Great Queen Street, on Thursday, June 17th, at 8 o'clock.

SIR ROBERT JONES will read a paper to a meeting of the North-Western Tuberculosis Society at the Medical School, the University, Manchester, at 3 p.m. on Friday, June 4th, on some notes on the treatment of tuberculous joints. All medical practitioners who are interested are cordially invited.

THE annual general meeting of the governors of Epsom College will be held at the offices, 49, Bedford Square, W.C.1, on Friday, June 25th, at 4 p.m., when the voting for the pensioners, foundation scholars, and an annuitant will be announced.

THE appointment of Dr. B. P. Watson, at present professor of midwifery and diseases of women in the University of Edinburgh, to be professor of obstetrics and gynaecology in Columbia University, and director of the Sloane Hospital for Women, New York, is now officially announced. Professor Watson will leave Edinburgh about the middle of August.

A SHORT course of lectures on functional nerve disorder will be given at the Tavistock Clinic, 51, Tavistock Square, W.C.1, commencing on June 14th, at 4.45 p.m. Dr. W. Langdon Brown will give the first of four lectures on the endocrines and general metabolism in the psychoneuroses. The course includes six lectures on the psychological factor in general practice by Dr. J. R. Rees and ten lectures by Dr. H. Crichton Miller on the theory and causation of the psychoneuroses. The fee for the course to medical practitioners is £2 2s. and to medical students 10s. 6d. Tickets can be obtained in advance from the honorary secretary at the clinic.

THE Fellowship of Medicine announces that Mr. Sauer will give a special clinical demonstration at the Royal Northern Hospital on May 31st at 2.30 p.m. On June 3rd, at 12.45, Mr. Hepburn will commence a series of demonstrations in ophthalmology at the Royal London Ophthalmic Hospital. These surgical and ophthalmological demonstrations are open to medical practitioners without fee. From May 31st to June 12th there will be a series of lectures and demonstrations in diseases of children at different hospitals and clinics; some will be given in the mornings and others in the afternoons. The Chelsea Hospital for Women has arranged a two weeks' course in gynaecology from June 9th to 22nd. From June 7th to July 3rd the All Saints' Hospital will provide a course of instruction in genito-urinary diseases, with lectures and demonstrations. From June 14th to 26th the City of London Hospital for Diseases of the Heart and Lungs will give a special course in diseases

of the chest. From June 14th to 25th there will be a special course for general practitioners at the London Temperance Hospital from 4.30 to 6 p.m. Copies of all syllabuses and of the general course programme may be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE metropolitan and home counties members of the School Medical Group, Society of Medical Officers of Health, will meet at 1, Upper Montague Street, W.C.1, on Friday, June 4th, at 6 p.m., when Dr. C. N. Atlee, of the L.C.O. Health Department, will read a paper on the consultative aspect of school medical work. The meeting is open to all members of the profession.

COLONEL C. I. ELLIS, C.M.G., M.D., and Mrs. Ellis of Torquay have been presented with a solid silver salver, suitably inscribed, by the St. John Ambulance workers of Cornwall, Devon, and Dorset for their services as District Commissioner and Lady District Superintendent, respectively, of No. IX District, St. John Ambulance Brigade.

A CHEQUE for £430 has been presented to Dr. R. W. Leeming in commemoration of his forty-three years' association with the Kendal Union and twenty-one years' service as surgeon to the Westmorland County Hospital.

DR. H. E. WORTHINGTON, on his retirement after more than thirty years' practice in Bircbington, has been presented by his friends and patients with a cheque for £250 and an album containing the names of 530 contributors.

THE twenty-seventh annual meeting of the Lebanon Hospital for Mental Diseases, Asfuriyeh, Beyrout, Syria, will take place at the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W.1, on Tuesday, June 1st. The chair will be taken by Dr. E. W. G. Masterman, chairman of the general committee, and the speakers will include Dr. R. Percy Smith, Dr. R. Fortescue Fox, and Miss Jane Gibb, matron of the hospital. Tea 4 p.m., meeting 4.30. All who are interested will be welcome.

THE eighteenth biennial conference of the China Medical Association, of which Dr. James L. Maxwell is executive secretary, will be held in Peking from August 31st to September 8th. It will meet in the buildings of the Peking Union Medical College, which is well provided with auditoriums, classrooms, laboratories, and out-patient clinics. There will be eleven sections: general medicine, general surgery, obstetrics and gynaecology, ophthalmology, oto-laryngology, and anthropology, physiology, physics, and pathology. General and sectional meetings will be held in the mornings, and demonstrations and clinics will be given on the afternoons of alternate days. Special attention will be directed to public health questions and there will be public lectures each evening. Trips to interesting buildings and localities in the neighbourhood are being arranged for the free afternoons. Business meetings and elections will occupy the last two days of the conference, and a special trip to the Great Wall of China has been arranged for September 9th.

MR. HENRY KIMPTON announces for early publication a volume on *The Thyroid Gland*, by Dr. Charles Mayo and Dr. Henry W. Plummer.

THE number of cases of measles notified in Edinburgh has been rising, and in the week ending May 15th 144 were notified as compared with 39 in the previous week.

THE Atlantic Transport Line, which previously adapted the steamship *Minnekahda* for tourists visiting New York, has introduced further improvements and provided a large sun deck. All the cabins are reserved for third-class passengers, who have full use of the decks and public rooms. Further details of the holiday monthly tours to America arranged by this company will be found in our advertisement columns.

THE Italian Pediatric Society has offered prizes for the four best monographs on the physiology and pathology of infant feeding. The first two prizes are 2,500 lire and the next two 1,500 lire. Candidates should send three copies of their monograph to La Presidenza della Società Italiana di Pediatria, S. Andrea delle Dame 21, Naples, before December 31st.

THE fiftieth congress of the German Surgical Society was held in Berlin under the presidency of Professor Friedrich Körte on April 1st, when the opening address was delivered by Professor von Eiselsberg of Vienna on the problems of the surgery of the brain and spinal cord.

THE seventeenth congress of the German Röntgen Society was held last April in Berlin, when papers were read on prophylactic irradiation of the thorax after operations, the favourable results of irradiation of the bone metastases of carcinoma, the good effect of irradiation on cerebral tumours, and irradiation in mental and nervous diseases in children.

DR. J. B. RIEUX, of the Val-de-Grâce Military Hospital, has been nominated professor of clinical medicine at the Lille Faculty of Medicine.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9361, 9362, 9363, and 9364** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumslough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

UTERINE FIBROIDS.

"W. H. M." asks where he can find a history of uterine fibroids.

* * We have referred this question to Dr. Herbert Spencer, who has been good enough to reply as follows:

"Fibroid" is a modern word for a tumour which may be a *myoma*, a *fibroma*, or, more usually, a *fibromyoma*. The German word is *myom* and the French *fibrome*. In all three languages the word is often applied inaccurately from the pathological point of view. The ancient writers used the word *scirrhus* for a uterine fibroid. Your correspondent will find many references to this tumour in Spach's *Gynaecia* (1597); for example, Hieronymus Mercurialis (Cap. XIX) divides *scirrhus uteri* into two varieties, one of which (*legitimus*) is a "fibroid," the other (*spurius*) is due to inflammation. "And the signs of these *scirrhi* are these: For if the disease is situated in the fundus of the uterus, the uterus will always incline towards that part, where there will appear a tumour with hardness; and sometimes pain will be present (to wit, in the spurious form), and sometimes there will be no pain (in the genuine form)." Mercurialis refers to Soranus, Paulus Aegineta, Moschion, and Avicenna.

INCOME TAX.

Motor Car: Improvement.

"H. G. P." replaced his touring car by a saloon of the same make. The local inspector refuses to allow more than the net cost of replacing the old tourer with a car of similar make and design.

* * The inspector's attitude is technically correct. The Income Tax Acts do not permit of the deduction of expenditure of a capital nature, and no allowance can therefore be claimed for outlay on improvement of the professional equipment.

Motor Car Depreciation, etc.

"B" has been supplied with detailed figures showing the alterations which the local inspector of taxes claims to make in the computation of the replacement allowances of the years entering into the average for 1925-26 and 1926-27 if "B" claims the depreciation allowances, on the ground that replacements and wear and tear allowances cannot be claimed concurrently.

* * We were under the impression that the Board of Inland Revenue had conceded the point that the "replacement" adjustment need not be made as regards the computations of profits for years prior to 1925—perhaps "B" can induce his local inspector of taxes to ask for specific advice from his headquarters on that point. There is, however, another side to the matter; in making a calculation of the "obsolescence" allowance (which it is agreed can be made concurrently with the depreciation allowance) the inspector has apparently deducted sums representing the annual wear and tear in the years when no depreciation allowance was legally due. That course is correct if the object is to arrive at the appropriate wear and tear for any particular year, but is incorrect if applied to an obsolescence claim. That claim is governed by Rule 6 (7) of the rules applying to Cases I

and II, Schedule D, and provides for the deduction of "the total allowances which have at any time been made . . . on account of the wear and tear." As no such allowances "have . . . been made," no such sums should be deducted, and on that basis it will, no doubt, be found that the old figures representing the years' profits will remain substantially unaltered.

LETTERS, NOTES, ETC.

A RISK OF YELLOW MERCURIC OXIDE OINTMENT.

"A. S. G." writes to warn practitioners against ordering the application of yellow oxide of mercury ointment to the eyelids of patients suffering from blepharitis who happen at the same time to be taking iodine in any form. My personal experience, he writes, is that the ointment is thus rendered highly irritating, so that it may cause very intense discomfort. A week after leaving off the ingestion of iodine I found it possible to apply the ointment without setting up acute irritation, but even then it was not altogether anodyne, showing, I take it, that traces of iodine were still present in the humours. This reminds me to say that the smarting caused by instillations of solutions of zinc or copper sulphate in collyria can in great measure be avoided by using a saturated solution of potassium chlorate instead of pure water as the vehicle.

THE TIME MOST FAVOURABLE TO IMPREGNATION.

G. A. . . . in the case published under the title of "artificiosa," in the **JOURNAL** . . . chosen for the attempts . . . the catamenia. This corresponds with the common Gentile belief as to the most favourable time for impregnation, but is contrary to the Jewish rules as recorded in Leviticus (chapters xii and xv). At one time I had charge of many Jewish patients, and questioned a rabbi as to the reason for the lower rate of mortality among Jewish infants. He ascribed it largely to the observance of the Mosaic regulation of continence not only for the seven (or more) days of the actual catamenial period but also for seven days after. I am accustomed to instruct my patients that the time which gives the best chance to the child that is to be is during the third week of the menstrual cycle, counting from the first day of the menstrual week. Obviously the menstrual week is unsuitable; the following week the mucosa is immature, the third week it is mature, and the fourth or pre-menstrual week it is degenerating ready for its decedation.

POSTURE IN HEALTH AND DISEASE.

MR. F. MATTHIAS ALEXANDER writes: I have read the article in your issue of April 17th (p. 690) on "Posture as a factor in health and disease," by Dr. Maud F. Forrester-Brown, and for the benefit of all interested in this subject I wish to draw attention to her statement that "as Dr. Goldthwait points out, the development of force in a particular muscle or muscle group is of little value; what is important is to teach co-ordination." I find that the instructions given in the series of corrective exercises "designed by Dr. Goldthwait" quoted in the article are not in keeping with the principles and procedures involved in the teaching of co-ordination. Take, for instance, the one headed (2) stretching lateral abdominal muscles:—"First movement: Slowly shrug up one shoulder, etc.; second stage: slowly relax, if possible, leaving the ribs up, while the shoulder sinks down, etc." No subconsciously controlled person could carry out such instructions without increasing the malco-ordination and maladjustment already present.

THE USES OF VACCINES.

DR. M. W. BROWDY (London) writes: Professor Ledingham's lecture and your comments in the **BRITISH MEDICAL JOURNAL** of May 8th and 15th are worthy of serious attention. Specific vaccine therapy is a misnomer. In the *Lancet* (April 28th, 1923) I recorded results obtained in the treatment of gonorrhoea by a non-specific protein, surpassing those resulting from the use of specific vaccines, and suggested (*Therapeutic Gazette*, November 15th, 1923) that any benefit that accrued from detoxicated vaccines was contained, understood, conditions is "ific vaccine therapy." In "cases a combination of protein therapy and arsenobenzols often gives satisfactory results, irrespective of the source of the protein used.

A SIMPLE MODIFICATION OF THE MIDWIFERY-FORCEPS.

Correction.

IN Dr. J. Haig Ferguson's paper, published in the **JOURNAL** of May 22nd, for "lacets" (p. 860, col. 2, last paragraph, and p. 862, second last paragraph of the paper) read "lacs."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 34, 35, 38, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 195.

An Address
ON

WHY HYGIENE PAYS.*

BY

ANDREW BALFOUR, C.B., C.M.G., M.D.,

DIRECTOR, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

Nor so very long ago the title of this address would probably have read "Does hygiene pay?" but I think it may safely be affirmed that nowadays no educated person has any doubts on that subject. He knows hygiene does pay. If he does not, his ignorance can scarcely be due to lack of being told or to absence of proof. It is the result of indifference, or a wilful blindness, or prejudice like that of the people who say "What was good enough for our fathers and grandfathers is good enough for us," or, worse than all, antagonism to anything savouring of science or scientific endeavour. Believe me, persons with those traits of mentality exist to the detriment of themselves, their neighbours, and the communities which unfortunately have to harbour them. I trust that they are unknown in the British West Indies, but I would not be prepared to lay a wager on their absence. Still, let us hope that, even if they are present, they constitute a minority, for otherwise the outlook for one of the oldest and fairest and most interesting parts of the British Empire would be distinctly unfavourable.

Nothing can be more certain than that, under modern conditions, the race is to the fit, to the people with energy and enterprise, possessing keen, active minds, blessed with sound, wholesome bodies. The motor car which rules the road nowadays is that with the best engine, the most competent machine; and the human body is a machine which, unless it be initially free from defects, and unless it is kept in good trim, will sooner or later break down. In these days of stress and strain and competition there is no place for inefficiency except the almshouse, the hospital, the sanatorium, the poorhouse, the graveyard, or the crematorium. What is true of the individual is true of the colony, and it is specially true of colonies which have to labour under certain initial disadvantages like those we find in the tropics—places where malaria is rife, where the hookworm saps vitality, where typhoid fever, a disease which has almost vanished from England, still lingers and still slays, where dysentery makes wrecks of men and women, and where, in addition to the diseases of hot climates, such maladies as tuberculosis and the venereal complaints are rife, together with many other ills to which flesh is heir, thanks largely to human ignorance, neglect, selfishness, sloth, and folly.

Now, for a race to be fit and to keep fit, certain fundamental rules must be followed, and there must also be an application of the knowledge, the scientific knowledge, which has been wrested from Nature by devoted workers, and of that other knowledge which is the fruit of experience, and which not infrequently is found amongst so-called savage and heathen communities, while conspicuously absent from those who consider themselves civilized.

Granted that hygiene does pay, and pay handsomely, how or why does it pay? It would be very easy to answer that query if I were to confine myself to the revolution which hygiene has effected in this country and the United States. Facts and figures could readily be furnished to show how it has saved life; how it has lengthened life; how it has protected and strengthened those greatest assets of any country, its children; how it has guarded the expectant mother and increased her chance, both of life and health; how in many different ways it has permeated industry and has not only protected the workers but has shown how, by applying physiological knowledge, output can be increased and fatigue lessened; how it has demonstrated that money can be saved by adopting certain lines of sanitation, and that, in some cases, money can even be made thereby, as witness the profits accruing from feeding town refuse to

hogs. These are only a few of the directions whither we may look for proofs, but it is perhaps not quite so easy to obtain the latter from places like the West Indies and British Guiana.

For one thing, these outliers of empire are in the tropics, and hygiene has not had quite such a long run for its money in the tropics as in a country like England. For another, it has not been given the same chance. For yet another, trustworthy statistics are not so readily available. Even so, however, evidence can be obtained that the progress of hygiene in British territories washed by the Caribbean has resulted, not only in putting a stop to heavy losses, but in a material gain. For this purpose it is necessary to invoke the historical perspective. Unless we have some idea of the conditions which used to prevail and the drain of men and money, owing to disease, from which these colonies were wont to suffer, we cannot fully realize the change which increased and more accurate knowledge has brought about, both from the medical and the economic standpoint. Now one of the most instructive, if not one of the most agreeable, things you can do in any of the West Indian colonies is to visit one of the old cemeteries and study the inscriptions on the graves. A similar form of education or recreation can be pursued in connexion with the mural tablets in parish churches, and sometimes is made easy for you in the form of a public monument.

What strikes one at once in the cemeteries is the number of graves of children and also of young adults who died of "fever." In many cases the inscription definitely states that yellow fever was the destroyer. Moreover, most of those who thus perished were white people, educated people, precious lives which were lost to the colony. Human life has a definite monetary value. "In 1900 it was estimated that in England and the United States the economic value of a healthy male infant at birth might be reckoned at £5; at 10 years of age, when he had survived the years of high mortality, this amount had risen to £200, and at the economically reproductive period at the end of the second decade, £500." The lives of Europeans who died in the old yellow fever days might certainly be rated as high, if not higher.

But yellow fever caused loss of money not only by killing its human victims but by dislocating trade and leading to the imposition of all kinds of restrictions. Read the old records, and you will find accounts of ships hung up in port because their crews had perished from yellow Jack. In some cases their cargoes, of a perishable nature, were ruined. Again, ships frequently could not be loaded or unloaded because no one was left to supervise. The stevedores were like sheep without a shepherd, the shepherd being either jaundiced or dead.

Now yellow fever has vanished. It is true that, in some places—as, for example, St. Thomas and San Domingo—it disappeared without any action being taken, a curious state of things to which we do not yet possess the clue; but, in the main, it has come to an end because hygienic measures have trodden hard upon the heels of scientific knowledge. Once Reed and his colleagues, working gallantly in Cuba, had incriminated the "tiger mosquito" and shown that there was no other means of spread, the way was clear. For the most part the British colonies have benefited more or less indirectly, as, unfortunately, it cannot be said that, as a whole, they have bestirred themselves unduly in the fight against the mosquito concerned. I know to my cost that in 1914 it swarmed in St. George's, Grenada, and flourished in Barbados, while it still persists in both islands. Trinidad, nearer old endemic centres in South America, has done better: indeed, Port of Spain is a notable example to be followed in this as in other respects. The energy of the Americans and the stimulating influence they have exerted on Brazilians and other South and Central American nationalities possessing sea-boards has, however, cut off the supply of infection. At Rio, at Santos, and elsewhere, the yellow fever mosquito has been so reduced in numbers that it is no longer a source of danger, and now South American ports on the Atlantic, Caribbean, and Pacific coasts are free from yellow fever.

The white community is not, and has practically never been, in a majority in the West Indies and British Guiana,

* Delivered to the delegates attending the West Indian Conference held in London on May 18th. It has been abridged for publication here.

and it is true that the whites suffer to a greater extent and more severely from yellow fever than do the coloured population. But the latter have their own trials and tribulations as the result of preventable disease, and they also have a monetary value. In the old slave days this was easily obtainable.

We know that in the eighteenth century the price of negro slaves ranged from £18 to £50, and that when slavery was abolished the compensation grant to planters was at the rate of a little over £20 per slave. White slaves—political and other offenders—were known as forty-pounders, each being considered worth a sum of two score pounds. Now in these old days dysentery was terribly rife amongst the slaves. It killed them and it crippled them. A slave with acute dysentery could do no work at all, while a slave with chronic dysentery was little better than useless. Again, owing to unhygienic conditions upon the slavers, ophthalmia sometimes ran riot amongst the cargoes of black ivory and blinded the unhappy Africans. A blind slave passed from slavery to pauperdom and dragged out a miserable existence financed by the colony. Happily, there are now no slaves, but there is still labour. In some of the West Indies and in Bermuda a considerable percentage of the potential labour is put away underground in the form of dead babies. Fortunately, in some of the colonies it has been recognized that this kind of thing is wasteful as well as wicked, and now in British Guiana and Trinidad and St. Kitts, to take three outstanding examples, there are baby-saving leagues, and a serious and successful effort is being made in the direction of infant welfare work. What, however, is the good of saving infants if, as soon as they become toddlers, they acquire hookworm infection from running about with bare feet on a soil polluted with human excrement and which contains the larvae of that intestinal helminth? What is the sense of spending money to rear them if, just about the time they are due to become wage-earners, they develop the cough and blood-stained sputum which tell the sad tale of pulmonary tuberculosis, due, in all probability, to defective and insanitary housing conditions? Hygiene pays only when its principles are carried into effect thoroughly and sensibly.

There is a tendency towards complacency, towards saying, "Well, anyhow, we've done very well in this or that particular"; but, believe me, it is essential, if the best results are to be secured, if the greatest saving is to be effected, to take a wide view and endeavour to bring about a general improvement in all important directions. Of course, money may not be available for any such universal development. Then the investment should be made in hygienic stock which is sound, unlikely to depreciate in value, unlikely to be affected by movements of the disease market—in short, in gilt-edged securities like the "Prevention of Soil Pollution," unlimited, and the "Provision of Pure Water," limited only by the needs of the people and the state of the colony's finances.

Prevention of soil pollution is the best of the hygienic investments. It need not cost a great deal, and the results are widespread, for, properly carried out, it safeguards water supplies and checks fly-breeding, thus controlling typhoid fever, dysentery, diarrhoea, and, where it occurs, schistosomiasis, the fluke disease associated with the presence of blood in the urine. It also abolishes another and much more important worm disease, that ankylostomiasis or hookworm malady which the Americans have been helping us to fight in so many of our West Indian possessions, and, which, when severe, does so much harm to agricultural labour. It also lessens the incidence of worm infestations generally, and this is a most important matter, for the ordinary round worm is by no means a harmless parasite, tapeworms are often a source of illness, and there can be little doubt that whip-worms and thread-worms and all the rest of that unpleasant crew, if they do not actually cause sickness, keep people below par and militate against the ideal state of health and fitness. It is interesting to note that in the Philippines the question has recently been raised if ascariasis, or round-worm infection, may not be an exciting cause of nephritis, a condition very prevalent and causing considerable mortality in British Guiana, Trinidad, and Barbados. In addition, the preven-

tion of soil pollution by the provision of latrines and the education of the people in their use and value is to some extent an elevating force. It makes a population more cleanly and self-respecting. I admit it may take a long time to accomplish such a regeneration, for, though hygiene pays, it does not always yield quick returns. Sometimes, however, it does, and your "Provision of Pure Water" stock is likely, nay certain, to be satisfactory in this respect.

There are other stocks worthy of consideration. I can strongly recommend "Anti-Mosquito," unlimited—that is, not limited to the anophelines which carry malaria, but extended to *Culex fatigans*, the carrier of filariasis with its sequel elephantiasis, and the other domestic gnat, *Aedes aegypti*, which, as we have seen, carries yellow fever, and which is also responsible for dengue or dandy fever, a distressing complaint which still breaks out now and again in the New World.

Malaria is the curse of places like Trinidad, British Guiana, and Jamaica, while it also causes much invaliding in some of the smaller islands. It is true that in certain localities antimosquito measures are impracticable—the game is not worth the candle; in other words, the results would not be commensurate with the money which would have to be spent. This applies to places where engineering works—draining, filling, and so forth—are required. But there are many spots where a reasonable expenditure pays hand over fist. Who can estimate the saving in hard cash which the antimalarial measures in Port of Spain have effected? Remember that malaria is not only a crippling disease, it is a killing disease.

Dr. Maynard, in a very interesting paper on "The economic aspect of preventable deaths," which embodied the results of an inquiry into the financial loss due to unnecessary mortality in the Transvaal, a paper published in 1908 in the *Transvaal Medical Journal*, enters mathematically into the loss sustained at that time by the Transvaal every year from deaths due to four preventable diseases—namely, typhoid, dysentery, pneumonia, and tuberculosis. It amounted to no less than £2,640,000. Dr. Maynard, however, does not forget to quote Lord Playfair's words:

"The record of deaths only registers as it were the wrecks that strew the shore, but it gives no account of the vessels which were tossed on billows of sickness, strained and maimed as they often are by the effects of recurrent storms."

The crippling effect of disease is perhaps exemplified better by tuberculosis than by any other malady, because, except in the acute pulmonary cases, the victim usually struggles along for some considerable time, waging a fight with Koch's bacillus, which, alas! too often terminates in defeat. One of the saddest and most depressing sights I ever witnessed was a collection of ex-service men who had become infected during the war or who had relapsed as a result of strain and exposure. Damaged lives, that was what they were, some slowly struggling back to health and possibly to efficiency, some stationary, not a few doomed.

Tuberculosis is a most important disease in the West Indies because, as you know, the negro part of the population, or rather a large section of it, lives in terror of "duppies" or "jumbies" and close up all doors and windows at night. They take every precaution against imaginary dangers and are ignorant of the risks they run from that great white plague, which in very truth is "a pestilence that walketh in darkness." If you travel by tube in this city and so avoid the dangers of its thoroughfares, which, from the life-saving standpoint, are unhappily proving the truth of the refrain to the showman's ditty, what is gained upon the roundabouts is lost upon the swings, you will note that you are strongly advised to invest your money in building societies. Well, a very sound hygienic stock in the West Indies is building stock, provided that when, or rather before, you put money into good houses for the people you make sure they will not abuse them—in other words, educate them so that they will appreciate the principles of healthy living and the dangers of unhealthy dying. I say "unhealthy" advisedly, for there is a way of dying which is not unhealthy but natural, the way we should all die but do not.

So far as I am aware, no one has ever done for the West Indies what Maynard accomplished for the Transvaal, but Colonel Christophers of the Indian Medical Service some little time ago discussed the question of what disease costs India. It is true he did not get the length of actual monetary calculations, owing to the difficulties of accurate estimation in a country so large and populous, with such a diversity of governments and nationalities, creeds and castes. At the same time, he adduced some highly suggestive, not to say startling, figures, pointing out that of the 360 millions of people in the Indian Empire 7,000,000 die annually; the average inhabitant does not get a fair run of life for his money. While in England, out of every 1,000 persons born 530 attain the age of 50, in India only 186 reach what has been far from euphemistically termed the "dirty half-hundred." There is nothing to show that the natural span of life in India is a shorter one than in England. The real cause of the difference is the malign influence of disease acting in the earlier and consequently very often in the wage-earning periods of life.

Some of the conditions and diseases in India are not preventable because our knowledge regarding them is defective. The same is true of the West Indies—hence the absolute necessity for research. Here is what Christophers says on that subject:

"All I can say is that the tribute paid to disease in a country like India is one of importance economically, even politically, and one that has many financial and commercial aspects. It, however, transcends this in being of importance to the welfare of 360 million human beings, who, by their tacit acceptance of such calls as may be made upon them, signify their belief that they are being governed to the best ability of those responsible for such government. The important matter, therefore, seems to be that proper and enlightened views should be held by Government as to the steps to be taken to justify that trust, in so far as the prevention and amelioration of disease is concerned.

"But no Government, however enlightened, can combat disease without knowledge, and were they prepared to lay out vast sums on the public health, their efforts would be nugatory without the contributions of medical research. Both sanitation and medical relief are based on the findings of medical research, and are powerless to advance except as a result of advances in the branches of science dealing with disease. The vastness of the problems at issue should not be ignored."

This leads me to the value of laboratory investments in the West Indies. They are very badly off in this direction: even clinical laboratories do not exist in the hospitals of some of the smaller islands. How, then, can disease be properly diagnosed? A disease not properly diagnosed leads to a waste of time, of medicine, of food—in short, of money. Everywhere the laboratories want strengthening and expanding. Nowhere in the British possessions bordering on the Caribbean are they really up to date and efficient. Research is very largely neglected. Yet we see the strange anomaly of a fine College of Agriculture, with research departments, arising in Trinidad. There parasites and diseases of plants will be studied and remedies devised, while nothing comparable exists for dealing with human pathology. At the same time, the College of Agriculture itself deserves every credit for the step it has taken, along with the International Health Board of the Rockefeller Foundation, to give its students instruction in hygiene.

"Comparisons are odorous," says the buffoon in *Much Ado About Nothing*, but I cannot refrain from directing your attention to the public health activities of the Americans in Porto Rico. I confess, when a patriotic Briton considers the record there and compares it with the conditions obtaining in Jamaica, the Bahamas, Dominica, and half a dozen other colonies, he must feel humbled and ashamed. It will be said at once that Americans are full of money, they can easily afford to spend thousands on such work. Very true, but the American is a keen and astute business man. He is, I admit, in many cases more of an idealist than the Britisher, but I have never heard that he disdained the dollar or cared nothing about a return for his outlay. The American, knowing that hygiene pays, and knowing in part why it pays, has set out in Porto Rico to find out how it can be made to pay more, although, at the same time, he is influenced by humanitarian considerations and an anxiety, very proper, very patriotic, to show what the

United States can do in the field, the great and honourable field, of hygienic endeavour.

Now it is no use our sitting still and saying we are poor, we can't do anything like this, we must jog along as best we can. Such an attitude spells decadence, and, as I have said, there is no room in the world nowadays for decadent people. Some of the islands have no excuse for a policy of masterly inactivity. Barbados and the Bahamas in the West Indies, and Bermuda in dignified isolation are, if not as rich as Croesus, very comfortably off. To do Barbados and Bermuda justice, they are waking up to a sense of their responsibilities, and will doubtless reap their reward. The Bahamas seem to be past praying for, and are at present reaping a fitting reward in the shape of malaria, enteric fever, mosquitos, and the ubiquitous fly. Other colonies suffer grievously from financial depression, but in such cases the situation should be reviewed, possibly with the help of experts, to see if anything can be done in the way of a re-allocation of funds. We may well ask, Is the money available being spent to the best advantage? We know that, even in the wealthy Bahamas, it is not, for the principal medical officer in one of his reports complains about the establishment of a library which scarcely anyone uses, while he cannot obtain the wherewithal to prevent and combat the prevailing typhoid fever.

Again, are we certain that full value is being obtained for what is spent on education? It is true that the curricula embrace lessons in hygiene, but, as taught, they are almost useless. Would it not be possible to make a big change here and to devote some of the money spent on education to sanitary work designed to improve the attendance of scholars in the school, to quicken their intellects, and to make them cleaner and better citizens? I have little doubt there are other directions where the robbing of Peter to pay Paul would not only be feasible but justifiable—not only justifiable but wise.

The mention of education should remind us that Education Stock contains the best of the hygienic shares. To get the best results you must carry your people with you, and you can only do so when you have developed in them a sanitary conscience, made them realize that hygiene pays, and understand how it pays and why it pays. The return on these shares is never immediate, but the investment is sound, and, while some of the money goes to Education Stock, the rest can profitably be expended on hygienic measures which are not quite so dependent on the co-operation and goodwill of the inhabitants. For example, it is rarely that you have to force people to drink a pure water brought to their doors, and you can do much in stamping out malaria without the help of the proletariat. Still, the more you get of this help, provided it be intelligent, the better. It is more likely to be forthcoming if you can convince the people that hygiene will benefit their pockets as well as their minds and bodies. Hence, in conclusion, let me cite some examples which you can employ when, as apostles of Hygeia, you return to the West.

In the case of malaria I propose to take my illustration from Malaya, where Sir Malcolm Watson and others have worked wonders which can, thanks to their researches and enthusiasm, be expressed in terms of hard cash. A Commission not long ago contrasted the value of expenditure on hygiene (a) when the measures employed were crude and the main effort was directed to curing infected coolies, and (b) when the steps taken were guided by a knowledge of prophylactic principles and the main effort was the prevention of disease. The estate chosen was, and is, potentially as unhealthy as any estate in the Federated Malay States.

In 1911 the staff consisted of seven unhealthy Europeans, constantly sick, given to liquor, and taking no interest in bungalows or gardens. In 1923 there were four healthy Europeans (three married and one engaged), three healthy children, pretty gardens, comfortable bungalows, no drinking, and no absences on account of sick leave.

In 1911 there were 870 coolies with practically no dependants. They were miserable, crawling wrecks with narrow shoulders and prominent bellies. They lived in squalid, dirty lines, void of gardens. They possessed no livestock and, saddest thing of all perhaps, no children born alive—a miserable and degraded folk without hope, without

	1911.	1923.
Average cultivated ...	1,632 acres	2,650 acres
Average labour force ...	870 Indians only*	450 (all labour)
Dependants ...	Practically nil, due to deaths	220
F.O.B. cost ...	\$1.09	18.64 cents
Yield ...	83,000 lb.	778,000 lb.
Total expenditure ...	\$240,215.38	\$145,018.44
Medical (cure) ...	\$12,444	\$6,208.67
Medical (prevention) ...	Nil	\$9,531.20
Death rate ...	232 per mille	3 per mille
Number of deaths ...	202	2
Staff (Europeans) ...	7	4
Hospital ...	Overflowing	Empty
Total loss of labour ...	862	186
Percentage loss of labour ...	100	30
Check-roll average ...	30 (15 % below standard)	35.5 (standard)
Hospital admissions for year ...	1,084	275

* There was also a large but unknown number of Chinese.

ambition. In 1923 there were only 450 coolies, but these were doing thrice the work accomplished in 1911. Their dependants were represented by 220 healthy old people and young children. Births, as the report puts it, have become a chronic habit. The coolies were fat, well liking, and clean. They had fine gardens, over sixty head of cattle, hundreds of goats, and thousands of chickens.

In 1911 the tappers (it was a rubber estate) were sent out to new tasks every day, and one-third to one-half of the tasks had to be completed in the evening, as the coolies returned sick or too weak to finish the work. In 1923 a coolie was not taken off his task for months, and never had to finish his work off in the evening. In 1911 a gang was sent out to dig graves every day, yet never dug sufficient for requirements, as coolies were constantly dying in the field. In conclusion, the estate in 1923 had become one of the cheapest producers in the Federated Malay States and the cost of production compared favourably with Ceylon and Java.

[In addition to malaria, the lecturer dealt with ankylostomiasis in India, enteric fever in North Carolina, tuberculosis, and dengue in Texas.]

Surely enough has been said to indicate what a fine field exists in the West Indies for economic and humanitarian endeavour! As has been indicated, it is not altogether a virgin field. Here and there we see notable signs of activity, solid evidence of sound work, and indications of a quickening and regeneration—as, for example, the work in Port of Spain, already cited, the extensive water supply and drainage schemes in British Guiana, certain new developments in Jamaica, the stirrings of a sanitary conscience in Bermuda and Barbados, the provision of good drinking water in Dominica, the recognition of the importance of infant and child welfare work in several places. On the whole, however, one must admit that these colonies are sadly behind the times, and that some of them scarcely realize that of recent years the whole outlook in tropical hygiene has changed. I admit the solution of health problems is not so simple as it sounds. There are various difficulties. Above all things it is essential to have good men to initiate and control the reforms. Yet, for the most part, medical officers in these possessions are paid a mere pittance. Nowadays it takes six years to make a doctor, and when he is made he has yet to learn a great deal of his life's work. Not until two years have elapsed after his registration as a medical practitioner can he proceed to a degree or diploma in public health, even though the actual study for such a diploma only occupies one year. If he wishes to qualify in tropical medicine and hygiene he has to undergo a special and intensive five months' course of instruction. All this means a great deal of expenditure. It is a very costly education, and why should a man thus trained, thus equipped, accept a beggarly salary? He may, even if he is first class, provided there are possibilities and opportunities for getting something done; he may, if there is a chance of carrying out research and he is a born research worker; but, in the great majority of cases,

he will not, for he can do better elsewhere, and will go elsewhere, even though, as compared with other parts of the tropics, the West Indies possess some advantages. For example, you can make a permanent home in them in a way impossible in many parts of tropical Africa, India, Ceylon, or Malaya.

Remember, however, that satisfactory and sufficient salaries are not everything. A really good man will not be tempted to stay merely by considerations of filthy lucre if he finds his hands tied for lack of funds, and what should be his life's work crippled and hampered at every step. If he does remain he will cease to be a good man, and joins the ranks of those who say, "I've done my best; it's not my fault, let things rip." How often has that happened! I have seen it myself again and again, and it is a state of mind fatal to the individual and to the advancement of health. Hence well paid medical officers and an active and progressive, but non-extravagant, policy are alike essential. If these be forthcoming there should soon be a change for the better. Yet we must remember that the medical officer is not the only cog in the health machine. Well trained and qualified sanitary inspectors are absolutely necessary if it is to work smoothly and efficiently. In some places these men are available locally—for example, in British Guiana and Trinidad, where there are some first-class inspectors—but very often it will be found better to introduce a man of the right stamp from this country, or, better still perhaps, from one of our other tropical colonies, promoting a junior official to a senior post.

The inspector should be the health officer's eyes and ears; he is the essential intermediary, he is the non-commissioned officer of the sanitary force, and therefore its backbone. Without him it is apt to lack cohesion, and in his absence can never get properly to grips with the populace. Adequate clerical help must also be accorded the Health Office. Too often the wasteful and disheartening process of employing razors to cut wood is adopted. In other words, the medical officer of health spends his time making out returns, and the sanitary inspector is turned on to keeping books when he should be out in the field. This kind of thing is supposed to spell economy. As a matter of fact, it leads to loss of money and possibly also to loss of lives.

So much for personnel, on which practically everything depends. Let us not forget that the more mobile the Sanitary Force the more satisfactory will be its work. There should be no niggling over transport allowances. Epidemics can very often be nipped in the bud, but to accomplish such a desirable abortion the nipper must be on the spot at the earliest possible moment. This has long been recognized in Egypt, where the Epidemiological Section of the Public Health Department is fully equipped as a mobile unit. There are many other points to which I might refer, but I must not weary you, and have probably already provided more than sufficient mental pabulum for the lay digestion.

Let me only say that these matters we have considered—and I esteem it a privilege to have had this opportunity of addressing you—are not vain imaginings or flights of fancy or the ideas of an idealist. They are facts which merit most careful consideration; they are the principles on which action must be based; they are, in a very special sense, matters of life and death. Hence I would express the earnest hope that they will not be lightly regarded or looked upon as impracticable, but that this discussion may prove the means of giving modern hygienic methods a fair and fighting chance in the West Indies. Other British possessions have done so, and have reaped and are reaping the reward, a monetary reward as well as a reward in other directions. The West Indies, fair and fruitful, are amongst the oldest of our colonies. They have had a great past, their very names spell romance and recall glorious and stirring times. Such days may not come again, but there seems no reason why most of them should not have a rosy future, if only they will remember that rosiness is, under certain conditions, a sign of health, and that health, though nowadays readily attainable, can only be obtained by concerted effort and by following those guiding principles which have been enunciated and which have proved, and are proving, beacon lights to many tropical communities.

A British Medical Association Lecture ON RECENT ADVANCES IN THE SURGERY OF THE CHEST.

DELIVERED BEFORE THE BRADFORD DIVISION, APRIL, 1926,
BY

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(With Special Plate.)

SURGICAL procedures in connexion with the chest differ from those in other regions of the body in the peculiar mechanical difficulties which they present. On the one hand, the chest and its contained viscera are in constant motion; on the other hand, in the pleural cavity alone of all regions of the body is there a constant negative pressure. The latter is by far the most important consideration in dealing with the thorax, since it means that unless very special precautions are taken an opening into the pleural cavity will generally be followed by the immediate collapse of the lung on that side.

This pleural suction, as it might well be called, varies between 6 mm. of mercury in expiration and 30 mm. on deep inspiration, but it must be remembered that on closing the glottis and coughing it may be converted into a positive pressure of 100 mm. or more of mercury. So long as the thorax is closed the mechanical conditions are not affected by the existence of a potential pleural cavity, but the moment it is opened the conditions on the two sides of the chest become entirely different. If the opening is large the viscera on this side are subject simply to atmospheric pressure, whilst on the opposite side they are subject to pressures which may vary, as we have seen, between -30 mm. and +100 mm. of mercury.

If the two sides of the chest were separated by a rigid partition no great harm might result. It would simply mean that one side was thrown out of action so far as respiration was concerned. They are, however, separated not by a rigid partition but by a very mobile mediastinum, and, moreover, this mobile mediastinum contains the heart, the great vessels, and a mass of important nervous structures. Such variations in the pressures on its two sides, often as sudden as they are violent, will literally throw the mediastinum from side to side, producing the condition known as flapping of the mediastinum. The dangers of such a condition need scarcely be stressed, and yet it is the immediate result of a large opening made into the chest without due precautions. Such a state of affairs is of common occurrence in the ordinary treatment of acute empyema. Its recognition and the elaboration of means to avoid it form an important advance in thoracic surgery.

ACUTE EMPYEMA.

Acute empyemata occur in two forms—the adherent and the non-adherent. The former are usually pneumococcal, and will often show pneumococci in pure culture. They are often loculated and limited to one portion of the pleural cavity; they contain thick pus which can only be aspirated with difficulty; the pleural surfaces are covered with thick layers of plastic lymph, and floating in the cavity itself are large masses of soft fibrin. In direct contrast to this the non-adherent form is usually due to streptococci or to a mixed infection; it is necessarily complete, the pleural cavity is full of thin pus, and as gas-forming organisms are frequently present the condition is generally one of pyopneumothorax. In this form the intrathoracic pressure may be very high, the intercostal spaces bulge, the mediastinum is pushed over to an excessive degree, and the diaphragm and liver are pushed downwards. Obviously the two forms involve surgical and mechanical considerations of a very different nature, and they demand very different methods of treatment.

In the first or adherent form there can, in my opinion, be no doubt that the best method of treatment is to open the cavity freely, evacuate the pus, clear out all solid masses of fibrin, and drain by a closed method. The adhesions will prevent collapse of the lung and the forma-

tion of a complete pneumothorax, and the free opening, by giving adequate access to the interior of the chest, makes it possible to remove the large solid masses whose presence retards sterilization and induces the formation of massive adhesions. A large tube is now inserted at the lowest point of the cavity, and the tissues are carefully closed around it, so that it fits quite airtight. A large cork or a perforated sheet of rubber is threaded tightly over the tube, and when the dressings are applied this holds the tube in place. It projects through the dressing, and it is connected to a long rubber tube the end of which hangs below fluid in a jar on the floor beside the patient's bed. As the fluid trickles down it, this exerts a slight suction which assists the expansion of the lung.

In the non-adherent form, on the other hand, a free opening into the pleural cavity is exceedingly dangerous, involving as it does gross disturbance of the equilibrium of the thorax, and producing in an acute form the "flapping mediastinum" to which we have already referred. It is far safer to relieve the pressure by repeated aspiration, until sufficient time shall have elapsed for the formation of a certain amount of protective adhesions. Once these have been formed the pleural cavity can be opened without the danger of an immediate collapse of the lung, but even then it is much better to adopt the method of closed drainage we have described. With open drainage an initial pneumothorax is inevitable, and it may lead to such thickening of the pleura as will seriously interfere with expansion of the lung, whilst there is always a grave risk of secondary infection of a large cavity. Closed drainage is quite easy to arrange—it is more comfortable for the patient, it avoids these risks, and the constant slight suction assists the lung to expand.

SUPPURATIVE BRONCHIECTASIS.

The importance of these mechanical considerations in connexion with the treatment of suppuration in the pleural cavity will be seen. Let me now direct attention to their bearing on suppuration in the lung itself. Sooner or later this is certain to resolve itself into a suppurative bronchiectasis, and for the sake of brevity I shall consider it solely from that aspect.

Suppurative bronchiectasis may have its origin in some mechanical interference with the bronchi, or in infection of the parenchyma of the lung—as, for instance, after an unresolved pneumonia. In either event a very similar state of affairs ultimately results, for the bronchi become dilated from weakening of their walls and obstruction to the egress of air, whilst there is always a greater or less degree of destruction of the lung tissue itself. A ragged abscess cavity may be formed, into which open widely dilated bronchi; or in the more chronic cases the bronchi themselves may form the cavity in which pus collects. In both cases the patient coughs up large quantities of foul pus, and suffers from a severe degree of septic absorption. The problem for the surgeon is the draining of these cavities, and the prevention by adequate ventilation of the growth of the anaerobes for which these cavities provide such a perfect soil.

It is well, however, that we should recognize how often these conditions have a mechanical, or, unfortunately, even a surgical, origin. The commonest cause of bronchiectasis is mechanical interference with the passage of air through the bronchi, and of this one of the commonest causes is the inhalation of a foreign body. This may be any small object, such as a button, a tin-tack, or a collar stud; or it may be a fragment of bone from food the patient was eating, as in a case I shall presently describe. The frequency of such an event, and the gravity of the results, are not sufficiently recognized, but thanks to the pioneer work of Chévalier Jackson the conviction is steadily gaining ground that a large number of cases of obscure pulmonary sepsis are traceable to this source. The following is a striking example.

I was asked by Lord Dawson to see one of his patients in the London Hospital, a woman of 20 with an obscure condition in the right side of the chest. She told me that five months previously, when eating a mutton chop, she suddenly choked, and thought that a fragment of bone had gone down the wrong way. This was followed by intense coughing and retching, which gradually subsided, leaving her with a dry cough.

One month later she began to feel ill, her temperature rose, and her doctor, on exploring the right side of her chest, found pus. She was admitted to a hospital, where her chest was again needled and creamy yellow pus was aspirated, containing many organisms and offensive in smell. She ran a very irregular temperature, ranging between 98° and 102°, rising on one occasion to 104°. She had a loose cough, and brought up sputum containing yellow mucoid masses. Over the right lower chest the percussion note was dull, and breath sounds were absent. Under the impression that the case was one of empyema a rib was resected, the pleural cavity opened, and one ounce of pus was evacuated. This was followed by the drainage from the wound of quantities of very foul pus, but her temperature remained irregular, ranging between 96° and 102°.

When I saw her in the London Hospital she was a very ill looking woman, coughing up enormous quantities of horrible pus. There was an open wound in the right side of the chest from which pus was pouring, but this was periodically closed. She felt better when it was open. The right side of the chest showed marked collapse, and there was some dorsal scoliosis with the concavity to the right. The movements of the right chest were poor, the percussion note was diminished, and the breath sounds were weak. There was increased vocal resonance and bronchophony over the right base. Repeated examinations had failed to show the presence of tubercle bacilli in the sputum. A blood count showed 7,320 leucocytes, of which 70 per cent. were polymorphs. X-ray examination showed a cavity containing fluid in the right lung, whilst the whole of the lower portion of the right lung was opaque and the diaphragm could not be seen.



In view of the long history of the case arrangements were made for a full exploration of the chest, but bronchoscopy was first attempted. It was rendered difficult by the masses of purulent sputum which were being constantly coughed up. I found the right bronchus intensely inflamed, the wall looking like red velvet, and about three inches beyond the bifurcation of the bronchi a cavity was entered containing pus and debris. The thick pus was removed with some difficulty, and finally the bottom of the cavity, formed by red granulation tissue, was reached at a distance of fourteen inches from the teeth. In this granulation tissue a minute white spot could be seen, and on gradually clearing away debris it became a white ridge across the tube, which a probe revealed to be a hard rough structure. On seizing it with alligator forceps it proved to be some object larger than the tube, through which it could not be drawn. The whole instrument was therefore withdrawn, with the forceps holding what was evidently a foreign body. It proved to be a piece of mutton bone of irregular formation, about half an inch across. The immediate improvement in the patient's condition was remarkable, and though her chest has not entirely cleared and she still coughs up a little pus, she considers herself too well for any further operation.

The aspiration of a foreign body is only too likely to occur during a surgical operation, unless the greatest care is taken to avoid it. Particles of vomited material, or plugs of mucus from the mouth, may easily reach the bronchi, and there can be no doubt that many cases of post-operative pneumonia are due to this cause, whilst fragments of teeth or of tonsils may give rise to very serious trouble. It is only recently that attention has been called to the pulmonary complications from this source which may follow tonsillectomy, but the statement of Frederick Moore that pulmonary abscess occurs once in every 3,000 tonsillectomies shows how serious a matter it may be.

The pressure of tumours outside the bronchi may give rise to bronchiectasis and the formation of a pulmonary abscess, and this frequently occurs in carcinoma involving the hilum of the lung. In a case recently referred to me by Dr. Rowlands I drained an enormous abscess of the right lung only to find *post mortem* that a carcinoma had destroyed the right bronchus, invaded the hilum of the left lung, and actually penetrated into the left auricle of the heart.

The diagnosis of bronchiectasis is the realm of the physician, but the average case can unfortunately be diagnosed from very obvious symptoms, by the large amount of pus which the patient coughs up, and by the horrible fetor which distinguishes it. Naturally there is some febrile disturbance, often an irregular swinging temperature, and the patient is ill. But there is not as a rule marked emaciation, and the disease may pursue its course over a long period, whilst the patient is a misery to himself and a terror to his friends. The x-ray appearances are fairly characteristic. There are dense opacities due to infiltrated and fibrotic lung and to bronchi filled with pus, and from these opaque areas shadows radiate out towards the periphery. Occasionally an area is seen, roughly circular

in outline, the upper portion transparent, the lower filled by a dense shadow with a horizontal upper margin. If, on moving the patient, this margin is seen to remain horizontal, moving relatively to the patient, it is evident that we are looking at a cavity containing fluid, a true abscess cavity in the lung. In a typical case the picture contrasts with that of empyema, since the opacity is surrounded by a zone of more transparent lung.

The outlook for these cases apart from surgical intervention is poor. It is true that they may be taught to empty the cavities by postural methods, and that under careful hygiene they may improve. But in most cases, in spite of remissions, the progress is steadily downward, continued sepsis produces its inevitable results, and at any time acute haemoptysis, a secondary empyema, or a cerebral abscess may occur. Until a few years ago it was thought that little could be done for these cases by surgical means, but new methods seem to point to a much more hopeful future.

It is understood that every effort has been made to determine the exact situation and extent of the disease, and that the possibility of a foreign body, or perhaps the foreign body itself, has been eliminated. The next procedure is probably a full surgical exploration of the chest. Under a combination of regional and intratracheal anaesthesia an incision is made in the seventh intercostal space, and unless dense adhesions are encountered it is extended through almost the whole length of that space. A rib spreader is now inserted and the ribs separated to a distance of perhaps four inches. In the absence of adhesions a full view of the lung can now be obtained, it can be fully palpated, and its condition can be completely investigated.

In general, unless an aspirating needle has been used and the pleura infected, the lung will be found free of adhesions. The affected lobe will be found to be somewhat rigid from infiltration, and it will often be of a darker colour than the normal lung. If the air pressure in the intratracheal tube is reduced the normal lung shrinks at once, but the diseased lung only to a less extent. It must be remembered that it forms a spongework, with dilated bronchi filled with pus and prevented from collapsing by the infiltration of their walls, and this conception must be borne in mind in considering the problem of treatment. Occasionally the mere opening of the thorax and the letting in of air may produce a sufficient degree of collapse in the diseased lung to effect a cure. But this must be a rare event, and can only occur in early cases where the degree of infiltration is slight.

The obvious surgical course is to drain away the pus, but here we are faced by two serious difficulties. In the first place, if we incise the lung we inevitably infect the whole of a widely open pleural cavity, and we produce a septic complete empyema which communicates with the bronchi, making matters ten times worse. In the second place, you cannot drain a bronchiectatic lung by simply incising it. As Lilienthal neatly puts it, there is a great difference between emptying a vessel by knocking a hole in its bottom and trying to get the liquid out of a water-soaked sponge by incising it. So much, indeed, is Lilienthal impressed by this difficulty that he advocates complete excision of the affected lobe. In his hands this drastic procedure has given wonderful results, though even he finds a mortality of nearly 50 per cent. The operation itself is not difficult, but in dividing the root of the lobe infection of the pleura is inevitable, and all that can be done is to limit its effects. After the age of 35 Lilienthal himself rarely considers that the operation is justifiable, brilliant though its results may be at an earlier age.

A less ambitious but much safer procedure has been devised by Evarts Graham of St. Louis, and as I have carried it out myself with conspicuous success I feel some confidence in the soundness of the method. The first thing is to explore the chest and to see whether or not adhesions are present. If the lung is free adhesions must be produced by artifice, and this is done by packing gauze over the area selected for attack, to be removed at the end of a week. A fortnight later, when the lung has become densely adherent to the chest wall at this point, sufficient ribs are resected over this area to give a really wide exposure of the affected lobe of the lung, a corresponding



FIG. 1.—Foreign body in right lung; pulmonary abscess.

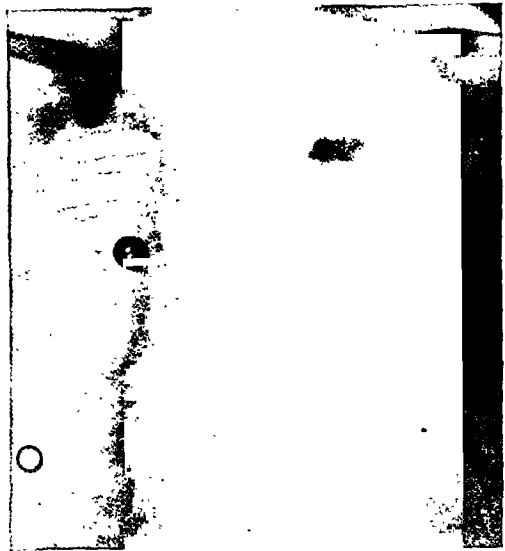


FIG. 2.—Carcinoma of lung; pulmonary abscess.

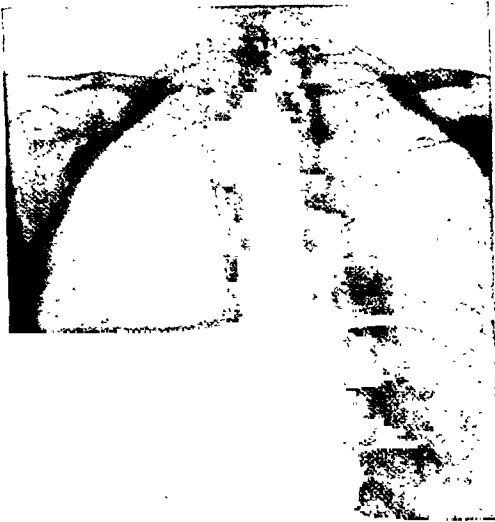


FIG. 3.—Tuberculous empyema; right chest full of fluid.



FIG. 3a.—Eighteen months later, after thoracoplasty.



FIG. 3b.—Eighteen months after thoracoplasty for tuberculous empyema of right chest.



FIG. 4.—E. T., aged 6; bronchiectasis and pulmonary abscess in right lower lobe, following tonsillectomy.



FIG. 1.—CASE 2.

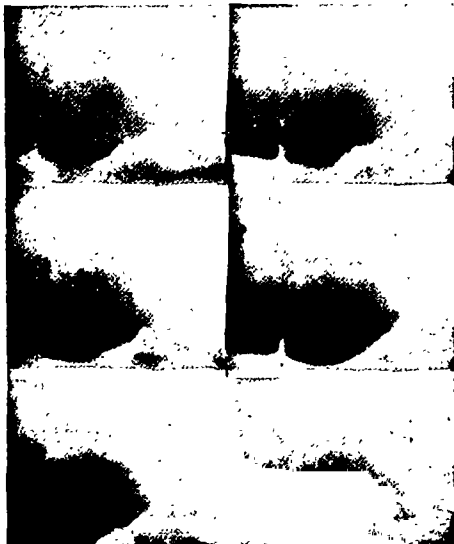


FIG. 2.—CASE 3. Lesser curve ulcer with spasm opposite. Duodenal cap normal.

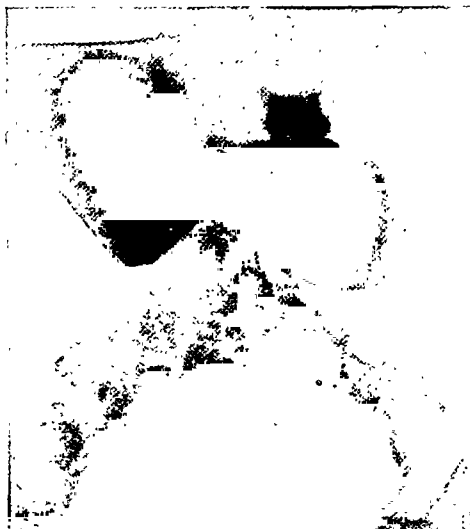


FIG. 3.—CASE 4.



FIG. 4.—CASE 5



FIG. 5.—CASE 6.



FIG. 6.—CASE 7.

flap of chest wall being turned up. A soldering iron at a dull heat is now plunged straight into the bronchiectatic lung, and the septic spongework is widely destroyed. A large cavity is left into which open numbers of dilated bronchi, from which pus is thus drained in a really effective manner. A large slough of course comes away, but considerable bleeding is rare, and any that may occur is readily controlled by pressure. The cavity is gradually obliterated by collapse of the chest wall, by expansion of the lung, and by the formation of granulation tissue.

The following case, referred to me by Professor Ellis, illustrates the facility of the operation and the dramatic recovery which may follow.

A woman, aged 31, dated her illness from an attack of pneumonia two years previously which had never quite cleared up. Nine months after this attack she had a slight hæmoptysis and was admitted to Brompton Hospital. No tubercle bacilli were found in her sputum, but she was sent to a sanatorium, where she remained in bed for four months. For a time she was better, but for the last six months she had had a troublesome cough, severe dyspnoea, and an evening temperature running up to 102°. She was a thin, wasted woman, and said that she had lost 2 st. in the last six months. There was marked clubbing of the fingers. Over the right base there was marked dullness, with diminished vocal resonance and absent breath sounds, whilst an x-ray photograph showed a dense shadow in this region, suggestive of empyema. She constantly coughed up large quantities of foul pus, often blood-stained, and her temperature oscillated between 97° and 103°.

A needle withdrew streptococcal pus, and an exploration of the chest was therefore carried out. The pleural cavity was found empty and clear of adhesions, except at the point where the needle had been inserted. The right lower lobe gave the impression of being almost solid at its lower pole, which was dark purple in colour. Gauze was packed in between the lung and the chest wall with a view to obtaining adhesions round this area, being withdrawn a week later.

A week later bronchoscopy showed that the right bronchus and the branch leading to the lower lobe were intensely engorged, resembling red velvet, and a cavity of some size was entered; it contained pus. An attempt was made to wash this out, and was repeated on several occasions, but without much success. The trachea was so irritable that bronchoscopy without an anaesthetic led at once to violent coughing and the evacuation of the abscess up the tube. As emptying the abscess had no effect on the temperature it was determined to drain the cavity through the chest wall. A large opening was therefore made over the adherent area, and through this a large cavity in the lung was entered. The opening was enlarged with a heavy copper cautery at a low heat, and by this means the outer wall of a cavity about 3 in. in diameter was destroyed. Into this cavity opened several bronchi as large as a finger, and from these pus poured.

The result was immediate, for her temperature fell at once, her cough stopped, her appetite returned, and she said that she had not been so well for months. After a few days the discharge ceased to be foul and became greatly reduced in amount. She was sent to a convalescent home, and at the end of two months the opening had closed, she had put on a stone in weight, and appeared in perfect health.

PULMONARY TUBERCULOSIS.

To the thoracic surgeon pulmonary tuberculosis presents the widest field of all, and, though its surgical treatment is still in its infancy, in recent years great advances have been made. The underlying principle is that which is universally adopted in the treatment of tuberculosis in other regions—to place the part at rest; but here, in contrast to the limbs, we are dealing with an organ whose movement is essential to life. In the solution of this apparent contraindication lies the whole surgical problem.

The selection of cases is the field of the physician, but perhaps I may refer to a few important points. Of the more acute cases the most suitable are those in which, after two or three months of conservative treatment, the disease is still advancing, and where the advance is more marked on one side. Cases of acute bronchopneumonic or pneumonic disease localized to one lung can be so treated, and the advance may be checked. In chronic cases of long standing with extensive fibrosis and cavitation, where perhaps the disease has come to a standstill, but where the patient is incapacitated by a chronic cough and frequent exacerbations, much can be done for his relief.

The surgical treatment of all these conditions can be summed up in the one word "collapse." It may be obtained by introducing air into the pleural cavity, by introducing packing of some sort between the parietal pleura and the chest wall, by removal of the ribs, or by paralysing the diaphragm, but in every case the final object is the same. Two methods stand out as of very general application, artificial pneumothorax and thoracoplasty, and

the two are in many ways complementary to each other. Where it is possible to produce a complete pneumothorax this is undoubtedly the method of choice, but in many cases, and especially in those chronic cases to which we have just referred, adhesions between the layers of the pleura make it impossible, and we may then have to fall back on thoracoplasty.

In producing an artificial pneumothorax any of the standard forms of apparatus may be employed. The essentials are that it should be possible to introduce a known quantity of air and to keep under close observation the resulting intrathoracic pressure. The latter is of extreme importance, since, except in very special circumstances, it is essential that the lung should be allowed to collapse by its own elasticity, whilst as a rule it is best to finish with a small negative pressure. The whole procedure can be carried out under local anaesthesia. The site of puncture should be chosen with a view to avoiding adhesions, and therefore at a distance from the chief foci of disease. In the majority of cases the seventh space in the post-axillary line will be satisfactory. The amount of air introduced on the first occasion will vary between 250 and 450 c.cm., enough to produce definite symptomatic relief, but not enough to run any risk of overstraining the other lung, upon which, of course, additional work is thrown, both circulatory and respiratory. Perhaps two days later more air is introduced, and the operation is repeated at intervals depending on the symptomatic response, until if possible complete collapse of the diseased lung is obtained. If this ideal is reached it will still be necessary to introduce air at intervals of perhaps two weeks, in order to compensate for air which has been absorbed and to maintain the collapse.

Such in briefest outline is a method which has now developed a highly specialized technique. But, like any other operative method, it must only be regarded as an adjuvant to full hygienic control, without which it is doomed to failure. Its success depends upon the possibility of producing a more or less complete pneumothorax—that is to say, upon the absence of adhesions. When these are at all extensive other methods must be adopted, and of these the most effective is thoracoplasty.

Thoracoplasty consists in the removal of so much of the bony structure of the thoracic wall that the remaining soft structures collapse upon the underlying lung. The work of Sauerbruch has reduced it from an exceedingly dangerous to a comparatively safe procedure, and in the hands especially of Bull and Saugman it has given brilliant results. Sauerbruch's operation depends upon the fact that if the posterior portions of the ribs are removed the remaining portions can bend inwards on the costal cartilages, and can virtually obliterate the chest cavity. Through a vertical J-shaped incision behind the whole of the posterior half of the thoracic wall is readily exposed, with very little damage to the muscles which cover it. The ribs are exposed in turn and resected subperiosteally, the length removed varying from 3 cm. for the first rib to 12 or 15 cm. for the eighth. The total length of rib removed in a complete operation may be as much as 120 cm., or about 4 feet. The operation may be limited to one portion of the chest, but it is not then nearly so effective, or it may be done in two stages. It is best accomplished under local and regional infiltration anaesthesia, perhaps accompanied by gas and oxygen. The nerve block is here of the first importance in reducing shock, and with its use the condition of the patient the day after this very extensive operation is quite remarkable.

This is undoubtedly the most powerful method we possess of collapsing the lung, and it is equally applicable to cases where the disease is not in the lung but in the pleura. Of this the following is an example among my own cases.

The patient was a man, aged 25, whom I was asked by Dr. Miller to see in the London Hospital. He gave the history that five months previously he had noticed a splashing sound in his chest, and soon after found that he was short of breath on exertion. His doctor found fluid in his chest, and a few weeks later he was admitted to hospital. Large quantities of milky fluid were aspirated from the left side of his chest on many occasions, but it always re-collected. It contained tubercle bacilli. When I first saw him he was a thin, pale man, slightly cyanosed, only able to breathe when propped up vertically in bed. He ran an oscillating temperature, and he was desperately ill. The left side of his chest was full of fluid. As it was evident

that the immediate cause of his trouble was mechanical I had first to consider how this could be relieved. Something more than aspiration through a needle was required, but drainage, from the risk of secondary infection, was out of the question. Under local anaesthesia, and without even moving the patient in bed, I made a small opening in the eighth space, into which I fitted a smooth silver obturator as a plug. Through this opening, which remained perfectly clean, we removed every morning from one to two pints of fluid. At the end of a fortnight his condition had so far improved that I was able to resect a rib and to explore the chest. On opening the pleural cavity twelve pints of milky fluid escaped. Both surfaces of the pleura were covered with tubercles. The wound was closed in the hope that adhesions might form. Six weeks later, fluid having been repeatedly aspirated in the meantime, the whole of the left dorsal region was blocked with novocain, and the posterior portions of the ribs from the fifth to the eighth were resected. As the ninth and tenth had previously been resected a satisfactory collapse of the lower part of the chest was thus obtained. The result was very remarkable. He made an uninterrupted recovery, and a year later he was in perfect health, doing full work on a farm. He has remained perfectly well, there is no sign of fluid in his chest, and the external deformity is trivial.

CONCLUSION.

The thorax thus presents to the surgeon peculiar difficulties and great opportunities. The difficulties are largely mechanical, and they can be overcome by mechanical means. Given the necessary appliances, and the still more necessary experience, there is no region which can be explored with more safety or with greater thoroughness. Many of the conditions have already been brought under our control, and the conquest of many others is only a matter of time. But this of all the branches of our art is the one in which co-operation between physician and surgeon is the most essential, and I therefore welcome this opportunity of bringing it before a body of practitioners who are meeting with these cases every day. I have only touched on a few features in a very large field, but I hope that I may have enabled you to realize the great opportunities, the brilliant hopes, and above all the safety, of modern thoracic surgery.

An Address

ON

GASTRIC DIAGNOSIS.*

BY

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(With Special Plate.)

THIS paper contains an analysis of the diagnosis of four related gastric conditions of similar symptomatology, based on operation findings. From the patient's point of view the stomach is the most plaintive organ of the body, and we all know that our methods of diagnosis and treatment of it are not yet so standardized as to meet the requirements of each individual case.

Having been personally interested in the correlation of the x-ray diagnosis and the operative findings, I wish to direct attention chiefly to this aspect, and, with the aid of a series of plates supplied by Dr. S. Cochrane Shanks, to distinguish the finer points of diagnosis.

I will, so far as possible, limit myself to the analysis of some 140 cases treated at the Charing Cross Hospital; these include 51 cases of gastric ulcer, 33 cases of duodenal ulcer, 27 cases of carcinoma of the stomach, and 26 cases mimicking these lesions, but due to other causes.

PROPHYLAXIS.

We have not been able as yet to determine the exact causative factor in gastric and duodenal ulcer. There is no doubt that predisposing causes exist. The patient who early seeks medical advice can expect amelioration of his symptoms from judicious treatment, while in the later stages he can be saved much pain and bouts of semi-invalidism, and fear less the complications which threaten his life.

* Delivered to the Southampton Division of the British Medical Association.

The practitioner whose aim it is to prevent the occurrence of these lesions has to devise a daily routine for those who seek his guidance. Such questions as diet, the treatment by drugs, the restriction of smoking, proper rest, the elimination of oral sepsis, and of foci of infection must be attended to.

When the disease is established examination by means of the x rays and the fractional test meal should be employed. It is not until such treatment has been tried and has failed to prevent recurrence of the symptoms that the need for surgery arises. It then becomes a question of co-operation between the physician and surgeon, and the best results are obtained when this partnership is continued after the operation. The patient is prone to think that an operation means an end to his disabilities. It is true that most patients are cured, but some are only improved; a few with gross lesions cannot expect to become entirely normal again, while in a small percentage of cases jejunal ulcers will develop. It is to this small minority that continued after-care is so important.

DIAGNOSIS.

With regard to the efficacy of the diagnostic means at our disposal, opinions differ. M-yrihan and the Mayos base most reliance on the x-ray findings, Walton stresses the clinical history, while others place their faith in the fractional test meal. The necessity for such indirect methods indicates a very varied symptomatology, and a lack of definite physical signs.

This being so, I am convinced that when taking the patient's history it is necessary to eliminate, as far as possible, matters of fancy, and to consider only the bald facts. For this purpose I use a chart, which is comprehensive and standardizes the results. I prefer to take clinical histories myself, and am often struck by how materially they can differ from those taken by my assistants. In reviewing the x-ray and operative findings they are found to agree in the majority of cases, and in this series the margin of error worked out as follows:

Gastric Ulcers.

Of 49 cases—

History and x rays disagreed in 13—	
History correct, x rays wrong or doubtful in ...	8
History wrong, x rays correct in ...	4
History doubtful, x rays wrong in ...	1

Duodenal Ulcers.

Of 28 cases—

History correct, x rays wrong or doubtful in ...	8
History wrong, x rays correct in ...	4
History and x rays wrong in ...	3

Carcinoma.

Of 22 cases—

The x-ray findings were wrong or doubtful in ...	5
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Whatever the merits or demerits of these various forms of investigation may be, the main point is that we each evolve our own particular lines of thought and action, and are best fitted to carry these into effect. Personally I consider a good x-ray examination a necessity. Apart from the diagnostic point of view, it is an invaluable guide to the surgeon in planning his operation, and revealing such complications as a small coexisting ulcer. Should there be any doubt, or should the x-ray examination and the clinical history disagree, then positive evidence from the test meal becomes a deciding factor.

SYMPTOMATOLOGY.

1. General.

Perhaps the most striking features of gastric and duodenal ulceration are its selectivity for the male sex, and the definite periodicity of its symptoms. Bouts of pain lasting generally from two to three weeks are followed by intervals of complete freedom ranging from a few months to a year or more. In duodenal ulcer these remissions are most constant; the patient has one or two attacks a year, and knows sometimes exactly when the next one is due.

In the early stages the intervals are not so marked as when the ulcer is established. In the later stages any change in this periodicity becomes significant; the painful attacks become prolonged, while the periods of freedom

become shorter. Such a change is invariably associated with some complication, such as pyloric stenosis, hour-glass contraction of the stomach, or adhesions to the pancreas. When the change is sudden, and the attack lasts much longer and the pain is constant, the onset of carcinomatous change in the ulcer must be suspected.

What happens to the ulcer in these symptomless intervals? Operation at these times reveals the ulcer still active or in a smouldering condition. Occasionally the scar of an old healed ulcer is found, and it is fair to assume that healing has occurred when a painless interval has lasted an inordinately long time.

2. Age and Duration.

Although ulcers may appear at unexpected ages, the average age of incidence lies between the third and fourth decades. The average for duodenal ulcers is a little earlier than for gastric ulcers, and carcinoma follows after the forties. In this series the age incidence and duration of the symptoms work out as follows:

	Age.	Duration.
Gastric ...	44	6.5 years
Duodenal ...	41	6.6 "
Carcinoma ...	53	5.0 "
Non-ulcers ...	38	5.7 "

In women the onset is slightly earlier than in males, and the ratio of females to males is: gastric 7:51; carcinoma 9:27; duodenal 7:33; non-ulcers 7:26.

3. Pain.

Although pain is popularly regarded as a *sine qua non*, it is important to remember that certain ulcers are unassociated with pain, and manifest their presence by a sudden perforation or haemorrhage. I have recently met with two perforations of this type, where a careful interrogation failed to elicit any previous history of dyspepsia. One patient was a workman, who twisted himself on a scaffolding, and walked into hospital with slight rigidity of the right upper rectus and a pulse of 72. The other patient experienced slight pain for the first time, which he relieved with oil, and perforation occurred the next morning. Apart from slight rigidity and a pulse of 80, he had no symptoms of dyspepsia.

The intermittent character of the pain has already been referred to. It seldom occurs within half an hour after a meal, but may appear at any time up to the next meal. As a general rule, in uncomplicated cases the time of onset is delayed the farther away the ulcer is from the cardia, and a two-hour limit is roughly the dividing line between the pyloric and duodenal ulcers. Each has a food fluctuation. In gastric ulcer it is food, comfort, pain, comfort; whereas in duodenal ulcer it is food, comfort, pain. The relief afforded to a duodenal ulcer by taking more food is often referred to as the "hunger pain."

The pain varies in intensity—sometimes dull and aching, at other times sharp, boring, or burning. It is determined partly by the acidity of the gastric contents, by the nature of the food, and by spasm. The time of onset coincides with the crest of the acid wave of the fractional test meal. The localization is in the epigastrium. With posterior and adherent ulcers it spreads to the back, and may be referred to the point of the shoulder. In duodenal ulcer the tendency is to spread to the right iliac fossa, and in jejunal ulcer to the left side. Radiation with a more constant pain is indicative of complications, while the sudden acute stabbing pain is pathognomonic of perforation. Relief of pain is more often occasioned by vomiting in gastric ulcer, and by more food in duodenal ulcer. The ingenious methods of obtaining relief devised by patients are as numerous as they are inconstant.

The feature of carcinoma following on an ulcer is the change from a fluctuating to a constant pain, which is not relieved by the ingestion of more food; whereas in the primary carcinoma the pain may be so insidious that it is merely described as discomfort, and in a man over 40 should arouse suspicion. The pain caused by non-organic lesions of the stomach is more variable, and tends to come on earlier after food. The average time of onset of pain after food in this series was: In gastric ulcer, 1.7 to 2.4 hours; in duodenal ulcer, 2 to 2.4 hours; in carcinoma, never later than 1½ hours; in non-ulcers, 3/4 to 1½ hours.

4. Vomiting.

In gastric ulcer vomiting is a common feature and occurred in 88 per cent. of the cases; it was almost equally common in the cases of carcinoma. In the duodenal ulcers and non-ulcer cases it occurred in about 50 per cent. of the cases. Walton states that vomiting in duodenal ulcer occurs in only 8 per cent. of cases. It is a reflex act conditioned by the pain, and becomes a more constant feature with the onset of complications. The fact that emptying of the stomach so often relieves the pain has encouraged patients to devise various means of inducing it. The incidence of vomiting to the number of cases was: Gastric ulcer, 43/51; duodenal ulcer, 16/33; carcinoma, 20/27; non-ulcer, 14/27.

5. Haemorrhage.

Haemorrhage from a chronic ulcer is always an alarming occurrence, and more so if it is duodenal in origin. Cases are published from time to time where it has been so severe as to warrant immediate operation, and the base of the ulcer has been found eroding one of the larger arterial branches. Death seldom occurs from haemorrhage. Medical treatment is invariably successful, and operation is better deferred. Blood transfusion has enabled us to deal far more effectively with this condition than hitherto. In severe and repeated haemorrhages it should always be resorted to, although I would add that special care is necessary in dealing with Group II cases.

Most perplexing are those cases of gastrostaxis, first described by Hale-White, in which the mucosa literally weeps blood and no demonstrable lesion can be found. I recently treated a young woman for this condition. Her x-ray examination showed a large filling defect on the greater curvature which was reported as an ulcer. The test-meal acidity was low. At operation no sign of ulcer could be found, but the whole mucosa oozed with blood. This patient was subsequently treated with hydrochloric acid. She remained fairly comfortable on 12 minims thrice daily, but any reduction of this amount caused her pain and haemorrhage to reappear.

Haematemesis occurs in about 30 per cent. of gastric ulcers. In duodenal ulcer regurgitation of blood may take place through the pyloric sphincter, and the more common feature of melaena may be overlooked when the blood is passed in small quantities.

Altered blood in the vomit, the so-called "coffee grounds," is found with carcinoma. I can offer no adequate explanation of the cause of the haematemesis or melaena associated with such cases as fibrosis of the appendix, Lane's kinks, adhesions, gall stones, and tuberculous mesenteric glands which have occurred in this series.

	Cases.	Haemat- emesis.	? Haemat- emesis.	Melaena.	? Melaena.
Gastric ulcer ...	51	15	3	5	2
Duodenal ulcer ...	33	4	2	7	2
Carcinoma ...	27	7	1	6	1
Non-ulcers*	26	8	—	2	—

* Haematemesis and melaena in 4.

6. Physical Signs.

It is rare for physical signs to be of any importance in the diagnosis. Of them, tenderness in the epigastrium is by far the commonest, and rigidity of the upper recti comes next in frequency. The most helpful signs when present are visible peristalsis, a succussion splash, dilatation of the stomach, or a tumour. As would be expected, they are most commonly found in carcinoma.

	Tender.	Splash.	Peri- stalsis.	Rigid.	Lump.
Gastric ulcer ...	17	8	4	6	—
Duodenal ulcer ...	14	2	—	4	—
Carcinoma ...	10	2	2	7	9
Non-ulcers ...	11	2	—	—	2

7. Appetite and Loss of Weight.

Appetite is so capricious that loss of weight is a more reliable index of the patient's general condition. Macbeth's dictum, "Now, good digestion wait on appetite, and health on both," would be qualified in these more scientific days by saying that good digestion depended more on the free hydrochloric acid in the gastric juice. Thus we find that where the acid is high the appetite is good; where it is low the appetite is poor, as also with the onset of complications. Caesar, quite apart from his mistrust, may have had in his mind the dyspeptic type when he said:

"Let me have men about me that are fat: . . .
Yond' Cassius has a lean and hungry look."

The majority of these patients are certainly of the lean type, and many of them are afraid to eat. That this is so, the following average loss of weight shows:

Gastric ulcer	...	...	1st. in 9 months.
Duodenal ulcer	...	...	1st. in 21.5 "
Carcinoma	...	...	1st. in 5 "
Non-ulcers	...	...	1st. in 8 "

8. Teeth.

The occurrence of septic teeth as a focus of infection is a diminishing factor, even in the hospital type of patient, since the general public and the medical profession are becoming increasingly alive to its consequences. There is thus little justification for it ever being overlooked in the class of case under consideration. The dental examination should not be confined to septic gums or teeth, but should include radiography of the roots for hidden apical abscesses. At this point the tonsils and accessory sinuses should also receive attention.

9. Constipation.

Constipation *per se* as a symptom of ulcer does not exist, unless there is an organic delay, or an association with some cause of stasis in the lower alimentary tract. That patients frequently suffer from constipation must be regarded more as a direct result of the habitual taking of bismuth.

10. X Rays.

I consider the x-ray examination of the patient after the administration of an opaque barium meal to be the most accurate means of investigation, when performed by an expert radiologist; and it must be remembered that evidence is often obtained by screen examinations which is not always recorded on the films. In unskilled hands the results are often useless and misleading.

Walton estimates that in gastric ulcer the results are correct in 90 to 95 per cent. of cases. In duodenal ulcers this standard is not so high, and the early cases of growth are difficult to distinguish from ulcer. The evidence is either direct or indirect. The classical direct evidence is an ulcer crater on the lesser curve filled with barium, the so-called niche, with a notch on the greater curvature opposite it, or a filling defect, an hour-glass stomach, an obvious delay, or an irregular duodenal cap. With indirect evidence we find such signs as rapid emptying, active peristalsis, spasm, and local tenderness to pressure. Occasionally the evidence may be misleading, the symptoms being due to conditions other than ulcer.

In all the cases under consideration the x-ray reports or films have been checked by the operative findings.

(a) *Gastric Ulcer.*—In this series there were 36 cases, of which the diagnosis was correct in 29—an average of 83 per cent. Of the 7 wrong, 3 were posterior ulcers, 2 being diagnosed as caecal stasis; 1, thought to be a lesser curve ulcer with delay, was a pyloric diverticulum; 1 diagnosed as duodenal ulcer was found to be pyloric; in 1 there was no evidence of ulcer; a recent ulcer had perforated and then healed; 1 showed rapid exit of food for a lesser curve ulcer with severe haemorrhage. The chief difficulty in diagnosis is, therefore, the posterior ulcer, and it is probable that with the improved technique of taking photographs obliquely or laterally in order to silhouette the posterior wall of the stomach, more of these ulcers will be demonstrated.

(b) *Duodenal Ulcer.*—The evidence is less precise in the case of the x-ray reports of duodenal ulcer. Rapid emptying and peristalsis, the classical textbook syndrome, do not figure so prominently as do delay, irregular cap, no cap, or a combination of delay with abnormalities of the cap. Out of 20 cases, 14 were correct—an average of 70 per cent.

(c) *Carcinoma.*—Of 18 cases of carcinoma, 12 were correct and 6 wrong—a percentage of 66. Of the 6 wrong, 4 showed no definite deformity; 1 showed duodenal obstruction; 1 showed duodenal ulcer. It is not uncommon for duodenal lesions to be confused with those of growth.

(d) *Non-Ulcers.*—It is of more interest to study those cases in which the x rays showed some evidence of an organic lesion which was not confirmed operatively. It is impossible to classify these, so I give the results seriatim.

	X-Ray Examination.	Operation.	Test Meal.
S. M.	Seven hours' delay and caecal stasis	Appendicectomy and Lane's kink	
W. L.	Rapid exit (? gastric or duodenal ulcer)	Appendicectomy and Lane's kink	Ulcer.
S. C.	Duodenal ulcer	Appendicectomy and adhesions	
H. D.	Duodenal ulcer	Appendicectomy and visceropexia	
W. B.	Hypertonic and irritable stomach	Appendicectomy and adhesions	Ulcer.
N. C.	Abnormal pylorus (? ulcer)	Appendicectomy and adhesions to gall bladder	
M. S.	? Lesser curve ulcer	Adhesions; post-gastro-enterostomy	
F. C.	—	Appendicectomy and adhesions	Ulcer.
W. R.	Eight hours' delay; tender pylorus	Appendicectomy and nodule on pylorus	Ulcer.
S. W.	Lesser curve crater and spasm	Nothing found	
E. W.	Hour-glass	Gall stones and band across stomach to splenic flexure	
J. C.	Seven hours' delay; low dilated	Gall stones and tubercle of ileum	
R. J.	Filling defect; seven hours' delay	Hypertrophic tubercle of ileum with omental band fixed in pelvis	
M. F.	Big ulcer on greater curve	Gastrostaxis	Low.

GASTRIC ANALYSIS.

The diagnosis of gastric lesions by means of the fractional test meal alone is apt to be misleading, but it often gives very valuable corroborative evidence. This is due to the fact that the acidity is subject to a wide range of variation. Ryle and Bennett, in a study of 100 healthy students, found this variation of free hydrochloric acid in the majority of normal stomachs. In those cases where there is any doubt in the diagnosis or a conflict of other evidence, the test meal may be very useful in coming to a conclusion, more especially in cases of duodenal ulcer and carcinoma. In about 75 per cent. of these cases curves are obtained which conform to a fairly uniform standard. In duodenal ulcer the acid content is high, and the feature of the maintenance of its secretion after the second hour is characteristic. In carcinoma there is little or no free hydrochloric acid present. This low type of curve, however, may be found with the anaemias, gall stones, visceropexia, and achlorhydria gastrica.

The curves in gastric ulcer are most variable. Here the acid rises quickly after the meal, but is not continued as in duodenal ulcer. In the majority of cases the acid is increased, but it may be normal, or even low. Curves similar to this group are sometimes found associated with chronic appendicitis, with or without adhesions, a Lane's kink, and occasionally cases of carcinoma will retain their ulcer acidity.

In pyloric stenosis there is a wide disproportion between the free and total acids, the latter being high as a result of fermentation processes.

OPERATIVE TREATMENT.

When a chronic ulcer fails to heal after continued medical treatment, surgical treatment becomes necessary. The operation of gastro-enterostomy has been most frequently practised for this condition. This procedure has a mechanical purpose, the anastomosis enabling the stomach to be more readily drained, and a physiological value, the acidity of the stomach becoming slowly neutralized by the alkaline bile, and the secretions of the pancreas and small intestine. The rest afforded to the ulcer by these means permits it to heal, and, it is said, delays the onset of malignancy. In cases of pyloric stenosis, for which the operation was primarily designed, the results are excellent; and in cases where the ulcer is distal to the anastomosis the results are good. Unfortunately it has been allowed to fall into disrepute through being performed for other conditions which do not warrant it.

Various methods have been practised from time to time which are directed against the ulcer itself, and these should be combined with gastro-enterostomy. They consist

in infolding of the ulcer, excision, or destruction by means of the cautery. This line of attack should be pursued in all cases of haemorrhage. In America Balfour excises the ulcer by means of a diathermy knife, and this destruction of the ulcer is an additional safeguard in forestalling the onset of malignant change. More recently a bolder technique has been employed in the form of partial gastrectomy; the ulcer-bearing portion of the stomach is removed, and the remainder united to the jejunum. This method is particularly advocated by Sir Berkeley Moynihan and the Mayo brothers. Other operations have been devised to meet special contingencies, and many modifications of the technique have been suggested, into the details of which I do not propose to enter.

In dealing with the grosser complications, such as hour-glass stomach and adhesion of the ulcer to the pancreas and to the surrounding structures, no hard-and-fast lines can be laid down. Most of these patients, whose general condition is very poor indeed, have to be treated according to their special requirements, and the ingenuity as well as the finer sense of judgement of the surgeon may be taxed to their utmost limits. Finally, every operation should include a thorough exploration of the abdominal cavity, especially of the gall bladder and appendix, for it is useless to operate on an ulcer and leave such a focus of infection untreated.

Operative Findings.

There were 22 cases of ulcer of the lesser curve of the stomach. Of these, 2 were kissing ulcers, 2 were associated with duodenal ulcers, 4 were posterior, and 2 were hour-glass.

There were 23 cases of pyloric ulcer. Of these, 3 were posterior, 4 were multiple, 3 were pyloro-duodenal, 3 were adherent, and 5 were associated with stenosis.

There was one case of jejunal ulcer; this was due to a silk stitch.

Operative Procedures.

Operation.	Gastric Ulcer.	Duodenal Ulcer.	Carcinoma.
Posterior gastro-enterostomy ...	32	25	12
Anterior gastro-enterostomy ...	2	4	2
Partial gastrectomy ...	7	1	1
Sleeve resection ...	4	—	1
Pylorotomy ...	1	1	—
Ulcers excised ...	3	—	—
Ulcers cauterized ...	2	—	—
Ulcers infolded ...	3	3	—
Double gastro-enterostomy ...	1	—	—
Gastro-gastrostomy ...	1	—	—
With appendicectomy ...	—	5	—
Inoperable cases ...	—	—	11
Total cases ...	51	33	27
Deaths ...	3	1	1

Total mortality=4.5 per cent.

BRIEF REPORTS OF CASES.

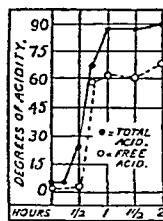
Case 1.—C. S. for some years had had intermittent attacks of epigastric pain radiating to the back; it was of a drawing or burning character, and came on one to two hours after food; it was relieved by bismuth. The appetite was good, but the patient was afraid to eat; had lost 8 lb. in four months. There was tenderness over the epigastrium. X-ray examination suggested pyloric ulcer. Test meal showed delayed secretion for one hour, then hyperchlorhydria. At operation an ulcer was found just beyond the pylorus.

Case 2.—Mrs. F. C., aged 60, had suffered from indigestion for fifteen years. Immediately after food there was an intermittent heavy feeling in the epigastrium which radiated to the right iliac fossa; it was relieved by vomiting and hot drinks. Haematemesis had occurred on several occasions. The appetite was poor, and the general condition feeble; she had lost 4 st. in the last few years. X-ray examination revealed an hour-glass stomach. At operation a chronic ulcer was found on the lesser curve; sleeve resection was performed. (See Plate, Fig. 1.)

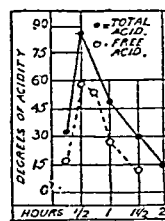
Case 3.—T. G., aged 63, for twelve months had had a gnawing pain three hours after food; it was relieved by taking food. The patient was awakened between 2 and 3 in the morning, and had been much worse in the nine weeks previous to seeking advice. Vomiting sometimes accompanied the pain. The appetite was good; there had been slight loss of weight; splash. X-ray

examination: seven hours' delay; ulcer crater on lesser curve; notch on greater curve. Operation, partial gastrectomy, revealed an ulcer on the lesser curve and a coexisting ulcer on the anterior inferior portion of the first part of the duodenum. The history suggested duodenal ulcer, but the x rays showed only gastric ulcer. (See Plate, Fig. 2.)

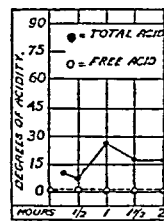
Case 4.—R. J., male, aged 57, had for two years had dull aching pain across the epigastrium and colicky pain across the lower abdomen. The pain came on two hours after food and was relieved by vomiting. The vomitus resembled coffee-grounds. He was afraid to eat, and had lost half a stone in three months. There was general tenderness over the abdomen. The x rays showed a filling defect of the stomach, with seven hours' delay. A test meal was not estimated owing to the presence of bile in each specimen. Operation showed that the filling defect was caused by a rolled up piece of omentum fixed to the pelvis and dragging on the stomach; the ileum and mesenteric glands were tuberculous. (See Plate, Fig. 3.)



(a)



(b)



(c)

Typical Test Meal Curves: (a) Duodenal ulcer; (b) gastric ulcer (no radiographic signs); (c) carcinoma of greater curvature.

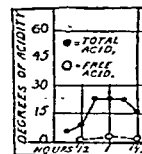
Case 5.—E. A., male, aged 51, complained of pain of a tingling and later of a boring character localized to the left epigastrium and radiating downwards; it was relieved by various means. For the past twelve months it had come on once in every twenty-four hours, and he had induced vomiting to relieve it. His appetite was good, but he had lost 2 st. in three months. X rays revealed a typical lesser curve ulcer. The test meal showed very low acidity. At operation a large chronic ulcer was found high up on the lesser curve. (See Plate, Fig. 4.)

Case 6.—J. F., a woman aged 40, had for seven years had intermittent attacks of pain, lasting about a fortnight, with intervals of freedom lasting for several months. Pain of a sharp nature coming on half an hour after food, and aggravated by food, was relieved by vomiting; the pain extended to the shoulders. She had lost a good deal of weight; there was resistance in the epigastrium, and rigidity. Occult blood was present. X rays showed a stomach of small capacity; over seven hours' delay; large filling defect of pyloric antrum. Inoperable carcinoma. (See Plate, Fig. 5.)

Case 7.—Mrs. F., aged 53, for two years had had constant dull aching epigastric pain conducted to the back; it was increased by

taking food and relieved by medicine. There was almost daily vomiting after food. The appetite was poor, and she had lost a stone in six months. She was anaemic and wasted, and had enlarged glands in the axilla and groin. A blood count showed lymphatic leukaemia. X-ray examination suggested an ulcer on the lesser curve. A test meal showed hypochlorhydria (see chart). At operation (lesser curve ulcer), posterior gastro-enterostomy, an indurated mass was found in the caecum. Microscopy of appendix—lymphatic leukaemia. (See Plate, Fig. 6.)

Note.—Many of these cases were collected while I was surgical registrar, and I am indebted to the surgical staff, especially Mr. H. S. Clogg, for their kind permission to publish them. Also to Dr. Russell Reynolds and Dr. S. Cochrane Shanks for their willing co-operation in the radiological examination, and to Mr. Jocelyn Patterson for the test meal results.



METHOD OF TREATING ASTHMA BY RADIATION.

(Preliminary Note.)

BY

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THE amount of medical literature on the subject of asthma, and the number of methods of cure advocated from time to time, illustrate the humiliating fact that little is known of its pathology, and that no satisfactory line of treatment has been discovered. There are patients who pin their faith to one pet drug, which they hold in reserve, as they have found from experience that it gives some temporary relief of their distressing symptoms; others ever ready to try any new remedy; and lastly, those who have given up all remedies and simply "grin and bear it."

Let me state at once that I have no new theories as to the causation of asthma, but the results obtained from the

method about to be described lead me to believe that the primary cause will eventually be found to be metabolic, with or without some local irritation reflex.

As treatment by radiation is not based on any theory, it may be asked how the beneficial effects came to light. My attention was accidentally drawn to them some years ago while treating patients for carcinoma of the breast by a new method of application of x rays. Realizing that in malignant disease, unless efforts were made to prevent the formation of metastases, the patient would reap little benefit by concentrating on destruction of the primary growth, the question arose whether the patient could stand an efficient radiation over a large area, for the whole trunk at least would have to be covered. I therefore devised an apparatus, which was installed at the London Hospital, by means of which it was possible to subject the patient to what was, practically speaking, an x -ray bath. It was found that the dose could be administered up to certain limits without bad effects. Full details of this method were published in the *BRITISH MEDICAL JOURNAL* in 1921 (vol. i, p. 771). To explain its application to the treatment of asthma it will suffice to say that its essential details are a radiation field large enough to embrace the whole trunk, and the use of one tube in front and one at the back, both energized at the same time, followed by radiation in the same way from side to side. The results obtained in cases of breast carcinoma have been very gratifying, but do not concern me here. I intend to publish a report on them shortly.

Among the patients being treated in this way for malignant disease were some suffering from chronic bronchitis. Many of them volunteered the information that the treatment eased their breathing. Little notice of this was taken until one day a female patient became very profuse in her thanks, and insisted that the treatment had completely cured her asthma, to which she had been a martyr for some fifteen years. This aroused my interest, and I set about getting together some true asthmatical patients in order to test the method; this was slow work, but it was evident after the first few cases that radiation possessed some very definite influence on the disease. Beneficial results were experienced within a few hours of the first treatment—increased expectoration and decrease in the "tightness" of the chest.

So many organs and tissues are included in the radiation field by this method that it was impossible to suggest off-hand which organ or tissue was directly affected; radiation might be influencing the secretion of the ductless glands, or it might be setting up some complex influence on the spleen.

I have said enough to make it clear that I believe the influence of radiation on asthma to be complex, that it is not a direct influence on lung tissue, but some profound indirect or secondary change affecting the whole body. The patient, however, is naturally more interested in the practical results than with theories about them.

Technique.

Technique has been slightly modified from time to time. Experience with increasing numbers, however, has established certain factors.

(a) *Small Dosage.*—Originally the dose administered was the same as that for carcinoma of the breast—that is, 20 X through 4 mm. of aluminium measured on the skin, with 25 mm. spark-gap. This was found to be the maximum or tolerance dose. A certain amount of nausea and sickness usually followed, but this I considered unavoidable when patients were undergoing treatment for so serious a disease as cancer; but the question arose whether this disturbance was necessary in asthma. I reduced the dose gradually, and was surprised to find that half that originally used—namely, 10 X through 3 mm. aluminium—gave as good results in asthma, and did not cause any general disturbance.

(b) *Low Voltage.*—The large radiation area necessary, the general upset and risk of damage to deep structures, rendered high voltage undesirable.

(c) *Large Radiation Field.*—The necessity for the field to include practically the whole trunk must be emphasized, for I have demonstrated that radiation of the thorax alone does not give the results. I am not yet certain that there

is any special benefit in radiating with two tubes at once—one in front and one at the back—but it certainly saves time.

This dual dose of 10 X through 3 mm. of aluminium measured on the skin is administered once a week to the average case—twice a week if the case is severe. After the fourth dose an interval of two weeks is allowed, then it is repeated once a month for four months; after that the patient is instructed to come up as soon as any wheezing or "tightness" of the chest is noticed, when a further dose is given.

A general history of the case should be taken, and should embrace the family history; asthma is frequently found in other members. The type of patient and type of chest are noted, and a general radiological examination of the thorax made. Practically all cases so far examined have had a definite fibrosis of the roots of the lungs, but whether this is the cause or effect is doubtful.

Immediate Effects.

The immediate effects are experienced within a few hours of the treatment. The patients state that relief of the "tightness of the chest" is the first thing they notice. This is followed in twenty-four hours by an increase in phlegm. With the small dosage now used no nausea is experienced. So far all patients treated have obtained very definite relief and no bad attacks have occurred, but no doubt failures will occur as the numbers increase. No blood changes have been noted. A general improvement in the patient's condition is apparent. A definite increase in weight in most cases is an interesting secondary effect noted. A few of the earlier cases—those receiving the heavier dosage—developed what they described as attacks of acute bronchitis after the first course of treatment, but without any signs of asthma. I do not know whether this is to be looked upon as mere chance, or whether the heavier radiation was in some way responsible for the attacks. High voltage radiation is known to give rise occasionally to some form of fibrosis of the lung, but this is usually a gradual process, and not acute as in these cases. The fact that the later patients—those on the reduced dosage—have not experienced this complication rather strengthens the supposition that radiation had something to do with its production.

Later Results.

Of the twenty-one cases of chronic asthma of various types so far treated by radiation over a period of two and a half years, all except the two youngest had tried every form of treatment with little or no effect, and had given up all. As previously mentioned, all obtained relief of their symptoms, although the number of treatments necessary to get rid of the wheezing varied. The nearest approach to failure was with a patient of great size—he weighed about 19 st.—with a thorax like a barrel. I have heard from him recently that his asthma has greatly improved.

The youngest patient, aged 4 years, responded to an even smaller dose than that already mentioned.

Two sisters—martyrs to asthma for twenty and twenty-two years respectively—who had given up all work for many years as they expected to be in bed six to eight months in the year, made an immediate response. They have put on weight rapidly, and have once again resumed normal life.

A few weeks ago an ex-police constable was sent to the London Hospital. He had been discharged from the force as incurable. Cyanosed, painfully dyspnoeic, he presented a pitiful spectacle. His appearance a week after the first radiation was remarkable, for his colour and breathing were to all appearance normal. He is still under treatment, and it is hoped eventually to get him well enough to resume his duties.

A boy, aged 12, subject to hay fever, which apparently acted as the irritant factor to his asthma, had undergone various forms of treatment with no benefit. His worst time was during the summer months. He has so far had no attacks of hay fever or asthma, but as treatment was only commenced at the end of last summer the efficiency of radiation has yet to be put to the test.

These cases have been quoted to give some idea of the type so far treated.

It has been possible to keep in touch with practically all those treated up to date, as the majority of them are so afraid of becoming chronic invalids again that they readily carry out instructions and report themselves regularly.

I wish it to be clearly understood that what I have here written is but a brief summary of beneficial effects so far obtained in asthma by means of radiation applied in a manner not usually adopted. The number of cases so far treated (21) is too small and the time too short for any statement as to the permanency or true efficiency of the method to be made. It is hoped, however, that those who have access to a larger number of patients will give it a trial, so that a true valuation may be reached.

So far radiation applied as described has proved a valuable palliative agent; time will indicate its true curative value. Radiation attacks this distressing complaint from an entirely new angle, and while at present it is not based on any theory more light may be thrown on the cause if we eventually find out what influence small radiation doses over a large body area have on general metabolism.

Radiation, of course, has been tried before in asthma, and the results reported have on the whole been disappointing. Ramirez and Cole come to the conclusion that radiation offers no particular advantage over other methods, but that definite effects noted in some of their cases would indicate that a modification of technique might yield a more encouraging result. I believe the fault in the methods so far tried lies in the limited radiation field—that is, the lungs alone are looked upon as the site of the trouble. This, combined with overdosage, accounts for the poor results.

This preliminary note may encourage others to give the method a trial, but careful attention to essential details is necessary.

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HAEMATOMA IN THE ABDOMINAL WALL SIMULATING PELVIC NEW GROWTH.*

BY

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HAEMATOMATA in the lower part of the abdominal wall sometimes present such close resemblances to tumours of pelvic origin that very nice diagnostic problems may arise. Cuthbertson¹ has recently collected forty-one cases in women of which no fewer than twelve were diagnosed as ovarian cysts and ectopic gestation. In only three of the forty-one cases was the haematoma recognized before operation, while in two others it was suspected. Thus the recognition of this condition is clearly a matter of some difficulty, and one which has points of special interest for those who deal with the diseases of women. This is illustrated by a recent case.

A lady, aged 57, was quite well until she had a day of severe abdominal pain. She sent for Dr. Bennett of Hyde, who found a considerable swelling rising above the pubes on the right side. The pain subsided under treatment; but, two days later, diffuse black bruises appeared upon the surface of the lower abdomen. When I saw her during the following week there was a discoloured area, measuring about eight inches by four, containing many patches of subcutaneous haemorrhage. There was a rounded swelling above the pubes, mainly to the right of the mid-line. It resembled a four and a half months pregnant uterus in shape and size, but was more like a fibroid in consistency. The cervix was pushed forward by a cystic swelling, which could be felt in the pouch of Douglas. Thus the physical signs suggested the presence of a fibroid above and an ovarian cyst below. But when the patient was asked to sit up, and so brought the recti into contraction, the swelling above the pubes could still be felt, and it became quite fixed. This showed that it was really in the abdominal wall. The sudden onset of pain accompanied by the appearance of the lump and followed by the extravasation of

blood under the skin indicated that rupture of some fibres of the right rectus had occurred. The diagnosis, therefore, was haematoma of the abdominal wall, together with ovarian cyst in the pouch of Douglas.

The abdomen was opened through blood-stained tissues to the left of the swelling, the linea alba being displaced towards that side. A simple cyst of the left ovary was then removed. The uterus and right tube and ovary were normal. The appendix was removed, as it was involved with a portion of omentum, which was adherent near the internal abdominal ring. The haematoma lay within the right rectus, with a thick layer of muscle over it. The mass of blood clot projected into the abdominal cavity, with a thin layer of muscle and the peritoneum under it. The clot was turned out through a cut in the edge of the muscle. The wound was then closed in the usual way, a strip of gauze being left in the cavity of the haematoma for one day. Healing occurred quickly.

I once saw a case in which someone had diagnosed ovarian tumour in the absence of the patient's usual medical adviser, Dr. Robertson, then of Rawtenstall.

The patient was a stout, healthy woman, past the menopause, and she told us that the pain and swelling dated from a fall over a clothes-basket, which hurt her very much, but did not prevent her from finishing her washing. The right lower abdomen was quite dull and solid, as if the right iliac fossa was filled by a mass which rose above the umbilicus and crossed the middle line. The mass could still be felt, and became fixed when the patient sat up, and this sign, with the history of the fall, gave the diagnosis of haematoma. Expectant treatment was employed.

Later there was some constitutional disturbance, and the mass became softer. When I saw the patient again the physical signs were those of a large cyst adherent to the abdominal wall, and it was clear that the blood-clot had become infected and liquefied. An incision through the right rectus liberated a great quantity of chocolate-coloured pus mixed with blood-clot which had been distending a cavity walled in front by the rectus and separated from the abdominal cavity by peritoneum below and by peritoneum and the sheath of the rectus above.

I subsequently saw a similar case, and, in the light of previous experience, recognized it as an infected and liquefied haematoma, and arranged for the patient's admission to hospital. When she came in the lapse of time had introduced a new and disconcerting feature which rather shook the diagnosis, for the swelling, previously cystic, was now tympanitic. I remember the horror of some of those present when I incised this resonant area, and their relief when a blast of foul gas was followed by a gush of chocolate-pudding pus.

I once watched an operation after a very sporting diagnosis had been made—namely, myoma of the round ligament. The outcome was that the surgeon struck pus before he had cut through the abdominal wall. No doubt when he examined the patient the mass felt solid and closely resembled a fibroid. Infection and liquefaction must have occurred in the time that elapsed between the making of the diagnosis and the operation.

Infection does not always occur. Dr. J. W. Stenhouse had a patient, a healthy elderly lady, with a firm fixed swelling above Poupart's ligament which appeared suddenly with pain. We concluded that this was a haematoma, and it disappeared entirely in the course of a few weeks. When I was house-surgeon to the late Sir A. R. Simpson two students brought their old landlady to see him in the Buchanan ward of the Edinburgh Royal Infirmary. She thought she had strained herself while leaning out to clean a window. There was a lateral solid mass which seemed to rise out of the left iliac fossa and to be attached to the iliac bone. Simpson did not consider it suitable for operative treatment. He told us to strap her well up with strips of belladonna plaster. This gave her much comfort, and after a time she came back saying the plaster was too loose. It was renewed, and this happened two or three times. In the end the lump disappeared. These two cases stand out in my memory as the only disappearances of considerable lumps other than inflammatory deposits which I have personally observed. I believe they were both haematomas, though this was not proved by incision in either case.

As to the general aspects of the condition but little has been written; it is hardly mentioned in some textbooks and is treated briefly in others. Numerous cases have been recorded in the medical journals, most of which would seem to be the results of strains and accidents in men of active habits—cavalry soldiers, acrobats, and others whose occupation or sport demands violent effort. In women, on the other hand, the lesion occurs, apart from obvious

* Read before the North of England Obstetrical and Gynaecological Society, April 16th, 1926.

trauma, in those of middle or advanced age. It is sometimes associated with coughing or vomiting. In the cases I have mentioned the patients were all past the menopause. There was a history of a fall in one case and of a strain in another. Out of Cuthbertson's¹ forty-one cases, thirteen were over 50 years of age; seven were between 40 and 50; six were under 40. Twelve of the patients were pregnant or had recently been delivered.

Haematomata which simulate pelvic growths are below the umbilicus, and are thus due to the rupture of muscular branches of the deep epigastric artery. Being impressed by the marked lateral extension of the swelling in these cases I consulted Professor Stopford on the point. He says that if the haemorrhage occurs below the fold of Douglas, owing to the formation of the sheath of the rectus at that level, there is nothing to prevent the lateral extravasation of blood deep to the aponeurosis of the oblique muscles. This explains the relatively limited character of haematomata higher up in the rectus muscles. The extravasation of blood cannot cross the linea alba, but the swelling can extend beyond the middle line by pushing the linea alba over toward the sound side of the body.

The most interesting thing about these cases is the diagnosis. The patient complains of pain and the medical man finds the swelling. The trouble is that he seldom knows how long the swelling has been present; for patients frequently have masses of various kinds in the pelvis or abdomen whose presence is not suspected until they complain of pain and submit to examination. The main point is the recognition that these swellings are part and parcel of the abdominal wall. This is generally made by noting that they can still be felt when the recti are in action, and that they become fixed as the muscles contract. Another point is that, when a mass in the abdominal wall is not too large, a resonant note may be obtained right through it by deep percussion. But these signs are not infallible, for a mass within the abdomen that has become adherent to the wall gives the same signs as one which is a part of the wall. Even physical signs can tell lies, and must be checked.

This point decided, the next question is, What other swellings may be found in the wall of the abdomen? My first employment after qualification was to do duty for the house-surgeon of a hospital in a country town. He called my attention to a girl with a so-called ovarian cyst who was being prepared for operation next morning. The girl told us that the swelling was there sometimes, but not always. It was cystic, in the mid-line, and reached just to the umbilicus. It was still felt, and was fixed when the recti were in contraction. Being very young then, and full of book learning, I suggested that it might be a cyst of the urachus communicating with the bladder. Strange to say, it was, and we massaged the contents into the bladder and drew it off with a catheter.

A girl, aged 13, was brought to the Northern Hospital, Manchester, with a swelling above the pubes, which was part of the abdominal wall. The mother had been told that it was a pregnant uterus, and, when assured that this was not the case, she took the child away. But, later, the patient reached the Children's Hospital at Pendlebury, where the late Mr. Joseph Collier opened an abscess and found in the centre of it a rusty needle.

The commonest swellings in the abdominal wall are new growths—namely, those masses of spindle-celled tissue called desmoids. They are generally single, but I have seen three in the recti of one patient. Slow-growing and painless, they are easily recognized. They were frequently excised formerly, but they yield to treatment by irradiation in most cases.

Another new growth in the abdominal wall was seen in a patient from whom I had removed an ovarian cyst-adenoma six years previously. She came back saying she had another tumour upon which her corsets pressed uncomfortably when she sat down. It was a solid encapsuled mass under the scar of the former operation, and, on section, its structure was that of the solid portions of a cystadenoma.

Thus, before completing the diagnosis of a haematoma, it is necessary to exclude new growths, inflammatory masses, developmental errors; for they can all produce swellings

in the abdominal wall which simulate tumours of pelvic origin. As to treatment, a small haematoma in this position may doubtless be left alone. But should we wait for the larger ones to become infected before opening and emptying them? I think not. If the mass of blood-clot is of considerable size the patient will be sound and well again much sooner under active surgical than under an expectant treatment.

REFERENCE.

¹ Journ. Amer. Med. Assoc., December 19th, 1925.

RECTAL ANAESTHESIA.

BY

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FROM the course of the correspondence on rectal anaesthesia appearing in the BRITISH MEDICAL JOURNAL during the last few months it appears that few surgeons practise it, and from communications received by me it would seem that some failures have been encountered. Such failures must, I think, be due to faulty method of administration, and it may probably be useful to describe that used at the C.M.S. Hospital at Cairo, where it has invariably proved perfectly safe. It has been the routine method since I first saw it used by Dr. Stiven at the Government Hospital, Port Said.

We confine it almost entirely to operations on the head, neck, chest, or upper extremity. Spinal anaesthesia by stovaine, which we find so eminently satisfactory, with an experience of nearly 8,000 cases, as described in the JOURNAL of March 21st, 1925, is our routine procedure for all operations up to the costal margin. Naturally, however, the ether method can be used for most operations.

The mixture used is three parts of ether to one part of olive oil, and the amount given is regulated by the weight of the patient, the allowance being one ounce of the mixture for every 20 lb. body weight. In actual practice we find this estimate is rather on the conservative side, and in cases requiring more perfect anaesthesia we often order a small quantity in excess of this, up to half an ounce for an average adult. We consider that about eight ounces is a maximum dose; this means six ounces of ether.

The anaesthetic is given to the patient in the bed, but some care is necessary in choosing a suitable room. The ideal condition is to have a small private ward, the windows of which can be darkened by shutters or blinds. It should be in a quiet place, and if possible not too far from the theatre, and preferably on the same floor, to avoid disturbing the patient by lift or stairs. If given in a general ward this should be darkened and quietened if possible, and screens kept round the bed. The stretcher and the macintoshes, etc., are put under the patient previously, so that he may be moved to trolley or carried without risk of waking.

An enema and rectal washout having been given some hours previously morphine with atropine is injected hypodermically an hour and three-quarters before the time fixed for the operation; fifteen minutes later administration of the mixture is commenced.

The mixture, slightly warmed, is run into the rectum high up by a catheter attached to a tube and glass funnel, which should not be raised to any appreciable height. All the apparatus should be well warmed before use to avoid cooling of the mixture. It is important that this should be given slowly, and it is reckoned that the administration should take twenty to thirty minutes. This is by no means always an easy matter, especially as sometimes the patient attempts to strain and return it, but with patience and tact it can generally be accomplished. It is found to facilitate the giving of the whole dose if it is preceded and followed by just a little olive oil. The administration can safely be entrusted to a competent sister, nurse, or orderly. At the completion the catheter is clipped, and great care is taken to withdraw it gradually, so as not to excite straining. A damp cloth is put over the patient's face to prevent excessive evaporation, and he is allowed to lie quietly till required for the theatre. With the above

timing the administration should be completed an hour before he is removed to the theatre, which must be done as noiselessly and as smoothly as possible.

In the great majority of cases nothing more is needed. The surgeon finds the anaesthesia very satisfactory, and it lasts for several hours if need be. Often there is a little corneal reflex, but in these cases, beyond perhaps a light movement on the part of the patient when the first incision is made, usually there is no further difficulty. In a few cases it is found necessary to give just a small amount of general anaesthetic on an open mask at the commencement of the operation. This would naturally be either in most countries, but in this climate we seldom use ether for general anaesthesia, preferring chloroform, which is remarkably safe here. A few drops are usually sufficient, and then it can be discontinued.

At the end of the operation, before the patient leaves the theatre, a rectal speculum is passed and the excess of the mixture run out, and, immediately on return to the ward, very thorough and repeated washing out of the rectum and colon is carried out, and finally saline solution is left in. This cleansing of the rectum is very important, and should not be delayed. Probably neglect of this point has been responsible for the report of gangrene of the rectum which is stated to have occurred in some hospitals. We have never seen rectal complications in any case. Our patients have been of both sexes, and we have used the method in quite a number of children from about 8 years upwards, who take it very well. The cases have included goitre, glands of neck or axilla, mastoid operation, malignant disease of tongue, lip, upper and lower jaw, plastic operations on

nose, face, or ear, amputation of breast, operations on arm, and plating fractures.

It is not our custom to use the method for very small operations, in order to avoid the extra work for the ward staff. One great advantage of spinal anaesthesia for operations below the costal margin is the saving of time in the theatre and lessening the work afterwards in the ward. Rectal anaesthesia means considerably more work in the ward, both before and after.

The advantages of the method are marked both for the patient and for the surgeon. Those for the patient include the absence of apprehension and absence of coughing, straining, and vomiting, both at the operation and afterwards. For the surgeon it is a tremendous advantage to have a clear field in head and neck operations, when so often the anaesthetist is much in the way. In operations on the neck the face can be covered up at the start and not uncovered again. In operations on the nose and mouth the naso-pharynx can be well plugged with a stout tube for respiration through the middle of the plug, and there need be no time lost in continually mopping out the blood or anxiety in keeping the airway open. Also the surgeon has plenty of time. This might possibly be a doubtful advantage if it tended to make the surgeon slow in his work—never a good thing for the patient—but it is a great boon in some ticklish plastic operations on the face. The only real disadvantage is the extra work on the ward staff and the preliminary time involved, as described above.

My colleagues, Mr. F. O. Lasbrey and Mr. J. E. Bateman, are equal advocates of the method with myself.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SEROUS MENINGITIS: REPEATED LUMBAR PUNCTURE: RECOVERY.

THE following case, recently under my care, seems of sufficient interest to warrant publication.

The patient, a boy aged 9 years, was first seen on March 18th. There was a history of a rash resembling measles four days before (a sister developed typical measles the following week), and on March 17th the child complained of pain in the back of the neck, though he was playing as usual all day. When seen on March 18th he was unconscious and breathing stertorously, all reflexes were abolished, the plantar response being dorsiflexion, the pupils widely dilated, and urine and faeces passed involuntarily. There was very slight rigidity of the back and neck muscles and at times there was nystagmus of a slow rotatory type. There was some bronchitis. The temperature was 103°; the pulse (100) varied greatly in quality, at times being full and strong, at others weak and thready. The urine was normal.

Next day the coma seemed deeper, and there was definite rigidity of the neck. There was no vomiting and the optic discs appeared normal. After lumbar puncture the child could be roused by strong stimuli. Next afternoon he was seen by Dr. Beaumont of Wimpole Street, who removed about 5 ounces of perfectly clear cerebro-spinal fluid under enormous pressure. ^{on} showed this to be sterile, and cells

improved for thirty-six hours, but on March 22nd he was again deeply comatose, and the chest full of moist râles; he was apparently drowning in his own secretions; 2 ounces of cerebro-spinal fluid were removed, still under increased pressure, and after the child had been fed by stomach tube he was placed on his face for the rest of the day with the foot of the bed raised; a considerable quantity of mucus drained away from the lungs. The next day the breathing was much easier and he could be roused, but as there was still great rigidity of the neck another ounce of cerebro-spinal fluid was removed, and immediately he was able to swallow for the first time for six days. The improvement was maintained, and the next day, when the last lumbar puncture was done (half an ounce being removed), he showed resistance. Convalescence was rapid, but he became so irritable and restless that three days later he was transferred to a nursing home, from which he was discharged quite well a week later. As there was a vague history of a possible fracture-dislocation of the cervical region of the spine three years previously he was x-rayed, but nothing abnormal was found. He has remained perfectly well since. The case seems to have been one of serous and not tuberculous meningitis, as we provisionally diagnosed.

Peacehaven.

DOROTHY M. ANDERSON, M.D., D.P.H.

TREATMENT OF YAWS BY NOVARSENOBILLON.

DURING the past year, when stationed in Nigeria, West Africa, where yaws abounds and also large ganglia on the hands, I have treated successfully many cases of yaws, some of them serious, with injections of novarsenobillon, and have been struck with the rapidity of recovery—generally in four or six days, and after one injection.

One patient had large ganglia on the back of the hand, and as the yaws disappeared so did the ganglia, and did not return. When I last saw him, ten months afterwards, there was no sign of either yaws or ganglia. Another case of ganglia on both hands without yaws received one injection and in less than a fortnight was completely relieved of both pain and swelling.

I have used this drug also in contracted tendons, and one patient, who had complete contraction of both knees and was quite unable to walk, recovered complete use of his legs and was doing his ordinary farming after two months. He received two injections.

J. C. FRANKLIN,
West African Medical Service.

ACUTE INTUSSUSCEPTION SUCCESSFULLY TREATED BY RECTAL INFLATION.

THE treatment of acute intussusception by inflation with air by the rectum receives such scant notice in any of the textbooks to which I have referred that it will be worth while to record the following case.

A male child, aged 9 months, perfectly healthy, was suddenly seized with acute pain and vomiting at 11 a.m. on April 2nd. I saw him at 12.30 p.m. He was evidently suffering from paroxysms of severe abdominal pain, as evidenced by the drawing up of his legs and loud screaming, at intervals of a few minutes; his colour was ashen, and he showed the ordinary symptoms of severe shock. The abdomen was quite soft, and he only showed signs of tenderness on palpating the right side; by the rectum nothing abnormal could be felt. Acute intussusception was considered to be the cause of the trouble. At 2 p.m. an anaesthetic was given, and a sausage-shaped tumour extending across the abdomen from the right side, above the umbilicus, could then be distinctly felt. With an ordinary Higginson syringe air was injected slowly into the rectum, until the abdomen was appreciably distended, care being taken to prevent the air escaping by the side of the nozzle of the syringe. The syringe was withdrawn, and a cigarette-holder, the nearest available and suitable article in the house, was inserted into the rectum, to allow of the escape of the air. On examining the abdomen after this had been done, no sign of a tumour could be felt. Half a pint of warm soap and water was now injected into the rectum, and

was returned accompanied by a quantity of blood and mucus. The child, on coming round from the anaesthetic, was apparently much easier and free from pain, and soon went off to sleep. There was no return of the pain or vomiting; a quantity of blood and mucus was passed during the next twenty-four hours, with some faecal matter, and by the end of the second day the baby was taking his usual feeds again.

This case serves to show the importance of administering an anaesthetic for the purpose of diagnosis in suspected acute abdominal conditions in infants and children, and also that in cases of acute intussusception, taken in hand sufficiently early, we have a simple and efficient means, especially in remote country districts, of treating a dangerous and often fatal condition, without resorting to a major surgical operation.

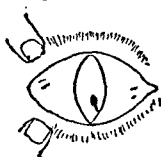
BERNARD S. HOLLICK, M.R.C.S., L.R.C.P.

Sturminster Newton, Dorset.

OCULAR MALFORMATION.

THE following cases must be so extremely rare, I think, as to merit their being recorded.

A Tamil woman from a neighbouring rubber estate brought her three children to me to be treated for worms. The mother and a female child, aged 8 years, presented the following interesting ocular conditions. In both: (1) Both corneae were almond-shaped, with the long axis placed vertically. (2) The pupils were pear-shaped, apex downwards, situated eccentrically in the lower nasal quadrant of the cornea. The apex was at the periphery of the cornea at 7 o'clock in the left eye (5 o'clock in the right). The rest of the pupil lay along a line from this point towards the mid-point of the cornea, and extended about two-thirds of this distance. They were equal on each side.



(3) They did not react to light stimulus, either direct or consensual. (4) They reacted slightly and slowly with convergence (only noted in the mother's case).

(5) They dilated well with mydriatics, retaining their pear shape. Vision was good, except in the case of the child's left eye, where it was somewhat impaired by a few small white opacities in the lens. Ophthalmoscopic examination revealed normal discs. I could not make out the macular regions definitely. The child's eyes were in a state of constant lateral nystagmus. Its intelligence seemed average.

A second child, aged 9 years, which was being carried in arms, was an emaciated and very undersized little girl, cyanotic and dyspnoeic, with well marked clubbing of the fingers. Examination revealed a congenital malformation of the heart. Her eyes were normal.

The third child, aged 6, a bright, intelligent boy, with normal eyes, and apparently normal in every way, completed a very interesting family.

No history or evidence of syphilis was obtained in the mother's case, and none of her children showed any of the usual stigmata of the congenital variety.

C. F. ASHEY, M.R.C.S., L.R.C.P.,

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TWISTED OVARIAN PEDICLE IN A CHILD.

A girl, aged 4½ years, complained of severe pain in the lower part of the abdomen about 3 p.m. on April 4th, 1926. The pain came on at intervals and got worse. I saw her for the first time at 10 p.m. on the following day and made a diagnosis of an acute abdominal condition. She was taken to hospital that night and operated upon. At the operation a twisted ovarian cyst of the left side was found. The pedicle showed three turns clockwise. The ovarian cyst weighed 11 oz.

The child made an uneventful recovery and left hospital on April 24th.

Penrhinwceiber, Glamorgan.

J. MORRIS, M.B.

GANGRENE IN THE NEWBORN.

THE article by Dr. W. R. Grove on gangrene in an infant, published in the JOURNAL of April 24th (p. 738), has been the means of other cases of this very rare condition being recorded—in one instance twins were affected.

I delivered Mrs. T. on March 26th, 1925, of twin girls. Within forty-eight hours of birth the toes and fingers, in varying degrees, of both infants showed signs of gangrene. Both were puny and premature. One died before the gangrenous portions separated, but the other in due course of time lost several toes and fingers (including the phalanges of the big toe of one foot) and is now a very large and bonny baby.

L. W. HEFFERMAN, M.R.C.S.

Reports of Societies.

RESISTANCE TO INFECTIOUS DISEASES.

At a meeting of the Edinburgh Medico-Chirurgical Society, held in the Hall of the British Medical Association Scottish Headquarters on May 5th, with the President, Professor RUSSELL, in the chair, Dr. A. JAMES read a paper on the power of resistance to infectious diseases.

Dr. James said that in the development of disease two factors were at work—the virulence of the infection and the resistance of the patient, or the store of constitutional strength and fitness in relation to environment possessed by the individual. He wished to consider the second factor with reference to infectious disease; it was quite obvious that a good constitution was not enough, for a strong, healthy man from the country might quickly succumb to an infection received in a town. A child brought up in a town might resist certain infections, and the question to be considered was: Did this power of resistance to one particular infectious disease operate against other infectious diseases, and if so, to what extent? In order to study this Dr. James had collected 918 cases of scarlet fever, 610 cases of diphtheria, 238 cases of measles, and 111 cases of diphtheria carriers, all over 6 years of age, and examined their histories. The infectious diseases of 1,000 school children were also studied and the results tabulated. His tabulation showed that the proportion of those who had had no previous infectious disease was high in measles and low in diphtheria. Since measles was a very common disease this might seem to show that those who could resist measles could resist other diseases better than their fellows. To study constitutional fitness the cases were divided according to their severity into two groups and the number of previous infectious diseases recorded for each group. Of 918 cases of scarlet fever, 877 were mild or moderate, 41 severe and fatal. In the group of mild cases the number of previous infectious diseases was 1.73 and for the severe cases 2.12. Furthermore, in the second group there was no case without a history of previous infectious disease. Other diseases gave similar results. Dr. James described a case to illustrate the particular susceptibility of certain individuals. A boy, aged 7, was admitted to hospital suffering from measles; he contracted successively diphtheria, scarlet fever, and chicken-pox, while all the others in the wards he visited remained free. The speaker suggested that if one generation received adequate medical treatment there should be less needed in the succeeding generation. The figures showing that the demands for hospital beds had risen out of all proportion to the increase of the population proved that this was not so. Dr. James suggested that the doctor was not to be blamed for this, but rather the politician in his eagerness to correct the tardiness of Providence in improving the health of the community.

The Tuberculous Diathesis.

Dr. C. McNEIL said that the term "tuberculosis" was of recent origin, and dated from the time of Laënnec; it included glandular and pulmonary tuberculosis, which types were described as scrofula and phthisis in the days of Greek medicine. It was curious that the idea of "constitution" was associated with scrofula and phthisis from the earliest time, and its present survival was the direct tradition from the Hippocratic doctrine of a phlegmatic humour or disposition. In the Middle Ages scrofula appeared under a new guise as "the king's evil," and for a period of nearly 800 years the cure of scrofula by the royal touch was practised by the kings of France and England. In the early period of Greek and Latin medicine scrofula and phthisis were not associated with one another, though in each the doctrine of a "constitution" was taught. But with the revival of a scientific study of medicine, and notably by Cullen, who definitely proclaimed a kinship between scrofula and phthisis, an approximation between these two great clinical types of tuberculosis developed. Laënnec's doctrine of the tubercle as the cause of phthisis was a further and very important stage in progress (1820). But the doctrine of constitution, and especially of a scrofulous constitution, still dominated

medical thought, this constitution being regarded as the direct cause of the manifestations of scrofula and phthisis; the idea of contagion in phthisis was deliberately rejected by Cullen, Laënnec, and even as late as 1875 by Watson. With the discovery of the tubercle bacillus by Koch (1882) the identity of scrofula and phthisis was established, Laënnec's doctrine of the tubercle was vindicated, and the word "tuberculosis" became supreme. Scrofula fell at once from its high position, and had gradually disappeared from the everyday vocabulary of medicine. It was now, indeed, an obsolete and almost forgotten word, surviving merely in such forms as the scrofulous child, scrofulous conjunctivitis and keratitis, and scrofuloderma. The theory of constitution in tuberculosis persisted after Koch's discovery in the changed form of an hereditary predisposition or tendency, but even so had steadily receded. The recent investigations of Bernard showing that the children of tuberculous parents, if protected from infection, did not contract the disease, and showed fully average health and vigour, had supplied further important evidence against it. But the idea of a scrofulous constitution still survived, especially in Germany, in connexion with certain types of tuberculosis in childhood, gland and bone tuberculosis, and those obstinate relapsing catarrhs of the eyes called scrofulous and strumous. It was taught (Heubner, Czerny, Escherich, Moro) that in such cases tuberculous infection was associated with an abnormal constitution, lymphatism, or status lymphaticus, and that in them the tuberculin reactions were unusually severe. Slides were shown illustrating the stigmata of the scrofulous child, the occurrence of severe tuberculin reactions in scrofulous conjunctivitis, and the morbid anatomy of status lymphaticus. Thyroid hyperplasia was shown to accompany the lymphoid hyperplasia in status lymphaticus, and was claimed to be an essential part of its morbid anatomy; if this were established the morbid anatomy of status lymphaticus in the child was comparable with that of exophthalmic goitre in the adult. These facts supplied some anatomical evidence of the existence of an abnormal constitution in certain cases of tuberculosis in childhood, but this abnormal constitution was independent of tuberculous infection, for it was also found along with, and probably explained, certain rare fulminant types of many other infections in childhood such as pneumonia, scarlet fever, measles, chicken-pox. The suggestion was made that this abnormal constitution in the child termed "status lymphaticus" might be the counterpart of exophthalmic goitre in the adult, both being dependent upon some unknown disorder of general metabolism. Whether this view was right or not, there was no evidence for the very ancient doctrine of an abnormal constitution, or diathesis, peculiar to tuberculosis. If the old word "scrofula" were to be retained in medicine it should only signify glandular tuberculosis, which was a definite and important phase of tuberculous infection in childhood, and should not imply any idea of constitution.

SANOCRY SIN IN TUBERCULOSIS.

At a meeting of the Royal Medico-Chirurgical Society of Glasgow on April 9th, Professor JOHN H. TEACHER in the chair, Dr. MARY F. NANNETTI read a paper on the use of sanocrysin in the treatment of pulmonary tuberculosis.

Dr. Nannetti explained that owing to the nature of the tubercle bacillus, and the small amount of tuberculous tissue in blood vessels, a chemical substance introduced into the blood must diffuse a long way to reach the interior of the tubercle. Professor Moellgaard of Copenhagen, after much experimental work, had claimed that sanocrysin complied with the necessary conditions for the treatment of tuberculosis. For effective therapeutic action an agent must be soluble and quickly diffusible, and provide an adequate margin between the dose which killed the bacillus and that which was poisonous to the infected person. It must be stable, and decompose very slowly in the organism except when attached to the bacillus. Chemical compounds are not found in any amounts which are poisonous to the organism. After describing the chemical and physical properties of sanocrysin Dr. Nannetti stated that this

salt penetrated the lipoid substance of the tubercle bacillus, and carried gold into its body, killing and dissolving it with an immunizing effect. If the antigen liberated was very toxic or liberated in too large amounts, or if the patient had not the power to build up antibodies, injection of sanocrysin caused severe toxæmia. Formerly serum prepared from animals injected with an emulsion of formalin-treated defatted bacilli was given as an antidote; it was now used to combat shock, and as a prophylactic in advanced disease. The most suitable type of case for sanocrysin treatment was the exudative—that is, the recent caseous pneumonic type with nodular foci breaking down with cavity formation, and presenting a woolly flocculent appearance when examined by x rays. In these cases the results of treatment were sometimes very striking. In the chronic type with fibrous tissue and production of real tubercles, the gold salt could not penetrate easily; it was of service in clearing up any coexistent active foci. In the early days of sanocrysin too large doses were given—a half to one gram—and fever, albuminuria, rashes, anorexia, and other complications followed. Since 1925 Dr. Gravesen of Vejleford Sanatorium, Denmark, had begun with much smaller doses—one-fifth gram, rising gradually to one or one and a half grams; a hypodermic of caffeine was given after every dose of sanocrysin. Digalen was given in some sanatoriums in England instead. The temperature was taken four-hourly or more often, the urine was tested daily for albumin, the sputum examined weekly for tubercle bacilli, and the patient was kept in bed. After one course of injections the patient continued ordinary sanatorium treatment without sanocrysin for about six weeks. A second course of injections was often required to allow the gold salt to reach those bacilli which were protected by fibrous tissue. The dangers to be guarded against were: shock, which was treated by intravenous injections of 20 c.cm. of serum and cardiac stimulants; fever, due to too short intervals between the doses; albuminuria, which disappeared when sanocrysin administration was suspended; temporary loss of weight; exanthema of all degrees; and local reactions in the lungs. In suitable cases the results were often highly satisfactory; the general condition improved, the temperature showed a more regular curve, the feeling of tiredness disappeared, moist râles cleared up or became dry and crepitant, while the number of tubercle bacilli decreased and gradually vanished. After subcutaneous injection there was apt to be a focal reaction and formation of abscess.

PREGNANCY COMPLICATED BY POLYCYSTIC DISEASE OF THE KIDNEYS.

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on April 30th, the President, Dr. D. G. MADILL, in the chair, Dr. J. S. QUINN gave an account of a case of polycystic disease of the kidneys complicating pregnancy. The clinical details were as follows.

The patient was a 5-para, aged 35; she had been married for twelve years, and came in February, 1925, with a history of three months' amenorrhoea. She said she had had albuminuria in all the pregnancies except the first, and that in the last pregnancy, three years before, she had been very seriously ill, the infant being born spontaneously at seven months. On examination her urine was found to be free from albumin, and, apart from restricting her diet and ensuring a regular daily action of the bowels, no more active treatment was considered necessary. A fortnight later she complained of some bleeding with considerable discomfort and bearing down, as well as great frequency and difficulty in micturition. There was still no albumin in the urine, but vaginal examination revealed an ulcerated and oedematous cervix protruding from the vagina, with a retroverted fundus enlarged to correspond with the length of pregnancy (three and a half months). Two large tumours were easily palpable—one on each side of the lower abdomen: the one on the right was globular and cystic, the size of a melon, and quite freely mobile in all directions. On the left side a hard irregular mass with a limited range of mobility appeared to arise in the region of the pelvic brim, and extended upwards and laterally to the costal margin. No pain or discomfort was felt other than that due to the prolapse of the uterus. The uterus was replaced in position and a pessary inserted to retain the cervix at its normal level, and allow of a reduction of the swelling and oedema of the tissues. A diagnosis of double ovarian tumour was made, but it was decided to postpone operation on account of the possibility of a miscarriage, the septic condition of the cervix, and because it was considered that there would be less chance of interrupting

the pregnancy at a later date if double ovariectomy had to be performed.

The patient was kept under observation for the next four weeks, during which time the haemorrhage ceased, and the pregnancy appeared to be continuing on normal lines. There was no albuminuria at any time. However, she began to complain of pain in each flank, and the tumours, which up to this had been palpable without discomfort, now caused her considerable pain when handled. Eventually these attacks became more frequent, more severe, and as she was now four and a half months pregnant an operation was performed. The enlarged fundus was found lying in the normal mid-line position, with two large retroperitoneal cystic masses—one on each side. The left tumour consisted of a cyst, the size of a melon, resting on a bed of much smaller cysts, which sprang from the lower pole of the left kidney. The remainder of the renal tissue on this side was dotted with countless minute cysts, and the rest of the organ was considerably enlarged. The base of the tumour, consisting of the lower pole of the kidney, was cut across, the cyst removed and the raw area oversewn to control bleeding; the suture line was covered with a pad of the surrounding fat. The right kidney was completely disorganized, and consisted solely of grape-like cysts, no kidney tissue being evident to the naked eye. Some of the cysts were haemorrhagic, and it was decided to remove the entire mass. This was done and a tube brought out to the right loin, through a small incision in the posterior wall. The peritoneum was closed on each side, and the pregnancy was then terminated by an incision through the fundus, the ovum being removed, and the uterine incision sutured as in a Caesarean section. The tubes were finally tied and cut, and the abdomen closed.

The patient did quite well, and was passing normal quantities of urine within twenty-four hours; at no time during convalescence did her condition give rise to any anxiety. Her condition since operation had been quite good, and she had been free from any pain or discomfort. Her blood pressure was 205 and she was passing a very slightly increased amount of urine, of specific gravity 1014.

Dr. Quin said that the condition was progressive, and would eventually terminate in uraemia, but he thought that this result might possibly have been postponed by the treatment adopted.

The PRESIDENT said that he had never heard of a case of double polycystic kidneys in which the kidneys were so large as those described. He did not understand why an operation was not decided upon immediately the tumours had been felt.

Dr. QUIN, replying, said that when the condition was diagnosed the cervix was septic, oedematous, and ulcerated, and there was a certain amount of bleeding. It seemed possible that the pregnancy would have terminated spontaneously. He at first had diagnosed the case as one of ovarian tumour. Pain had only started after the fourth month, and there was less chance of pregnancy terminating after removal of both ovaries when the fourth month was past.

Abdominal Fibroma.

Dr. LOUIS CASSIDY showed a specimen of fibroma of the anterior abdominal wall. The patient, a woman of 40, had been six years married, had had no abortions, and her last pregnancy had occurred six months before admission to hospital. Menstruation since then had been normal. She had a swelling on the left side below the umbilicus, the nature of which it was difficult to determine. The pelvic contents were normal. It was decided to perform an exploratory laparotomy in order to determine the nature of the tumour. A large solid mass covered with peritoneum was found.

The PRESIDENT asked whether the growth was a fibroma or a fibromyoma. The former might grow anywhere, but it was very rare to find a fibromyoma growing in the abdominal wall, although he had seen one growing in the vagina.

Dr. BETHEL SOLOMONS asked what the exact extent of the tumour was; this might be a help in finding out the possible origin of the tumour.

Dr. D. J. CANNON said that tumours of this kind were occasionally met with in children. He had found one recently in a child aged 5, and six months later the same child was brought back to him with a pelvic tumour growing from the bladder, and containing involuntary muscle.

Dr. CASSIDY said that the tumour was entirely embedded in the abdominal wall; sections had been cut, and it had been found to be a fibromyoma. The tumour had grown within six months, and the patient had had no pain or discomfort whatsoever. It was only the size of the tumour which led her to go to hospital.

Reviews.

THE HISTORY OF PEDIATRICS.

THE once neglected subject of the history of medicine has been studied in this country more and more since the formation of a section devoted to it in the Royal Society of Medicine, and recent publications have shown that it is arousing more and more interest in the United States. Conspicuous among those who have written about it are Dr. FIELDING H. GARRISON and Dr. JOHN RUHRÄH, of whom the former has written an introduction to the work of the latter now under notice. Dr. Ruhräh wisely calls his book *Pediatrics of the Past*,¹ for had he entitled it "Pediatrists" some might have found fault with his definitions, since many of the authors noticed by him were by no means specialists; and their interest in the treatment of diseases and injuries of childhood was not great. But every clinician must at some time have had child patients, and nearly every medical author must have something to say about them. Therefore these two score or so of biographical sketches, together with some other essays on ancient medicine, are fitly named by their author.

Beginning, of course, with Hippocrates, in whose pages, as in those of Shakespeare, enthusiasts can find the whole of medicine and surgery, Dr. Ruhräh goes on to Soranus Ephesus, who is now thought by good authorities to have described rickets in the second century after Christ, and then introduces us to some of the worthies who are well-nigh forgotten, but who deserve to be quoted even for their mistakes as well as for their wisdom, and whose fates should suggest to us that many contemporary verdicts are liable to reversal by the High Court of Posterity. The author does well to claim a place in the medical Valhalla for Thomas Phaer (1510?-1560) as the author of the first book on pediatrics in the English language, although it is more as a translator than as an original contributor to the stock of knowledge that he can claim to be remembered. How many readers of this review have heard of his translation into English verse of "The XIII (sic) Bookes of Æneidos"? The *Dictionary of National Biography*, to which Dr. Ruhräh owes more than he sometimes acknowledges, tells us that Phaer only lived to translate rather more than nine of the *Æneids*.

Felix Würtz of Basle (1518-1574) was a far more notable pediatricist on the surgical side, and one of the earliest orthopaedic surgeons. His work was translated by Abraham Leuzert Fox, who appears to have been a Dutchman. But Würtz, although he claims to have cured club-feet and other deformities with splints and plaisters, and gives very sensible general advice, does not descend to such particulars as would enable us to judge of his knowledge and skill in orthopaedics.

The quotations from Pemell, who wrote during the Commonwealth, are instructive, but we are quite at a loss to guess what king is meant by "Good King Charlie," who is referred to thus between quotation marks. We have never heard any British monarch thus alluded to. Among the quotations from the Swedish physician Rosenstein (1706-1773) it is surprising to find one headed "Diphtheria." We are under the impression that this name for what had been before described as "putrid sore throat" was the invention of Bretonneau some half-century later, who, by the by, surely deserved some notice as a pediatricist. We appreciate the difficulties which Dr. Ruhräh must have met in selecting the subjects of his biographical sketches, but we cannot quite understand on what principle Richard Wiseman is included, while Andry and the describer of Little's disease are left out.

The scope of such a work does not admit of originality, and much of the information about the better known authors contained in it is somewhat hackneyed; but the amount of industry and patience required to produce such a book claims our admiration, and the profession is in debt to Dr. Ruhräh for making some of the less known writers

¹ *Pediatrics of the Past*. An Anthology compiled and edited by John Ruhräh, M.D. With a Foreword by Fielding H. Garrison, M.D. New York: P. B. Hoeber, Inc. 1925. (Roy. 8vo, pp. xxv + 592; illustrated. 10.10 dollars.)

accessible. If we may seek for blemishes, which might be removed in those future editions which are sure to be needed, we would remark that the provenance of the portraits might be indicated more completely and generally, and that the many photographic reproductions of title-pages, etc., would be far more acceptable were they printed upon a smooth-surfaced paper. The rough paper which admirably suits the text gives only blurred reproductions of these photographs, and the result is to convey a quite false idea of the merits of the typographers of the sixteenth to the eighteenth centuries.

A curious error is to be found at page 276, where two pages—one of the text and one of figures—from Mayow's *Tractatus Duo* are reproduced in facsimile as being taken from Glisson's *De Rachitide*. This is the more remarkable in that an appreciative article on Mayow follows at pages 341 et seq. It should be stated that the frontispiece facing page 258 does not appear in the original edition of Glisson's treatise, but in the third edition published in Holland. We are jealous of the full glory of Whistler's "alphabetical procession" Paedospianchnosteocaces, which Dr. Ruhrah has docked of its fair proportions by omitting four letters from the midst of it.

We notice some printer's errors. On page 255 *Aiken* should be *Aikin*, as it is correctly printed on the preceding page. On page 334 "Cundle in Northampton" should probably be "Oundle" in that county.

DISEASES OF THE DIGESTIVE ORGANS.

IN the sixth series of his *Leçons de pathologie digestive*,* Dr. MAURICE LOEPER publishes eighteen lectures delivered at the Tenon Hospital, Paris, on various points connected with diseases of the stomach and liver. The first three deal with gastric leucopidesis or the passage of haemic leucocytes into the gastric contents; this, he considers, exerts both enzyme (proteolytic, amylolytic, and lipasic) and protective (bacteriolytic and antitoxic) functions, for he believes that anaphylaxis depends, at least in part, on the absence or insufficiency of this leucocytic migration. Various eruptions (erythema, eczema, urticaria, and angioneurotic oedema) may thus result, and as remedies small quantities of peptone, atropine, and sugar are recommended. In gastric cancer the leucocytic diapedesis is usually exaggerated, whereas in peptic ulcer it is below normal. In a systematic review of gastric syphilis he describes several forms: that with haematemesis simulating peptic ulcer but with hypochlorhydria and lymphocytes in the gastric contents (of this he has seen four examples); that resembling gastritis; with a definite tumour which rapidly disappears on specific treatment; and the stenosing form which may produce an hour-glass stomach or narrowing of the cardiac or pyloric orifices; but another article mentions the rarity of syphilitic bilocular stomach and the great preponderance of simple ulcer in the hour-glass stomach, which, he says, is most often to be observed in women. The possible relation of syphilis to the simple round ulcer is discussed, but the difficulties of coming to a positive conclusion are recognized and set out. In the chapter on gastroneuritis Dr. Loeper returns to a subject which he has previously elucidated in lectures given in 1919 and 1922, showing that nerves may be implicated in the cicatricial tissue of ulcer and by carcinoma. In this lecture a neuroma of Auerbach's plexus in a case of painful ulcer and carcinomatous infiltration of the vagus are figured. There is a full discussion of subcutaneous metastases in visceral carcinoma—a rare event—and a case primary in the stomach is recorded; it appears that gastric cancer heads the list in producing metastases, and Loeper regards the spread as haemic and not lymphatic, thus differing from Mr. Sampson Handley, whom he does not quote. The dyspepsia associated with erythraemia is discussed, and then follow lectures on haematoma of the rectus abdominis muscle in hepatic disease, on methods of reducing the cholesterol content of the blood, and on the treatment of gall stones and infection of the biliary tract

* *Leçons de pathologie digestive*. Par M. Loeper. (Sixième Série.) Paris: Masson et Cie. 1925. (Demy 8vo, pp. xi + 274; 47 figures. 22 fr.)

by diet and one fasting day a week. These lectures are stimulating, and are obviously the outcome of much clinical observation and thought.

ASTHMA.

DR. JAMES ADAM has not only added a book to the voluminous literature of asthma, but, what is more, he has produced a second edition.³ The thesis he put forward in his first edition some thirteen years ago was that asthma resulted from two factors—a toxæmia and a lesion in the respiratory tract, most often in the nose. This view he still supports and elaborates at length in his new edition, laying great emphasis on the toxæmia. In the interval between the two editions the theory of anaphylaxis in its relation to asthma has been the subject, not only of much brilliant speculation, but also of laborious and painful research, but Dr. Adam sweeps aside those who have been so engaged under the scornful name of "anaphylactophilists." For Dr. Adam the toxæmia is the underlying basal cause which renders the subjects sensitive in a variety of ways, so that anaphylaxis has been given an exaggerated importance, and if this toxæmia and the nose are appropriately treated what he calls the "vulnerance" is abolished.

The chief sources of toxæmia are, he holds, nasal, oral, and intestinal sepsis, but above all the last, so that dietetic treatment forms the principal weapon in his therapeutic armoury. Unfortunately, Dr. Adam uses the word "toxæmia" very vaguely and still more frequently. It is to be found on almost every page, and the reader inevitably calls to mind that blessed word Mesopotamia, which is credited with having brought much comfort to a certain old lady. The author can scarcely claim to have added anything to our scientific knowledge of the pathology of asthma. The views which he puts forward in a forcible if somewhat intolerant style are based on long and large clinical experience, but they are too indefinite for him to expect them to be received at the present time with an unhesitating and whole-hearted welcome. If his views are clear, then he lacks clarity of expression; for the reader, after reading, for example, pages 103 and 109, is left wondering what he believes is the true relationship between asthma and hay fever.

Putting aside, however, vagueness in the mere theoretical aspects of the subject, it is evident that the writer has studied a large number of cases, following them up over a long period of years with great clinical acumen. In his directions for the treatment and general management of cases of asthma—one of the bugbears of the practitioner—Dr. Adam displays a store of valuable experience and practical observation. Those at whose disposal he has placed this record of patient clinical research should be deeply grateful.

BIOLOGICAL PHYSICS AND CHEMISTRY.

PHYSICAL chemistry has come into biology to stay. If we had any doubts of the reality of this invasion they would surely be dispelled by the number and the authority of the writers who are attempting in comprehensive treatises to point the new way. The latest attempt is represented by *Physical Chemistry in Biology and Medicine*,⁴ written from the Minnesota Medical School by Professor J. F. McCLENDON and his associate, Dr. GRACE MEDES. It is not the least ambitious, though by no means the most comprehensive, of its kind. Indeed, its method is sufficiently distinct to make it difficult to appraise by comparison.

The first part of the book deals with the physico-chemistry of atomic structure, the colloidal particle, osmotic and surface forces, and electrolytic dissociation. Only the latter is adequate and self-contained, the treatment of the other subjects consisting of little more than bald definitions of the fundamental principles involved.

³ *Asthma and its Radical Treatment*. By James Adam, M.A., M.D., C.M. Second edition, revised and enlarged. London: Henry Kimpton. 1926. (Demy 8vo, pp. vii + 224; 2 figures. 10s. 6d. net.)

⁴ *Physical Chemistry in Biology and Medicine*. By J. F. McClendon, Ph.D., and Grace Medes, Ph.D. Philadelphia and London: W. B. Saunders Company. 1925. (Demy 8vo, pp. 425; 34 figures. 21s. net.)

Part II develops the significance to biology of some of the principles defined in the first part. Here we derived greatest satisfaction from the discussions of the ionic equilibrium of the blood and of some of the problems of permeability. The treatment of such subjects as the relation of atomic structure to physiological action, thermochemistry in the body, colloids in organisms, secretion, oedema, and the relation of surfaces to vital phenomena offered much that was of interest, but was on the whole inadequate and somewhat unbalanced. Where space has been so ruthlessly economized the authors should have been at particular pains to prevent their personal interests usurping an amount of attention out of proportion to the perspective of the whole subject. Such matters as the hydrogen ion concentration of the soil and of the sea are special problems demanding no extensive treatment in a treatise of this sort. Medicine receives little direct attention—wisely, we think, for its problems also are special problems—though acidosis, gastric secretion, anaesthesia, and the relation of calcium to epilepsy are touched on.

The work has been nobly conceived, but it must be acknowledged that the authors fail frequently to drive home both the fundamental principles and the implications to biology. The explanation is not far to seek. One-third of the 390 pages are devoted to sectional bibliographies embracing references to over 1,700 authors. Many of the chapters occupy little more space than the bibliography, to which they are in truth but prefatory notes. Now it may be argued that this is a sound method, but in the present case it is contended that it would be justified only if the introduction were to a critically selected literature and if the reader were constantly guided through the literature by a physical argument whose biological implications were made very plain. If you would persuade your reader into mathematical and physical ways of thought you must treat him very gently, else you will scare him from the field. While this book does not achieve all that we would ask of one bearing its title, and while we feel that it has fallen short also of the authors' own intention, it nevertheless offers much of value to the diligent student, particularly to him who can use judiciously the extensive bibliography.

The biochemical department of the Harvard Medical School has performed a very particular service to physiology and to experimental medicine. Under the enthusiastic guidance of Dr. OTTO FOLIN there has been developed a comprehensive series of analytical methods adapted to biochemical purposes, which have found wide favour in European laboratories as well as in those of the United States. Dr. Folin's *Laboratory Manual of Biological Chemistry* needs no introduction to these laboratories, so that the service of the reviewer of a new edition¹ is performed when he has passed on the information of a revision and extension of a book which has proved its own usefulness. The present edition is marked, apart from the clarification of certain passages, by the introduction of improvements in the methods for phosphates, uric acid, and sugar. In form the book represents the course in biological chemistry given in the Harvard Medical School. As such it is open to argument that the emphasis upon analytical methods has distorted the true perspective of the subject. But in substance the book is a manual of a system of blood and urinary analysis which is in wide use. Such methods as are not taught to the author's students are introduced into a supplement, and the supplement forms more than one-third of the whole volume! It is to the laboratory rather than to the teacher that this book will appeal.

The first point which must be explained about Dr. ALFRED J. LOTKA's *Elements of Physical Biology*² is what is meant by the title. The term "biophysics" should, the author thinks, be used to denote that branch of science which treats of the physics of individual life processes as exhibited in the individual organism—for example, the conduction of an impulse along nerve or muscle. The term

"physical biology" is used by him to denote the broader field of the application of physical principles in the study of life-bearing systems as a whole. Thus in this sense physical biology includes biophysics as a subordinate province. The province of physical biology, on the other hand, is practically unlimited, since it embraces all the phenomena of life.

The book is divided into four parts, headed general principles, kinetics, statics, and dynamics. Almost every subject that is dealt with is discussed from the mathematical point of view, and in many sections only the trained statistician will find himself at ease. An amazingly varied selection of material is analysed by the author, so that any scientifically minded reader with a mathematical bias is likely to find something to interest him somewhere in the book.

REFLECTIONS OF A FRENCH MEDICAL OFFICER ON THE GREAT WAR.

Dr. LOUIS BARRAS is a student of psycho-physiological problems the vigour of whose literary style is beginning to attract a considerable amount of attention in France. His *Souvenirs* of the great war, or, as he calls it, the greatest war,³ are a series of historical and psychological reflections written during his service with a regiment and with a field ambulance. He purports to lift the mask off realities, bare the souls of those who took part in the war, and fix on the pages of his book situations which he describes as more extraordinary than the most creative imagination has ever been able to conceive. He lived the life of the soldier in the trenches, in billets, and in rest stations. His descriptions are intensely realistic, and his pictures of horrors, drawn with the mind and eye of a doctor, are reminiscent of the writings of Barbusse and Philip Gibbs. The volume is in two parts, the first being a series of nine word-pictures of incidents in the life in the front line of a medical officer, named Auguste, together with reflections on the scenes which passed before his eyes. In the second part Dr. Barras, still in the character of Auguste, indulges in psychological commentaries on the soldier, his chiefs, various political and other influences, national characteristics, and love.

In the opening chapters he describes how his battalion at the beginning of the war crossed the frontier into Lorraine, where his poetic sense was stirred by the beauty of the fields, forests, and rivers, the freshness of the air, the red roofs of the houses, and the music of the village bells. He came from the south, and the landscapes of Lorraine were new to him. Then follow vivid descriptions of the life in the trenches, during battle, and in rest billets. We live with Auguste through all the vicissitudes of war, share his dug-out, work in his aid posts, relish such comforts of food and wine as come his way, and sink into the luxury of a good bed when the battalion is withdrawn from the line for its four days' rest. The scene shifts from Lorraine to the north. Villers-Cotterets, Compiègne, the forests, chateaux, and parks of Picardy and Artois pass in review, and then Flanders, with a tale of wine and love in an estaminet at Poperinghe. Auguste's experience with a field ambulance leads him to make some scathing remarks on its commanding officer and the principal medical officer of the division, especially on the former's fear of initiative or taking responsibility, and the latter's bureaucratic spirit in ordering the ambulance to open in a position exposed to hostile fire, and in preventing measures to remove the wounded in it to places of safety. It is all very realistic and intensely interesting reading.

Equally interesting are the three chapters of the second part of the volume. The first contains reflections on men at the head of affairs and others in high positions, the *plurigaonnés* and the *pluriétouillés*, for whom Auguste expresses great contempt. Some were amiable, good fellows, but weak men of the world; others who tried to be strong only displayed provocative brutality. If a man became thoroughly conversant with the duties of his post the

¹ *Laboratory Manual of Biological Chemistry*. By Otto Folin. Fourth edition. New York and London: D. Appleton and Co. 1925. (Demy 8vo, pp. x + 503; 8 figures. 12s. 6d. net.)

² *Elements of Physical Biology*. By Alfred J. Lotka, M.A., D.Sc. Baltimore: Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1925. (Roy. 8vo, pp. xxx + 450; 72 figures. 25s. net.)

³ *Souvenirs d'un Médecin sur la plus grande Guerre*. By Louis Barras. Paris: A. Maloine. 1925. (Imp. 16mo, pp. 206 7.50 fr.)

chances were that he would be sent elsewhere. Confused and contradictory orders emanated from the administrative bureaux. The whole of the chapter is, in fact, a violent attack on those in high places, and on the attitude of the regular army medical officer towards his civilian confrere.

The second chapter contains various comments on military life, and the third reflections on the psychology of the soldier and of the British and the German troops, together with a brief reflection on the psychology of love and the urge of sex relations in war, a subject which many French, and some English writers nowadays, seem incapable of leaving alone. Auguste—that is to say, Dr. Barras—formed a high opinion of the British. He first came into close contact with them in Flanders in October, 1914, and noted how well they understood war and how much they helped the French. They did not waste time, he says, in words—they acted; and he describes instances of this trait in their character, in contrast with that of his own countrymen.

British medical officers who went through the war on the Western Front will live their life over again in reading these souvenirs; they form a wonderfully true and skillfully drawn picture of war. Our medical officers probably had experiences similar to those of Auguste, but it is hoped that their reflections on them are not quite so bitter. We feel, too, that while the author writes on the psychology of others his own psychology must be taken into consideration.

PERSONALITY.

THE author of this book *Personality*⁸ is a practising physician who tells his readers that he has approached the study of the subject from the practical standpoint. He brings to the elucidation of its manifold problems a variety of physiological and psychological observations. Such a study is necessarily hedged around with difficulties. Dr. Gordon has avoided the inadequacy of a purely materialistic interpretation of personality by his adoption of Lloyd Morgan's doctrine of emergent evolution. In discussing, therefore, the physical foundations of personality he does not lose sight of psychological values. Personality he defines as the emergent synthesis of the bodily and mental attributes of the individual in relation to the environment in the most comprehensive sense. The problem of the relationship of body and mind is skillfully handled. Semon's mnemonic laws are utilized in the description of mental and bodily phenomena as the two manifestations of engram activation. The temperamental factor in personality is discussed in the light of the present-day knowledge of endocrine activity.

Dr. Gordon deals at some length with the contributions made to the study of personality by the exponents of the "dynamic psychology." The theories of Freud, Jung, and Adler are carefully outlined and correlated with Semon's mnemonic laws. The author considers that the Freudian school has successfully delineated definite personality types, but he is not prepared to accept the Freudian explanation of their origin. He finds in Jung's classification a more satisfactory delineation. Jung's function types (the thinking, feeling, intuition, and sensation types) and his general attitude types (extrovert and introvert), which are determined by the prevailing function, are well described. It is refreshing to find an author referring to the clarity of Jung's work.

Instability of the personality is discussed in relation to the neurotic and the delinquent. There are chapters on the dissociated personality and the retarded personality; and in conclusion an interesting section in which the spiritual aspects of his study are envisaged.

Dr. Gordon has made a significant contribution to the study of personality, and does not forget that, however painstaking any analysis may be, the core of the problem remains unsolved in the indivisibility and uniqueness of personality.

⁸ *Personality*. By R. G. Gordon, M.D., M.R.C.P.Ed. The International Library of Psychology, Philosophy and Scientific Method. London: Regan Paul, Trench, Trubner and Co., Ltd.; New York: Harcourt, Brace and Co., Inc. 1925. (Demy 8vo, pp. xiv + 302. 10s. 6d. net.)

NOTES ON BOOKS.

Dr. HENRI STÉVENIN's little book on whooping-cough,⁹ which forms the latest contribution to the series entitled *Bibliothèque des connaissances médicales*, edited by Dr. Apert, is divided into seven chapters devoted respectively to the symptoms, varieties of the disease, complications, bacteriology, pathogenesis, prophylaxis, and treatment, preceded by an introduction containing a short historical sketch. Like most practitioners who have had much experience of whooping-cough, the author is convinced that there is no form of treatment which has a constant action on the course of the disease. The book is essentially practical, and can be recommended as an excellent summary of present knowledge of whooping-cough.

The little work on infectious diseases,¹⁰ by Drs. O. HUNTEMÜLLER and H. KLEWE, is a concise guide for students and practitioners, and is not intended to take the place of a textbook. The work contains a general part dealing with notification, microscopical diagnosis, the technique of vaccination and serum therapy, disinfection, and sterilization, and a special part devoted to the various acute and chronic infectious diseases, including not only the common infectious disorders, but also tropical infections, dermatomycoses, contagious eye and ear diseases, and the varieties of helminthiasis. A short bibliography of German works on infectious diseases is appended.

Causeries d'urologie,¹¹ by R. UTEAU, is, as its title suggests, neither a treatise nor a manual on urology. It is rather a collection of axioms, isolated observations, and practical points which the author has found of importance in his work. Like the majority of French textbooks, it is written in concise and epigrammatic language. There is little that is superfluous within its pages, and conflicting opinions, theories, and quotations from different authorities find no place. It is essentially an epitome, and to those wishing to revise rapidly their knowledge of genito-urinary surgery it should be of great use. Only a few essential illustrations have been inserted.

It is not only when driven by showers into the pavilion that cricketers like to look through the records of famous matches of the past. Many of us, even in winter, have enjoyed dipping into a collection of match scores; it is part of the spell exercised by the national game. Such a book is *Oxford v. Cambridge at the Wicket*,¹² compiled by a great Oxford and All-England cricketer, Mr. P. F. WARNER, and another authority on the game, Mr. F. S. ASHLEY-COOPER. It contains the scores of all matches played between the universities from 1827 to 1925, with brief but entertaining notes on each game. The early matches were informal affairs. Any sort of costume was worn; byes and wides often proved top scorer; it was not at all unusual for a player to be "absent" without any stated reason when he should have been helping to save his side; and on one occasion at least "the tent and table were open to all comers." Up to 1850 the matches were sometimes played on one or other of the Oxford grounds; since then they have all been played at Lord's. The volume closes with an index giving the name of every player, with dates of birth and death, and the school from which he was sent to Oxford or Cambridge.

⁹ *La Coqueluche*. Par Dr. Henri Stévenin. *Bibliothèque des connaissances médicales*. Paris: Ernest Flammarion. 1925. (4) x 7 1/2. Pp. 213. 7.50 fr.)

¹⁰ *Die Infektionskrankheiten*. Von Dr. O. Huntemüller und Dr. H. Klewe. München: J. F. Lehmann. 1925. (Cr. 8vo, pp. 140. G.M.3.50; bound, G.M.4.50.)

¹¹ *Causeries d'urologie*. Par R. Uteau. Paris: A. Maloine. 1925. (Imp. 16mo, pp. 312; 24 figures. 15 fr.)

¹² *Oxford v. Cambridge at the Wicket*. By P. F. Warner and F. S. Ashley-Cooper. London: G. Allen and Unwin, Ltd. 1925. (Cr. 8vo, pp. 208. 5s. net.)

PREPARATIONS AND APPLIANCES.

The Tungstone Accumulator.

A NEW accumulator for motor cars and wireless sets, stated to be a British product, British made, has recently been introduced by the Tungstone Accumulator Company (3, St. Bride's House, Salisbury Square, London, E.C.4). To the motorist who is not expert in things electrical the great merit of this battery is the ease with which the plates can be removed from the containers. If the nuts of the main terminals are taken off, the plates, which are attached to the lid of each cell, can be lifted out, and a damaged plate replaced without disturbing the rest of the accumulator. In addition to this, the container of each cell is of seamless, indestructible metal; the die-cast grids and plates can withstand unusual stress; and the paste is very securely fixed into the interlacing holes of the grids. The result is a very strong and powerful battery, which, after prolonged

ill usage in testing, shows no buckling in the plates and no loss of efficiency. The ease and force with which the self-starter controlled by a Tungstone accumulator will turn the engine, even on a cold morning, is certainly remarkable. The only small trouble experienced has been a slight tendency to splashing of acid. To prevent this it is necessary to take great care that the level of the acid is not too high, and that the vent plugs are very securely screwed down.

THE EYE AND EVOLUTION.

PROFESSOR ELLIOT SMITH'S CAVENDISH LECTURE.

THE Cavendish Lecture, under the auspices of the West London Medico-Chirurgical Society, was delivered by Professor G. ELLIOT SMITH, M.D., F.R.S., on May 28th, to a large gathering at Kensington Town Hall. Dr. H. W. ARMSTEAD, president of the society, was in the chair.

Professor Elliot Smith took for his subject "Vision and evolution." He set out to show that the faculty of vision had played the most important part in making possible those achievements which distinguished man from other creatures. It was principally by vision that human beings apprehended the world around them; moreover, it was the visual control of the hands which made possible the art of learning; it was due to vision almost entirely that the mind appreciated beauty in form, colour, and perspective; and vision also played an important part in sexual selection. Very largely by means of vision human beings learned to understand one another. The faculty played a significant part in human behaviour. By watching movements, gestures, facial expressions, and especially the changes in the eye itself, persons learned almost unconsciously to appreciate the distinctive qualities of others, to interpret motives, and to communicate information, understanding, and emotion. The fundamental importance of vision as the foundation upon which man's intellectual superiority was built was found in the texture of the language, witness such expressions as "insight," "foresight," "vision," and "perception," and even some slang expressions illustrated the same thing. Speech itself was really the outcome of this higher visual endowment, for in that stage of evolution when visual discrimination between objects became possible the need arose for an auditory symbolism to express what were thus differentiated to communicate with others.

Among primitive animals, the lecturer continued, smell was the dominating sense. The sense of smell was the means by which the animal began to appreciate continuity of experience—a fundamental factor in existence. Animals learned, on the basis of experience, to anticipate by smell the taste of various foods, and in every animal group smell was depended upon, not only in the search for food, but in the recognition of sexual mates and rivals. But the sense of smell gave no indication of the position in space of the exciting object such as vision provided, and in every group of vertebrate animals there were certain members which specialized in vision, and in consequence became extremely expert along certain lines of activity, though this very specialization restricted their activities or development in a wider respect. Thus ungulate animals, horses for instance, became fleet of foot, having limb and hoof developed for this particular purpose. Carnivorous animals developed a paw equipped for the particular function of seizing their prey. In bats the arm became transformed into a wing, and in marine mammals into a flipper. But while these creatures became expert in particular modes of life they lost their ability to adapt themselves to new needs and conditions.

Certain creatures, however, like the jumping shrews of South Africa, had been able to avoid definite life, and their limbs did not undergo any degree of specialization but retained a primitive structure, with plasticity and adaptability to various purposes. One of these groups of shrew-like animals, as the result of an arboreal existence, lost their dependence upon the sense of smell, while their sense of vision and their muscular agility were enhanced, so that while the brain of the ground shrew showed an enormous olfactory area, and above it

a comparatively small territory concerned with visual, auditory, and tactile impulses, the brain of a similar creature living in trees showed a great reduction in the size of the olfactory area and an enormous expansion of the rest of the brain. As this process continued there was brought into existence the order of primates, to which the lemur, the ape, and man belonged. In this order the significant change was the enormous increase in the visual territory of the brain. This was evident in the lowest creatures of this order—the lemurs and those lemuroid animals, the tarsiers. The tarsier, which still existed, a living fossil, in Borneo and Java, was almost identical in structure with a creature that existed before the beginning of the Tertiary period; it still retains many of the most primitive features of the earliest primates. In the tarsier, for the first time in mammals, vision replaced smell as the dominant sense. The main difference between the tarsier and the monkey was that the monkey had greatly extended the range and precision of the conjugate movements of the eyes, whereas the tarsier had not, but this latter creature had evidently felt the need for such a development, and had compensated for its lack by developing an astonishing range of head and neck movement such as no other mammal possessed. In all vertebrate animals other than mammals the eyes can move independently the one of the other, but in most mammals one eye could not be moved without the other being moved also. But the power to make conjugate movements of wide range and precision began with the monkey, and the lack of it held back the tarsier.

In the monkeys and in man, when these delicate movements were made possible by the special development of the cortex, the macula lutea developed, and the animal thus gained the power of discerning the details of objects, of practising a nicer discrimination between colours and textures, of distinguishing between objects of similar shape which to an animal without a macula was impossible. All this had a profound influence in stimulating the development of the cerebral cortex. The animal had its curiosity excited so that it handled and examined objects, cultivating also in this way its power of skilled movement, guiding its hands with amazing dexterity; its auditory and vocal powers and its tactile capacity also increased, and all this again expressed itself in the structure of the brain, which showed a great frontal expansion. By comparing the lemur or the tarsier with the marmoset it could be seen that the enhancement of muscular skill was acquired at the time that the power of stereoscopic vision originated.

From all this (Professor Elliot Smith continued) it was possible to build up a theory or hypothesis to explain how the high powers of discrimination began. The cultivation of vision started a cycle of further changes, which themselves led to still other changes, all in the direction of greater power and refinement. There was reason to believe that the development of the prefrontal area, which grew out, so to speak, from the motor territory, was itself an expression of the increased powers of skilled movement. In the course of this evolution it became possible to apply these increased powers automatically, so that the animal was able to concentrate its vision upon things seen rather than upon the motor act of seeing. When an animal learned to converge its eyes upon a particular object it was also fixing its attention and acquiring the ability to concentrate the mind for a particular purpose. The lecturer added that when one came to the fossil remains of man one found still other stages in the development of the prefrontal and parietal areas. These regions were smallest in the Pithecanthropus of Java, considerably bigger in the Piltown man, bigger still in the Rhodesian man, and showed further progress in Neanderthal man. The brain continued this progressive expansion until it reached the more equable stage of development in *Homo sapiens*. Man's mental superiority was really based upon the seeing eye and the dexterous hand.

In proposing a vote of thanks for a fascinating lecture, Mr. McADAM ECCLES said that one lesson to be learned was that anatomy was not a science of water-tight compartments, and that physiologists must beware lest anatomists overran their field.

British Medical Journal.

SATURDAY, JUNE 5TH, 1926.

THE NOTTINGHAM MEETING: THEN AND NOW.

ONCE a year, at the height of summer, the British Medical Association shifts its centre of gravity. The headquarters machinery in London does not stop, but for a week or so the Association makes its home elsewhere, usually in some English or Scottish city, though Ireland and Wales also have received several visits, and twice the Annual Meeting has been held in Canada. In this sense the Association is a peripatetic body, and has been so from the time of its foundation ninety-four years ago. The custom was broken by the war, but was revived with great success in 1920 at Cambridge; and since then Newcastle, Glasgow, Portsmouth, Bradford, and Bath have shown in turn, and each in its own way, how valuable a part of the life and work of the Association its Annual Meeting can be made. This summer it will meet again, after an interval of thirty-four years, in the great industrial centre that has grown up within and around the ancient town of Nottingham.

When the Association met, for the second time, at Nottingham in 1892 the only direct part its 14,267 members had in the conduct of their collective affairs was the right to speak and vote at the statutory "general meetings," which had come by then to be looked upon almost as the preserve of a few stalwart debaters. Although our membership is now more than twice as large, the democratic organization of the Divisions and the Representative Body enables every member who wishes to do so to take his or her share in the determination of professional policy. We say "or her" because it was not until a general meeting in 1892 that the sex ban disappeared and a previous resolution excluding medical women from admission to the Association was rescinded. The last Nottingham meeting was memorable also for the announcement, made at the annual dinner, that the Council intended to set aside some £50,000 for purchasing a freehold site and erecting suitable buildings to form a metropolitan home for the Association. It was upon the site thereafter acquired and inhabited that the fine house arose in the Strand in 1907. That building is now about to become the London headquarters of the Dominion of New Zealand, the Association having entered last year into possession of its new and beautiful home in Tavistock Square, which was opened by His Majesty the King on July 13th.

The range and variety of the British Medical Association's ever-widening interests and activities to-day are reflected in the Annual Report of Council for 1925-26, published in the SUPPLEMENT of April 24th, which will form the foundation for the work of the Representative Body during its forthcoming session at Nottingham. It was the custom of the nineties to let medical politics and domestic administration share with science and social enjoyment the four crowded days of an Annual Meeting. The result was what might be expected—overlapping, and dissipation of

energy and interest. More time is now available, and the business is so distributed that the Representative Body can complete its task before the sectional meetings open and the festivities begin, and it is therefore possible for any one member to take part in all that goes on. This is a great advantage, because the work of the scientific Sections, the deliberations of the various conferences, the addresses and social features of the gathering, together with the annual exhibition and the pathological museum, fall into place as integral parts of a conception which touches at many points the interest of every member of the profession.

By the year 1892 sectional organization of the scientific and clinical work of the Annual Meeting had been established for some time, and there were ten Sections on that occasion. But the set debates, judged by modern standards, were rather sketchy in arrangement and not very comprehensive in scope, while the sectional programme was strewn with a multitude of disconnected papers; there were 200 of these in all, which contrasts strangely with the half-dozen independent communications notified for next month's meeting. We are less miscellaneous nowadays, and general interest, instead of being diffused, is focused by the careful planning of compact discussions in which each aspect of a disease or a mode of treatment or investigation is introduced by some well known worker in that field. A further development of this idea is the joint debate between two or more Sections. These have proved most attractive in recent years, and three such combined meetings will be held next month. In 1892 the ceremonial spirit of the Victorian age demanded that besides the President's Address three formal addresses—in medicine, in surgery, and in pathology—should be delivered in full session; and here and there a sectional president would feel moved to preface his first day's heterogeneous proceedings with something in the nature of general oratory. Thus not only is the scientific work better planned in 1926, but strict attention to a limited amount of business on prearranged lines is the order of the day. The practical nature of the subjects to be discussed at the meetings of the thirteen Sections will be gathered from the full programme of the Nottingham Annual Meeting printed in the SUPPLEMENT this week. Most of the topics are of interest, not to specialists alone, but to everyone engaged in general practice who wishes to keep abreast of recent work and to make himself familiar with fresh ideas on matters which are engaging the attention of the most active minds in various departments of clinical and scientific medicine.

It is not with any idea of glorifying the present at the expense of the past that we have drawn these contrasts. Our predecessors were building up the great organization we inherit. They had to face many obstacles within and without, and it is because they overcame them that the Association stands where it does to-day. Two things they had which make all other things possible—good will and faith in the future. There was a family spirit about the old Annual Meeting: it was a rallying-point for the whole profession. This spirit is with us still, as the growing number of oversea members who attend our gatherings will testify. Immense progress has been made in the past thirty-four years, but neither the Association nor its Annual Meeting is a perfect instrument. When we think there is no more room for improvement then our faces will be turned away from the future.

HOW TO MAKE HYGIENE PAY.

THE history of the public health development of our own country shows convincingly the need of periodic stimuli to accomplish the awakening of the nation's sanitary conscience. Had it not been for the recurring outbreaks of cholera we should probably have taken much longer to reach the stage of appointing medical officers of health, and, by the successive steps of a Royal Sanitary Commission and a Local Government Board, arrive at a culminating point in a Ministry of Health.

Even with the example of the homeland ever before their minds, there are British colonies which lag far behind modern requirements in matters hygienic, and some of them still remain in the lethargy of embryonic sanitary life. Dr. Andrew Balfour, the director of the London School of Hygiene and Tropical Medicine, has wisely taken advantage of an invitation to address delegates to the West Indian Conference in London to apply a fresh and much needed stimulus to West Indian hygienic effort. His pungent address, slightly abridged, is published this week (p. 929). The climate, the environment, and the general mode of life tend in many tropical countries to foster the *dolce far niente*; or, after the summoning up of energy to start and perhaps carry through one important hygienic scheme, there follows a lull, "a little folding of the hands to sleep," and the effort necessary for continued improvement is allowed to slacken, conditions return to their former state; the money has been not merely spent, but wasted. Unhygienic conditions so act and react upon one another that there must be sustained effort for general improvement on as many lines as possible if satisfactory results are to be maintained, and not an aim, however well directed, to remedy one particular defect. In Dr. Balfour's happy simile, there are several sound investments for capitalists with money to lay out in measures hygienic, but, to paraphrase his words, they are investments to hold on to; the returns may not be quick, but they are always sure. Among these, worthy of special mention, in fact trustee securities, are prevention of soil pollution, antimalarial and antituberculosis measures, and education.

This last is a much abused word. Many schools in the tropics have health teaching as part of their curriculum; but what can it avail to teach in a native school the dangers of flies and mosquitos and the advantages of cleanliness, when that school is surrounded by removable bush and refuse or half-drained marshland, and has no latrine accommodation for the pupils? Sums spent on education such as this (these sums are large and these conditions very frequent, as every worker in the tropics knows) would far better be expended on the more potent, unwittingly absorbed education afforded by example of adequate conservancy and latrine accommodation, proper drainage, mosquito-proof buildings, and so on. The constant presence of a sanitary environment will do infinitely more to engender hygienic habits than talking about health, cleanliness, and the benefits of fresh air, in hot, ill-ventilated schoolrooms. This will appear a trite commonplace, but in many tropical countries we find an extraordinary upset of values. There is some excuse for this, since the application of scientific knowledge acquired in a temperate climate needs to be modified to meet tropical conditions. In other words, there is a need—nay a necessity—for local investigations for solving the hygienic problems which exist abroad. Hence the paramount importance of engaging properly qualified scientific workers in the first instance, and of providing them with properly

equipped laboratories in order that they may test and adapt to the best advantage the experience gained on the spot. Not only is a good health officer a necessity, but he must be provided with a reliable, and therefore a properly trained, personnel—that is to say, sanitary inspectors. The money spent on a small army of uneducated natives, one or two to every little village, as we have seen in some colonies; to "look after the local sanitation," would more than suffice to pay for sanitary inspectors properly trained, and that there is a need for such was recognized by the Royal Sanitary Institute some years ago, as mentioned in *Health Problems of the Empire*,¹ a work which deserves to be more widely known, in which occurs the following passage: "Quite recently the Royal Sanitary Institute, which has for many years held examinations in general sanitation for sanitary inspectors abroad, went a step further, and commenced to hold in Great Britain examinations in tropical hygiene for inspectors working in, or destined for, the tropics. This is a matter of considerable importance, as there has been a tendency in many colonies not to apply practically the knowledge gained. Such practical application is pre-eminently the business of the sanitary inspector acting under the medical officer of health, and the manner in which tropical hygiene in certain respects differs from sanitation in temperate climes makes it necessary that sanitary inspectors in, or proceeding to, the colonies should be specially qualified."

What happens not infrequently is this. The Government of a colony awakens to the idea that all is not well with the health of the people or the sanitary condition of the island, the additional stimulus being that in consequence of this the tourist traffic is diminishing, so the homeland is asked to choose and send out an energetic well qualified medical man as health officer. This is done. He arrives, makes his survey, and sends in a report stating what is needed to improve the conditions. Then comes the tug-of-war. His every suggestion is met with the inquiry, "What will it cost?" followed soon after by the minute, "Regret no funds available," though vast amounts are being spent in other ways. Disease breaks out, and the cry goes up, "We are paying for a man sent out with a good record as a first-class hygienist, and he does not stop the epidemic." He will tell how it may be stopped, but the waving of a magic wand does not suffice, and a little money is grudgingly doled out, half-measures are taken, and the plague is stayed—for a time. Finally, the disease becomes endemic, or is uprooted at a cost vastly greater than would have been necessary had the work been timely undertaken. But there is another aspect. After repeated vain requests for the necessary means to carry out what he knows to be essential, the heart of the health officer grows sick with deferred hope, and he applies for a transfer, which he will probably succeed in obtaining if his importunities have been frequent enough to make his removal desirable for the comfort of the authorities; or he may, tired by rebuffs, offer up a heartfelt prayer for a "really good epidemic" as a last resource to arouse the local powers, before remarking, as Dr. Balfour says in his address, "I have done my best; let things rip," and he will no longer oppose, at least with any vehemence, the fatal policy of *laissez faire*.

This leads us to the gist of the whole matter—the need for placing such a man in a financially independent position, with security of tenure if he does his

¹ *Health Problems of the Empire: Past, Present, and Future.* Empire Series, edited by Hugh Gunn. London: Collins and Co

work, for providing him with proper assistance and facilities for research, and for allowing him administrative control of his own personnel. The best trained man is not the most extravagant; on the contrary, he is the most economical; while the advantages of a properly trained sanitary inspector are incalculable, and the two, working together in harmony, will repay a hundredfold their cost in the betterment of the people's health, the consequent improved quality and output of the people's work, and the concomitant and lasting happiness of the people's lives. A good health officer will become better by lengthened experience of his district, and, if properly paid, properly equipped with facilities for research, and properly assisted, he will not wish to change. A good chief can do but little if badly supported, and very little more with good assistance if he is crippled by lack of funds; whereas, worst of all—a conduit leading to a bottomless pit of inestimably wasteful extravagance—is a bad health officer, however well supplied with funds.

We have in the past and the present had abundant examples of the first two terms of the sequence, "Does hygiene pay?" and "Why hygiene pays," and, now that everyone knows that it does pay handsomely, the future question will ever be, not merely on humanitarian grounds, but on the business grounds of sheer economy and profit, "Why, then, has hygiene been neglected?"

AMBULATORY TREATMENT WITH TUBERCULIN.

No one can justly deny to Dr. Camac Wilkinson the meed of praise he has fairly earned by the enthusiasm and perseverance with which he has advocated the use of tuberculin in the treatment of pulmonary tuberculosis. In the letter published elsewhere in this issue (p. 967) he tells us that he has used it continuously since it was introduced by Koch in 1891, and as a matter of fact a very full paper by him on the subject was published in our columns nearly a quarter of a century ago.¹ At that time he was lecturer in medicine in the University of Sydney. Recently he was for some years director of a tuberculin dispensary in south London; he has published accounts of his work there, but, unfortunately, he was compelled for, as we understand, private domestic reasons, to give it up some two or three years ago. It is now, as appears from his letter, to be resumed in Fitzroy Square. His experience entitles him, he considers, to claim: (1) That in the earliest stage (physical signs and suggestive symptoms) the disease can be prevented from passing on to the later stages, at any rate for many years, in 95 to 100 per cent. of the cases. (2) That even in Turban's third stage some patients may survive for fifteen years or more, leading ordinary lives. (3) That tuberculin used in proper doses, properly timed, properly administered, and carefully controlled by constant clinical observations, benefits 75 per cent. of those suffering from consumption and tertiary manifestations affecting other organs than the lung. These are strong claims, but Dr. Camac Wilkinson believes them to be justified by his experience, even among working-class patients in London, who have gone on with their work during treatment. We cannot, of course, venture to express any opinion upon his conclusions, for, as he says, a judgement can only be formed after long and painstaking observation. But we may venture to say that the tests he enumerates in his letter seem to be formulated in a true scientific spirit, and that he is wholly sincere and wholly above-board in his methods. He invites practitioners to send patients to the dispensary he is now opening, and it would seem well worth while to do so if sanatorium treat-

ment cannot be obtained. He also invites practitioners to go to the dispensary to see how the treatment should be applied, and probably personal conviction on its value could be reached after observation of a few cases for a year or so. But more than this will be necessary to convince others. It is not easy to understand why his method of using tuberculin has not attracted more attention from the medical profession and from the public, including the approved societies. It may be due partly to the fact that he seems always to have worked more or less by himself, and partly to the circumstance that his books are not easy to read; if we are right such obstacles as these could be removed without very much difficulty. It is rather saddening to have to add that another cause may be his punctilious insistence on strict scientific method, which means the lapse of long periods, extending to several years, before he will allow others to formulate for themselves the conclusions of whose truth he is himself so thoroughly convinced: in other words, he will not have premature agreement.

THE AIMS AND METHODS OF EXPERIMENTATION.

LECTURERS at the Royal Institution have the difficult double task of interesting the experts, whose knowledge of the chosen subject is almost as great as their own, and of pleasing the "gallery," to whom science is always a fairy tale with fascinating illustrations in the shape of experiment. Sir Almroth Wright, in his lecture on Friday evening, May 28th, on the aims and methods of therapeutic research, managed to maintain the interest of both sections of his audience by being at once profound and simple. In the great task of experimentation, he said, it was necessary to take into consideration not only those things which could be seen and heard, but those which he termed "subperceptive," and the knowledge of which required method and technique in its pursuit. Bacon had laid it down that there were two kinds of experimentation—experiments of light, which afforded information, and experiments of fruit, which were capable of practical application. The lecturer confined his remarks to experiments in connexion with diseases arising as a result of bacterial infection, and he devoted a large part of his time to discussing and demonstrating the bactericidal action of the blood, remarking at the end of a series of interesting experiments that these all belonged, nevertheless, only to the first class of experiments within the Baconian definition; they might suffice for a Royal Institution lecture, but so far as his own utilitarian profession was concerned the question inevitably arose as to the good of them. Discoveries in the laboratory did not count at all unless they could be directed to the saving of a patient. Sir Almroth Wright then proceeded to discuss the general question of prophylaxis, reminding his audience that the mere putting of a drug into the body which would be eliminated by the following day could be of no possible avail. The great thing which had to be done was to increase the resisting power of the blood by increasing the efficacy of the white blood corpuscles. The more the protective power of the blood was tested the more did the observer become interested in the enormous capacity which it revealed. When Darwinians spoke about man having evolved through his brain capacity, they might with equal truth point to the importance of the great bactericidal power of the blood in the story of survival. In demonstrating how more white blood corpuscles might be brought into wounds in order more effectively to fulfil their function, Sir Almroth Wright showed what could be done in this respect by the action of common salt—a phenomenon to which little attention had been devoted by the physicist. Sodium chloride had extraordinary properties in connexion with blood fluid. If water was put into a wound no serum

¹ BRITISH MEDICAL JOURNAL, 1902, vol. i, p. 1389 (June 7th).

came out to meet it, but if a 5 per cent. salt solution were used the serum appeared from all sides. The lecturer went on to illustrate the result of the application of antiseptics to wounds, experimenting for this purpose with several specimens of blood to which the same amounts of staphylococci had been added, and gave a short account of the researches which had been carried out on the effect of carbolic solutions, creosote, and the drug known as optochin, which would have found an application in destroying the micro-organisms in pneumonia but for the fact that it caused patients to go blind. He spoke also of the efficiency of inoculation by modern methods, and the degree and period of protection obtained, reminding his audience that vaccination was possible, not only with micro-organisms, but with all disintegration products of the body. It was a great thing to have found substances availing for protection for a time against micro-organisms, and bringing about such protection almost instantaneously, by a dose of the necessary vaccine. Incidentally he touched on light therapy, and mentioned the curiously divergent results in lupus cases according to the varying susceptibility of the patients.

BRITISH JUSTICE.

SINCE the United States ambassador to this country has informed his President that we are down and out, any little testimony to the contrary from one of his countrymen is very welcome. Dr. John Rathbone Oliver, chief medical officer to the Supreme Bench of Baltimore, has lately published a paper on criminology and common sense,¹ in which he contrasts American with British criminal procedure and treatment of criminals, much to our advantage. It appears that the sentimentalists who have poured out much gushing sympathy over evildoers in the United States hold the erroneous opinion that British law and British treatment of lawbreakers is hard and unfeeling. After a personal study of our ways and of those of some Continental countries Dr. Oliver is able to assure his countrymen that this is not so, but that, on the contrary, they have much to learn from us, not only as regards philanthropy, but still more as regards the detection and punishment of offenders. No doubt many of the defects of the police methods of the United States are not so much due to deficient appreciation of right and wrong as to the amateur type of organization on which in many States the law still has to rely. The fact also that every one of the forty-eight States has made and administers its own criminal laws must be taken into account in comparing the two countries. Dr. Oliver says nothing of Canada, yet a fairer comparison may be drawn between that Dominion and the United States, since both are new countries rapidly developing, and both are democratic. In Canada, which has grown up under a central government, police is not a merely sectional matter, and the long arm of the law has generally managed to reach the criminal. The contrast, for instance, between the state of affairs in the early days at Klondyke and that in a typical Western American gold rush is illuminating, and shows the restraining effect of a certainty or strong probability of punishment on the lawless mind. Dr. Oliver denounces the morbid sentimentality which makes some hardened gunman or unnatural domestic murderer an object of sympathy, or at least of paramount interest. We wish that we could honestly pride ourselves on the absence of such feeling in our own country. Our readers need not have long memories to be able to recall cases in which a like misplaced tenderness has been manifested here. But it is well to remember that, in both countries, for one unbalanced and shrieking sentimentalist who makes himself heard there are many sober, silent persons who loathe the agitation and whose opinions favour calm judgement. Dr. Oliver seems, how-

ever, more concerned with minor criminals and courts of first instance than with grave offences. He was very much impressed with the kindness and common sense which are characteristic of metropolitan police magistrates. He speaks in terms of admiration of the recent book by Mr. J. A. R. Cairns on his experiences as a magistrate,² and had he seen it we feel sure that he would have had nothing but praise for Mr. Cecil Chapman's work on a similar subject, which shows the author to be, as many of his colleagues are, more of a friend than a judge of first offenders, and a kindly sympathizer with what good there may be even in the hardened criminal.

MEAT INSPECTION.

THE necessity for more and better meat inspection in this country was the main topic for discussion before the Section of Comparative Medicine of the Royal Society of Medicine on May 26th. Mr. Wooldridge, professor of veterinary hygiene in the University of London, in an introductory paper indicated the chief aims of meat inspection. He divided the subject into two sections—*ante-mortem* and *post-mortem* inspection. *Ante-mortem* inspection, he declared—and with this all the subsequent speakers agreed—was of the utmost importance, and must be carried out by one who was not only a qualified meat inspector, but also a trained clinician. Meat was inspected *post mortem* for various reasons: bacteria harmful to man, such as tubercle bacilli, anthrax bacilli, and so on; parasites such as *Cysticercus* and *Trichina*; poisons, whether bacterial toxins or chemical preservatives; aesthetic reasons; and for innutritious meat. The greatest danger to human beings, however, was from "fevered" meat (that is, meat from ailing animals which does not "set" properly, and which has often a dark colour and a characteristic odour) and from "emergency slaughter" cases (that is, animals which have been slaughtered *extremis* or when suffering from an incurable condition). It is most dangerous when the animal is slaughtered on account of some pyaemic or septicæmic condition. Slaughter of animals which have been "in contact" with such conditions as foot-and-mouth disease, swine fever, and rabies, and which have not developed any symptoms of these diseases, is perfectly safe. Specific diseases communicable to man are very rarely transmitted by the ingestion of cooked meat, although contact with the flesh of animals suffering from anthrax may cause the infection. Accordingly the main object of a meat inspector is to prevent the sale of meat likely to cause meat poisoning, and, to a secondary degree, to prevent the sale of obnoxious-looking or innutritious meat. The present state of meat inspection is still bad, in spite of many recent improvements, and compares unfavourably with the systems in force not only in foreign countries, but in British dominions and colonies. It was often haphazard, and too frequently entirely in the hands of men who have only a very superficial training. All those who took part in the discussion urged the necessity for improvements in this. Dr. Porter suggested that all butchers should be registered, while Professor Leiper proposed that they should be in possession of a meat inspector's certificate. This, of course, would be subsidiary to a policy which would insist on the provision of central public abattoirs under municipal control, and providing facilities for adequate *ante-mortem* as well as *post-mortem* examination by properly qualified veterinary officials. Such meat would be stamped, and would relieve butchers of any further responsibility as to any abnormalities in the meat, excepting, of course, those due to decomposition. Such public control of slaughter would not only eliminate the disadvantages of the private slaughterhouse, but would

¹ *Journal of Criminal Law and Criminology*, February, 1926.

² *The Loom of the Law*. By J. A. R. Cairns. Third edition. London: Hutchinson and Co. 1925.

enable more adequate use to be made of by-products, and so provide for more economical working and cheaper and better meat.

DÜSSELDORF HEALTH EXHIBITION.

At Düsseldorf there is a health exhibition, which is to remain open until October. It is called the Gesolei, the three syllables of this coined word being abbreviations of the German expressions for health culture, social welfare, and physical training. The object of the exhibition is to disseminate knowledge on these three subjects amongst the people; the proposal to hold the exhibition appears to have come from Dr. Arthur Schlossmann, who conducts a children's clinic in Düsseldorf, and has devoted much time to the supervision of the exhibition. The grounds cover an extensive area on the banks of the Rhine, and a "Lilliput" railway runs round the whole enclosure. The exhibits give a very complete display of State and municipal social services in Germany. In one pavilion there are coloured pictures, diagrams, and models arranged to display the activities of the Krankenkassen (nearly corresponding to our approved societies) and other bodies under the health insurance schemes. Various coloured cardboard cylinders show the enormous increase in the number of insured persons in Germany, the relative amounts of money contributed by the employers and the employed, and the revenue formerly derived from investments. It is interesting to note that as the result of the period of inflation the whole of the income from investments disappeared; but last year a proportion of the loss was recovered from the State, which does not normally contribute to the insurance fund. The medical profession also has a pavilion, wherein the increase of insured persons is depicted in perhaps less glowing colours. It appears that in Germany the proportion of the insured to the non-insured population has increased from 20 to 80 per cent. during the last decade or two. The pavilion of the trade unions is decorated with much labour literature of various shades of red and pink, and with a statue of a man trying to wield a sickle and a hammer at the same time. There is an interesting little clinic for the treatment of children by sunlight; and a building fitted up as wards for infants, in which real nurses have live infants under their care. The German spas have a pavilion, with pictures of the scenery in which they are situated. There is an exhibition of anatomical specimens prepared by a process which renders the tissues transparent; preparations of this kind were shown in the Pathological Museum at the last Annual Meeting of the British Medical Association. It may be doubted whether these are particularly illuminating to the lay public in search of health; in any case, pictures of hydrocephalus and other monsters do not seem suitable exhibits for prospective mothers. A small room full of obstetric and gynaecological specimens is labelled as unsuitable for the young; but large entrances without doors afford a fair view to the prurient youngster. The rest of the exhibition contains the usual trade articles, from baths to ambulances, which can in any way be associated with health. The buildings of the exhibition and the pictorial representations in the galleries are somewhat uncouth; but perhaps the artistic sense is hardly to be expected in structures and designs which are so ephemeral.

THE INNERVATION OF THE PYLORUS.

A RECENT issue of the *Journal of Physiology* (vol. lxi, No. 1, p. 28) contains a paper by E. D. McCrea and B. A. McSwiney, from the department of physiology of the University of Manchester, which throws some light on the much vexed question of pyloric stenosis. The research was directed to ascertain the effect of stimulation of the vagi on the pyloric region of the stomach. It was shown that

vagal branches actually reach the pylorus from the hepatic branch of the left vagus. Stimulation of this nerve in both the cat and the dog leads always to the production of peristaltic movements, and such movements, if already present, are augmented. The force of the movements is dependent to some extent on the strength of the stimulus. The movements are always of the peristaltic type, and in this differ from those of the body of the stomach, where they may be of a tonic or rhythmic character, or both. The movement elicited in the pylorus is always of peristaltic type, no matter what may be the degree of distension of this part of the organ. This observation would suggest that the cause of congenital hypertrophic stenosis is to be sought in the factors that bring about an increase of nervous stimulation. This increase could act through the intrinsic nerve plexuses of the stomach, which are as well developed here as elsewhere in the gut. The exact relation of these to the extrinsic nerves is not really known, but the evidence, so far as it goes, suggests that the vagus terminates on both plexuses.

TRUDEAU SANATORIUM.

THE changes that have been introduced into the modern treatment of pulmonary tuberculosis as the result of the careful study of recent years are indicated in the forty-first annual report of the Trudeau Sanatorium, at Saranac Lake in the Adirondacks. When this institution first opened its doors only patients with the disease in its earliest stages were admitted, because these alone were considered to be curable or even susceptible of any marked improvement. In the present day a larger proportion of patients with more advanced tuberculosis can be admitted as suitable for sanatorium treatment, many of them being confined to bed; whereas in the past only some 10 per cent. of the patients at any one time were treated by rest in bed as a regrettable necessity, now at least 30 per cent. are so treated as a valuable routine measure. In early days the sanatorium resembled a boarding-house where boarders were under a mild supervision; it is now more like a cottage hospital, for one-third of the patients are kept in bed. The Trudeau Sanatorium has a daily average of 170 patients, and about fifty infirm beds are in constant occupation. The new Ludington Memorial Infirmary was opened on April 9th, 1925, adding thirty-two beds for this type of treatment. Over 500 patients were dealt with during 1925, and 330 were discharged, yet the waiting list continues long and there is serious delay in admission. The total number of patients that have been treated in the institution will soon exceed 7,000. The statistical department of the sanatorium is in communication with over 2,000 old patients, many of whom are in active employment; this indicates the value of sanatorium treatment in rescuing human lives at a productive age, and not as a merely palliative procedure.

CORNS.

MAN—and still more woman—has chosen for many generations to maltreat his feet, and he has to pay the penalty in the shape of corns, callosities, and toe deformities. For although Nature gives each normal infant a fair and undeformed start, boots and shoes soon have their way with most of us. Hence the need of chiropodists, and of instruction for those who would become corn-curers. For such a purpose Mr. E. G. V. Runting's little book *Practical Chiropody*¹ may be taken as a safe guide. In it the learner will find sound advice and clear statement. Mr. Runting has also written in the members' diary of the Incorporated Society of Chiropodists a definition of the term and a statement of the aims of the

¹ *Practical Chiropody*. By E. G. V. Runting, F.R.S.Ch. London: The Scientific Press, Ltd. 1925. (Cr. 8vo, pp. ix + 164; 7 plates, 5s. net.)

calling. "A chiropodist," he says, "is one who is fully equipped to undertake the surgical and mechanical treatment of such abnormalities as corns, callosities, and warts; to ameliorate the conditions produced by abnormal nails; and by judicious padding and protection to bring comfort to enlarged and misplaced joints." Although the last phrase is rather ambiguous, and we are in doubt as to the nature of a misplaced joint, the modest aims of the chiropodist are thoroughly laudable, as long as he realizes his limitations and knows when to send his patient to the surgeon. We gather from the published statement of the objects of the society that it is the dissemination of just such knowledge with which it largely concerns itself, at the same time as it helps to render valuable services to the poor in the foot hospitals and clinics which are established in London, Manchester, Edinburgh, Leeds, and Yarmouth. The ethical rules of the society breathe the spirit of the Hippocratic oath, and while we wish that an etymologically more rational name than chiropodist could be adopted, the society has our good wishes. This is a literal age, in the sense that the custom is rife and growing of signifying things and people and associations by their initials. For our readers' information, then, we point out that the letters "F.I.S.Ch." stand for "Fellow of the Incorporated Society of Chiropodists."

THE CHARAKA CLUB.

THERE are many medical clubs, some nutritional, others instructional as well as friendly, but few so interesting as the Charaka Club of New York, with its intriguing name, taken from the Hindu sage, the Hippocrates of India, and its appropriate motto, "Posta multa virtus opera laxare solet." The club publishes proceedings in a limited edition of 500 copies, and the sixth volume of these has now appeared five years after the fifth, which was noted in our columns (1920, i, 16). From it we gather that the club contains nineteen members, some of whom come from Boston (Professor Harvey Cushing), Philadelphia (Drs. F. R. Packard and T. McCrae), Baltimore (Professor W. G. MacCallum), and Washington (Dr. Fielding H. Garrison). The club was founded in 1898 by a group of New York physicians to afford opportunities of artistic, literary, and historical recreation. The new volume contains fifteen separate contributions, four of which are short poems, one translated from his native Hungarian by the late Dr. Arpad G. Gester (to whom separate tributes are paid by Dr. L. S. Pilcher and Dr. B. Sachs), a sonnet by Dr. C. L. Dana to Clio as the muse of historical medicine, and two by Dr. Frederick Peterson. The last named appropriately contributes an appreciation of Dr. Henry Head's poems, some of which appeared during the war in the *Yale Review*, and apropos of his editorship of *Brain* remarks: "This apt juxtaposition of words to many light-minded among us seemed to be what the American columnist calls 'apronymic'—like Philpott the brewer, Bowowski the dog-fancier, Mrs. Catt the leader of women." One of the staunchest and most graceful supporters of the club is Dr. C. L. Dana, the contributor of ten articles in its six volumes; writing on Dr. John Ursinus, the Father of Opotharapy, he sets forth as a proper and pleasant function of a society devoted to the history of medicine and its artistic fringes the recording of men who have done the smaller things in life; he mentions that he read papers on John Mason Good and Thomas Lodge, but the reader has a right to feel defrauded when he learns that these were never published in the club's volumes. Ursinus, "Medical Doctor and Poet Laureate" of Verona, wrote in 1541 "a description of certain animals and their medicinal uses," thus preceding by

120 years J. Belcher's book on similar lines in 1663. Dr. G. L. Walton writes in a humorous vein three articles, the first of which is entitled "The cogitations of a crank who is trying to reform." The story of John Baskerville and his activities, especially his press, is told by Dr. F. S. Meara, who also contributes a scholarly and well written account of Demokedes the Krotoniate and contemporary of Pythagoras and Alkmaion in the sixth century B.C. He practised medicine with such eminent success in Aegina that Athens bid for and secured him until he was similarly lured to Samos by Polykrates, with whom he was taken prisoner, and eventually after various experiences he became medical attendant of Darius. He antedated Hippocrates by a hundred years, and was described by Herodotus as the best skilled physician of all living men. The get-up of this volume is admirable, and well befits its contents.

THE COLYER PRIZE FOR DENTAL RESEARCH.

At the annual general meeting of the Section of Odontology of the Royal Society of Medicine on May 31st a presentation was made to Sir Frank Colyer in recognition of his devoted services as honorary curator of the museum for the past twenty-five years. The president, Mr. Lewin Payne, said that when Sir Frank Colyer commenced these duties the odontological museum was housed in the premises of the Dental Hospital in Leicester Square. Later the museum was moved to Hanover Square, and later still to the Royal College of Surgeons in Lincoln's Inn Fields. Sir Frank Colyer had been most assiduous in arranging and cataloguing the specimens, and the museum might now claim to be the best odontological collection in existence. It was felt among his friends that after a quarter of a century of such service on the part of Sir Frank Colyer some recognition should be made, and as the result of an appeal to members of the Section rather more than £200 had been raised. With this money it was decided to establish a prize, to be called the "Colyer Prize," to encourage research in dental science amongst young dental practitioners—a purpose entirely in keeping with the ideals Sir Frank Colyer had always advocated. He therefore, in the name of the Section, presented the cheque to Sir Frank Colyer, together with a parchment commemorating his services. Sir Frank Colyer, after a suitable acknowledgement of the honour done him in associating his name with the prize, and after recalling some of the early incidents of his curatorship, handed over the cheque to Sir StClair Thomson, president of the Royal Society of Medicine, as representing the council of the society, whose sanction will be necessary for the arrangements for the prize, which have not yet been finally decided. Sir StClair Thomson said that he did not think it would be possible to point to a better example in London than Sir Frank Colyer of a dental surgeon who had been a help to his profession. While it was true that it was the work which counted and not the applause, at the same time, as Charles Lamb said, it was very pleasant to do good by stealth and get it found out by accident, and when in this case the good that he had done had been found out by a man's own colleagues, who were the best judges of the worth of his service, it was all the more gratifying. He would have much pleasure in transmitting to the council of the society the amount collected for the prize.

We deeply regret to receive the news, as we go to press, of the death of Lieut.-General Sir William Leishman, K.C.B., K.C.M.G., F.R.S., the very distinguished Director-General of the Army Medical Service, who was to have presided over the Section of Pathology at the forthcoming Annual Meeting of the British Medical Association at Nottingham. A memoir will appear in our next issue.

* The Proceedings of the Charaka Club. Vol. vi. New York: Paul B. Hoeber, Inc. (Roy. 8vo, pp. 145; 6 figures 4 dollars net.) Copies of vols. III, IV, and V can be obtained at 4 dollars each. 500 copies published for members of the club and their friends.

NINETY-FOURTH ANNUAL MEETING

of the British Medical Association, NOTTINGHAM, 1926.

THE ninety-fourth Annual Meeting of the British Medical Association will be held at Nottingham next month under the presidency of Mr. R. G. Hogarth, C.B.E., F.R.C.S., senior surgeon to the Nottingham General Hospital, who will deliver his address to the Association on the evening of Tuesday, July 20th. The Annual Representative Meeting, for the transaction of medico-political and administrative business, will open on the previous Friday, July 16th. The sectional meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 21st, 22nd, and 23rd. The names of the officers of the thirteen Sections are published in the SUPPLEMENT this week, together with the provisional programme of arrangements for the Annual Meeting. On the last day of the meeting (Saturday, July 24th) there will be excursions to places of interest in the neighbourhood, some of which are mentioned in the article printed below. Other descriptive and historical notes on Nottingham and the neighbouring country have appeared in the JOURNAL of December 5th, 1925 (p. 1081), January 23rd, 1926 (p. 158), and March 20th (p. 541).

HOUSES, TOWNS AND VILLAGES IN THE NEIGHBOURHOOD OF NOTTINGHAM.

BY

E. L. GULFORD, M.A.

GREAT houses always have an attraction for modern people. Perhaps this is because nowadays no one thinks of building a Chatsworth or a Blenheim even if he can afford to do so. We are content with something much more serviceable than the vast series of uncomfortable rooms which so often are better suited to a museum than a dwelling place. In the course of a fairly wide intimacy with the great houses of this country the writer can remember few rooms which have any pretensions to real comfort. Years ago I remember exploring a famous house, and after being shown room after room heaped with the gathered treasures of many centuries, I was allowed to enter a small room in which, I was told, the family spent most of the time. It was quite small, but it was comfortable, and did not give the impression that it had been built round a draught.

Houses are famous for various reasons. Some are renowned for their architecture, some for the beauty of their site, some for their associations. There are a few which are famous for all three, and of these in this district pride of place goes to Haddon Hall, with, perhaps, Newstead Abbey following very closely after. Some, perhaps, will place Chatsworth very high in the list, but, after all, any such order must be determined largely by personal preference, and when all is said and done it is impossible to compare one house with another. Chatsworth and Haddon are both gems, but they differ so much in every way that a comparison is impossible.

It is quite out of the question to attempt any description of even a tithe of the large houses in Nottinghamshire, Derbyshire, Lincolnshire, and Leicestershire. The majority of them are private houses, and are never shown to the public. There they stand, often on the top of a slight slope, looking proudly over a rich green well wooded park. Now and then we come across a park surrounded

by a wall or palings, but though our road seems to take us all round it, yet we never get a glimpse of the house.

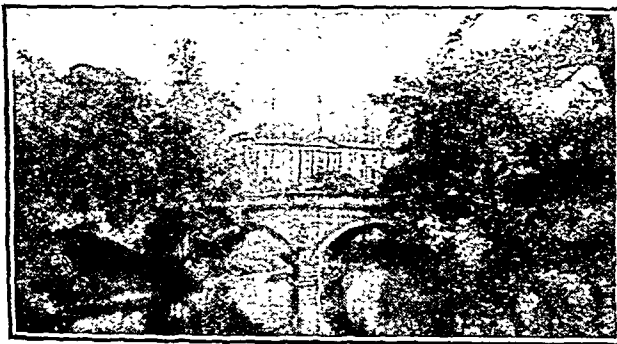
Every stranger visiting Nottingham on a sight-seeing holiday takes an early opportunity of going to the Dukeries. This is a part of Sherwood Forest which has been enclosed. Here are the three great estates of Welbeck, Clumber, and Thoresby, owned respectively by the Dukes of Portland and Newcastle, and Earl Manvers. The latter is a descendant of the Dukes of Kingston, so that the title "Dukeries" is not really a misnomer. These great estates are for the most part open to visitors, though of recent years restrictions have been imposed

because of the fact that this valuable privilege has been seriously abused.

Welbeck is a treasure-house, and well worth a visit for its art treasures. Its associations with Horace Walpole, Lord George Bentinck, and the eccentric fifth Duke of Portland would take far too long to tell here. Clumber House and Thoresby have not so much to show as Welbeck, but their associations are of great interest. Rufford Abbey, the seat of Lord Savile, is only a few miles away from the Dukeries,

and is generally included with them in the popular mind. Here there was a great Cistercian foundation, of which the refectory remains incorporated in the present building. Rufford is not open to visitors, but the main Nottingham-Ollerton road passes through the Rufford woods and by the beautiful entrance gateway, from which a glimpse of the Abbey can be seen.

Just on the outskirts of the city of Nottingham stands Wollaton Hall, certainly the most remarkable piece of domestic architecture in this district. Built in the middle of Queen Elizabeth's reign, this extraordinary example of Renaissance architecture is a reminder of the wealth which the great territorial magnates possessed in the past. It is also interesting because it was largely paid for out of



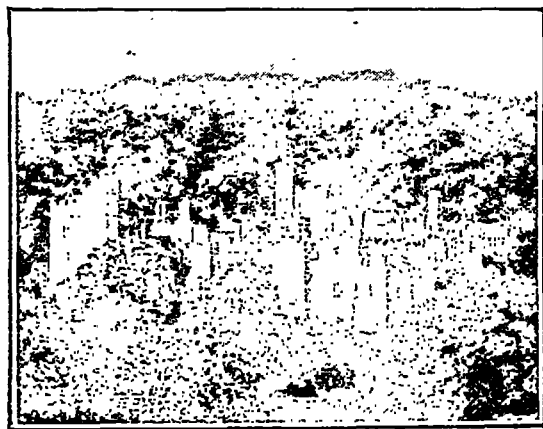
CHATSWORTH HOUSE AND BRIDGE.
(Photograph by Drinkwater, Nottingham.)

the sale of coal from the Wollaton pits. This hall and park have been acquired recently by the Nottingham Corporation, and the hall will be used as a natural history museum.

In the north of the county there are a number of large houses, such as Worksop Manor and Serlby Hall, but these are not in any way show places. Just over the borders of Leicestershire is Belvoir Castle, the seat of the Duke of Rutland. Standing on a well wooded hill which commands wide prospects over the Vale of Belvoir and the valley of the Trent, the castle has been described as the "lordliest place in England" with the exception of Windsor Castle. Here a castle was built by the standard-bearer of William the Conqueror, and here the Dukes of Rutland have lived for many years. There can surely be few more beautiful spots than the Belvoir woods, in which the public is free to wander within certain very wide limits. These woods are full of little nooks and corners beloved of picnic parties, and in the spring and early summer they are certainly a joy to behold. Of the castle itself little need be said. It is not open to visitors as a rule, but since the present Duke has decided to live at Haddon Hall, in Derbyshire, it is possible that Belvoir Castle may be more accessible than in the past.

Four houses stand out pre-eminently in Derbyshire: Chatsworth, Haddon, Hardwick, and Wingfield. The reputation of the first two is national. Both are interesting for themselves, for their contents, and above all for their associations. Hardwick Hall recalls to us Bess of Hardwick, a "character" if ever there was one, while at Wingfield Manor, now a ruin, we meet the memory of Mary Queen of Scots, who spent much time here, as she did at Chatsworth.

In each of these Midland counties there are a large



HADDON HALL. (Photo by Drinkwater, Nottingham.)

number of houses, many of them of great size, which are not known to the general public because they are, and always have been, private residences—many of them in the possession of one family over a long term of years. It is impossible to deal with these in the short compass of such an article as this, and readers must be referred to the detailed guide-books which exist.

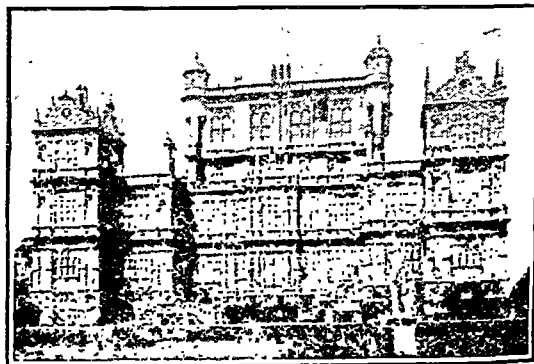
When we turn to the towns and villages in these Midland counties we find that there is much to say. Apart from the county towns, there are many smaller places which have much to attract the visitor.

In Nottinghamshire there is Newark, one of the most picturesque towns in England. The ruins of the castle of the Bishops of Lincoln and the magnificent spire of the parish church, taken together with the quaint narrow streets and the handsome market-place, make Newark a joy to any observant traveller who loves the past. The memories of its loyalty to the King during the Civil War still cling to it, and we are still reminded that it was as a Conservative member for Newark that Mr. Gladstone

first entered Parliament. Here, too, Lord Byron had his first volume of poems printed. Situated on the Fosse Way and Great North Road, Newark has reaped to the full the rich harvest accruing from the all-penetrating motor car. Worksop is another little town that is full of charm. Well known for its proximity to Welbeck Abbey, it has in its Priory Church and perfectly preserved Gateway a relic of the past that is well worth a visit. Mansfield and Retford are modernized out of all

recognition, and have little to show to visitors beyond a display of commercial energy that is causing them to grow with considerable rapidity.

Derbyshire has a large number of towns of interest. Chesterfield has been industrialized, but Buxton is still a very respectable inland watering place of the class of Cheltenham and Leamington, though much more beautiful than either. Standing as it does nine hundred feet above sea-level, it is a favourite resort for winter sports. The Matlocks are very popular, but owing to their proximity to Nottingham and Derby they have become the resort of many excursionists, and are no longer visited so much by those who seek a quiet and peaceful holiday. Melbourne and Ashbourne are two very delightful old-world towns with many historical associations and much that is quaint in their domestic and ecclesiastical architecture. Ashbourne is suitably placed for the exploration of the beauties of Dovedale, but it should be borne in mind that some of the lesser known dales in Derbyshire are very well worth visiting. It is here that the good walker scores over the



WOLLATON HALL. (Photo by F. Frith and Co.)

traveller dependent upon a bicycle or motor car. Derbyshire has very many charming villages scattered up and down its length. There is Baslow, close to Chatsworth and Repton, south of Derby, and Eyam, famous for its connexion with the Plague—in fact, the number is far greater than can be mentioned here.

Lincolnshire has such a large area and so many little market towns that it is impossible for any visitor to see them all. The south of the county is certainly more beautiful than the north. Here we have the extensive bulb and potato farms, and some of the most beautiful churches

in the whole country. One village that no one should miss is Tattershall. Here is a fifteenth century brick castle that has been restored in the best manner during the last decade or so. Few, if any, finer examples of brickwork survive in this country.

Leicestershire is above all things a hunting county. Its villages are quietly charming—in fact, the whole district is characterized by gentle green slopes and pleasant streams. Loughborough is the second town in the county and is now a very busy little place. Charnwood Forest, with its granite hills and open moorland, is a beauty spot second only to the woods of Sherwood Forest. The geologist and the naturalist will find much to occupy their attention, and the pedestrian will find all he can wish for in the way of views.

Visitors who make Nottingham their headquarters will naturally have much more opportunity of seeing the villages which lie adjacent to their resting place. Edwinstowe and Ollerton are jumping-off places for the exploration of Sherwood Forest, and not far away is a village

which seems to have been forgotten by time. Laxton lies on the top of a hill, well off the beaten track. Here are the earthworks of a large castle, and here the primitive system of three-field agriculture still remains. The village common is unenclosed, and to see the wide, unhedged fields takes one back a couple of centuries.

On the banks of the Trent are many charming villages beloved of the riverman and fisherman—villages where life glides by as peacefully as the river. Quite near to Nottingham is Clifton, which keeps its old-world appearance and is the most popular picnic resort for the city. Near by is Gotham, a rather unattractive place, whose fame rests on its connexion with the famous fools. In the Vale of Belvoir are many delightful spots which are gradually being popularized by the motorist.

Taking these Midland counties altogether there is much to attract the visitor, though I am afraid many are content to pass through this district without pausing to discover the somewhat hidden beauties that lie off the highways.

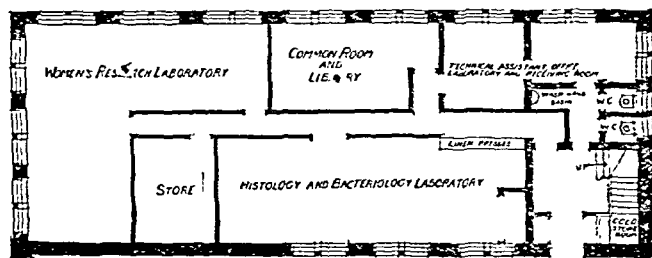
NEW SURGICAL DEPARTMENT AT EDINBURGH UNIVERSITY.

On Friday, June 11th, as part of the celebrations of the bicentenary of the Medical Faculty in the University of Edinburgh, the Secretary for Scotland will open formally the reorganized surgical department. This department will in future comprise two parts—a department for teaching and a department of surgical research; these are housed in separate but contiguous buildings. The teaching department has been reconstructed by internal changes in the portion of the New University Buildings, which has for several generations of students been associated with the teaching of surgery. On the ground floor are three

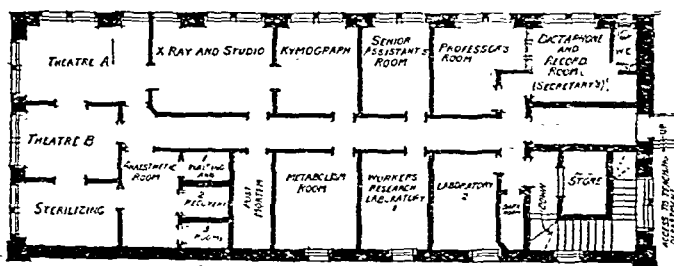
half of the old theatre, familiar to many generations of former Edinburgh students. Part of the fitting of this theatre has been provided by the generosity of a relative of the late Professor Alexis Thomson, and on its wall is placed a memorial bas-relief in bronze of the late professor, designed and executed by Mr. H. S. Gamley, R.S.A.

A new building to the rear of the former university buildings houses a large suite of rooms for original research in practical surgery, surgical pathology, bacteriology, and biochemistry in its relation to surgical subjects. On the

ground floor are situated a common room and library for the use of the research workers, and a large and well equipped laboratory with places for twelve persons engaged in research. The benches provided for the research workers are furnished with various devices for electric lighting, heating, water, and taps by which air under pressure or suction can be obtained. By an ingenious arrangement, the working table, with its drawers provided for each worker, is readily removable, so that in the event of a worker being prevented for some time from utilizing his place the whole table can be wheeled away and a new table substituted in its place for another worker. Another in-



GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

FIG. 1.—Research Department: Plan showing the two floors and entrance to gangway leading to Teaching Department.

genious feature of the laboratory is a large incubator common to all the workers, but provided with separate drawers, each of which is allocated to a different worker, so that the chance of mixing or losing bacterial cultures is obviated. On this flat also are a reception room for specimens and a large bacteriological and section-cutting room, in which laboratory attendants make the various routine investigations required in connexion with the class and work of the department.

On the upper flat of the research department several rooms are provided for the individual research workers specially attached to the department. These include two operating theatres, which have been equipped with special elaboration. Underneath the operating table are terminals

and for holding various demonstrations, have been constructed out of the lower part of the old surgical theatre, and a fine museum of surgical pathology, which is already well provided with specimens, is laid out with a lower floor and gallery, and is well lighted from the roof and by means of brilliant electric lights. A comfortably furnished students' common room is provided where students may read, and at their leisure inspect demonstration specimens laid out on a table running round the room. There is also a large retiring room for the professor and assistants where examinations will be conducted. A new theatre, capable of seating 240 students and well lit from the roof, has been provided by constructing a new floor over the practical rooms, so as to utilize the upper

for electric light and power, as well as taps for making connexion to apparatus requiring air under pressure or suction, and an apparatus for supplying intermittent

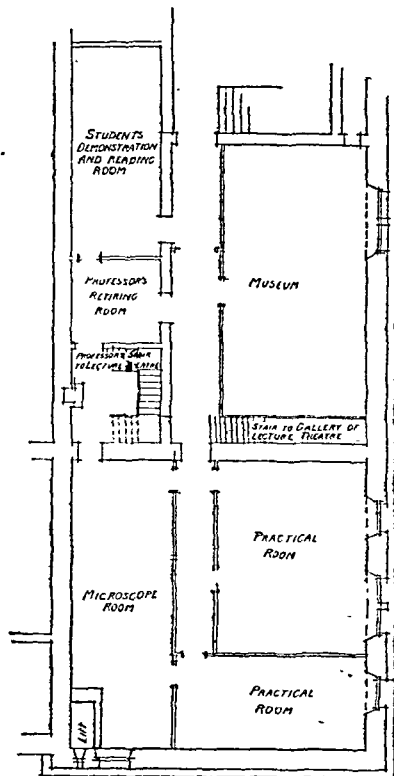


FIG. 2.—Teaching Department: Plan of intermediate floor below Surgical Lecture Theatre (see Fig. 3).

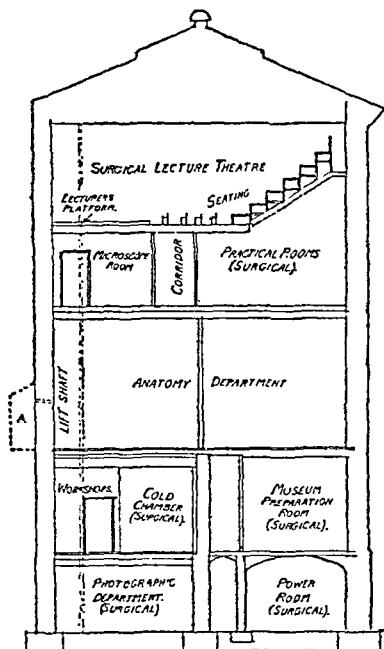


FIG. 3.—Teaching Department: Section showing the connexion between floors and with the Anatomy Department, and indicating, at A, entrance to gangway leading to Research Department.

suction. Taps also supply sterile water and saline solution from a large central sterilizing room. The floors are covered everywhere with india-rubber, and the roof lights, set on a gentle slope, are kept clean by a stream of water which washes away dust from their surface. Light is supplied through an outer glazed roof during the day

and after dusk by brilliant electric lights placed between the outer and inner roof. There are also anaesthetic rooms and recovery rooms, as well as a special room intended for post-mortem examinations. Adjoining the operating theatres is a large and well equipped x-ray room, and in one of the theatres terminals have been fitted, so that x-ray photographs can be taken in connexion with the operating table. A covered gangway connects the teaching and research departments, and a covered stairway leads from the latter to the building which shelters the animals used in connexion with this department and with that of physiology and pathology.

Already it has been found possible to accommodate a number of workers, although the equipment of the buildings has only just been completed. In one room research is proceeding into the nature of the cause of cancer, on the lines of recent work done in London; in another room work is being done on the growth and culture of animal tissues; and in yet another research is proceeding upon the effects produced by administration of various glandular extracts on the growth of young animals. Other workers are engaged in, or about to commence research upon, the lymph drainage of the abdomen, surgical conditions of the pituitary gland, the investigation of the renal circulation, routes of renal infection, the surgical pathology of intestinal obstruction, the conditions of nerve implantation in muscle, the surgery of valvular disease of the heart, the conditions of pleural infection, and the development of cholecystography.

The total cost of fitting up the new research department has been about £15,000, of which £10,000 has been borne by a grant from the general university funds, while £5,000 was provided by the Rockefeller Trustees.

Roba et Vetera.

EDWARD IV'S ARMY SURGEONS.

In 1475 King Edward led what Comines described as the largest, best disciplined, and most perfectly equipped army with which any English king had ever invaded France.

In the College of Arms—better known to Londoners as the Herald's College—there is a manuscript in which the badges and arms worn by the troops and their leaders are duly set forth, together with other interesting information.¹

The editor, F. Pierrepont Barnard, D.Litt., points out that the badges referred to were distinct from the personal arms of the nobility and gentry, and were intended to show to what unit the men belonged, and he suggests that this may have been the beginning of the uniform dress of soldiers. They must have served a similar purpose to the badges adopted by our army in the late war as indications of the divisions to which troops belonged. The daily rates of pay are recorded, and were as follows:

	s.	d.
A duke, one mark	13	4
A marquess	10	0
An earl, half a mark	6	8
A baron	4	0
A knight	2	0
An esquire or man-at-arms (not a knight)	1	0
An archer	0	6

It is of interest to compare the rates of pay of physicians and surgeons with the above. No physicians or surgeons are mentioned in the MS., but Dr. Barnard tells us that in the Tellers' Roll for the first quarter of 1475 it is recorded that a number of them were indentured for this expedition. The King's physician had the pay of a knight (two shillings) and two servants (sixpence each), and the physician and surgeon to the King's body one shilling and sixpence and one assistant surgeon sixpence a day. Seven other surgeons were paid one shilling a day, five more sixpence a day each. The King's secretary, Hatchlyffe, and the Clerk of the Council had the same pay as the King's physician. Apparently Maister James (or Jakes) Fryse was the King's physician. He still held that post in 1482, and possibly continued to do so until the King's death in 1483.

Master William Hobbis or Hobbys was the physician and surgeon of the King's body. As such he had received in 1470 a grant of £40 a year. He was evidently well thought of by the Yorkist princes, for after Edward's death he became physician to Richard III at a salary of £64 a year. The names of twelve other surgeons who took part in this expedition are on record, of whom one, "Richard Felde, owre Surgeon," had held office since 1464, and in 1468 was given the no doubt lucrative office of Ranger of Forests in Hampshire. Although the physicians and surgeons had probably to find their own food, yet doubtless the pay was sufficient, seeing that a knight got only the same as the physician.

It may be interesting to compare these rates of pay with those in Cromwell's army nearly two centuries later, as stated by Professor Firth in his book with that title.² The purchasing power of money had much diminished, so that we find that in 1651 the pay of the regimental surgeon was six shillings a day. In Ireland under Cromwell it had been only four shillings, while the two surgeons' mates had half a crown a day. Financial tightness prevented the maintenance of the high rate of six shillings,

and by 1667 it had fallen to four shillings again. General Monck thought that this was too low, and raised it by a device which is characteristic of former times in the services. He put the surgeons on the roll as privates, so that they were enabled to draw ninepence a day extra. In 1650, when Cromwell set out for Scotland, each regimental surgeon was allowed £15 to pay for his chest of instruments and dressings and £10 for a horse to carry it. Apparently they had to find their own board and lodging. Dr. Henry Glisson, a brother of the author of the treatise on rickets, was Physician-General to Manchester's army, and he and, later, the Physicians-General to Cromwell and Monck, received pay at the rate of ten shillings a day, while the Apothecary-General received six shillings and eightpence a day.

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¹ *Edward the Fourth's French Expedition of 1475: The Leaders and the Badges*, Being MS. 2.M.16, College of Arms. Edited with permission of the Chapter by Francis Pierrepoint Barnard, M.A., D.Litt., F.S.A., Hon. Fellow of Pembroke College, Oxford, etc. Oxford: The Clarendon Press. 1923.

² *Cromwell's Army. A History of the English Soldier during the Civil War, the Commonwealth, and the Protectorate*. Being the Ford Lectures delivered in the University of Oxford in 1909-1. By C. Harding Firth, M.A., London: Methuen and Co. 1902.

EXTENSIONS AT UNIVERSITY COLLEGE HOSPITAL, LONDON.

NEW OBSTETRIC HOSPITAL AND NURSES' HOME; NEW EAR HOSPITAL.

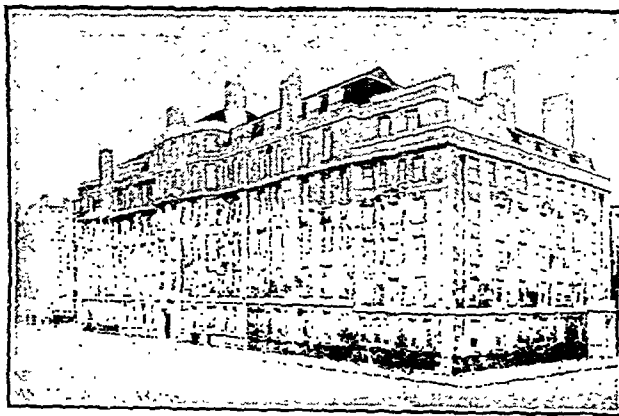
THE PRINCE OF WALES visited University College Hospital on May 28th for the purpose of opening the new Obstetric Hospital and the new nurses' home, and unveiling a memorial tablet at the new Royal Ear Hospital, a building which will shortly be ready for use. The Obstetric Hospital and the nurses' home, the foundation stones of which were laid by the King and Queen three years ago, are the gifts of the Rockefeller Foundation of New York, and the Royal Ear Hospital has been built by Lieut.-Commander Geoffrey Dureen in memory of his parents, to whom the tablet was dedicated. These buildings are all extensions of University College Hospital.

In 1920 University College Hospital was selected by the Rockefeller Foundation as offering the best opportunity in the British Isles for placing medical education on a modern basis. For this purpose a gift amounting to £1,205,000 was bestowed upon the medical school and University College, to be expended partly as an endowment fund for medical research and education, partly upon a building programme providing 120 additional beds, to include a new obstetric hospital containing 60 beds, and partly on building an institute of anatomy to improve the facilities for teaching preliminary medical science. The Rockefeller Fund provided for the whole cost of the new buildings, but it has been necessary to raise by voluntary subscription the sum of £180,000 as an endowment fund for the 60 beds in the Obstetric Hospital. Thirty of these beds are devoted to obstetrics and thirty to gynaecology. A senior member of the medical staff will be resident in the hospital, and will combine the work of undertaking complicated cases of labour with that of teaching students. The students on duty will also have the advantage of living in a students' house which is under the same roof as the hospital, and so they will be enabled to be on the spot when difficult cases occur. The whole of the obstetric work of the hospital will be under the care of a special director. The building, of which we publish a photograph, is a large and handsome structure designed by Mr. George Hornblower, architect, with Mr. Michael Waterhouse, of the building extension and reconstruction scheme. The new nurses'

home provides accommodation for about 250 of the staff. The Royal Ear Hospital, which was formerly situated in Soho, is now being rebuilt as part of the University College Hospital block. The acquisition of the new site and the construction and equipment of the hospital has cost £65,000, and the whole of this sum has been given by Lieut.-Commander Geoffrey Dureen. The hospital will contain 38 beds for in-patients and ample room for the treatment of out-patients. A feature of the hospital is to be a "silence room," with walls impenetrable by extraneous noises, that absolute accuracy and consistent results may be obtained in the examination of patients.

The Prince of Wales was received on arrival by Sir

Ernest Hatch, treasurer and chairman of committee of University College Hospital, and by Princess Marie Louise. Sir Ernest Hatch read an address to His Royal Highness in which he detailed the circumstances of the Rockefeller benefaction just described, and the great and successful effort to raise the funds to endow the beds in the Obstetric Hospital. The Prince, before opening the buildings, said that the hospital was entitled to congratulate itself upon having been entrusted with the disposal of the vast sum represented by



New Obstetric Hospital and Residents' Quarters, University College Hospital.

the munificent gift of the Rockefeller Foundation. As a proof of the appreciation of the trust thereby imposed he mentioned the ready generosity with which the obligation on this country to endow the beds in the new hospital had been met. The large sum required for this purpose had been raised by subscriptions throughout the British Empire. Each of the Dominions, as well as Scotland, Wales, the English counties, and the main commercial interests and industries in the country, had done its share, and for this happy result thanks were due to the Ladies' Appeal Committee under the chairmanship of Princess Marie Louise, and to the chairman of University College Hospital, Sir Ernest Hatch, to whose untiring efforts the Prince paid a high tribute. He also expressed the hope that the appeal committee would not be disbanded, but would continue to watch over the interest and welfare of the respective wards and beds. Finally the Prince announced that a friend of the hospital wished

to mark that international occasion by making a donation of £10,000 towards the appeal which will shortly be launched for the general maintenance fund of the hospital.

Lord Burnham stated that each bed in the new Obstetric Hospital required a maintenance fund which, when capitalized, would represent about £3,000. The sum of £180,000, which was necessary for this purpose, had been collected, and the small cost involved in the collection had been offset by the interest on the earlier contributions.

At the request of Sir George Blacker, dean of the medical school and senior obstetric physician, the Prince then, after a fanfare of trumpets, declared open the Obstetric Hospital, and the fanfare was repeated when Princess Louise asked His Royal Highness to declare open the new nurses' home. In the course of a visit of inspection to the new hospital, when the members of the medical staff were presented, the Prince named one of the eight wards "The Prince of Wales Ward." Other wards are named after the King, the Queen, the Empire, and the City of London. In the "Friendship" Ward a bed has been endowed by the medical profession. The Prince chatted with some of the patients, and on behalf of the Queen presented a cot for each ward. He also inspected the nurses' home, and finally proceeded to the Royal Ear Hospital, where again he was received by the members of the medical staff, and in the entrance hall unveiled a memorial tablet bearing a Latin inscription to the father and mother of the donor of the new building.

The American ambassador was unavoidably prevented from being present at the ceremony. He was represented by Councillor F. A. Stirling.

Union of South Africa.

[FROM OUR CORRESPONDENT IN JOHANNESBURG.]

MEDICAL, DENTAL, AND PHARMACY BILL.

SINCE union in 1910 consolidating measures of various kinds have been introduced. Thus the Public Health Act, 1919, repealed no fewer than thirty-nine laws previously in force in the various provinces. By that Act the Department of Public Health of the Union was established, and its functions prescribed; the duties and powers of local authorities in regard to health matters were indicated; measures were introduced for the prevention and suppression of infectious diseases; for the control of public water supplies, meat, milk, and other articles of food; and for the prevention of nuisances in regard to dwellings and premises.

A want long felt is an Act to consolidate and amend the laws in force in the Union relating to medical practitioners, dentists, druggists, midwives, nurses, and masseurs. A bill of this nature has been before Parliament on several occasions, but it has had a troubled history. In 1923 the Medical, Dental, and Pharmacy Bill actually passed the second reading, and was then referred to a Select Committee, more particularly because of the one clause which has been the cause of much controversy. This clause deals with unqualified practitioners of medicine. In the Select Committee of 1923 one prominent member actually moved that faith-healers, hydropaths, naprapaths, neuropsychics, and other strange folk should be exempted from the penalties inflicted upon unlicensed practitioners who professed to diagnose and cure disease. This amendment, though seriously discussed, was rejected.

The bill at present before the House is, then, a consolidating measure, and is a logical outcome of the Act of Union. Sixteen laws will be repealed. As the Minister of Public Health, in moving the second reading, pointed out, it was the fruit of consultation with, and represented the agreed opinions of, all the professions and callings concerned. At the present moment there are seven different bodies exercising supervision over the medical profession. The bill will establish one South African Medical Council and one South African Pharmacy Board. All persons now registered will be automatically transferred to the new register; but those who cannot be registered now will not be registrable if the new bill becomes law. The most

troublesome clause in the bill has again proved to be the one dealing with unregistered persons. It reads:

"Any person not registered as a medical practitioner who (a) for gain, hire or reward, direct or indirect, or for the expectation thereof, practises as a medical practitioner or performs any act pertaining to the calling of a medical practitioner; or (b) professes to pursue, or by advertisement, representation or any means whatsoever holds himself out as pursuing the calling of a medical practitioner, or pretends to be or takes or uses the name of medical practitioner or any name, title, description or synonym, or is known to lead persons to infer, that he is a medical practitioner, or holds a degree, diploma or other qualification as a medical practitioner, or is a doctor of medicine, physician, surgeon or accoucheur, or that he is registered as a medical practitioner under this Act; shall be guilty of an offence and liable on conviction to a fine not exceeding one hundred pounds."

On each occasion that the bill has been before the House attempts have been made by persons practising the so-called cults to obtain rights which they did not possess before. The Minister was careful to point out that no one who possessed professional rights under existing legislation would be deprived by the bill of such rights. The position of persons practising certain cults would remain practically unaltered. They would not receive rights which they had not hitherto enjoyed, but neither would they lose any rights. The Minister (the Rev. Dr. Malan is a doctor of divinity, not of medicine) further pointed out that there was in principle no opposition between the methods of healing employed by the medical profession, on the one hand, and at least some of the cults. It was very often represented that the medical profession healed through medicine, and that those practising the cults healed without medicine—that they were drugless healers. That description was a false one. All the methods adopted by the drugless healers were well known to the medical profession, and were to a very large extent practised by the profession. But these were not the only methods of healing. When they were so deemed they very often became dangerous. Exponents of these cults would be allowed to practise, but if they did so for hire or gain it would have to be under proper medical supervision. The law held that no person not properly trained, qualified, and certificated was permitted to handle delicate electrical machinery, because it was something that might mean life or death. The human body was much more complicated and delicate machinery, and it was only right that people who handled it should be properly trained and qualified.

In the subsequent discussion the interesting feature was the criticism of the bill by the Labourite Minister of Labour (Mr. Boydell). He stated that for a good many years he had urged that the door should be left open, for the practice of their profession, to drugless healers. He himself could testify to the benefits he had derived from drugless healing. He would be guilty of mean ingratitude did he not plead on its behalf. It would be unfair to deprive sick people of a chance of recovering their health in any way they could when other means had failed. Sir Thomas Smartt, an Opposition member, was quick to turn to advantage the difference of opinion between two members of the Pact Cabinet. He then asked the Minister of Labour if he would agree to a man who had not been through any apprenticeship suddenly blossoming out as a skilled artisan. On the whole it appears unlikely that the bill will become law this year, which is very greatly to be regretted.

VELD RODENTS, PLAGUE, AND "TIGER RIVER" DISEASE.

The South African Institute for Medical Research has for some time been conducting investigations into the matter of plague in South Africa, both in the laboratory and in the field. These investigations are under the charge of Dr. J. H. Harvey Pirie, resident bacteriologist, and Dr. Ingram, medical entomologist. Plague has for many years been enzootic amongst certain of our veld rodents. At what stage these animals first became infected is uncertain. But the disease has spread amongst the gerbilles until at the present time some fifty thousand square miles of veld are affected. Presumably rats at some time escaped from an infected ship at the coast and conveyed the disease to our wild rodents.

Ridding so large an area of sparsely populated country of rodents is a wellnigh impossible proposition. Very

elaborate precautions are everywhere being taken to prevent the domestic rats of the towns becoming infected. Recently the discovery of a new disease of rats—the so-called "Tiger River" disease—has encouraged the belief that a valuable weapon in the anti-rodent warfare had become available.

Tiger River disease, the gross pathological lesions of which in the liver and spleen are similar to those of plague, is caused by a Gram-positive, motile bacillus which has apparently not been previously described. Cultures sent to the Lister Institute could not be placed in any of the existing groups. It was first isolated from a dead gerbille sent in for plague examination. Its pathogenicity for most animals is low. Guinea-pigs and rabbits are infected with difficulty, and then only when injected with the infective material. It has not been found possible to infect larger mammals such as cats, dogs, or monkeys. But the smaller veld rodents are easily infected experimentally either by feeding or injection. The germ is capable of producing severe mortality in these small veld rodents among whom plague is enzootic. It is hoped, therefore, that it may prove of great value in the attempts to exterminate these animals in certain regions. An experiment in this direction was made in Kroonstad. A section of the veld was enclosed with closely meshed wire netting, and infection with the Tiger River disease was introduced into the enclosure. The disease spread rapidly, and after a while examination showed that the rodent population of the area had been almost completely wiped out. A disease which is harmless to the larger mammals and is deadly to small rodents will be of obvious value. But unfortunately it is apparently only the veld rodents which are highly susceptible. The ordinary house rats seem to be immune. Inquiries have already been made at the South African Institute for Medical Research by enthusiastic overseas medical officers of health, who hoped that this might prove to be a means for dealing with domestic rodents; but they have had to be disappointed.

Some days ago doubt was expressed as to whether the disease enzootic amongst our veld gerbilles was in reality plague, and questions were asked about the matter in the House of Parliament. The plague authorities have, however, never been in any doubt concerning the subject. The only two diseases which might possibly be mistaken for plague, and which affect both man and wild rodents as this disease has been doing, are the diseases known as melioidosis and tularaemia. Neither of these diseases has ever been reported in South Africa. Melioidosis is confined to the Malay peninsula, and tularaemia apparently does not exist outside the United States of America. In both diseases there are fundamental and striking differences between the bacillus responsible for them and that responsible for plague. The publicity which has been given to the speculations of uninformed persons is particularly unfortunate and dangerous. The danger lies in the possible relaxation by the general public of the usual antiplague precautions.

THE STAFF OF THE SOUTH AFRICAN INSTITUTE FOR MEDICAL RESEARCH.

The staff of the Routine Laboratories of the South African Institute for Medical Research is being considerably strengthened by the appointment of four additional officers. These appointments are to a large extent the outcome of an arrangement recently entered into between the Institute and the University of the Witwatersrand, under which the Institute became officially responsible for the staffing of the departments of pathology, bacteriology, and parasitology in the medical school of the University. Sir Spencer Lister, research bacteriologist at the Institute, recently visited Great Britain with a view to selecting additional officers. As the result of that visit, the following gentlemen have been appointed, and are now on their way to South Africa:

George Buchanan, M.D., Ch.B., D.P.H. Edin., late lecturer in bacteriology, University of Edinburgh, and Special Commissioner and adviser to the Scottish Board of Health on spirochaetal jaundice, has been appointed superintendent of the Routine Laboratories of the Institute.

F. W. Simson, M.B., Ch.B. Edin., late lecturer in pathology, University of Sheffield, has been appointed a senior grade pathologist in the Routine Laboratories.

W. K. Dunscombe, M.B., B.S. Durh., D.T.M. and Hy. Eng., late demonstrator and research student in the department of tropical pathology at the London School of Hygiene and Tropical Medicine, has been appointed a junior pathologist in the Routine Laboratories.

Lancelot W. Barlow, B.A., D.P.H. Camb., M.R.C.S., L.R.C.P., late assistant medical officer of health, Bloemfontein, has been appointed from among local applicants a junior pathologist.

The following officers at present on the Institute staff have been delegated to carry on the duties of lecturers in the medical school of the University of the Witwatersrand:

Dr. A. Sutherland Strachan, lecturer in pathology.

Dr. J. Becker, lecturer in bacteriology.

Dr. Annie Porter, lecturer in parasitology.

Ireland.

MEDICAL REGISTER (IRISH FREE STATE).

SIR JOHN WILLIAM MOORE, M.D., who presided last week at the annual general meeting of Drumcondra Hospital, Dublin, made an announcement with regard to medical registration in the Free State. He stated that an agreement had been reached and would be embodied in a bill which will be brought before the Dail. He began by referring to the proposed amalgamation of hospitals in Dublin, and said that a very considerable sum of money was virtually promised to carry it into effect, amounting to something over a million sterling. It is withheld, he stated, owing to the uncertainty with regard to medical registration in the future in the Free State. He was glad to say that an agreement had been reached which he hoped would be effective. The bill in which it was to be embodied would be brought before the Dail, and would then have to be adopted on the other side of the water. He thought that it would be satisfactory, because it would not meddle materially with the present system by which a young medical practitioner was able to seek his livelihood, not only in the Free State, but throughout the far-flung British Empire. Were that taken away nothing would compensate for it. The *Dail political correspondent* of the *Irish Times* stated in a recent issue of that paper that the final draft of the permanent bill is now in process of completion, and, so far as he could gather, the proposals which it embodied were substantially the same as those submitted on behalf of the profession. The next step was consultation with the General Medical Council. Should that body express its disapproval of the scheme there would presumably be an end to it. It was not anticipated, however, that the General Medical Council would withhold its consent. The doctors' representatives, he understood, would shortly go to London to submit the proposals in their final form to the General Medical Council, which, in its turn, might be expected to make the necessary arrangements for their recognition. It was not believed that corresponding, or, in fact, any legislation would require to be introduced in the British Parliament. It was the intention of President Cosgrave's Government to have the proposed new bill introduced in the Dail before the recess, that a full statement on the subject should be made by the President before the adjournment, but that the bill should not be proceeded with until the autumn. The feeling in official circles would, he added, seem to be that, having waited so long, the new scheme of registration would lose nothing by its non-adoption for at least another six months. The basic suggestion of the permanent legislation would be that the present system of registration on the Register of the General Medical Council would be allowed to stand, but that, in order to give effect to the wishes of the Free State Government in regard to the control of registration and the discipline of medical practitioners a separate Medical Register, with a supervising medical council, would be established in the Free State. Thus a student qualifying at any recognized Free State university or school would be compelled to enter his name on the Free State Medical Register if he wished to practise in the Free State. He need not do so if he intended to

practise outside the Free State; in the latter case he would enter his name on the general *Medical Register*. It would be almost essential for him, however, to have his name inserted on both registers, since before he could obtain a post or practise either in England or the Dominions he would need to have some practical experience in hospitals or as an assistant to an established medical practitioner.

Scotland.

ST. ANDREWS POST-GRADUATE COURSE.

The staff attached to the James Mackenzie Institute for Clinical Research at St. Andrews have arranged to hold a post-graduate course which is to commence on Monday, June 14th, and is to last for a fortnight. The meetings will be held in the Clinical Research Institute at St. Andrews, with the exception of a few afternoon meetings at the Royal Infirmary in Dundee. An introductory lecture will be given by Dr. A. Maitland Ramsay, honorary director of the Institute, on June 14th, at 4 p.m. Thereafter five lectures, each lasting one hour, will be delivered daily until June 29th. Members of the course who wish to carry out practical work in the laboratories may do so at hours to be arranged with the teachers.

ROYAL INFIRMARY, EDINBURGH.

At a meeting of the managers of the Edinburgh Royal Infirmary held on May 3rd the question of a proposed shelter for friends of patients waiting on visiting days for admission to see their friends who happen to be patients in the institution was considered. There appears to be a difficulty between the managers of the infirmary and the City Corporation as to whether the proposed shelter should be erected inside or outside the walls of the institution. The managers are anxious that the corporation should erect a shelter immediately outside the wall to the east of the institution, but there would appear to be no room to do this. On the other hand, the proposal to erect a verandah glass covering inside the institution wall would block a roadway and darken wards in the immediate vicinity. The number of cases waiting admission to the institution on May 1st was 2,360.

GLASGOW DENTAL HOSPITAL.

The report presented to the forty-first annual meeting of the Incorporated Glasgow Dental Hospital held on May 26th showed that 50,297 operations had been performed during the year at the hospital. There had been a profit of £135 on the conservation and extractions departments, and a profit of £607 on the prosthetic department, but the public contributions to the hospital had amounted only to £354. The chairman, Mr. M. Robin, in moving the adoption of the report, stated that the governors were looking out for a new site for the hospital, and funds were needed to start rebuilding operations. Dr. J. Forbes Webster, dean of the hospital, stated that its services were in great demand, but the existing building was quite inadequate when compared with the population and wealth of the city. He said that people in general did not realize the importance of taking proper care of the teeth. It had been said that Britons possessed the worst teeth on earth, and also that Glasgow citizens had the worst teeth in Britain. It was notorious that the teeth of the poorer classes were very bad, and that to maintain the general health of the community much needed to be done for their improvement.

DISABILITY OF DEAFNESS.

The annual meeting of the Mission to the Deaf and Dumb for Glasgow and the West of Scotland was held on May 27th. Sir Steven Bilsland, Bt., presided. The report showed that the expenditure had been £2,139, as against £1,835 for the preceding year, with a debit balance for the year of £171. Sir John MacLeod, Bt., gave a short address, in which he stated that it was not generally realized what a serious disability deafness really was. It was estimated that there were about 1,000 deaf and dumb persons over school age in Glasgow and the surrounding district. Though the active life of blind people was spent

in darkness, their ears permitted them to enjoy the full advantages of speech and music, and they could and did attain public positions, in Parliament for instance, to which deafness was a complete bar. Deafness, on the other hand, cut at the root of every activity except the purely physical. Even when education had done its most and best, the intellectual, social, industrial, and religious life was heavily handicapped. The deaf man could not be expected, even although he was as intelligent as his hearing fellows, to measure himself unaided against them in the struggle of life. It was, therefore, the work and privilege of this institution to afford the deaf all the assistance it could.

England and Wales.

THE COLLEGE OF NURSING.

The new headquarters building of the College of Nursing in Henrietta Street, Cavendish Square, was opened on May 31st by the Queen. Sir Arthur Stanley, chairman of the council, related the history of the College since, in 1916, it began in two rooms lent by the late Sir James Boynton; shortly afterwards it was transferred to No. 7, Henrietta Street. In 1917 the sympathy and practical assistance of the British Women's Hospital Committee were obtained, and in particular that of Lady Cowdray, treasurer of the committee, who gave very active help. The Nation's Fund for Nurses was started to provide an endowment fund for the College and the nucleus of a fund, now known as the Tribute Fund, for nurses in ill health or distress. The Tribute Fund, he said, now amounted to over £100,000, and was carrying on very valuable work in relieving the anxieties and sufferings of sick and aged nurses. The College endowment had now reached about £68,000, but £100,000 was required. (It will be remembered that last week an appeal appeared in our columns—p. 921—for the support of the medical profession in this most necessary undertaking, for which donations are being received at the College by Mr. Comyns Berkeley, the honorary treasurer.) Sir Arthur Stanley went on to explain how Lady Cowdray, realizing the great need of a club for nurses, had bought and furnished No. 20, Cavendish Square, for the use of nurses and other professional women. She had next asked Sir Edwin Cooper to design a building for the College of Nursing to be erected on the site of the gardens and stables of the Cowdray Club. Lord and Lady Cowdray met the entire cost of the club for nurses and the College, including their fitting and equipment; there were three ways of communication between the two buildings, and a roof garden had also been constructed. The State registration of nurses had come about largely as a result of the influence of the College, which was also taking an important place as an educational centre. This side of the work would develop very rapidly with the ampler room and better facilities for teaching now available. The College had also striven to secure better conditions for nurses in hospitals and nursing homes, and a scheme of pensions on superannuation had been drawn up by the College in conjunction with King Edward's Fund and other organizations; it was at present being considered by hospital authorities. Sir Arthur Stanley announced that he had received a letter from Dame Sidney Browne, matron-in-chief of the Territorial Nursing Service during the war, and the first president of the College, enclosing a cheque for £300 to be used for research in respect of the nursing of tropical diseases. Lady Cowdray then asked the Queen to accept the deeds of the building, which Her Majesty handed over to Dame Sarah Swift, president of the College. The Minister of Health in his address spoke of the fine example of practical generosity set by Lord and Lady Cowdray. The improved conditions of the College would enable the profession of nursing to realize still higher ideals and to make more rapid progress in the future. After Sir Edwin Cooper had presented to the Queen a memorial book of the building she declared the building open, and the Archbishop of Canterbury pronounced a benediction. Her Majesty subsequently inspected the building closely, spending a considerable time in the

record room, where the records and present addresses of nearly all the 25,000 members of the College are filed. Other rooms visited included the invalid cooking room, the research departments, and the special rooms for post-graduate courses. The British Medical Association was represented at the ceremony by the Deputy Medical Secretary, Dr. G. C. Anderson.

MANCHESTER ROYAL INFIRMARY.

The annual report of the Manchester Royal Infirmary for 1925 states that there is a need for considerable extension. The present accommodation only provides for the reception of the average number of surgical patients presented each week as cases of accident or emergency; all other patients must be placed on a waiting list, to be admitted in their turn as opportunity offers. At the beginning of 1925, 1,152 persons were awaiting admission, and at the end of the year the number had increased to 1,682. The situation is becoming more acute each year with the increase in the area and population served by the Infirmary. Before any scheme of extension is practicable the accommodation for the nursing staff must be enlarged. The addition of 81 nurses and 28 maidservants will be necessary if accommodation for 180 more patients is to be provided. At a special meeting of the trustees in June, 1925, it was resolved to appeal for £150,000. It is also necessary to diminish the present working hours of the nurses (day staff 63; night staff 73) to 56 hours a week, and to provide for nurses, masseuses, and students of the school of massage, who are at present lodged in premises outside the Infirmary. The existing accommodation for dining and service must be doubled, and rooms for study, lectures, and recreation be obtained. It has long been desired to establish a preliminary training school for fifteen probationers undergoing two months' preparatory work as an introduction to their training in the wards, in order to reduce the serious wastage during this period in consequence of physical unfitness. Future requirements will be anticipated by planning the nurses' home in such a way as to permit of the addition of more stories as required. The fitting and equipment of premises for treatment by artificial sunlight is in progress, part of the existing buildings being utilized. They will form a section of the x-ray, massage, and electrical department. During 1925 a research laboratory for clinical investigation was opened at the Infirmary in conjunction with the University. It is hoped that an increased number of valuable contributions to medical science may result, especially in the case of cancer, of which no fewer than 890 cases received treatment during 1924. The number of new casualty cases treated in the accident room at the Royal Infirmary, and at the central branch, has increased from 19,491 in 1922 to 26,347 in 1925, and the daily average number of such cases is now seventy-five, as compared with fifty in 1920. During the last four years an average of over 950 persons annually required admission as in-patients as the direct result of accidents.

BIRMINGHAM HOSPITAL FOR WOMEN.

At the annual meeting last month of the governors of the Birmingham and Midland Hospital for Women it was announced that the new wards which had been opened in February, 1925, had accommodated 187 patients by the end of the year. The treatment of these additional patients had necessitated extensive alterations to the operating theatres, which had been completed by the autumn, and, as the result of the various additions and improvements, 300 to 400 additional patients could be dealt with each year in the future. During the year under review 2,280 in-patients had been treated, all of them suffering from grave diseases. From the time the hospital was opened in 1871 up to the present no fewer than 44,525 in-patients had been received. The admission of out-patients had increased slightly, and had reached 4,054. The work of the maternity hospital continued to grow steadily, and 991 in-patients had been treated during the year; it had, however, been impossible to utilize the whole of the hospital owing to difficulties which had been encountered in completing and adapting the building. The out-patients had considerably increased, and the total for the year was 6,336; increasing use was being made of the convalescent home.

India.

[FROM OUR OWN CORRESPONDENT.]

BENGAL KALA-AZAR CONFERENCE.

THE second Bengal Kala-azar Conference was attended by about 600 delegates, including the chairmen of several municipalities and representatives and medical officers of some 200 rural antimalarial societies. Lord Lytton, the Governor of Bengal, in opening the conference, said that the Government had made a survey to ascertain the prevalence of the disease and the areas of infection; research work had thrown light on the symptoms, the nature of the disease, and the best lines of treatment. District public health officers had been appointed with a view to placing the treatment of the disease on a sound administrative basis, and facilities were now provided for the special training of medical officers. Local organizations had been very active also in this work. The Central Co-operative Antimalarial Society had in 1924 sixty-seven centres for the voluntary treatment of villagers, and the Bengal Health Association had twenty-four kala-azar centres; both bodies had received grants from the Government, and it was possible that the grants would be increased in the coming year. The papers read at the conference dealt with the incidence of the disease in various districts, the incubation period, schemes for eradication, and treatment by antimony salts. It was decided to form a kala-azar information bureau for collating reports about the disease in the province, and to continue and complete the kala-azar survey.

KASHMIR HOSPITALS.

The work of the Kashmir Medical Mission of the Church Missionary Society increased considerably during 1925; the out-patients at the hospital at Srinagar numbered 21,175, and 1,829 in-patients were received, of whom 1,358 were admitted on the surgical side. There were 312 operations for entropion and trichiasis, and 799 other minor eye operations. Cataract is relatively uncommon, and only 83 patients required operative treatment. Bone disease is prevalent, and 83 sequestrotomies were necessary in the lower extremity alone. Surgical tuberculosis has increased, and kangri-burn cancer is of frequent occurrence. The total number of surgical operations was 6,435. The superintendent, Dr. E. F. Neve, who began work at the hospital in 1886, will hand over the charge in the coming autumn to Dr. H. T. Holland. Dr. Neve's length of service exceeds by three years that of his brother, Mr. A. Neve, who was connected with the hospital from 1882 to 1919. Dr. E. F. Neve is also honorary superintendent of the Kashmir State Leper Hospital, and in his report for 1925 he announces that the new buildings for the healthy children of lepers were completed last summer and are now occupied. We referred to this addition to the hospital on April 25th, 1925 (p. 802), and it is now clear that the extensive accommodation for these children and for the lady superintendent of nursing has been provided at a comparatively low cost. Active treatment of leper patients with ethyl esters, gynocardate tablets, or chaulmoogra emulsion has been continued with very encouraging results, in spite of the fact that some of the patients dislike the length of the course of treatment necessary. During the year 90 new patients were admitted and 135 surgical operations were performed.

MOBILE DISPENSARIES IN THE CENTRAL PROVINCES.

The annual public health report of the Central Provinces and Berar for 1924 contains an account of the thirty mobile dispensaries which are at work in the various districts. During the year under review 4,511 villages were visited and over 60,000 patients treated, an increase of nearly 14,000 patients over the previous year. The chief conditions treated were malaria, digestive and respiratory disorders, and diseases of the skin and eye; 7,731 antiplague inoculations and 1,673 anticholera inoculations were also given. In addition to treatment the staff of the dispensaries inspected over 50,000 children in village schools, checked the vaccination and vital statistics in the villages,

and reported on the water supply and sanitation. Educational propaganda is carried on, including the organization of lectures at village fairs. Instruction is given on the prevention of plague, cholera, small-pox, and malaria, the dangers due to flies, and the principles of child welfare. These dispensaries are available for concentration on the outbreak of an epidemic at any centre in the province. It is hoped to increase their number, and to reduce the size of the area over which each at present travels.

Correspondence.

FUNCTIONAL ALBUMINURIA IN ATHLETES.

SIR,—If Dr. Abrahams will consult my paper on functional albuminuria in athletes, published in the Medical Society's *Transactions*, vol. xxx, he will find that I answer one or two of the points raised in his letter of May 1st. My observations were based on the examination of 167 specimens of urine, taken from half an hour to an hour after rowing, and of this number 100 showed a very definite quantity of albumin. My observations seemed to prove that the quantity of albumin depended entirely on the degree of exertion. In more than one instance in which I was able to get specimens immediately after a severe race, the urine of every member of the crew contained albumin, and in some cases very large quantities. In some instances I was only able to get specimens from men who had rowed short spurts during training, and in these cases albumin was often absent.

Dr. Abrahams says in his letter, "I have investigated the effects of track athletics upon a fairly extensive scale . . . yet subsequent albuminuria has been conspicuously absent," and then he adds, "From my own experience I have always been of opinion that the albuminuria described by Dr. Collier and others as occurring in oarsmen is not due to the exercise *qua* exercise, but depends upon mechanical factors which are easily invoked in the case of rowing and obviously absent in running." Now my results with regard to this point are entirely opposed to his. I examined the urines of twelve men in training for the Inter-University Sports after severe exercise, and in every single case I found albumin, and generally in considerable quantities. I next asked the medical officers of Sherborne, Repton, and Cheltenham Schools to examine the urines of some of their boys, taken from half an hour to an hour and a half after racing, and of 38 specimens examined 37 contained albumin.

My observations led me to realize that in a very few hours after exertion the urine would be quite free from albumin. The conclusion I came to was that the albumin was probably due to acute passive congestion of the kidneys as the result of temporary overdistension of the right side of the heart. Some years later this theory was strengthened by the fact that in 1912 I had an opportunity of examining the urines of a large number of men who were taking part in a twenty-four hours walking contest promoted by the Blackheath Club. The urines were taken after they had completed twenty-two hours' walking, and in every instance I believe had covered more than a hundred miles; in not a single specimen did I find a trace of albumin, nor did any of the competitors show any sign of overdistension of the right side of the heart.—I am, etc.,

Oxford, May 27th.

WILLIAM COLLIER.

SIR,—There is no doubt that strenuous exercise of any sort can and often does produce transient albuminuria in young adolescents. In track racing it is quite common amongst boys, and (within limits) the shorter and quicker the race the more likely there is some albumin to be found in the urine. For example, the quarter and half mile races are run at a much higher rate of speed than the mile, and albumin is found much more constantly and in larger quantities in the shorter ones. I have frequently examined the urine of competitors directly after these races: sometimes a deposit of as much as one-sixth of albumin has been found after the quarter-mile in perfectly healthy boys, without any trace next day. In the mile or steeple-

chase there is generally only a slight cloud. My experience, therefore, is at variance with that of Dr. Abrahams (May 8th and 15th, p. 845).—I am, etc.,

May 24th. L. R. LEMPRIERE,
Medical Officer, Haileybury College.

DEATHS IN THE BATH.

SIR,—From time to time we read of persons found dead in the bath. That these tragedies are not more frequent, in view of the millions of baths taken daily, shows that the danger is comparatively remote; still, as there is a danger, and as there appears to be a good deal of misconception of the nature of the danger, I am venturing to write this letter.

Apart altogether from the question of death from the products of combustion in geyser-heated baths, there is the risk inherent in the bath itself. Whenever the body is immersed in water much above or much below the skin temperature, certain changes of blood pressure take place, and while the wonderful compensatory apparatus of the body makes these changes quite innocuous in the healthy state, in certain unhealthy states the circulatory system may be unable to accommodate itself with sufficient rapidity, and death may ensue.

As it is in hot baths that such fatalities are more often recorded, let us take them first.

On entering a very hot bath there is first of all a constriction of the vessels of the skin in the part immersed, and, with this, a reflex contraction of the correlated deep vessels. The result of this is a higher blood pressure and an increased blood flow to the non-immersed part—the head. This condition is soon succeeded by cutaneous hyperaemia and a lowered blood pressure. There are therefore two dangers—*apoplexy* on first entering a bath, and faintness and *heart failure* on prolonged immersion; and persons with high blood pressure and brittle arteries, and those with enfeebled heart, should be warned of their own special dangers and shown the measures necessary to minimize the risks.

(a) *Apoplexy*. Before getting right into the bath, apply a sponge of very hot water two or three times to the carotids and to the nape of the neck. This diminishes the cerebral arterial supply. Then get into the bath and immerse rather gradually.

(b) *Heart failure*. Don't take the bath too hot, and don't stop in too long.

In cold baths the only risk worth considering is that of apoplexy. Here repeat the process advised, using a cold sponge to the carotids and nape of the neck.

There are, of course, numerous other factors which play their part in an ordinary bath, but they are minor points, mention of which would be out of place in a short note such as this.—I am, etc.,

Kensington, W., May 30th.

ARTHUR S. HERBERT.

DYSENTERY IN MESOPOTAMIA.

SIR,—Will you allow me to make a somewhat belated contribution to a correspondence which took place in your columns in February, March, and April of this year under the above heading?

The correspondence arose from an observation by your reviewer in analysing the *Report of the Health of the Army for the Year 1923*. This report has only now come into my hands. The figures adduced for the incidence of amoebic and bacillary dysentery as determined by the laboratory were as follows:

		Total.	Amoebic.	Bacillary.
Iraq	...	207	181	?
Turkey	...	112	1	61
Egypt	...	64	35	29

In face of these figures your reviewer made the statement: "This bears out much of what has previously been recorded in connexion with the geographical distribution of amoebic and bacillary dysentery."

Dr. Boney and Dr. Mitchell very rightly challenged this statement by referring to their laboratory experience in Mesopotamia during the war. Mesopotamian dysentery,

as I have fully analysed elsewhere,¹ was amoebic only to the extent of 20 to 25 per cent. of cases. Epidemic dysentery in Iraq, as elsewhere, was bacillary. Consequently, if the figures in the army report are to be regarded as sound, things must have greatly changed. But have the conditions really changed? I note in the army report that in Iraq the admission rate for dysentery rose from 10.2 to 104.3 per 1,000, "owing to an outbreak of dysentery and diarrhoea affecting a column of troops operating in Northern Kurdistan in April, when some 200 cases occurred." Is it conceivable that these cases were in the main amoebic? I think not, and until we have further information with regard to the figures cited, both from the clinical and bacteriological sides, I prefer to conclude that Iraq dysentery has not changed.—I am, etc.,

J. C. G. LEDINGHAM,
Late Consulting Bacteriologist,
Mesopotamia Force.

London, S.W.1, May 26th.

THE TUBERCULIN DISPENSARY.

SIR,—I have returned to London with the specific intention of reviving the tuberculin dispensary system of dealing with tuberculosis and consumption (chronic phthisis) among the wage-earners in large cities, and the work will begin at 32, Fitzroy Street, Fitzroy Square, W.1, on June 15th at 9 a.m. I invite all those who have been associated with me in the past to be present, and I trust that medical men, including panel doctors, may send their patients for treatment as they send them to the out-patient department of a hospital. I wish not only to treat patients, but to offer by means of object lessons direct proof to doctors of the value of the system to patients who cannot afford to give up their daily work. A year's experience will teach medical men that the system is safe and sound in practice. Moreover, the general practitioner will be able to watch for himself the slow and laborious process by which patients can be restored to comparative health.

The system in vogue under which the treatment of chronic phthisis and other forms of tuberculosis is relegated to medical officers of health is in the interest neither of the patient nor of the general practitioner. I wish to help both the general practitioner and the patient.

The evaluation of rival methods of treating chronic phthisis is not the simple matter many doctors think it is, unless certain conditions are strictly enforced.

1. *All the cases treated must be recorded.* If failures are not recorded and if favourable cases are specially selected, we cannot assess the true value of any method of treatment. The reputation of sanatorium treatment has been largely formed from the results obtained in selected cases.

2. *The method on trial should be the exclusive method.* Otherwise faulty logic may lead us to doubtful or even wrong assumptions and conclusions.

3. *The diagnosis must be beyond doubt or cavil.* If tubercle bacilli have been demonstrated in the discharges, the diagnosis is beyond any doubt. If no bacilli can be found, the tuberculin test must be used, but the interpretation of a tuberculin reaction needs experience and knowledge. Accordingly in the process of evaluating the virtues of rival systems, it is necessary to exclude cases in which no tubercle bacilli have been found. But even so, one must compare like with like, and, while we record all cases, we must group these cases roughly according to the stage of the disease; Turban's classification is the best known and the simplest, though far from perfect. Further, since Stage 3 (Turban) is almost beyond the influence of all methods in 80 per cent. of the cases, it is best to place cases in this stage in a class by themselves. I have seen extraordinary results, even in this third stage, when tuberculin, ultimately in large doses, has been given. Some such patients whom I treated in 1908-11, even though severe ulceration of the larynx existed, are still alive and enjoy life, and have led the lives of ordinary people and not of invalids. The patients merely with definite physical signs and more than suggestive symptoms, who react to tuberculin locally, generally, and even focally, form the most interesting class of all, and may or may not need immediate treatment. We should remember that the most advanced forms of consumption were at one time in this early stage, and it is our duty to do all we can to prevent the disease passing into the later stages. My long experience justifies me in saying that systematic treatment in this early stage prevents the disease passing into the later stages in 95 to 100 per cent. of the cases, at any rate for many years. Briefly, then, to test the value of tuberculin or any other method, all cases in the first and second stages which manifest open lesions with tubercle bacilli in the expectoration should be recorded.

4. All the cases of this character (Stages 1 and 2) should be

¹ Journ. Roy. Army Med. Corps, 1920.

treated by the method of choice and by no other method, and all of them should be controlled by after-examinations at least once a year for five years after the beginning of the treatment.

Observing these conditions as closely as possible, I published my first series of cases in my Weber-Parkes Prize Essay (1910), amplified in my book *Tuberculin in the Diagnosis and Treatment of Tuberculosis* (1912). Those who run may read. In 1923 I wrote a vindication of the tuberculin dispensary for the poor, and my records of all the cases in the first and second stages of open chronic phthisis, treated at the tuberculin dispensary without any serious sacrifice of work or wage, gave this result: 68 per cent. were alive eight years after treatment and most of them were still at work. The London County Council results were: 28 per cent. were alive four years after treatment. Nothing is said of their capacity for work. Lastly, I have just prepared a general survey of the principles that should guide us in the use of tuberculin in diagnosis, prognosis, and treatment. This book, *The Principles of Immunity in Tuberculosis*, which Messrs. Nisbet have ready for publication, is designed to be a handbook for those who study and work at the tuberculin dispensary.

I can claim to be about the only Englishman who has used tuberculin continuously on every possible occasion since the year of its discovery (1891); and each succeeding year of observation and experience has increased my conviction that tuberculin, used in doses of proper strength, properly timed, properly administered, and carefully controlled by constant clinical observations, is far the best remedy known to science, benefiting, as it does, 75 per cent. of those suffering from consumption and tertiary manifestations affecting other organs than the lungs.

Tuberculin treatment is the only alternative to sanatorium treatment in the widest sense. Artificial pneumothorax is no alternative, because tuberculin prevents most of the serious conditions that justify such a serious and prolonged procedure, which has serious risks of its own. But, for economic and sociological reasons, sanatoriums under existing conditions cannot benefit 20 per cent. of the cases of consumption occurring in the wage-earners of London and other large cities. I hope to prove to medical men by object lessons that the tuberculin dispensary is the institution *par excellence* for the neglected 80 per cent. of sufferers who can never enter sanatoriums. At the tuberculin dispensary we expect to succeed in fully 75 per cent. of all cases, because we shall make full use of tuberculin as a means of diagnosis, and thereby discover the disease in the secondary stage, before the tubercle bacilli have reached the blood vessels—in fact, in the earliest stage, when tuberculin can do wonders.

Let medical men gain the experience I have gained at the tuberculin dispensary, and they will learn, as I have learnt, that both for the treatment and prevention of the tertiary manifestations of tuberculosis among the poorer classes the key to success lies in imitating Nature's own ways. At least our methods are not secret, and I would implore the profession and the public to try a plan that is deduced from a careful study of the complicated nature of consumption in human beings.—I am, etc.,

W. CAMAC WILKINSON, M.D. Lond., F.R.C.P.

London, May 31st.

THE DEFINITION OF BLINDNESS.

SIR,—I am a bit disappointed with the substance of Mr. Bishop Harman's paper on the definition of blindness (May 29th, p. 907). The title appealed to me, and I turned to the article with high hopes of help. But it seemed to me that his only point was to criticize a useful step in the right direction.

Circular No. 681 may not be the last word on the subject of blindness, but it surely is better than the haphazard way in which the selection of blind persons for various benefits and training has been carried out. Does Mr. Harman realize that there is no system at all in existence for the examination and certification of persons who apply for old age pensions at an earlier age than 70 on account of blindness, and that certification for the purpose of other schemes such as necessitous grants, and blind training centres, may vary in value from the report of an ophthalmic surgeon

through the certificate of a general practitioner to the more statement of a lay visitor or a relieving officer?

That I am not making a random statement may be apparent from the following instances which have come under my notice this year.

(1) I was asked to certify a man for a necessitous grant who was already drawing the old age pension (as a blind person) and found that although he had incipient cataract he had at least 6/12 vision in his better eye.

(2) As honorary surgeon to an eye hospital, I had a request from a relieving officer to certify that a woman had not sufficient vision to carry on her occupation as tailoress, and when I pointed out to him that this was not sufficient to qualify her for the blind old age pension, he assured me that he had been able to get the pension for several other cases on a similarly worded certificate and so remove them from his Poor Law relief list.

(3) On appointment as honorary ophthalmic surgeon to our local blind institute, my first duty was to weed out several cases which were not really blind, and could not be satisfactorily trained.

Mr. Harman's remarks about the relativity of blindness are surely commonplace to anyone who has thought about the subject at all. It seems to me, therefore, that instead of damning Circular 681 because it does not embody the full report of the special committee of the Royal Society of Medicine, we should welcome it as a sign of awakening, and, from the point of view of dealing with the certification of the blind, a step in the right direction. I would suggest that the next step should be for the Ministry of Health to make a definition of the quality of the certificates, and—what follows from that—the quality of the remuneration they propose to offer for adequate certification.—I am, etc.,

Plymouth, May 30th.

CECIL B. F. TIVY.

ALLEGED INTESTINAL ANTISEPTICS.

SIR,—In your issue of May 29th is an advertisement in which the following words appear:

"Doubt having been expressed by a medical practitioner in a recent issue of the *B.M.J.* as to the efficiency of Dimol when taken in the form of pulverettes, we desire once more to call attention to the fact that, where there is a deficiency of pancreatic enzyme, all keratin-coated tablets or pulverettes are liable to pass undissolved throughout the intestinal tract. For this reason, and at the suggestion of various correspondents, sugar-coated B Dimol pulverettes (yellow) have been prepared and are found to give most gratifying results."

It is not unreasonable to assume that the reference made here is to my article on the action of certain alleged intestinal antiseptics, which you published on February 27th last. I shall be glad, therefore, if you will allow me to correct an altogether misleading impression which this advertisement may otherwise produce. In my experiments with dimol, the tablets of this preparation used were *not* keratin-coated, but the "sugar-coated dimol pulverettes (yellow)" mentioned in the last sentence I have quoted from this advertisement. This should have been perfectly evident from my article, in which it is stated (p. 368) that a tablet of dimol "weighs, after removing its sugar coating, about 4 grains."—I am, etc.,

London, W.2, May 31st.

LAWRENCE P. GARROD.

MENTAL INEFFICIENCY.

SIR,—I have read the British Medical Association Lecture on "Mental inefficiency: treatment or punishment" by Dr. W. A. Potts, reported in the *JOURNAL* of May 22nd (p. 857), with great interest.

Dr. Potts, I notice, places the determining age of a criminal between the ages of 9 and 10 years. He later points out that only a limited number of persons charged can be fully examined, and gives a rough and ready guide for magistrates and court officials to enable them to select the right cases.

May I be permitted to suggest that it would be better if the reports of the school medical officers were fully scrutinized? In these days, when the country is provided with such an excellent scheme for examining all children (as a routine at least three times during their life at the elementary schools, and as special cases *re* mental deficiency if considered necessary by teacher or doctor), the information obtained should be at the disposal of court officials.

Apparently Dr. Potts has not recognized the help of the school medical service at all.—I am, etc.,

MARION BONRCOMBE, M.B., Ch.B., D.P.H.,

Bristol, May 24th.

Late Deputy and Assistant M.O.H.,
Swindon, Wilts.

THE LATE SIR JOHN WILLIAMS.

SIR,—In your interesting obituary notice of Sir John Williams I notice (p. 923) the name of "Sir Hugh Owen" in connexion with the National Library of Wales. Who was "Sir Hugh Owen"?

I knew Dr. Henry Owen of Poyston, Haverfordwest, D.C.L. of Corpus Christi College, Oxford, and a great friend of Sir John Williams and of mine. He collected a library of Welsh books, which I understood were to be incorporated in the National Library, and built a library for them at Poyston, which I have seen. Is not "Sir Hugh" a misreading of "Dr. Henry" in the MS.? I notice lower down in the same page what looks like a similar uncorrected error—"request" for bequest—which strengthens my surmise.

In connexion with the collection of books for the National Library an amusing incident occurred. One of them told me (I think it was Owen) that each of them, unknown to the other, had ordered his agent to bid for a small book, of the value of a few pence, at a forthcoming sale. The sale took place, and the book was knocked down to one of them for £5. They afterwards found that their agents had been bidding against each other, unwittingly, as each of them had expressed a desire to get it to complete his collection. For years afterwards they kept receiving at intervals catalogues with a special note: "At the ——— sale in (date) this book fetched £5."

—I am, etc.,

Nutley, May 30th.

FRANCIS CHAMPNEYS.

* Sir Hugh Owen, who was born at Carnarvon in 1804, was first a clerk at the Poor Law Commission and afterwards chief clerk of the Local Government Board. The *Dictionary of National Biography* says of him:

"The great work of the later half of Owen's life was the organization of higher education in Wales, and it is to him, above all others, that the University College of Wales at Aberystwyth owes its existence. . . . Owen was the chief instrument in bringing about a reform in the Eisteddfod, thereby renewing its usefulness and reviving the national interest in it."

He died in 1881. There is a statue of him at Carnarvon.

"Request" is probably, as Sir Francis Champneys suggests, a misprint for "bequest," but the report of the Historical Manuscripts Commission is not at hand.

THE PRESERVATION OF APPLES.

SIR,—The letter from Dr. Jones on the use of carbonic acid in the preservation of food, published recently in the *BRITISH MEDICAL JOURNAL*, leads me to record the fact that for years past I have experimented in a mild way in the preservation of apples (home grown) for domestic use, and at last, thanks to a tip given by a lecturer from the School of Horticulture, Cambridge, I have succeeded to my entire satisfaction.

The method is as follows: The apples, when freshly gathered, are placed in earthenware crocks, and sealed down with pasted paper, in exactly the same manner as the cook covers her jam-pots. The crocks should be kept in as even a temperature as is possible. Apples stand a low temperature much better than potatoes.

The scientific idea (theory) is that they secrete CO₂. When taken out for use they should be allowed to stand in the air for at least twenty-four hours, "to come to life again," otherwise they taste "clung" or musty.

Personally, I could not afford these crocks, or horse troughs, so I got New Zealand butter-boxes from my grocer, and pasted them inside and out with several layers of glazed paper, such as is used by the shilling weeklies.

I enclose a sample of six apples for the Editor to express his opinion. They were put down in October, 1925, and the box opened this week.

There must be many practitioners with orchards who find that there is a glut of apples in September and October, when one cannot give them away, while at the present time they are worth at least 1s. a lb. I hope they may find this tip useful.—I am, etc.,

Diss, Norfolk, May 22nd.

H. M. SPEIRS, M.D.

* In the opinion of the editorial staff the apples forwarded by Dr. Speirs are wonderfully fresh, crisp, and juicy; they are ripe, and look as though they were only a few weeks off the tree.

Obituary.

ERNEST SEPTIMUS REYNOLDS, M.D., F.R.C.P.,

Consulting Physician, Manchester Royal Infirmary, and
Emeritus Professor of Clinical Medicine in the
University of Manchester.

ERNEST SEPTIMUS REYNOLDS, whose death on May 22nd from acute influenzal pneumonia was briefly announced in our issue of last week, was born in Manchester on April 7th, 1861.

As a boy he was educated at the Manchester Commercial Schools, which no longer exist, and gained many prizes there. He matriculated at the University of London in 1878, and entered the Owens College and the Manchester Royal Infirmary in the same year as a medical student. His prize-taking career continued; he won the Platt Physiological Exhibition in 1880, and was fourth in honours in physiology in the Intermediate London M.B. He qualified as L.S.A. and M.R.C.S. in 1883, and took the London M.B. in 1884, in which he was third in honours in forensic medicine; he graduated M.D. in 1885.

As soon as he was qualified he was appointed junior assistant medical officer to the Macclesfield County Asylum, but after three months removed to the Cheadle Royal Asylum of the Manchester Royal Infirmary. There he worked for three years, and was then appointed pathologist and assistant medical officer to the West Riding Asylum, Wakefield, where he was engaged for nine months in original investigations. He left Wakefield in 1887 to become resident medical officer at the Manchester Royal Infirmary; he held this post for the long period of four years, during which time he amassed a great store of clinical experience. In 1891 he was appointed honorary physician to the Ancoats Hospital and physician to the Manchester Workhouse Infirmary. In the latter post he had 1,200 beds under his supervision. In 1892 he was appointed lecturer in hygiene to the Lancashire County Council, and during the final illness of Dr. James Ross he acted as lecturer in medicine at the Owens College, delivering a course on nervous diseases.

In 1899 he was elected to the honorary staff of the Manchester Royal Infirmary, and remained in active work on it until he was appointed honorary consulting physician in 1921.

In 1884 he published a *Primer of Hygiene* for the use of higher grade school children and for those who attended elementary lectures on hygiene, as given in evening continuation classes, mechanics' institutions, university extension and county council courses. It met with much success, having been reissued twelve times after revision, and is still in demand. Two years later he published a small work on *Hygiene for Beginners*, which was an enlargement of the *Primer* with some anatomy and physiology introductory to the hygiene. This has been reprinted with necessary editions seven times.

Reynolds was the most talked of physician in the kingdom, and probably in Europe, for a time in 1900 when he discovered the presence of arsenic in beer, which was

poisoning people in unknown numbers. For twelve months he had noticed in his wards and out-patient department a considerable number of cases of unusual skin eruptions of a more or less indefinite character, such as erythema, keratosis, pigmentation—the last being especially common among the poorer patients. Some of the pigmentation cases were diagnosed as Addison's disease by his assistants, but he was not satisfied with this diagnosis. Then in one week six cases came before him with erythromelalgia of hands and feet and a series of cases of herpes zoster appeared. About the same time an extraordinary number of cases of so-called "alcoholic paralysis," principally women, many of whom had taken very little beer, were admitted to the workhouse hospital. Other observers noted the increased prevalence of "alcoholic paralysis" and attributed it to increased drinking. He had doubted for many years whether ethylic alcohol *per se* caused peripheral neuritis, and this doubt was supported by the epidemic

being amongst beer drinkers and not spirit drinkers. Then when it was seen that the skin lesions were occurring in the cases of paralysis, and herpes zoster in "beautiful" form, he bethought him that arsenic was the only known drug that produced herpes, and, as one of the sisters in charge of his wards tells us, he said, "I've got it." Improbable though this hypothesis of arsenic poisoning at first seemed to him, it was valid and not known to be untrue. He therefore obtained some of the beer most commonly taken by the sufferers, and on November 15th, 1900, by Reinsch's test, he easily obtained a deposit on the copper foil and arsenious oxide in a combustion tube. He communicated his discovery to Professor Dixon Mann, who examined another sample of beer with positive result. Dr. Dixon Mann informed Professor Delépine, who, unknown to Dr. Reynolds, was also investigating the epidemic of paralysis, etc., at the request of the medical officer of health for Salford, and he, on November 22nd, traced the arsenic to certain sugars used in brewing. From the sugars the arsenic was traced to sulphuric acid used in their preparation. One firm of brewers only used the contaminated sugars, but



Ernest S. Reynolds

Photograph by]

[N. S. Kay, Manchester.

it supplied over two hundred breweries in the Northern and Midland countries. The beer contained arsenic in amounts varying from 0.01 to 1 grain per gallon, the average being about 0.2 grain, or the equivalent of 14 or 15 min. of liquor arsenicalis per gallon.

The discovery created a great sensation in the town and neighbourhood, which continued for some time as confirmatory results came from other observers. An account of the epidemic appeared in this JOURNAL in a series of articles (1900-3), and a paper on the subject was read before the Royal Medical and Chirurgical Society on January 8th, 1901. The sequence of the symptoms in the arsenic cases was: (1) digestive symptoms; (2) laryngeal catarrh, bronchitis, and acute skin symptoms; (3) disturbances of sensibility; (4) motor paralysis with the skin lesions. These observations agreed with those of Brouardel in 1889 in a series of fifteen cases of homicidal arsenic poisoning. An addendum to this series of papers was one published in the *Medical Chronicle* in 1901 on "Some old records of epidemic arsenical poisoning." The amount of beer taken

daily by some of the patients had not been enough to produce neuritis from alcohol according to the views then held, and had only contained about as much arsenic as there is in 3 or 4 minims of liquor arsenicalis.

Reynolds learned a good deal about peripheral neuritis from James Ross and Julius Dreschfeld, who were working at it when he was resident medical officer in the infirmary. In the eighties and nineties of last century peripheral neuritis of supposed alcoholic origin was very common in Manchester and especially in Ross's wards, so much so that the clerks were pleased to get away from it. One day, as they walked their student rounds, they knew that there was a patient with diabetes mellitus in the ward—a youth with a wolf-hunger but still emaciated—and they thought they would have a change of subject with him. But when Ross was told what the case was he immediately pulled up the bedclothes and demonstrated the diabetic form of peripheral neuritis. "Alcoholic" neuritis is very uncommon now in Manchester, and the old group of symptoms is rarely seen—flabby anaemic face; complaints of morning sickness and distaste for food; cramps at night and the necessity of getting out of bed to stand on the cold hearthstones to relieve them; wrist-drop and ankle-drop; and the agonized look of muscular hyperaesthesia brought on by squeezing the calf. There must have been some arsenic in the beer for years before Reynolds found it, and it can be truthfully said of him, "He made beer purer." The rarity of the above type of neuritis nowadays, when whisky and beer are still consumed in very considerable quantities, strongly supports his opinion that ethyl alcohol alone does not cause peripheral neuritis.

He had a very large consulting practice, and was much sought after for an opinion on mental cases. His experience in asylums eminently fitted him for this work, and as he was very definite in any opinion given his advice about certifying patients was very helpful to practitioners. His advice on the treatment of nervous cases on lines which he had found valuable after years of experience was excellent. The cult of the modern psychotherapy did not appeal to him; the only new thing in it, he said, was Freudism, about which he was scornful. Some of his comments on it were reminiscent of Mercier at his best.

Reynolds took a prominent part in the opposition of the profession to the National Insurance Act when it was going through Parliament, and was one of the platform speakers in a mass meeting of the profession in Manchester. He could see no good whatever in the bill, nor could the meeting. He rarely appeared at public meetings or wrote to the lay press, holding strongly the view that professional reticence is most seemly for a Fellow of the Royal College of Physicians; but when a fitting occasion arose he lent the weight of his authority in support of some matter of moment, such as a defence of asylums when they were charged a few years ago with improper treatment of the patients in them.

In 1912 Reynolds was president of the Manchester Medical Society, and in his address took the opportunity of stating his views of the practice of medicine as a fine art; the main theme was the value of careful bedside observation and the importance of making a diagnosis whenever possible without the aid of laboratory methods. "A short time ago I asked a student how he would diagnose a pleuritic effusion. He promptly answered 'By x rays.' I then said: And supposing you were practising in the Isle of Skye, how would you diagnose it?" He said, 'I don't know.'" He was out and out a clinician, and never did any laboratory work. He used its methods as aids to diagnosis in suitable cases, but he often broke a lance, with a habit he had at times of over-sharpening its point, against the tendency to use them before a full clinical examination had been made. He did not approve of the present Mayo Clinic system of accumulative departmental diagnosis.

In October, 1888, he was admitted a Member of the Royal College of Physicians, on which occasion he was congratulated by Sir Andrew Clark, P.R.C.P., for the distinguished manner in which he passed the examination, and received a "special resolution" from the Censors' Board to the same effect. This was a rare and great honour, the Registrar informed him, only conferred about once in three

or four years. As a consequence, he was elected to the Fellowship in 1896—a very short period of probation after passing the M.R.C.P. for a provincial physician. He was appointed Bradshaw lecturer in the Royal College of Physicians in 1917, and chose as his subject the "Causes of disease," to which his thoughts had been directed by trying to find the cause of the "very distressing and prevalent affection, disseminated sclerosis." It was very thoughtful and covered a wide range; but he had nothing new to offer in regard to the causation of disseminated sclerosis, which in his experience is "the commonest organic disease of the nervous system in which morbid changes can be found."

For some years Reynolds was professor of clinical medicine in the University of Manchester, and gave the students a weekly lecture at the Royal Infirmary, bringing to his aid the very practical experience of an acute clinical observer and his power of interesting exposition. His lectures were very attractive, for the students recognized a master in his work and a dominant personality in the profession. He was a very clear thinker, precise speaker, and a good witness in law courts. He frequently took part in trials under the Workmen's Compensation Act, and barristers did not like the task of cross-examining him. He also gave evidence from time to time in mental cases. He had a fund of interesting experiences, and was a very entertaining companion when he related them.

Dr. Reynolds was secretary of the Section of Psychological Medicine when the British Medical Association held its Annual Meeting in Manchester in 1902, and vice-president of the Section of Neurology and Psychological Medicine at Liverpool in 1912; he was one of the representatives of the Lancashire and Cheshire Branch on the Central Council in 1912-13.

We are indebted to Dr. ARCHIBALD DONALD for the following appreciation:

As one who knew Dr. Reynolds intimately for many years, I should like to pay a tribute to his memory. It is for others to deal with his career, with the work he accomplished, and with his standing as a physician; but perhaps I may be allowed to refer to some of his personal characteristics.

He belonged to what some may regard as the old-fashioned clinical school, and was very outspoken in condemning some of the more modern methods in medicine. He believed that the present-day student was being taught to rely too much on artificial aids, such as the use of x rays and other laboratory methods, to the exclusion or restriction of careful clinical training. He thought that the trained physician should be able to arrive at a sound diagnosis by the unaided use of the senses of sight and touch, supplemented by the reasoning faculty. He himself cultivated the habit of most careful observation and examination, and was often guided by some small symptom or circumstance which might very reasonably have been overlooked. He had, in consequence, the reputation of a sort of Sherlock Holmes in medicine. It is true that now and again, like all others who have had a large consulting practice, he made mistakes: we are all liable at times to have a bias in certain directions, and Dr. Reynolds was no exception in this respect. But in spite of the occasional failure of a "lightning" diagnosis, he was, in my opinion, unrivalled in the disentangling of a difficult nervous or mental case, and it is in this sphere that he will be very much missed.

His tastes were all in the direction of a quiet life. He had his consulting rooms in town, but unlike most of his colleagues he never joined a club. But he was by no means unsocial and enjoyed the society and conversation of a limited number of friends. He was by nature a student, and was interested in many subjects outside his profession. It was his habit, after he had dealt with his correspondence, to read at night until the early morning hours. Fiction had little attraction for him, and his taste lay in the direction of serious literature. At one time, as a means of improving his methods of clinical investigation, he took up the study of logic, and was a keen disciple of John Stuart Mill. Later he delighted in the writings of Mercier, Maudsley, and similar authors, the sort of reading

that most of us are too intellectually lazy to attempt as a recreation. Not very long ago, when he was urged to take more rest, he replied that the years were passing and that he had a lot still to learn.

He never employed a secretary, although his professional correspondence was very large. He had acquired the art of shorthand writing in early life and employed it very freely. All his notes were taken in shorthand, and he wrote all his letters himself.

He was by nature of a shy and reticent disposition and was always content to let his work speak for itself. He owed nothing to social influence, and it was not in his nature to push himself. The one great professional disappointment in his life was when the chair of medicine became vacant on the death of Professor Dreschfeld, and he was passed over by the Senate of the University, many of whom must have been ignorant of his strong claims to the appointment. Under a somewhat quiet and even cold exterior he had great sympathy and kindness. He was a very staunch friend in times of trouble. He was as interested in the poor and less fortunate as in the well-to-do. He will be greatly missed by a large number of former patients, by many men in general practice who valued very highly his advice, but most of all by the few who were privileged to know him intimately.

SIR JAMES CANTLIE, K.B.E., LL.D., F.R.C.S.,

Consulting Surgeon, Seamen's Hospital Society; formerly Lecturer, London School of Tropical Medicine; and Surgeon to Charing Cross Hospital.

By the death of Sir James Cantlie, in his 75th year, there has passed away a remarkable man and, until he retired owing to ill health, an outstanding figure in the medical profession. A man of strong individuality tempered with a full measure of Scottish humour, a ready writer and speaker, and a born teacher, he was wont to use these gifts unsparingly and courageously in any good cause which in his view might be of service to the advancement of medical science or to the welfare of the general public.

Born in Dufftown, Banffshire, in 1851, and educated locally, he afterwards proceeded to the University of Aberdeen, where he obtained his degree in arts and medicine with honours. He then came to London to finish his medical education, studying at Charing Cross Hospital. In a short time he became demonstrator of anatomy in the school, a post he held from 1872 to 1887. He was appointed assistant surgeon to the hospital in 1877 (the year in which he obtained the F.R.C.S.Eng. diploma) and surgeon in 1887. In 1883 he was one of twelve young medical men sent to Egypt to assist in dealing with the outbreak of cholera, the infection of which had been brought into that country by pilgrims returning from Mecca. Probably it was this visit to the mysterious and fascinating East that influenced Cantlie's decision in 1887 to give up his post of surgeon at Charing Cross Hospital and accept Patrick Manson's invitation to settle in Hong-Kong. Perhaps the decision to go to China was also strengthened by the ridicule that had been showered on him by his disquisition on the "Degeneration of Londoners," which was published in 1885. It needed twenty years to pass and a great war to realize that there was some foundation for the warning of the young surgeon of Charing Cross Hospital. Cantlie was not long in Hong-Kong before he became dean of the College of Medicine for Chinese, an institution which owed its inception to the far-sightedness of Patrick Manson. It was in Hong-Kong that Cantlie acquired an extensive experience in tropical diseases in addition to his surgical practice, and it was there that he encountered, in 1894, the first serious epidemic of plague in that colony, which owed its origin to an earlier epidemic in Canton that cost that ancient city a loss in deaths of 80,000 of its inhabitants. During his nine years in China he formed a lasting friendship with Sun Yat Sen, who was his pupil at the Hong-Kong College of Medicine.

On his return to London in 1897 there were three questions he was constantly asking: Why should there not be a tropical medical school in London to train civilian medical officers and others going to the tropics? Why not

a section for tropical medicine at the annual meetings of the British Medical Association? And why not a tropical medical journal published in London? He met with others from the tropics who were asking the same questions and willing to join with him in obtaining all three. Among these was his old friend Sir Patrick Manson. It was accordingly arranged that Cantlie should read a paper at the Imperial Institute on the desirability of the establishment of a tropical school for the education of medical men going to the tropics. After a discussion on the subject a resolution was unanimously passed in its favour, and a committee was formed to meet at Sir Patrick Manson's house to work out details. Sir Patrick at that time was medical adviser to the Colonial Office, and interested Mr. Joseph Chamberlain in the scheme, with the result that Mr. Chamberlain presided at a dinner to obtain funds for the founding of a school of tropical medicine and hygiene in London, with the result that £16,000 was collected at the dinner. It occupied a considerable time before the laboratories were ready for the students, but in 1899 the London School of Tropical Medicine was opened, and at its first session there were seven students, one of whom is now Admiral Sir Percy Bassett-Smith, K.C.B., the distinguished naval surgeon, and a past-president of the Royal Society of Tropical Medicine and Hygiene.

The Council of the British Medical Association agreed to add to its sections one specially devoted to tropical medicine. At the first meeting of the section in Edinburgh in 1898 Sir Patrick Manson (in the chair) read out the famous telegram from Ross of his discovery of the life-history of the malarial parasite in the mosquito. Cantlie also acted as secretary of the section, of which in later years he was vice-president and president. At the same time the first number of the *Journal of Tropical Medicine and Hygiene* was issued, the editors being Cantlie and Professor W. J. Simpson (now Sir William Simpson) who, on leaving India, had relinquished the editorship of the *Indian Medical Gazette*. Later, the Society of Tropical Medicine and Hygiene was founded, Sir Patrick Manson becoming the first president. It is now the Royal Society of Tropical Medicine and Hygiene, and Sir James Cantlie, during his presidency, presented the society with the gold chain and insignia to be worn by the president. He was created K.B.E. in 1918, and received the LL.D. degree from his old university, Aberdeen, in the following year.

Cantlie did not confine his activities to tropical medicine or surgery. His untiring energy and love of work would not allow him. In the days of volunteering he was an enthusiastic Volunteer, and when the Territorial armies were formed he became Honorary Colonel R.A.M.C.T., 1st London Division. For many years he lectured regularly at the Polytechnic on first aid to the wounded. Later he founded the College of Ambulance, and by his teaching there the large number of men and women he trained for service during the war deserves our heartfelt gratitude. In this connexion we must not forget his devoted wife, Lady Cantlie, and the large share she took in his work. She trained during the war an enormous number of V.A.D.s and was a real helpmeet to her husband. Lady Cantlie's death some time after the war was a great shock to Cantlie, who was never the same light-hearted man as before. He leaves four sons.

At the Newcastle Annual Meeting of the British Medical Association in 1921 he was President of the Section of Ambulance and Red Cross. He had represented the Hong-Kong Branch on the Council of the Association on two occasions, and was a member of the Dominions Committee from 1919 to 1922.

We are indebted to Dr. J. MITCHELL BRUCE, consulting physician to Charing Cross Hospital, for the following appreciation of his old friend and former colleague:

No one knew Sir James Cantlie better than I from his boyhood to his last days. As a lad, come of fine old Scots stock, sturdy in build, of keen, "open," confident countenance, and hearty, kindly, straightforward manner, he was the only student of his time at Aberdeen who attended arts classes in the kilt. Honours both in arts and in surgery proved the high order of his intelligence, but from

the first he had a restless disposition, and he interrupted his medical course at Aberdeen to follow me to Charing Cross Hospital. Here, he used to say, I taught him anatomy and taught him how to teach anatomy. In due course he was demonstrator, extraordinarily successful in the results of his students at examinations for qualifications and for the public services. Indeed, as a teacher of practical subjects he was unsurpassed in his time— incisive, epigrammatic, and always humorous, yet with complete control of his pupils. It was through anatomy and at this early stage of his career that Cantlie's attention was unexpectedly attracted to ambulance by circumstances best known to me; and in justice to Cantlie's reputation it is right that these circumstances should be related—in which he took the first step in a partial digression from the recognized professional career of a hospital surgeon and teacher which led him to intimate association, first with the St. John Ambulance Association and later with the Red Cross.

My friend Surgeon Major Peter Shepherd, A.M.S., unexpectedly ordered on active service in Zululand, begged me to correct the proofs of a manual on *First Aid to the Injured*, which he was drawing up for the St. John Ambulance Association. I consented, and introduced him to Cantlie, and we two saw the first edition of the manual through the press. Shepherd fell at Isandlwana, sacrificing himself for the life of a comrade. The memory of his gallantry is preserved in the Shepherd medal in surgery at Aberdeen. Such was Cantlie's introduction to ambulance. But it may well be asked what influenced a young, rising surgeon, on the active teaching staff of a metropolitan hospital and school, to continue to sacrifice time and opportunities of strictly professional advancement for occupation of this character. Naturally a close observer and keen critic of men and things, Cantlie developed by training in science a strong disposition to accept nothing as being all that can be known and the best possible. In the world of his interests he was ever discovering some need of improvement, some public want which had not occurred to others. He was essentially an inventor, certainly a pioneer in things great and small. But so intent was he on the end he had in view that he would be indifferent to the cost of reaching it. He was fearless to a fault. Not to speak of precious time, nor of money (of which he was altogether careless), he was in spirit too determined and independent to hesitate to sacrifice professional practice and position to what he considered his duty to the country. He acted accordingly.

This critical way of looking at the world about him was illustrated in many incidents in Cantlie's life—many notions, projects, or dreams only—other than those three great movements which give his career a course and character of its own: training hundreds of the V.A.D. for war service, "raising" the V.M.S.C., and founding the School of Medicine for the Chinese—the beginning of a university. In the public ambulance service he was the first to organize a portable x-ray installation to carry the benefits of radiography to the remote poor. He projected a system of first-aid instruction for youths proceeding to foreign parts of the Empire far from surgical help. In routine clinical examination he took not only the weight of the patient but the weight of the patient's clothes, which he considered should bear some definite relation to each other. He waged war against the Eton jacket because it exposes the renal regions. He carried on a keen campaign against the "baby's comforter." He arranged a novel system of physical exercises for old men to improve the remnants of their vigour before it was too late. Men of his own generation will recall his "Degeneration of Londoners," in which he maintained that no family in London survives beyond the third generation; and his project to bring sea air in pipes from Brighton into London. In anatomy he observed that congestion of the ileo-caecal veins, one of the remote roots of the portal system—"piles of the appendix" as he called it—may well account for some cases of appendicitis.

In private life Cantlie had no equal in the power of amusing persons of all ages from infancy to advanced life. Always bright, he was the friend to turn to; to spend an hour with, when one wanted cheering with story or song.

mostly in his own native Doric, both rendered with fitting gesture, for he was a born actor. He was in great request for his after-dinner speeches and songs as "guest of the evening" at gatherings of his fellow countrymen, particularly his fellow graduates, through the length and breadth of England. Then, as in the lecture room, and on a platform whatever the occasion, an ever-ready, confident speaker, he thoroughly enjoyed himself. More than once he preached the sermon on Hospital Sunday in St. Martin's Church; indeed, he once addressed a Jewish audience on the hygiene of Moses. His pupils who survive him will not have forgotten how he founded the Students' Dinner at a place of refreshment in the Strand, hardly to be described as a restaurant and certainly not a café.

When I look back upon the days of our long and intimate friendship I comprehend again what I marked in each of its chief events—the consistency of his high qualities, how he was ever original in his conceptions, inventive in his ideas, impulsive in his projects, unhesitating in his activities, indifferent to criticism, no doubt ambitious, but always working for a worthy end—the public good. The King and country recognized their debt to him, but the true public monument to Cantlie is the R.A.M.C. T.A., "raised" as the V.M.S.C. on that day in 1883 when he called for volunteers from his pupils at Charing Cross to have their first practical lesson in ambulance as a provision for service in war.

Dr. J. G. BLACKMAN (Portsmouth) writes:

May I be permitted the privilege of paying a small tribute to the fragrant memory of my old friend and teacher, Sir James Cantlie? At the time I entered the Charing Cross Hospital Medical School, in 1872, Cantlie, who was completing his curriculum there, held the post of assistant demonstrator of anatomy. In those days the primary F.R.C.S. examination was the first fence, and we looked upon "Jimmie"—as he was affectionately known to us—as our big brother, ever ready and anxious to assist us over; and he never failed us. In season and out of season he was ever at hand to help us to our goal; and if anyone had a difficulty in his work or otherwise he could always count on him for advice or help. Cantlie had the great gift of a happy and cheery disposition, and his demonstrations were often enlivened by amusing anecdotes, in broad Scotch, of his late teacher, Professor Struthers of Aberdeen. James Cantlie was an outstanding character apart from his profession, and his ingenuousness sometimes led him to "back a loser," but that fact neither daunted his supreme faith in humanity nor abated his magnanimity and generosity in dealing with his fellows. It is these happy memories which rise when one hears that his work is finished.

HUGH BRAUND KENT, M.S.Lond., F.R.C.S.Eng.,
Tongshan, North China.

THE untimely death of Hugh B. Kent, at the age of 43 years, has already been reported, but it is only meet that some account should be recorded of the invaluable work he did for several years in North China, the particulars of which have been but recently received.

H. B. Kent was the fourth son of Horace Kent, barrister-at-law, of Cholesey Hill, near Wallingford, Berks. Educated at Oxford High School under the headmastership of A. W. Cave, he entered Guy's in 1904. Kent was very popular among his contemporaries as a student at Guy's, where he also had a distinguished career, obtaining the Arthur Durham prize in 1905 and 1906, the Michael Harris prize in anatomy in 1906, and also the junior proficiency prize and a certificate for the Wooldridge prize in physiology in the same year. In October, 1908, he obtained the degrees M.B., M.S.Lond. He was appointed clinical assistant to Sir Cooper Perry and Dr. Shaw in 1909, and he would without doubt have been appointed house-surgeon or the like had not circumstances compelled him to start in practice without delay. Kent therefore accepted a post in the Colonial Service in West Africa in 1909, and at the end of that year he was offered, and accepted, an appointment at Tongshan, North China, as principal medical officer of the Kailan Mining Administration and the Chinese

Peking-Mukden Railway. At the time when he took over this work, in July, 1910, there was a hospital for foreign residents and for the Chinese at Tongshan, not, however, fully equipped to supply the requirements of modern medicine and surgery, whereas at the time of his death on November 24th, 1925, the hospital had been greatly extended and thoroughly fitted out in almost every direction. These results could not have been achieved without the sympathetic co-operation and material support of the chiefs of the Kailan Administration and of the Peking-Mukden Railway, and for their help Kent invariably expressed his unflinching gratitude. On the other hand, it must not be forgotten that it was Kent's initiative, perseverance, and recognized capacity which enabled him to secure these concessions, redounding as they did to the credit of the companies concerned, and resulting in improvements in the hospitals and in their administration which have left them in the creditable and efficient condition they occupy to-day. The way in which the x-ray apparatus was obtained is a striking example of the confidence engendered in all with whom Kent came into close contact. The Chinese are, as a people, averse to surgical treatment. Yet as a result of Kent's success as a surgeon he largely overcame their dislike, and he secured the support of the Chinese to such an extent that, with the exception of a small contribution by the Kailan directorate, the x-ray apparatus was subscribed, mostly in small sums, by the Chinese themselves. Fifteen years is a short time in which to establish such a first-class reputation as a surgeon, and yet that was what Kent did, in spite of grave disability at times from ill health. From the year 1912 until his death he suffered recurrences of illness sufficient to render many men permanent invalids; and yet his ill health seemed but to brace him to renewed activity, for in 1919 he obtained leave to come home and work for the M.S. degree, and again in 1923 for the F.R.C.S.

The value of a man's life is measured, not in length of days, but in what he accomplishes in the short space allotted to him, and in that sense Kent kept the measure filled to the brim; nevertheless his friends here and in China cannot cease to deplore the fact that he died so young and withal so full of promise for the future. Happily he ripened early, and he lived long enough to reap some of his sowing, although the full harvest was never garnered. Kent was a student all his days; thoroughness, enthusiasm, common sense, with a keen sense of humour, were the characters which made him the man he was. He had the true surgical instinct, the keen eye and sure hand, and the confidence based on knowledge: he possessed the mind and will to overcome difficulties, the inability to recognize defeat. In fact, he was the very type of Englishman eminently fitted for the pioneer work he undertook in a foreign country, which work not only redounded to his own credit, and incidentally to that of his parent medical school of which he was so fond, but at the same time was of incalculable benefit to his fellow creatures in that great and far continent of China to which he devoted the best years of his short life.

JOHN FAWCETT.

Dr. JAMES MACDONALD, who died in his 70th year, on May 10th, received his medical education at Edinburgh, where he graduated M.B., C.M. in 1881, proceeding M.D. in 1895, with commendation for a thesis on diphtheria. After holding assistantships in Newcastle and Manchester he went to Carlisle, in 1884, as assistant to the late Dr. Maclaren, and was for a short period medical officer to Carlisle Dispensary. In 1886 he started an independent practice in Carlisle, which speedily became very large. For some years he was medical officer to the Stanwix district of the Carlisle Union, and later held a similar appointment in the Caldewgate area. He was medical officer of the Carlisle Fever Hospital for forty years, and medical officer of health to the Carlisle District Council since 1895. After the introduction of the Insurance Act Dr. Macdonald was a prominent member of the Cumberland Insurance Committee, and, since 1917, was chairman of the Panel Committee. Dr. Macdonald took an active interest in the progress of the British Medical Association;

he was president of the Border Counties Branch in 1908 and chairman of the English Division of the Branch in 1922-24. He was keenly interested in various forms of athletics, and was one of the founders of the Carlisle and Silloth Golf Club. He was twice married, and is survived by a widow and two sons, one of whom succeeds him in the practice. A colleague writes: His influence with all members of the Cumberland Insurance Committee and the reliance which they placed in his judgement on the contentious matters which have cropped up are largely responsible for the smooth working of the Act in this area.

Dr. REGINALD WILLIAM WILSON, who died on May 6th at his residence in Croydon, was born in 1857, and was educated at Merchant Taylors' School. In 1876 he was apprenticed to his cousin, the late Dr. Danford Thomas, and entered St. Mary's Hospital, obtaining the diplomas M.R.C.S. Eng. in 1882 and the L.R.C.P. Ed. in 1884. For a short time he held the post of assistant medical officer at St. Olave's Infirmary, Rotherhithe, and was subsequently assistant medical officer at Chelsea Infirmary for three years. In 1885 he was appointed medical superintendent of the Croydon Infirmary, retaining the post until 1922. He was widely known and highly esteemed in the Croydon district, particularly for his unflinching kindness and sympathy. He leaves a widow and two sons, one of whom is in the medical profession. He was a member of the British Medical Association up to his retirement in 1922.

Dr. JAMES R. C. MACKINTOSH died at Anstruther, Fife, on April 13th, at the early age of 35 years, from cycle injuries sustained while on his round of calls the same day. A native of Glasgow, he was educated at Inverness Royal Academy, and graduated M.B., Ch.B. Glasg. in 1913. At the university he was awarded the senior Arnott prize for physiological physics, also the university bronze medal for physics. At the outbreak of the war he was holding a house appointment at Whips Cross Infirmary, London; he obtained a commission in the R.A.M.C. and served there until after the armistice. After demobilization he continued in hospital work, and later became a medical missionary in Nagercoil, India. He returned last year and had settled in general practice at Anstruther. Dr. Mackintosh is survived by a widow and two young sons. He was a member of the British Medical Association.

HENRY BROUGHAM GUPPY, M.B., F.R.S., late surgeon Royal Navy, died at Martinique, on the voyage home from Tahiti, on April 23rd, aged 71. He was born in December, 1854, the youngest son of T. S. Guppy, M.D., of Falmouth, and educated at Sherborne, Queen's College, Birmingham, St. Bartholomew's Hospital, and Edinburgh University, graduating at the last named as M.B. and C.M. in 1876. For nine years—1876 to 1885—he served as surgeon in the navy, being medical officer of H.M.S. *Hornet* in the China and Japan seas, and of H.M.S. *Lark*, a survey ship, in the Western Pacific. He investigated the formation of coral reefs in the Keeling Islands, and carried out extensive geological and botanical researches in Java, Hawaii, Fiji, the western coast of South America, the West Indies, and the Azores. He received the gold medal of the Linnean Society in 1917, and was elected F.R.S. in 1918. He published several works in which he embodied the results of his researches: *The Solomon Islands and their Natives*, 1887; *Geology of the Solomon Islands*, 1887; *Observations of a Naturalist in the Pacific*—vol. i, *Geology of Vanna Loo*, Fiji, 1903, vol. ii, *Plant Dispersal*, 1906; *Studies in Seeds and Fruits*, 1912; *Homes of Family Names*, 1890; and *Plants, Seeds, and Currents in the West Indies and the Azores*, 1917. He married twice: first, Annie, daughter of J. Jordon, in 1887; and secondly, in 1900, Letitia, daughter of A. J. Warde, of Yalding, Kent.

Professor GIUSEPPE GRADENIGO, a leading Italian otologist and founder of the *Archivii Italiani di otologia e laringologia*, has recently died at the age of 65.

Universities and Colleges.

UNIVERSITY OF LONDON.

Annual Report.

THE annual report of Sir Cooper Perry, Principal Officer, on the work of the university year 1925-26 states that the total admissions by all channels numbered 7,577, as compared with 7,603 in the previous year, and 3,852 in the last year before the war. The great majority (5,485) of the entrants came in through the matriculation examination. There were 3,819 candidates for degrees, as compared with 3,420 in 1924. The number who obtained degrees and diplomas was 2,908, as compared with 2,642 in 1924.

The new scheme, approved provisionally for one year, for the conduct of the second examination for medical degrees allows the practical examinations to be held at the schools. Similar arrangements have been applied to the examinations in botany, chemistry, physics, and zoology for the final examinations in arts and science. A scheme for the conduct of the final B.Sc. (special) and B.Sc. (engineering) examinations for internal students at the Imperial College has been approved. As the result of an arrangement with the London County Council the Senate has adopted the principle that, save in exceptional cases, the minimum salary of a university professor shall be £1,000 a year, and of a university reader £500; this will apply retrospectively for three years to the salaries of professors and readers paid or mainly paid out of the Council's grant. The visitation of schools of the University is being continued, and during the year reports of inspectors were received with regard to the London School of Tropical Medicine, the Lister Institute of Preventive Medicine, the Royal Dental Hospital and the London School of Dental Surgery, and the Royal Naval Medical College. In touching on the financial side Sir Cooper Perry said that the Treasury, acting upon the recommendation of the University Grants Committee, had increased the total annual grant to the University, its colleges and schools, from £377,000 to £462,000; in addition, non-recurring grants, amounting in all to £26,000, had been made towards meeting pressing needs. By the decision of Buckinghamshire to make a grant the tale of Home Counties which contribute to the cost of students' education in London is about to be completed.

In concluding his report Sir Cooper Perry made reference to three matters which, he said, were of great importance to the life of the University as a community. The first was that the Senate had purchased a sports ground at Molspar Park and was negotiating for a boat-house at Chiswick. The second was the existing position with regard to the Bloomsbury site, which had been offered back to the Duke of Bedford's trustees, who had accepted the offer. The third matter was the report of the Departmental Committee on the University; the President of the Board of Education had announced that the Government was in general agreement with the recommendations of the Committee and proposed to introduce legislation for the purpose of setting up a statutory commission for the University accordingly.

University College Hospital Medical School.

Three scholarships will be awarded during this month: (1) The Bucknill Entrance Scholarship, entitling the holder to the course of intermediate medical studies at University College, and the final course at University College Hospital and Medical School. The examination will be held on Tuesday, June 29th. (2) Two Goldsmith Entrance Exhibitions, entitling the holder to the final course, are open to students preparing for the degrees of the University of London, or other British universities, or for the diplomas of the Royal Colleges of Physicians and Society of Apothecaries. Full Secretary, University College Hospital, Gower Street, London, W.C.1.

UNIVERSITY OF LIVERPOOL.

At a meeting of the Council held on May 26th it was agreed to confer the title of Associate Professor on Dr. W. J. Dilling, lecturer in pharmacology and general therapeutics.

UNIVERSITY OF EDINBURGH.

In consequence of the recent announcement by Professor B. P. Watson of his intention to resign the chair of midwifery and diseases of women as from September 30th next, the Curators of Patronage of the University are prepared to consider applications for the chair. Intending candidates may obtain particulars from the Secretary to the Curators, 4, Albany Place, Edinburgh.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—R. V. Cookes, C. F. L. Hazard, S. E. Hymans de Tiel (Section ID), L. O. Jagassar, K. G. B. McMahon.
MEDICINE.—R. V. Cookes, M. Escovar, J. E. Howard, R. F. Middleton, J. Pattis, A. Purvis, H. A. Sack, M. Stinnesbeck, F. Widlake.
FORENSIC MEDICINE.—R. P. Charles, M. Escovar, H. J. Fordham, E. J. Jones, E. Kessel, P. H. L. Moore, A. Purvis, R. I. Richards, H. A. Sack.
MIDWIFERY.—A. K. A. Carter, L. O. Jagassar, K. G. B. McMahon, R. F. Middleton, E. Kessel, I. Rivlin, A. D. Shubachs.

The diploma of the Society has been granted to Messrs. M. Escovar, C. F. L. Hazard, S. E. Hymans de Tiel, E. J. Jones, E. Kessel, P. H. L. Moore, I. Rivlin, H. A. Sack, F. Widlake.

LONDON INTERCOLLEGIATE SCHOLARSHIPS BOARD.

Medical Scholarships.

Six medical entrance scholarships and exhibitions of an aggregate total value of £512, tenable in the Faculty of Medical Sciences of University College and in the medical schools of University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered. The examination will commence on June 29th. Full particulars and entry forms may be obtained from the Secretary of the Board, S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, S.E.5.

The Services.

DEATHS IN THE SERVICES.

Inspector-General Standish Thomas O'Grady, R.N. (ret.), died at Folkestone on May 10th. He was the son of the late Captain Robert Dring O'Grady, of the 30th Foot, and was educated in Dublin, where he took the L.R.C.S.I. in 1875, and the L.K.Q.C.P. in 1876. He became Deputy Inspector-General on February 18th, 1904, and retired on January 26th, 1910, with a step in rank to Inspector-General. When fleet surgeon in charge of Yarmouth Hospital, he received the thanks of the Admiralty for his efficient administration of that institution.

Surgeon-General James O'Brien Williams, R.N. (ret.), died at Ottery St. Mary on May 8th, aged 74. He took the L.R.C.S.I. in 1875, and graduated as M.D. and M.S. of the Queen's University, Ireland, in 1877. Entering the navy soon after, he attained the rank of deputy surgeon-general on January 25th, 1906, and was granted the rank of Surgeon-General on his retirement on November 25th, 1911. When surgeon of H.M.S. *Albacore*, at Suakin, in 1887-88, he voluntarily placed his services at the disposal of the senior medical officer of the Egyptian army, and for so doing, and for his help in the treatment of the wounded after the action of March 4th, 1888, he received the thanks of the Egyptian Government. Surgeon-General O'Brien Williams had been a member of the British Medical Association for forty-three years. He is survived by his widow and two sons.

Colonel Charles Cooper Reilly, C.B., Army Medical Service (ret.), died at Countess Wear, near Exeter, on May 3rd, aged 65. He was born at Kildare on July 18th, 1862, and was educated at St. Thomas's Hospital, taking the M.R.C.S. and L.R.C.P. (London) in 1884. He entered the army as surgeon on January 31st, 1885, became colonel on April 23rd, 1914, and retired on July 18th, 1919. He served in the Sudan, 1885-86, receiving the Egyptian medal and star; in South Africa in 1900-01, when he received the D.S.O. for his actions at Johannesburg, Pretoria, and Cape Colony, including the action at Wittebergen, receiving the Queen's medal with four clasps; and in the war of 1914-18, at first as A.D.M.S., and from 1915 as D.D.M.S., being mentioned in despatches in the *London Gazette* of July 13th, 1916, and being decorated with the C.B. in 1917.

Medical News.

A PAMPHLET issued by the Department of Scientific and Industrial Research (which will supply copies on receipt of a request addressed to the Secretary at 16, Old Queen Street, S.W.1) gives an indication of the wide range of the investigations on the proper utilization of natural and artificial light which the department is conducting under the supervision of its Illumination Research Committee, whose two medical members are Sir J. Herbert Parsons and Dr. H. Hartridge. Such matters as the relation between illumination and speed and accuracy of work in the printing and other trades; the design of reflectors; the access of daylight in picture galleries; and the effect of colour, distribution of light, and "flicker" on ease of work are being considered. In view of the millions of pounds expended annually in this country on lighting, the need for experiments in order to ascertain the best methods of using light and to encourage true methods of economy is evident. Good lighting is a subject of interest to the whole community, and there is no one who is not to some extent dependent upon it in his daily work.

THE French Government has decided to establish a laboratory for the control of antisyphilitic drugs issued to public dispensaries or placed on sale. At the request of the Government the Académie de Médecine has appointed a commission to advise as to the details of the organization of this laboratory and as to its cost.

THE annual oration will be delivered to the London Dermatological Society by Sir Humphry Rolleston, Bt., on Wednesday, June 16th, at 4.30 p.m., at St. John's Hospital, Leicester Square. The subject is the relations of dermatology and general medicine. The annual dinner of the society will be held at the Trocadero Restaurant at 6.45, when Sir Humphry Rolleston will be the guest of the society.

THE Joint War Committee of the British Red Cross Society and the Order of St. John give notice that, owing to the heavy cost of housing, they intend six months hence to destroy all the correspondence, vouchers, and receipts in their possession. If, therefore, any member of the late personnel requires a reference application should be made before June 30th next to the Secretary of the Joint War Committee, 19, Berkeley Street, W.1.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that Mr. V. Zachary Cope will give a demonstration in surgery at St. Mary's Hospital, Paddington, on June 9th, at 3.30 p.m., and Mr. Whiting a demonstration in ophthalmology at the Royal London Ophthalmic Hospital, City Road, on June 10th, at 12.45 p.m. These demonstrations, organized by the Fellowship, are open to all members of the medical profession without fee. The Chelsea Hospital for Women provides a two weeks' course from Wednesday, June 9th. A four weeks' course in genito-urinary diseases will be held from June 7th to July 3rd at All Saints' Hospital. From June 14th to 26th the City of London Hospital for Diseases of the Heart and Lungs will give a special course. There will be a course, primarily for general practitioners, at the London Temperance Hospital from June 14th to 25th from 4.30 to 6 p.m. The following courses will be held during July: cardiology at the National Hospital for Diseases of the Heart, dermatology at the Blackfriars Skin Hospital, neurology at the West End Hospital for Nervous Diseases, ophthalmology at the Royal Eye Hospital, and an intensive course in medicine, surgery, and the specialties at the North-East London Post-Graduate College (Prince of Wales's General Hospital), Tottenham, N. Syllabuses and the general course programme may be had from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1, who will also supply copies of the *Post-Graduate Medical Journal*.

A COURSE of post-graduate lectures at the Cancer Hospital, Fulham Road, S.W.3, in June and July, will commence on Wednesday, June 9th, at 4.30 p.m., when Mr. W. E. Miles will speak on carcinoma of the rectum. On Friday, June 11th, Mr. Cecil Rowntree will lecture on cancer of the breast. The further lectures of the series will be given on subsequent Wednesdays and Fridays at the same hour, terminating on July 16th, when Dr. Stanley Wyard will deal with carcinoma of the stomach.

THE annual general meeting of the London and Counties Medical Protection Society will be held at Victory House, Leicester Square, W.C.2, on Wednesday, June 9th, at 4 p.m.

THE annual general meeting of the Röntgen Society will be held at the British Institute of Radiology, 32, Welbeck Street, London, W.1, on Tuesday next at 8.15 p.m., when papers will be read on radiography of the accessory sinuses and on a method of dosage for use in actinotherapy.

ALL medical graduates of the University of Brussels are invited to a meeting, at 4 p.m. on June 9th, at 147, Harley Street, when they will be received by the President, Dr. Fielden Briggs, and an address will be given by Dr. Arthur Haydon, Honorary Secretary of the Brussels Medical Graduates' Association.

AN exhibition of Tardenoisian and pigmy types of stone implements will be opened at the Royal Anthropological Institute, 52, Upper Bedford Place, W.C.1, on Tuesday, June 8th, at 2.30 p.m. It will continue open till Tuesday, June 22nd. On that day at 8.30 p.m. a paper will be read by Mr. V. Gordon Childe, on the first colonization of Central Europe. It will be illustrated by lantern slides.

DR. E. A. OWEN, head of the radiology division at the National Physical Laboratory and secretary of the Röntgen Society, has been appointed to the professorial chair of physics in the University College of North Wales, Bangor.

ARRANGEMENTS have been made at Queen Charlotte's Maternity Hospital, Marylebone Road, for the accommodation of an increased number of medical students and practitioners, who can now be received for courses of practical midwifery at short notice.

THE International Committee of the Red Cross will hold a competition in Geneva in the autumn to adjudge the best type of the following for use in war: (a) stretcher; (b) arrangement for carrying a stretcher in a railway carriage, aeroplane, carriage, ambulance, sleigh, or boat; (c) labels for wounded in the field; (d) first-aid outfit to be carried on the person; (e) identity discs. The competition will be judged by a special international committee of experts, and prizes will be awarded. All exhibits must reach Geneva by August 1st at latest, and packages should be addressed to Le Comité International de la Croix-Rouge, 1, Promenade du Pin, Geneva, Switzerland, and marked "Specimens for the Institution of the international study of ambulance material." This is necessary in order to avoid Swiss customs duty.

THE KING has appointed Dr. Cecil M. Rolston (Chief Medical Officer) to be an official member of the Executive Council of the Presidency of Dominica and has given directions for his appointment to be an official member of the Legislative Council of that presidency.

THE Prince of Wales will open the Ross Institute and Hospital for Tropical Diseases, Putney Heath, S.W., on July 15th.

THE dinner of the Society of Apothecaries, which was postponed on account of the general strike, will be held on Tuesday, June 15th, at 7.30 o'clock, at Apothecaries' Hall, Blackfriars. The Lord Mayor and Sheriffs will attend.

DR. NORMAN TATTERSALL, who has been for fourteen years tuberculosis physician to the Welsh National Memorial Association, was presented by the medical practitioners of Mid-Glamorgan, on May 22nd, with an address and a bureau, on the occasion of his departure to Leeds, where he is taking up a similar appointment under the Leeds Corporation.

THE Sudan Government has decided to utilize the Lee Stock indemnity fund: first, to build a new medical research laboratory of the same type as that of the Kitchener School of Medicine; secondly, to provide for a travelling railway laboratory; thirdly, to finance an intensive campaign against bilharzia and ankylostomiasis; fourthly, to combat ophthalmia, principally in the Northern Sudan; and, lastly, to carry out improvements of the Omdurman leper settlement. The *Times* correspondent in Cairo, from whose dispatch we take this information, states that this allotment will exhaust about half the fund and that the use of the remainder is still under consideration.

THE fiftieth session of the French Association for the Advancement of Sciences will be held at Lyons from July 26th to 31st. At the Section of Medicine and Surgery, which will be under the presidency of Professor J. Teissier, the following questions will be discussed: (1) Asystoles of reflex origin, introduced by Dr. Dumas; (2) evolution of chlorides in the organism, introduced by Dr. Florence.

THE eighteenth International Congress on Alcoholism will be held at Dorpat from July 22nd to 28th, when papers will be read on the psycho-physiological action of alcohol, alcohol and the death rate, alcohol as the cause of accidents and poverty, hypnotism in the treatment of alcoholism, local option, and prohibition. Further information can be obtained from the International Office for Combating Alcoholism, Avenue du Grammont, Lausanne.

THE French National League for Combating Venereal Disease has offered a prize of 5,000 francs for the best work on heredo-syphilitic psychopathies in the child and adolescent and their role in juvenile criminality; a prize of 5,000 francs for the best work on the association of syphilis and tuberculosis in osteo-articular affections; and a prize of 20,000 francs for the most important discovery in venereology in 1926 and 1927. The essays for the first two prizes must be written entirely in French and be sent in triplicate to the Ligue française contre le péril vénérien before October 1st, 1928.

AT the invitation of Dr. Plantier a party of London medical men made a short trip to Biarritz and the surrounding country during the Whitsun holidays. The members of the party were hospitably entertained by Dr. and Mme Plantier at Héliant, one of the most modern therapeutic institutions in France. Excursions were made to other health resorts along the Côte des Basques, and as the weather was kind they were thoroughly enjoyed.

WE have received the first part (A-D) of the sale catalogue published by *L'Art Ancien*, Lugano, of early books on medicine, natural sciences, and alchemy. Each entry is accompanied by a brief explanatory or historical note in English, and the text is freely interspersed with contemporary woodcuts.

THE International Federation of Eugenics will hold its next meeting in Paris on July 2nd and 3rd, when the chief subjects for discussion will be the medical certificate before marriage, consanguineous marriages, and immigration.

THE Société de Pathologie Comparée has offered two prizes of 500 francs each for the best unpublished essays on pernicious anaemia, and cancer in man or its relations with cancer in animals and plants. The essays should be sent to the general secretary before October 1st.

DURING the period December 6th, 1925, to January 2nd, 1926, 1,295 fatal cases of plague occurred in Java.

THE number of new cases of syphilis admitted to the Hôpital Saint-Louis, Paris, was 1,955 in 1924 and 2,445 in 1925—an increase of 20 per cent. in a year. A similar recent increase in syphilis has also been noted in the provinces.

DR. ETIENNE BURNET, subdirector of the Pasteur Institute of Tunis, has been awarded the Tunis medical prize of 5,000 francs for his work on Mediterranean fever. He has also been nominated assistant director of the institute.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and **LETTERS** forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring **REPRINTS** of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the **British Medical Association** is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumshuegh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

REFERRED PAIN.

"Y. T." writes: Can any of your readers refer me to a book or paper in which "referred" or "reflected" pain is fully considered?

ALTERATIONS TO A HOUSE.

"X. Y. Z."—On the information furnished, assuming that the house is above working-class standard, the Housing Acts as to habitability will not apply. Assuming that one or two rooms only are affected, it is thought unlikely that a local authority, if called in after the re-erection of the glass house, would hold that a nuisance, requiring action under the Public Health Act, existed. The question is primarily one of right as between landlord and leaseholder, depending on all the facts. It would be best to take legal advice.

INCOME TAX.

Motor Car Depreciation, etc.

"J. L." sold in 1923 for £95 a car which cost him £400 and bought a second hand car for £200, and in 1924 sold for £16 a cycle which had cost him £58, buying in 1925 a second-hand cycle for £22 8s.

"* (1) Obsolescence allowance, to be treated as a professional expense reducing the year's profits, for 1923, £200—£95=£105, in respect of the car transaction, and for 1925, £22—£16=£6, in respect of the cycle transaction. (2) Depreciation allowance for 1925-26 at, say, 20 per cent. of the value of the car and cycle, as written down from the original cost at the same rate of depreciation over the period from the dates of the original sales to the last date at which "J. L.'s" accounts were made up prior to April 5th, 1925.

"P." states that the car expenses, including depreciation, of his wife and himself in performing the duties of their public appointments exceeded the amount of their allowances. Can they claim relief in respect of the difference?

"* There is no legal bar, but the expenses must be proved to have been incurred wholly, exclusively, and necessarily in the performance of the duties of their offices. It is usually difficult to prove that the allowance made by public bodies is insufficient on that rather stringent basis. It makes no difference to the total tax payable whether joint or several returns are made, but in either case the wife's earnings should be shown separately.

LETTERS, NOTES, ETC.

TREATMENT OF GOUT.

DR. VAUGHAN PENDREY (East Sheen) writes: I have recently had under my care a very instructive case of gout—a short, plump man, aged 50, who has had gouty attacks since he was 31. The disease has been inherited from his grandfather and father, as, in my experience, is invariably the case. There is no albuminuria. Two years ago a friend advised him to take atophan, the drug so widely used at present. After he had taken a hundred pellets there developed an attack of diarrhoea and melaena; his friend was affected in the same way; in neither case was the gout improved. In January, 1926, he was given aquinol, the sales equivalent of atophan (allyl phenicinchonester). The gout was unaltered, and when I was called in at the beginning

of March he was gravely ill with severe gout in his feet, and profound anaemia that was only cured after a fortnight's stay in Ramsgate and much arsenic. I feel sure that the quinine in the aquinol had acted as a very potent haemolyser. After many years' experience I am convinced that the Hippocratic dictum—that the *Colchicum autumnale* is the remedy for gout—is true. Full doses must be given. Five drops are useless; fifteen or more every four hours is the only cure of the disorder known to-day. The much discussed depression caused by the drug is a myth.

BROW PRESENTATION.

THE recent cases of brow presentation recorded in the **BRITISH MEDICAL JOURNAL** have induced **DR. HARRY FREEMAN** (Dalston) to send the following record of a case which was successfully delivered: A multipara, aged 34, had been in labour for twelve hours before I was called. On examination the membranes were ruptured, the cervix nearly fully dilated, and a brow (right mento-anterior) was presenting. The patient had had two very easy previous confinements, and has a very roomy pelvis; the foetal heart sounds were easily audible, so under anaesthesia I converted to an occipito-posterior, and rotated. This proved much easier than I anticipated, and after flexing the head and pushing it well down into the pelvis, forceps were applied and the child delivered alive, though badly bruised. Before intervention I had, however, waited an hour, but there was no progress whatever and it seemed that the head would get impacted. The mother made an uneventful recovery, and the child, now 2 months of age, is perfectly well in every respect.

IODINE INJECTION IN RHEUMATOID ARTHRITIS.

In a letter with reference to an article on intramuscular injection of guaiacol-iodine-camphor oil by **DR. S. WATSON SMITH** (October 10th, 1925, p. 648) and a subsequent letter (March 6th, p. 449), **DR. R. KERRY** (Montreal) writes: The hypodermic injection of iodine has been used here for a number of years with consistently good and often striking results. It does not appear that the addition of camphor or guaiacol to iodine is beneficial, and it certainly renders the injection more irritating. A 1 in 40 solution of iodine in sesame oil, if about six months old, is unirritating at the time of use and is followed by no reaction; this is probably true if other bland oils are used. The pain caused by a freshly made solution is negligible. Trial has been made of a 1 in 50 colloid, but it is less active than the oily solution, though more pleasant to use. Intramuscular injection is not necessary, but the oil must be carried well through the skin, as induration, lasting some months, results if it be not placed deeply enough. The injection, he says, is followed by prompt relief from pain, owing to disappearance of inflammatory pressure, and, in acute cases, by a rise of one or two degrees in temperature, which seems to be beneficial rather than otherwise. When gross lesions are present, as in extensive pulmonary tuberculosis, toxæmia, resulting from the use of iodine, may overwhelm the patient, and fatal cases have so occurred. One-quarter of a grain of iodine (the ordinary weekly dose) in the body of an adult can have but small value as a germicide, and its undoubted potency must be due to its action, directly or indirectly, as an antitoxin.

ADVERTISEMENTS BY POST.

DR. GEORGE JONES (London, S.E.) writes: During the recent strike there was a sudden and most blessed disappearance of advertisements sent by post. Now the enterprising firms have begun again and are making up for lost time. Could not this waste of time, money, and printer's ink be stopped? I do look at the advertisements in the **BRITISH MEDICAL JOURNAL** and other journals. I try to look through some of the regular advertisements of a few well known firms, but life would not be long enough to read the lot. Can no means be discovered of saving the time and eyesight of the profession? Many "ads." are quite well written and some are interesting, but the volume of printed matter consigned to the waste-paper basket is a grief to me.

DEATH FROM PNEUMONIA AFTER NITROUS OXIDE ANAESTHESIA.

Correction.

AN accident seems to have overtaken page 896 of last week's **JOURNAL**, in which the line at the foot of col. 1 was mutilated and that at the foot of col. 2 disappeared altogether. The reference in the footnote in the first column is "*Zeit. f. Hyg. u. Infektionskrankh.*, 1918, 86, 1"; the missing line in the second column consisted of the word "acidosis," which ended the paragraph. We desire to express our regret to Professor Ernest Glynn, author of the article affected.

MEDICAL INSURANCE AGENCY.

WE are asked to say from a member re particulars not given his name and address. The inquiry refers to a 1920 Belsize car.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 62, 63, 66, 67, and 68 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 64 and 65.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 207.

A Lecture

ON

PREVENTIVE MEDICINE AS APPLIED
TO OBSTETRICS.*

BY

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In the "Resolutions of the General Medical Council with regard to Professional Education" which came into force in January, 1923, you will find the recommendation: "That throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine." You are commencing the study of obstetrics and gynaecology. What, therefore, could be more appropriate on this the opening day of the session than an address on preventive medicine as applied to obstetrics?

The science and art of obstetrics are concerned with: A, Pregnancy; B, Parturition; C, Puerperium. Each of these events has disturbances peculiar to it. Some of them are preventable; others with our present knowledge are beyond our control. In this introductory lecture I propose to deal only with the more common complications which are preventable.

A. PREGNANCY.

In many of the early civilizations the pregnant woman received special attention and consideration. Crude tests for pregnancy and remedies for the incidental discomforts were employed. The instability of the nervous system was recognized, and great importance was attached to the effect of external influences. But the scientific management of pregnancy, or, as it is more popularly expressed, "the care of the expectant mother," is of recent date, and has gradually evolved as we have come to understand in some slight degree the complicated changes in the normal physiological processes which produce the disturbances peculiar to pregnancy. Only in the last decade has this important branch of preventive medicine received official recognition. In 1915 a very far-reaching Act was placed on the Statute Book—namely, the Notification of Births (Extension) Act, 1915—which relegated to the public health authorities the responsibility of the proper care not only of the parturient and her offspring up to school age, but also of the mother during pregnancy. As a result, an ever-increasing number of ante-natal clinics have been established. Unfortunately, full advantage is not taken of them. To remedy this failure of pregnant women to seek medical advice it has been suggested to make the payment of maternity benefit, which all insured women enjoy under the Insurance Act, conditional on the pregnant woman engaging a medical practitioner or midwife some months before the expected confinement. The recommendation by the Committee on Puerperal Morbidity and Mortality that this should be done at least twelve weeks beforehand is futile; for the most common disturbances of pregnancy commence very much earlier than is generally supposed. Besides, many pregnant women suffering from chronic disease, such as syphilis, albuminuria, glycosuria, tuberculosis, etc., must be treated at the very commencement of pregnancy.

Now, you very naturally ask why this physiological process of pregnancy should produce such serious disturbances. As you are all aware from your physiological studies, the process of pregnancy should be a "symbiose harmonique homogène" (Bar), in which the mother takes her food better, utilizes the food which she takes, and improves in general health. Unfortunately, however, in many instances it is of a very different nature: the ovum in its growth and maintenance not only draws on the mother's capital, but also on her tissues, by reason of the concerned with very early in pre

as many writers indicate. Its incidence dates back to the time of embedding, when the tissues of the endometrium are digested and destroyed by the trophoblast of the ovum, and the end-products are directly thrown into the maternal circulation. In no other way can one explain a case which was under my care many years ago and profoundly impressed me at the time. This was a patient who began to have nausea and vomiting ten* days after marriage. The last menstruation ended two days before her marriage. Thus the early disturbances incidental to pregnancy were experienced about the seventh or eighth day after fertilization, and anything from the first to the sixth day from the commencement of embedding.

There occurs in pregnancy, therefore, a battle between natural resistance and enemy forces, the imperfectly controlled activities of the ferments produced by the developing ovum. When the latter gain mastery a "negative phase" of metabolism is produced and the various complications of pregnancy develop, which are referred to as the toxæmias of pregnancy.

The care of the expectant mother is chiefly concerned with assisting her to combat this tendency towards a negative phase, by careful dieting, improving elimination, avoiding fatigue, and administering particular and more specialized remedies according to her requirements. To accomplish this satisfactorily the patient must be seen and overhauled at short intervals (three to four weeks). At the present time this medical examination is still incomplete, for we know comparatively little regarding these ferments, and we have still only very crude methods for testing their presence and the early dyscrasias they induce. But if pregnant women are supervised and suitably treated the graver toxæmias seldom develop. A striking instance of this is eclampsia or convulsions, for among pregnant women supervised by obstetric specialists and careful general practitioners it very rarely occurs. The death rate from eclampsia in Scotland and Glasgow during the years 1918-23 was as follows:

Death Rate from Eclampsia.

Year.	Glasgow.	Scotland.	No. of Births.	
			Glasgow.	Scotland.
1918	20=0.85 per 1,000	100=1.01 per 1,000	23,524	93,554
1919	29=1.12 " "	103=1.02 " "	25,835	106,263
1920	22=0.67 " "	134=0.93 " "	32,526	136,546
1921	25=0.87 " "	123=1.00 " "	29,712	123,201
1922	22=0.78 " "	122=1.06 " "	28,298	115,085
1923	35=1.31 " "	126=1.13 " "	25,702	111,902

Another most interesting group of disturbances are the complications which arise as a result of disorder in the ductless glands, for all these glands are affected by pregnancy. Take, for example, the increased diastatic content in the urine, associated in many instances with disturbances in the internal secretion of the pancreas; or the albuminuria which in some instances is associated with an imperfect thyroid secretion.

These disturbances, which the pregnant woman contracts as a result of this negative phase of metabolism, not only endanger her life during pregnancy—they increase the dangers of parturition. Nor is this the whole toll: in a number of instances, where they are not completely recovered from, they produce permanent chronic disease. For example, I know of several women who are at present suffering from chronic albuminuria which had its incidence in an albuminuria of pregnancy; some who have asthma when their general health is lowered, or their digestive process disturbed; and others whose general health, digestion, and feeling of well-being have never quite returned to the normal. Lastly, the injurious influence which these poisons exercise on the child must be taken into account. Some 30 to 40 per cent. of stillbirths are due

* Introductory to the systematic class of obstetrics and gynaecology, Session 1925-26.

* Recently my attention has been directed to another case in which the morning sickness occurred on the eighth day after marriage and eleven days after the last day of the period.

to this cause. The chief difficulty at present is the treatment of these complications while they are still incipient. Among the well-to-do and comfortably off this does not arise—the patient can be transferred to a nursing home, or trained nurses brought in to take charge; but among those in less comfortable circumstances this is impossible in the patient's home, and institutional treatment is totally inadequate. A more satisfactory condition can only be reached when adequate hospital accommodation has been provided for all cases requiring institutional treatment.

In addition to this medical care of the expectant mother there is the more definite investigation and examination late in pregnancy with the object of recognizing or preventing the complications of parturition. The more common of these may be summarized under three heads: (a) malpositions of the child, (b) deformities of the pelvis, (c) tumours obstructing the canal.

(a) *Malpositions of the Child*.—An enormous number of women are allowed to drift into labour without a sufficient examination, and without any attempt being made to diagnose and correct malpresentations prior to labour. Transverse presentation can always be corrected, even in the later days of pregnancy. A similar procedure should also be followed in breech presentation, a complication not very serious in a multipara, but attended with great difficulty and resulting often in serious injury to the mother and child if the parturient is a primipara. Now, practically all these cases of breech presentation can be recognized in the later weeks of pregnancy, the child turned, and a vertex presentation established. In recent years a further advance has been made—namely, the conversion of occipito-posterior positions of the vertex (where the back of the child is towards the back of the mother—a very common and troublesome condition) into dorso-anterior positions. Personally I have not been very successful with this manoeuvre. There are probably some peculiar factors still not understood which determine occipito-posterior positions; and so, while I believe a certain number may be corrected, it is not possible to do this in all cases. Fortunately, however, in most instances timely intervention during labour can bring about a correction of this very common and troublesome complication of parturition, but this will be referred to later.

(b) *Deformities of the Pelvis*.—This is a common cause of difficulty, especially in Glasgow where rickets is so prevalent; by pelvimetry, manual examination, and radiography it is possible to determine the degree of pelvic deformity and to estimate accurately the relative size of head and pelvis. Having done this, one is in a position to select beforehand the most suitable treatment, with the result that the foetal and maternal death rate from this serious complication can be reduced to a very low figure indeed. I remember one year in the Maternity Hospital I and my assistants had no maternal death and only one foetal death in our department among the cases which we saw in the late weeks of pregnancy or early in labour.

(c) *Tumours Obstructing the Canal*.—These are not difficult to recognize or treat, if diagnosed before labour commences.

B. PARTURITION.

The problems of pregnancy are simple compared with those of parturition. Already morbidity and mortality incident to pregnancy are progressively lessening, but this cannot be said of parturition.

I. THE INCIDENCE AND CAUSES OF MATERNAL MORTALITY IN CHILDBED.

(a) Infection.

The death rate from puerperal infection in Scotland and Glasgow for the years 1921-23 was as follows:

Deaths from Puerperal Infection.
(Per 1,000 births.)

Year.	Scotland.	Glasgow.
1921	2.42	2.45
1922	2.33	3.28
1923	2.2	2.7

Although parturition is a natural process, unfortunately in a large proportion of cases it does not run a natural

course any more than does a pregnancy; further, where it terminates spontaneously its management must be carried out with all aseptic precautions. Puerperal infection is a wound infection. Infection of a wound can only be prevented by special preparation of patient, surgeon, and nurses; so in obstetric practice puerperal fever can only be prevented by employing similar procedures. This is done in all maternity hospitals. Puerperal infection in such institutions only occurs (in uninterfered-with cases) where the individual has accidentally acquired infection prior to her admission to hospital. This is termed "autogenous infection." Could all parturient women be treated in well appointed maternity hospitals or nursing homes puerperal infection could be reduced to a minimum. This is not practicable. But the providing of institutional treatment for all primiparae, in addition to all multiparae whose labour is obviously or likely to be a complicated one, is feasible, and would be of tremendous advantage; for the primipara is much more prone to infection than the multipara, because her labour is generally longer and more difficult.*

As regards domestic midwifery practice, a number of women can be safely treated in their own homes, provided the accouchement is carried out on approved lines. But a much greater number cannot be attended as satisfactorily, and still more should not have their confinements at home, for, apart altogether from the danger, every sense of decency is violated by confinements taking place in such houses.

The reasons why infection is more prone to occur in domestic midwifery practice are:

(1) The preparation of the patient beforehand cannot be carried out thoroughly in a private house. To appreciate this it is only necessary to contrast the preparations made by a surgeon prior to operation and those generally employed by the obstetrician, or by any medical attendant in domestic practice. You are familiar with the extreme care taken by the surgeon in the cleansing of his hands, in the wearing of rubber gloves, in the sterilization of his instruments, in the preparation of the field of operation, in ensuring that only absolutely sterilized swabs and dressings are employed, and that sterilized towels, sheets, etc., are placed below the patient and immediately around the field of operation. How different the case of the parturient confined in her own bed, attended by an accoucheur whose hands are often imperfectly cleansed and who seldom wears rubber gloves, sponged before and after delivery by nurses who perform all kinds of duties—toilet of the bowels, tidying of the rooms, cooking—and who rarely if ever wear rubber gloves. Take, again, the swabs and dressings—very often removed from a packet of gamgee or cotton-wool bought from the nearest chemist and never sterilized. Fortunately, however, not all practitioners trust to such unsterilized swabs and dressings. Many obtain sterilized gauze from such firms as Bell and Croyden, or a local nursing home, while at present I am glad to report that a number of health authorities are prepared to supply such dressings for a small sum, or free of charge in necessitous cases. But probably the greatest source of danger is from the field of operation. The surgeon who is about to perform an operation shaves the field, cleanses it most carefully with soap and water and antiseptics, and surrounds it with towels before he proceeds to the operation. The field of operation in the case of the parturient, except in maternity hospitals and in the hands of obstetric specialists and a few general practitioners, receives but perfunctory attention, and yet it is a most septic area. The hair of the pubis and folds of the vulva teem with pyogenic organisms, constantly added to from the bowel, which is in the immediate vicinity. Until the same procedure is carried out in all parturitions as is followed in surgical operations maternal mortality and morbidity will not appreciably diminish, for from this area organisms extend and are carried up by the examining fingers, especially if the obstetrician has to carry out any obstetric operation such as forceps delivery or version. It has been urged that women would object to such preparations. This I am sure is not so. I am perfectly certain that if it were impressed on all parturient women that this detail is necessary, few would object. As a matter of fact they make no objection when this is done in a nursing.

* Vide Table 1, p. 75, 1923 Report, Medical Officer of Health.

home, or in their own homes prior to an operation. There is no use pretending that parturition is a simple physiological process, and that the management of it is equally simple: in 20 to 30 per cent. of cases there are major or minor abnormalities, and in all there is the risk of infection.

(2) Where operative intervention is necessary there is not the same assistance available as in a hospital or nursing home, where one or more assistants can be summoned. This is a matter of very great importance.

(3) Because a confinement upsets the rest of the work of a busy general practitioner, and he is inclined to hasten the delivery. I shall refer to this more fully in a moment.

(b) Haemorrhage.

The next most important cause of maternal death is haemorrhage, the incidence of which is about 0.8 to 0.85 per 1,000. The haemorrhages of the later weeks of pregnancy and parturition are accidental occurrences which, as far as we are at present aware, cannot be prevented. We can, however, lower the mortality, which is very considerable in this complication, by improvement in treatment, and especially if a greater number of such cases are transferred early to hospital.

(c) Injuries.

These are very difficult to estimate, because in many cases where injury to the patient results from the delivery death takes place not as a result of shock or injury, but owing to the fact that the bruised tissues become infected; death is usually due to septicaemia. Most of the grave injuries result from hastening unduly the delivery. As a matter of fact the two generally go together. To extract the head situated at the outlet is comparatively simple and safe, and at worst will only result in a slight tearing of the perineum which can be easily repaired; but to apply forceps while the head is high in the pelvis, especially if it is still within the neck of the uterus, is a different matter. No one can ever pull down the head with forceps as well as Nature can drive it down. Infinite patience is necessary in many cases. The busy general practitioner says he has not time to wait, and after some years he persuades himself that not only is it more convenient to himself to deliver with forceps as soon as possible, but that it is actually in the interests of his patients that they should not be allowed to remain in labour longer than necessary. Further, and this is a very important matter, many individuals, particularly of the artisan class, appraise the value of the accoucheur by the promptitude with which he delivers them and relieves them of their suffering. This hurrying of a delivery with forceps cannot be too strongly condemned. Yet, knowing this, and with witnesses who represented how serious and how frequent were the injuries which resulted from too early application of forceps, the Scottish Departmental Committee* has nothing further to suggest than discussion in medical societies and journals, as if this had not already been done *ad nauseam*, and without having the slightest effect in bringing about a more careful attitude towards the employment of forceps.

II. THE INCIDENCE AND CAUSES OF INFANT MORTALITY (STILLBIRTH) THE RESULT OF LABOUR.

There are four common causes of death during delivery: injury; certain forms of haemorrhage during the later weeks of pregnancy and labour; prolapse or falling down of the umbilical cord; and prematurity.

(a) Injury to the child is naturally proportional to the difficulty of the delivery. The prevention of this has already been considered in connexion with maternal mortality and morbidity.

(b) Haemorrhage (Maternal).—As regards haemorrhage, we find that this takes a very great toll of both mothers and children. In one particular condition where the after-birth comes first (placenta praevia) the maternal death rate of the Glasgow Maternity Hospital in 489 cases for the years 1920-24 inclusive was 13 per cent. and the foetal death rate 71 per cent.—not a very satisfactory state of matters, and one which could be greatly improved were

the cases of this complication recognized early and transmitted to hospital immediately. The results of the Edinburgh Maternity Hospital are practically the same.³

(c) *Prolapse of Cord*.—As regards the falling down of the cord, we find that it is associated with a very high infant death rate, but a negligible maternal mortality.

(d) *Prematurity* as a cause of foetal death is well known to you.

III. REMEDIAL MEASURES NECESSARY TO LOWER MATERNAL AND INFANT MORTALITY IN CHILDBED.

There is at present a general conviction that improvements are necessary; the difficulty lies in determining the direction in which these should be initiated. As a contribution to the subject I would put forward the following policies.

1. Modifications and Improvements in Present-day Domestic Midwifery.

A number of the suggestions which I am about to make will be accepted and are easily carried out; others are more controversial and more difficult to secure.

(a) *It is essential that hospital accommodation should be increased.* Practically all grave surgical and medical diseases receive institutional treatment. Until a similar course is followed in obstetric practice maternal and foetal mortality and morbidity cannot be greatly reduced among the artisan class.

(b) *All nursing homes and private houses in which women are received for their confinements should satisfy the health authorities.* I am sure everyone will agree with the recommendation of the Scottish Departmental Committee (paragraph 101) "That legislation be considered to make the conduct of maternity homes illegal unless they are registered by the local authority and conducted to their satisfaction." In some nursing homes the appliances for sterilizing instruments, towels, bed-linen, etc., are inadequate; the conveniences for any operation defective; and the nursing inefficient and insufficient. Even more dangerous are private rooms or houses in which women are received for their confinements.

(c) *Power should be secured by the local health authorities to remove a patient from her dwelling house to hospital if the house is deemed unsuitable for a confinement.*

(d) *As far as possible, primiparae should have their confinements in a hospital or nursing home.* I have already pointed out the relatively large mortality and morbidity in primiparae.

(e) *It is of the very greatest importance that the training of maternity nurses should be extended, and that every two or three years they should have a revision course in an institution.*^f

(f) *Rubber gloves for midwives and nurses.* All midwives should be compelled to wear sterilized rubber gloves when sponging the patient during and after her delivery. It is a very simple detail and would cost very little. This is necessary as they are called upon to do all manner of household duties—bathing the child, cooking food, tidying the house, keeping the patient's room in order, stoking the fire, etc.—and as their hands in consequence are frequently contaminated.

(g) *The supply of a sterilized outfit for the confinement.* This question has already been considered.

(h) *Better training of students in clinical midwifery.* It is little short of a disgrace that at the present day the student on graduation is unfitted for the practice of midwifery. His clinical training is inadequate, yet the day after he qualifies he may be called upon as assistant or locum tenens to perform serious obstetric operations which he has never done himself, or even seen performed. He would never attempt to deal with medical or surgical problems of the same magnitude. In this connexion the reports of the English and Scottish Curriculum Sub-committees are of particular interest, for both committees recommended a *period of continuous and uninterrupted*

* The Midwives and Maternity Homes Bill recently introduced applies only to England.

^f This has been recommended by the Ministry of Health, Whitehall, Circular 517, p. 3, June, 1924.

* Paragraph 72, Scottish Departmental Report.

training in obstetrics and gynaecology as the best arrangement to secure satisfactory instruction in these departments. The English committee advocated six months, "no extraneous subjects to be studied at the same time."⁴ (St. Thomas's Hospital School has recently adopted this recommendation.) The Scottish committee was of opinion that one term—namely, three months—might be sufficient, and suggested that during this term instruction in vaccination and medical diseases of sick children should be included.⁵ It is only by having students for a continuous period that it is possible to give them adequate instruction. Obstetrics is on a different footing from that of medicine and surgery, because the exigencies of hospital obstetric practice are such that regular hours for teaching, demonstrations, etc., are not always possible and cannot always be arranged beforehand. The great success attained by the Rotunda and Coombe Hospitals in Dublin is largely due to the fact that students resident in these hospitals give up their whole time to the study of obstetrics and gynaecology. Personally I think that three months' clinical training would be sufficient, provided the students were given a preliminary course of thirty to forty lectures. This course should be given in the fourth year, and the three months' concentrated clinical teaching during one term of the fifth year. Further, I think it would be of great advantage to the final year student if for the other two terms of the fifth year he did either medicine or surgery. Thus he would do obstetrics, gynaecology, and pediatrics one term; medicine, ophthalmology, and fevers in another term; and surgery and throat, ear, and nose in the third term. Taking our school of Glasgow with a final year of roughly 150 students, that would mean that 50 were allocated to each of these divisions, and these 50 distributed over the different clinics. This would result in only three or four senior students being attached to each clinic. Under such an arrangement the student would gain a much more thorough clinical experience in obstetrics, medicine, and surgery, than is possible under existing conditions.

(i) *Special revision courses for general practitioners.* If general practitioners are to continue to undertake obstetric practice it would be almost necessary for them to undergo revision courses in hospital every two or three years. In times past they gained experience in a haphazard fashion from the numerous cases they attended. But obstetric practice is passing largely into the hands of midwives, with the result that general practitioners are gradually losing in experience and dexterity. The tendency therefore must be: (1) a number, and probably the best general practitioners, will refuse to undertake the responsibility of difficult obstetric practice—namely, emergency calls by midwives—except *ad misericordiam* appeals; (2) less capable practitioners will volunteer; (3) young graduates of little experience anxious to increase their practice will undertake the work.

2. An Obstetric or Maternity Service.

Although domestic midwifery practice might be improved along the lines suggested, the improvement would not be very decided. Sooner or later I believe it will be necessary to establish an obstetric or maternity service. I have long held this view, and in recent years have questioned a large number of my medical friends in general practice regarding such a service. The majority of them have expressed the opinion that they would be very pleased indeed to be rid of obstetric cases, especially among the artisan class, as they interfere with the ordinary work of a practice. A number, however, are opposed to the suggestion, but this opposition I reckon would be short-lived.

The future of domestic medical practice must be in the direction of pure medicine. Undoubtedly, a generally knowledge and experience of all the specialties is necessary, but medicine has become such a vast field that it is impossible for any single individual to follow new developments in all its branches. If preventive medicine is to be advanced, it is in the field of general practice that most can be accomplished. Specialists rarely see disease at an early stage: it is the general practitioner who has this great opportunity. Rather than be worried with the weary drudgery

of midwifery practice, with its irregular hours and constant anxieties, surely it would be preferable to have more time to devote to pure medicine. Many of my friends in general practice are most despondent over ordinary general practice and its future. Personally, I do not share their pessimism. There is a tremendous future for general practice if the general practitioner, instead of trying to qualify in every specialty, devotes his time and energies to becoming an expert physician.

This special obstetric service to which I have referred should be relegated to obstetric specialists who would give up their whole time to the particular service (this would include ante-natal and post-natal maternal and infant welfare). It would be inadvisable and unfair to other local practitioners to appoint one individual practitioner for part-time service, except in outlying country districts, where obviously it is impossible to have such specialists. In large cities and towns the difficulty of establishing an obstetric service would not be very great, nor would it be costly, for the skeleton of the scheme is present in the existing hospitals and health centres. The difficulty would be with the outlying parts of Argyllshire, the Western Isles, and the extreme North of Scotland. But even in these outlying districts much could be done, and few disasters would result if all patients were examined during pregnancy and before labour, if in the event of there being a suspicion of the probability of any difficulty they were transferred to the nearest maternity centre, and if all primiparae were transferred to these centres.

Further, the natural body to direct such an obstetric service is the Ministry of Health* and the different boards of health. For, as you are aware, by the Notification of Births (Extension) Act, 1915, on them has been placed the responsibility of seeing that not only the expectant mother and the mother and child after delivery, but the mother during her delivery, shall receive proper care. It would be desirable that at the Ministry of Health for Scotland some individual who has had extensive practical experience of obstetrics and maternal and child welfare should act as director of the service, and that in addition assistant directors should be located (for Scotland two, or at most three, would be sufficient), say in the North, East, and West of Scotland. This, I think, would be necessary, as so very few of those engaged in public health work have had any practical experience of obstetrics.

Arguments may very readily be advanced that this is giving the Ministry of Health and the health authorities too much power, is interfering with the liberty of the subject in removing from her the choice of doctor,† and involves the expenditure of large sums of money. At every step, as more responsibilities have been placed on the health authorities, the same objections have been raised against interference with the liberty of the subject and the vested interests of the profession.

(a) *Institutional Department of Obstetric Service.*—In Glasgow there are three institutions which receive maternity cases—the Royal Maternity Hospital, the Parochial Hospitals, and the Cottage Nurses' Training Home in Govan. In 1922 the Maternity Hospital treated 3,641 indoor cases, the Parochial Hospitals (Duke Street, Oakbank, and Stobhill) 254 cases, and Govan Hospital 159 cases. Now the Maternity Hospital is very much overcrowded, and I estimate that institutional accommodation there would require to be doubled.‡ But what really is most urgently required is an additional maternity hospital in the busiest centre of the south side of the city. Obstetric specialists are in charge of these institutions. They and their assistants would continue in charge, and act as consultants to those engaged in the ordinary outdoor maternity service. Their position in the obstetric service could be determined later, but they should ultimately be the senior officers of this service, and as their positions are vacated by retirement or death the more junior members of the staff would be promoted. This in turn would mean promotion of those engaged in the domestic

* A similar proposal was made by Professor A. Louise McIlroy in this Journal, October 4th, 1924 (p. 642).

† The obstetric service indicated would not preclude any individual electing to be attended by a general practitioner or obstetric specialist.

‡ It has been decided recently to increase the accommodation in the Royal Maternity Hospital by forty to fifty beds.

part of the service. Whether the services of the senior or hospital staff should be whole- or part-time would require to be considered. Personally, I think they should be permitted to undertake consultative obstetric practice.

(b) *The Outdoor or Domestic Part of the Service.*—Now, on the basis of the outdoor department of the Glasgow Maternity Hospital and the figures of births in Glasgow in 1922, Mr. Jones, secretary to the Public Health Department, has very kindly supplied me with an approximate estimate of the number of obstetric specialists Glasgow would require for a maternity or obstetric service such as I suggest.

"City of Glasgow (1922):"

"Total births ...	29,493
Of which medically attended—	
By doctors at home ...	8,288
By doctors in institutions ...	3,025
	11,313
Leaving births non-medically attended ...	18,180
Of which attended by—	
Maternity Hospital outdoor nurses ...	3,678
Other institutional nurses ...	661
Certified midwives ...	13,682
Others ...	159

The proportion of births medically attended is equal to 38.4 per cent., and non-medically attended 61.6 per cent.

"Assuming that the services of a medical man will be called in, as at present, the problem is to ascertain what proportion of the 18,180 births non-medically attended will require medical assistance.

"The Maternity Hospital report shows that for the year 1922, out of a total of 3,757 births attended by the outdoor nursing staff, 454, or 12 per cent., were classified as 'abnormal.' These abnormal cases were attended by a doctor, two of whom were able to overtake the whole work.

"Assuming further that the proportion of abnormal cases exhibited among the Maternity Hospital outdoor cases will apply to the total of 18,180 non-medically attended births, then the relative number would work out at 2,179.

"If, therefore, two whole-time doctors are able to overtake 454 cases, five doctors should be able to overtake the total work. It is understood the outdoor medical assistants attached to the Maternity Hospital work alternate turns of twenty-four hours each. It is unlikely that a permanent staff would be prepared to do this, and in order to make provision for day and night duty, holidays, sickness, etc., it would probably be necessary almost to double the estimated number. Of course, whatever total number is determined upon would be inclusive of the two at present engaged by the Maternity Hospital.

"As shown above, 13,682 births were attended during the year 1922 by certified midwives. During the year these midwives issued 3,120 emergency calls for medical assistance. This is equal to 23 per cent., compared with the Maternity Hospital 12 per cent. Midwives, however, are required by the rules to call for doctors in a variety of circumstances which, under the Maternity Hospital classification, are probably not regarded as abnormal.

"Midwives would continue to make these calls, and probably it should be provided that this work should be undertaken by the proposed permanent staff. This makes it necessary to provide adequate numbers, but the ten suggested above might be regarded as a sufficient provision to undertake the whole work.

"Medical fees on midwives' emergency calls during the year 1922 amounted to £2,040, and this sum would be available towards meeting staff salaries."

I am inclined to think that Mr. Jones's estimate of ten obstetric specialists is possibly too generous, but if some of the industrial centres in the immediate vicinity of Glasgow were included it would probably be very near the mark. These obstetric specialists would naturally be responsible for ante-natal and post-natal work in connexion with the various centres to which they would be allocated. Each of them should have a specially trained midwife to act as an assistant. To my mind one of the strongest arguments in favour of this service is that the obstetric specialists would be constantly supervising and instructing the midwives.

As already stated, the rural problem is more difficult, but a very large proportion of the rural population could be served by obstetric specialists attached to the health departments of particular centres. There would remain, however, in the outlying parts of the country a number of individuals who could only be treated with extreme difficulty by an obstetric specialist from the nearest centre. But if all primiparae and any multiparae in whom there is the slightest suspicion of a difficult delivery were taken

into the nearest district hospital, this particular objection to an obstetric service because of unsatisfactory rural conditions would be largely overcome. Surely, if a very large proportion of women would be benefited by a maternity service, and only comparatively few could not avail themselves of it, it is advisable to do what is best for the greater number.

Nor would the cost be very great. In fact, on balance a saving would probably be effected, for about 50 per cent. of gynaecological affections are the result of infection, injuries, etc., during parturition. The cost of such cases to general and special hospitals is considerable, and would naturally be very greatly lessened by the establishment of an efficient obstetric service.

C. PUERPERIUM.

Time permits of only a word or two regarding the complications of the puerperium. These are for the most part the result of infection and injury during parturition, and are therefore preventable, as already detailed. There are, however, two special disturbances which, although of a minor character and never fatal, are responsible for a very considerable percentage of the gynaecological ailments encountered in general practice. They are subinvolution, or defective involution of the puerperal uterus, and backward displacement of the uterus. Subinvolution is a sequel of infection and retention of membranes, while backward displacement can be prevented by the wearing of a well fitted vaginal support for a month or two.

You see, therefore, how much preventive medicine can accomplish in the field of obstetrics if the care of the expectant mother is undertaken early in pregnancy, if the prospective complications of parturition are recognized and corrected as far as possible, if institutional treatment is made adequate, and if parturients in their own homes are looked after by efficient midwives whose work is supervised by obstetric specialists available at all times in case of necessity.

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DIVERTICULA OF THE OESOPHAGUS.*

BY

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DIVERTICULA of the oesophagus are a somewhat uncommon cause of dysphagia, but the more general use of radiological examination in all lesions of the oesophagus has shown us that they are not as rare as was formerly supposed. They provide us with difficult problems as regards their etiology and surgical treatment, while they present a clinical picture distinctive enough to be well worthy of study.

It will be convenient first to describe briefly three illustrative cases, and then to deal in general terms with the problems that arise.

CASE I.

A man, aged 58, a textile machine worker, was admitted to the Manchester Royal Infirmary under my care on August 1st, 1924. He first noticed something wrong with his throat seven years before, when he was troubled with a choking sensation associated with difficulty in swallowing. The trouble was at first intermittent, but had grown much worse of late, and he had lost 14 lb. in the last five months. Soon after swallowing his food he would choke and bring part, but not all of it, back. Occasionally he would bring up, unaltered, some articles, such as peas, which he had swallowed twenty-four hours before. Long after a meal he was troubled by a constant inclination to swallow, and frequently he noticed a gurgling noise in his throat.

On admission the patient was considerably emaciated, but in

* Part of a post-graduate lecture delivered at the Manchester Royal Infirmary.

fairly good health otherwise. Examination of the neck revealed a fullness on either side in the lower part, but more pronounced on the left side. On palpating the neck a gurgling sensation could be felt and some food regurgitated into the mouth. X-ray examination showed a well marked pouch at the junction of the pharynx and the oesophagus, on the posterior wall (Figs. 1 and 2), projecting down between the spine behind and the oesophagus in front, and causing considerable pressure on the oesophagus. The pouch was rinsed out frequently with boric lotion for some days before operation.

Operation.

On August 6th, under chloroform and ether anaesthesia, an incision was made on the left side of the neck along the anterior border of the sterno-mastoid, extending from the upper border of the thyroid cartilage to the sterno-clavicular joint. The sterno-mastoid and the carotid sheath were retracted laterally, and the thyroid gland and trachea drawn medially after division of the middle thyroid vein. The pouch was now easily separated from the lax connective tissue around it, and drawn up into the wound. The neck of the pouch was fairly wide, though narrower than its fundus. The wall of the sac was thick and fleshy, and felt not unlike a normal stomach on palpation. A large oesophageal bougie was passed in order to help in defining the neck of the sac. Some resistance was noticed as this bougie entered the upper end of the oesophagus immediately below the neck of the sac.

With the bougie *in situ*, two pairs of Schoemaker's colectomy forceps were applied to the neck of the sac transversely and the pouch removed by cutting between them with a knife. The divided mucosa on the stump was sterilized with pure carbolic, and a continuous Cushing suture of fine catgut inserted over the forceps with a curved needle. On removal of the forceps the suture was drawn tight, inverting the edges. The same suture was then brought back as a second layer covering in the first, after the manner of a continuous Lembert suture. Yet another row of invaginating catgut suture was superimposed, and the wound closed with a tube-drain to the site of the excision.

For the first twenty-four hours rectal saline was given, with no fluid by the mouth. For the next three days sterile water and brandy were allowed by the mouth, and then a fluid diet until the end of the tenth day. The tube was removed on the third day. There was only a trifling serous discharge from it, and by the seventh day the wound was completely dry and remained so. The patient has had no further difficulty in swallowing; he has put on weight, and remains in good health. Fig. 3 shows a radiogram taken after the operation.

CASE II.

A man, aged 63, was admitted to hospital on October 16th, 1924. He had been troubled with intermittent difficulty in swallowing solid food for two years, but for the past five weeks the trouble had been much more severe. During this latter period he had been able to swallow fluids only with the greatest difficulty, and could not manage any solid food at all. Nearly everything that he swallowed would regurgitate in about five minutes. He had lost 1½ stone during the past five weeks, and had only passed three small constipated motions during that period, while the amount of urine had been scanty.

History and Condition on Admission.

The patient had typhoid fever twenty years ago, and syphilis two years ago for which he was treated by his private doctor. The dysphagia commenced before he contracted syphilis.

The patient when admitted was in a very weak and emaciated condition. There was no swelling or gurgling to be detected in the neck, but x-ray examination showed a typical oesophageal pouch (see Fig. 4) in the usual position. The Wassermann reaction was positive. The sac was prepared for operation as in the previous case by washing out with boric lotion.

Operation.

On October 20th intratracheal ether was given by Dr. Pinson. Primary excision of the sac was carried out through a vertical incision on the left side of the neck, as in Case I, but on account of the patient's poor condition a Senn's gastrostomy was performed in addition.

The patient was fed entirely through the gastrostomy tube for the first ten days. The drainage tube was removed from the neck on the sixth day, and, except for a trifling serous discharge from the tube track for three days after this, the wound healed by first intention. The gastrostomy tube was removed on the tenth day and the gastric fistula closed almost immediately. He began to take solid food on the fourteenth day, and has swallowed without difficulty since, and regained his normal weight.

CASE III.

A man, aged 52, gave the following account of the history of his trouble.

"About five or six years ago I began to notice that particles of food swallowed the day before returned to my mouth. There was no heaving or straining; they simply seemed to appear from nowhere. This went on for a year or two, and as it caused me no pain and little inconvenience I took little notice of it. In 1922

it became much worse. Bigger quantities of food began to return, and I became subject to a very unpleasant choking cough. This attacked me more particularly when in bed, and lasted sometimes half an hour, sometimes with short intervals throughout the night. I found that I was unable to dispose of food such as beefsteak, no matter how long I chewed it. Thinking that imperfect mastication might be the cause, I had all my teeth extracted, and artificial teeth put in. There was no improvement, and as my general health was suffering, I consulted by doctor, who suggested that I might have a pouch in my gullet. A temporary improvement in the symptoms led to some further delay, but finally the trouble became worse and worse. I might get almost to the end of a meal, and then a sip of water or tea or any other fluid upset everything, and I had to rush from the room and choke and cough until I had evacuated a good portion of the food which I had swallowed. I simply had no control. The position had now become intolerable, and at my doctor's suggestion an x-ray photograph was taken, which confirmed his suspicion."

The patient's previous health had been good in all other respects. He was in fairly good condition and had not lost weight appreciably. Whenever he coughed a diffuse bulge could be seen on the left side of the neck from the clavicle to the level of the hyoid bone. No gurgling was elicited on palpating the neck. X-ray examination (Figs. 5 and 6) showed a large pouch at the upper end of the oesophagus extending down into the superior mediastinum.

Operation.

On December 12th, 1924, intratracheal ether was given by Dr. K. B. Pinson. Primary excision of the sac was carried out from the left side of the neck as in the other two cases. The wall of the sac consisted of thick mucous membrane covered by a thin outer fibrous covering. The neck of the pouch was closed as in the other cases and the wound sutured, with a small tube leading to the line of suture.

The patient made an uneventful recovery. Rectal saline was given for the first forty-eight hours, and nothing by the mouth. For the second forty-eight hours, as the salines were not well retained, sterile water was given by the mouth, and after this dilute Benger's food. The tube was removed on the fifth day. The discharge from it had been negligible, and the wound was soundly healed before the tenth day, when soft solid food was allowed. The operation has resulted in complete relief from his symptoms.

ETIOLOGY.

The malady of which these three cases are typical examples occurs usually in elderly men. The point at which the pouch originates is constant. It is on the posterior wall of the pharynx, at a relatively weak spot between the transverse and oblique fibres of the crico-pharyngeus muscle. The pouch is therefore, strictly speaking, pharyngeal, but I have followed the usual custom in calling it oesophageal. The initial cause of the herniation of mucosa remains something of a mystery. There is no evidence of congenital origin, and we can only assume that for some unknown reason the circular muscle fibres at the upper end of the oesophagus fail to relax in the process of deglutition. Increase of intrapharyngeal tension inevitably results, and the mucosa bulges at the spot where it has least muscular support. When once the pouch has reached a certain size a vicious circle results. To the spasm of the upper oesophageal sphincter is added the mechanical pressure of the distended pouch, which, held forward by the unyielding vertebral bodies behind it, presses upon and occludes the oesophagus in front. It is an interesting point that, according to Dürr,¹ half the cases of oesophageal pouch are associated with goitre. Von Hofmeister,² in a series of 9 cases, removed a retro-sternal goitre in 5 at the same time as he extirpated the pouch. The frequent association with this type of goitre, which is notoriously liable to cause pressure on the oesophagus, suggests that sometimes a goitre is the cause of the increased intrapharyngeal pressure which leads to the herniation of mucosa. In one of my cases the difficulty in passing an oesophageal bougie during the operation pointed definitely to a spasmodic stricture of the upper circular fibre. Rare cases of pouch formation have also been recorded. I conclude that a pouch can form there must be a stricture, due either to spasm of the upper oesophageal sphincter, to retrosternal goitre, or occasionally to organic stricture.

DIAGNOSIS.

The occurrence of dysphagia in an elderly man naturally arouses a suspicion of that common and disastrous lesion



FIG. 1.—Case I. Antero-posterior view of pouch.



FIG. 2.—Case I. Lateral view of pouch.



FIG. 3.—Case I. After operation.

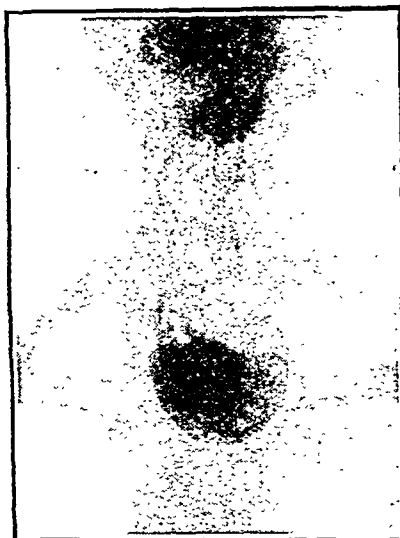


FIG. 4.—Case II. Antero-posterior view of pouch.



FIG. 5.—Case III. Antero-posterior view of pouch.

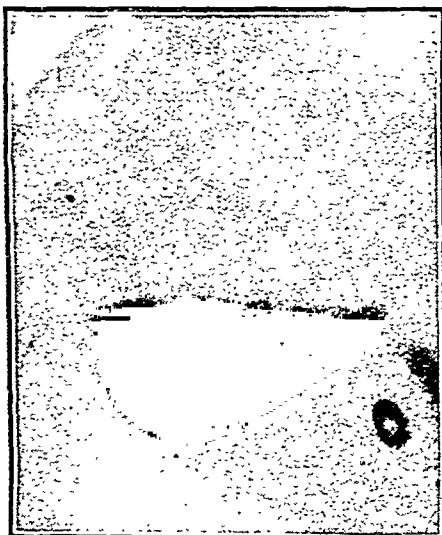


FIG. 6.—Case III. Lateral view of pouch.

epithelioma of the oesophagus. The dysphagia caused by a pouch differs from that met with in malignant stricture in the intermissions in its early stage, the regurgitation of food in bulk some long time after a meal, and the attacks of characteristic choking and coughing with which this regurgitation is often associated. In the later stages a fullness of the neck, with gurgling and ejection of food on pressure over the sac, may make the diagnosis clear. The only certain diagnostic method, however, consists in an x-ray photograph after a bismuth meal, and it is surely unnecessary to stress the point that this should be a routine procedure in every case of dysphagia.

TREATMENT.

Whatever its origin, the oesophageal pouch when well established offers a grave mechanical obstruction to deglutition. It cannot be denied that only surgery can restore these patients to normal health, and except in the rare cases in which there is a certain tolerance of the pouch, and a trick of successful swallowing is acquired, operation should be advised. On that all surgeons are agreed. Differences of opinion have arisen, however, as to what is the best and safest surgical procedure to adopt. The most obvious method of primary resection of the sac and suture of its neck has acquired a somewhat sinister reputation in certain quarters on account of the risk of leakage, with consequent surrounding sepsis in the cellular planes of the neck, and even suppurative mediastinitis. It was on account of these dangers that Goldmann³ introduced a two-stage operation, isolating the sac at the first stage and ligating the neck with silk, so as to cause necrosis of the sac. Ten days later the mummified sac is extirpated with the thermo-cautery, and though a temporary fistula often results there appears to be little danger of fatal cellulitis. Wilkie and Hartley,⁴ while admitting that the one-stage operation is ideal, recommend, on account of its danger in feeble and elderly patients, a modification of Goldmann's two-stage operation. At the second stage they perform a submucous resection of the sac, leaving the outer fibrous coat, or tunica propria, *in situ*. They consider that a temporary fistula is to be expected in about 50 per cent. of the cases. W. Hill⁵ and Fritz König,⁶ in order to avoid altogether the risks associated with the removal of the sac, advise its isolation and suspension in an upward direction by suturing it either to the hyoid bone or to the upper part of the omo-hyoid muscle. The method of inversion of the sac, or invagination into the pharynx, has also been suggested, but it is by no means free from risk of causing asphyxia, and by the best opinions it stands condemned.

What, then, may we consider to be the operation of choice? While a small sac in an enfeebled patient may be dealt with satisfactorily by suspension to the region of the hyoid bone, I believe that the operation of choice is primary excision and suture. There are, however, certain precautions necessary if grave danger is to be avoided. The sac must be rendered as sterile as possible by frequently washing out with a mild antiseptic, and it must be emptied before operation. When the sac is isolated a large bougie should be passed into the oesophagus, and kept there until suture is complete. The suture of the neck of the sac must be carried out with the most extreme accuracy and care, after the technique usually adopted in closing the duodenal stump in a Polya gastrectomy. In this last detail lies the crux of the operation, and I believe it should only be attempted by those who have served a long apprenticeship to the technique of gastro-intestinal surgery. The anaesthetic should be either local infiltration with novocain or intratracheal ether. The wound should always be drained for the first few days. The after-care demands rest from deglutition for some days, and in emaciated patients, who need something more than rectal saline, a gastrostomy performed at the same time as the excision affords the readiest means of securing it, and is a very real safeguard against the danger of leakage.

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RADIATION TREATMENT IN EXOPHTHALMIC GOITRE.*

BY

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It is very difficult to assess the value of any form of treatment for diseases such as exophthalmic goitre in which there is much variation in severity and tendency to natural cure or relapse, and in which some cases pursue an even or mildly fluctuating course for years, while others are so acute that their course may be measured in days or even hours.

Different views as to suitable treatment must depend largely on the average type of case seen. Generally speaking surgeons and radiologists see worse cases than physicians or general practitioners. To take extremes, how different must be the opinion regarding the general severity of the disease held by Sir William Hale-White, who found on an analysis of a large series of cases that 50 per cent. were cured by rest and medical measures (with only a slight tendency to relapse), compared with the opinion of Crotti as to its severity; for Crotti has performed thyroidectomy, and often thymectomy in addition, "in every case that has come his way."

The radiological view as to treatment, now based on thousands of treated cases, may be put thus: Of those patients who are not cured by medical measures only a small percentage cannot be relieved by radiation, while a large percentage are cured.

My own experience with x-ray treatment has been 163 cases, from which, unfortunately, 37 must be excluded owing to insufficient "follow-up." (It would be very useful if our hospitals would establish "follow-up departments" like those established recently in a few American hospitals.) Twenty-four cases are also excluded, as they are now under treatment, all improving. Of the 107 remaining, 88 showed marked improvement, a percentage (82) similar to some of the results reported by other radiologists. The number of males was 11. There were four acute cases, and all these did very well, reacting promptly; one was back to work in a month. Of those who had only begun treatment, or who did not respond promptly, six were operated on, and of these six two died of the operation. Slight improvement was noted in seven cases. In six only of those who had six or more treatments, and were followed up, was there no sign of improvement; several of these had pronounced nervous symptoms and their home conditions were unsatisfactory.

The x-ray techniques advised are very various. On the one hand, there is a small repeated dose method. Thus Fischer gives ten small doses within three weeks, then a three weeks' pause; then ten small doses as before, and three weeks' pause; then ten again, and a three months' pause; then ten again if necessary—thirty to fifty radiations in all. On the other hand, Nordentoft and Blumø have given single large doses, repeated only once to thrice if necessary. In many of their 100 cases reported a single treatment sufficed for cure. The first of these extremes—many small doses—is very troublesome to the patient; the second appears to me to be risky, as an undesirable or even dangerous reaction might be produced. A single massive radium dose has been followed by acute exacerbation, with a fatal result; and with a non-malignant condition no risk is justifiable that can be avoided.

I have not employed any of these extreme dosage systems, but have used various techniques: first, a small weekly dose method, increasing the interval gradually, then a larger suberythematous dose repeated three- or four-weekly; and lately I have used a method of attempting to half-"saturate" the thyroid with cumulative doses in the first month or two, then, as progress is established, the intervals have been gradually increased to months. In this way a number of patients recently have been restored

* A contribution to the discussion of the combined Sections of Medicine, Surgery, Therapeutics, and Electro-Therapeutics, Royal Society of Medicine, March 5th, 1926. See BRITISH MEDICAL JOURNAL, March 27th, p. 572.

to health with only about $2\frac{1}{2}$ H. doses to each side of the thyroid, if large, or to the whole gland from one or other side, if small, repeated in five to eight treatments in all, taking two to four months for great relief or for cure. For very small thyroids I use 1 mm. aluminium filter, for moderately enlarged ones 3 to 4 mm. filter, and for large hard glands 0.5 mm. zinc filtration, in each instance giving a dose about one-half to two-thirds of the dose which will produce an erythema on the sensitive skin of the exophthalmic patient, whose erythema dose is about 60 to 70 per cent. that of the small erythema dose for an average skin.

I have not used radium, as the Middlesex Hospital radium is so much booked up for cases of malignant disease. But Abbe, Aikens, Dawson Turner, Burrows, and others have reported good results. The radium techniques recommended differ very much, quantities from 10 mg. to 500 mg. element being used, either close to the surface, or at 5 to 6 cm. distance, or buried in the gland.

As to whether radiation treatment causes adhesions and hinders a possible later operation, I have an open mind; there is rather a conflict of facts and opinions in the literature. Von Eiselsberg was one of the first to raise the objection, but Holzknacht has said rightly that adhesions, if due to radiation, should be anterior rather than posterior, as the back of the thyroid, with the usual near medium voltage technique, has a considerably less dose than the front. To avoid the possibility, in cases where operation is in the balance, a two or three months' trial of radiation may be made without much risk of causing adhesions, with the usual mild technique. If distance doses and high voltage treatments are given for medium or small thyroids the risk would be greater. In large gland cases a choice should, if possible, be made between operation or radiation, and one or another method adhered to for whatever result there may be.

It is well known that x-ray private cases on the whole do better than hospital out-patients, because the home conditions are more suitable, and as a rule they can obtain rest and quietness while the treatment is in progress and the disease is active.

The only anxiety in undertaking any new cases is in the first weeks, when a suitable dose and dose method is being chosen for the particular patient. I have seen stimulation effects, due to insufficient dosage, in patients referred to me who had begun treatment elsewhere. Towards the end of the treatment it is sometimes very difficult to know when to stop; when in doubt a few months' rest should be given. I have seen slight myxoedematous changes appear towards the end of a course of treatment; in every such case, however, the pendulum has swung back, when treatment was stopped, to an approximately normal thyroid balance. I think the best results are attained when there is a gain in weight to slightly above the patient's previously normal weight.

The nervous symptoms are usually the first to improve: sometimes after one treatment benefit is noticed; sometimes the pulse rate comes down very quickly, in others it takes some months to reduce though the patient feels well. The exophthalmos and thyroid enlargement remain to some degree in most of the long-standing cases. In more acute cases not supervening on an old goitre the eye symptoms and thyroid enlargement may become normal.

As to local results, I have had no case of burning. Slight telangiectases have been seen in three or four cases where the method of employing doses just suberythematous has been kept on too long, or where insufficient pauses have been made, as improvement began to be evident.

Interesting points for discussion arise as to the response to radiation of predominantly vagal or sympathetic types of case, and as to the part played by the thymus. Many radiate the thymus as a routine, together with the thyroid. I have only given thymus radiation when there is not the expected response with thyroid treatment, or when marked myasthenia, coarse tremor, lymphocytosis with leucopenia, and amenorrhoea, added to a predominantly vagotonic type, suggest the presence of a considerable thymic element in the case. Of the patients who die at operation so many succumb from "thymic death" that thymic radiation might well be given where possible as a routine before

thyroidectomy. X-ray examination may be helpful in the diagnosis of thymus enlargement or substernal thyroid.

Surgery had a thirty years' start of radiology in the treatment of exophthalmic goitre, but thyroid surgery has been fortunate in remaining almost entirely in the province of experts, whereas anyone, medical or lay, who has access to an apparatus can give x-ray treatment. Moreover, x-ray dose measurements only passed the elementary stage in the last fifteen or twenty years. Hence many x-ray failures. It is regrettable however, that books, even such as Crile's, should be still disfigured with pictures of x-ray burns on the neck; such photographs are as meaningless now as old operation statistics would be. From the radiological point of view it is deplorable that Crotti, in his book, should devote 606 pages to a consideration of the thyroid, and dismiss radiation with a table of old statistics and a third of a page of print, ending up with the entirely erroneous verdict that "even in the most competent hands complications, such as burns, may occur." A statement like this should really not have appeared in a book dated 1922.

In conclusion, it may be said that radiation is one of the few therapeutic measures which have stood the test of time. It stands well in the forefront among the 239 different drugs and other remedies for the disease which were collected by Marine.

TREATMENT OF THROAT AND EAR CASES IN CHILDREN.*

A RETROSPECT OF FIVE YEARS' WORK IN THE ELEMENTARY
SCHOOLS.

BY

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DURING the last five years I have been doing work more or less in connexion with the Gloucestershire scheme for the extension of medical services, and I desire here to explain the class of work being done under it. The children in the elementary schools are systematically examined, and those requiring it are sent on to the infirmary or other hospital or out-stations for the necessary treatment, the majority being cases of throat, nose, and ear, and eye disorder.

During the period under review I have operated on some 2,000 cases of "tonsils and adenoids" and treated a very large number with chronic suppurative otitis media. Incidentally 150 mastoid operations have been performed, 95 of which have been selected from those children with "runny ears." Formerly treatment of such cases was more or less haphazard, and many children went through their childhood and school period untreated, or at the least with half-hearted treatment for nose, throat, and ear affections, which accounts for the large number of deaf people among the less fortunate class to-day. As an example, many of the mothers bringing their children for treatment I find are dull of hearing, and some very deaf. War statistics also brought to our notice the large number of men suffering from chronic suppurative otitis media. By this treatment of school children there will, as the years go on, be much less deafness, also a decrease in sickness and incapacity, and an ultimate reduction of inefficiency and poverty in their after-life.

Vertical sections of the tonsil ranging from birth up to 2 years of age show that crypts, at first merely surface deep, as the tonsil grows and fills the tonsillar fossa extend by degrees into the tonsil until they almost reach the capsule; in the upper part of the tonsil these crypts tend to run obliquely down, whereas at the lower portion they are more or less horizontal. It is due to this anatomical structure of the crypts and their tendency to retain debris—dead cells, particles of food, and micro-organisms—that we get most of the pathological conditions in the tonsil. We rarely find diseased tonsils in infants, for the above structural conditions in the crypts only, by gradual development, become marked at about 2 years of age.

* An address delivered before the Gloucestershire Branch of the British Medical Association, February 22nd, 1925.

We have no certain knowledge why the tonsils hypertrophy. However, we often find it in a number of members of one family; this may be due to idiosyncrasy. On the other hand, a constant post-nasal discharge, such as would be present in enlarged adenoids—and as a rule we find them concomitant—or chronic retention in the crypts and recurring acute parenchymatous tonsillitis may be a cause. Certainly when they are hypertrophied they are more liable to pathogenesis owing to the great depth and tortuosity of the crypts. Nevertheless, it is not always the large or hypertrophied tonsils which are the worst offenders. Tonsils that cannot be said to be large may be very diseased, and have only a very small portion of the covering normal epithelium tissue. The crypts may show exuberant granulations round their entrance, be wide and run right down to the capsule, and be filled with decomposing tissue.

The tonsils may be a chronic focus of infection. The report by the Ministry of Health on the incidence of rheumatic disease concludes:

"In acute and subacute rheumatism tonsillar sepsis may be an important factor: of patients with acute rheumatism nearly 50 per cent. had enlarged or septic tonsils; only 2 per cent. of patients with acute rheumatism had had their tonsils removed."

However, we have to bear in mind that there are other such foci in the body—for example, middle ear, accessory sinuses, teeth, appendix, and bowels—and these have to be excluded as a possible source of systemic infection before resorting to tonsillectomy, unless there is direct evidence in the tonsil.

The modern method of removing the tonsils is either by the reverse guillotine or by dissection, the whole object being their complete removal from the sinus or bed, and not, as formerly, the shaving off of that portion projecting between the pillars of the fauces. Consequently of the "buried tonsil" more often than not only a third was removed.

By the reverse guillotine method, devised by Whillis and Pybus in England and Sluder in America, practically all tonsils can be completely enucleated by the surgeon who takes the trouble to make himself efficient in this method. One who has gained the knack and who knows the pitfalls will have very few failures. Certainly this applies to children and young adults, in whom the tonsil is more easily manipulated; in many older patients requiring removal of the tonsil, or a stump of a tonsil left from a former tonsillectomy, it would be quite impossible, owing to fibrous adhesions binding it to the walls of the fossa, to enucleate it by means of the guillotine, for only by dissection can the desired result be obtained.

In children I use the former method, whilst in adults I invariably dissect. [Specimens were shown from nine children operated on that morning with the guillotine and one adult by dissection. The tonsillar tissue was not in any way cut. One of the tonsils was still fixed in the guillotine as removed that morning, and when the cutting blade was withdrawn it could be seen that the inner surface of the tonsil was covered by the smooth capsule, whilst in the patient could be seen the clean tonsillar bed and the anterior and posterior pillars of the fauces standing out distinctly. Two large tonsils, dissected out, which were also shown, were intact and practically the same as those removed with the guillotine.]

There has been much correspondence in the BRITISH MEDICAL JOURNAL during the last twelve months by advocates of these different methods. The one side say that the only sure way to enucleate the tonsils is by dissection; there being less chance of injury to the walls of the tonsillar fossa and less chance of hæmorrhage, primary and secondary, because the vessels are ligatured at the time of operation. The other side say that with the guillotine, efficiently used, about 93 per cent. will be successful tonsillectomies; that it is much quicker, and does not require such a skilled anaesthetist. In general time should not be taken into account, though in busy clinics it is an important factor. Anyone who undertakes this class of work should make himself efficient in both methods. He will then be in a position to select the method according to the case.

When I first took charge of the throat and ear department in this hospital some five years ago my clinic was

inundated with cases of chronic suppurative otitis media. To-day these numbers are lessened to a great degree, and I can only attribute it to two causes: (1) That the throat and nose in children has been systematically treated at the outset, thus lessening the chance of acute middle-ear suppuration which may eventually become chronic; (2) the intractable long-standing cases of chronic middle-ear suppuration have had a mastoid operation with ultimate cure.

The usual plan is first to clear out the throat and posterior nares if indicated, or the nose, for one occasionally finds accessory sinus disease (ethmoid or antrum of Highmore); but even excessive and persistent nasal discharge—simulation sinus disease—clears up under the "tonsils and adenoids" operation or "adenoids" only.

The external auditory canal is cleaned out twice daily by gentle syringing with a mild antiseptic so as to remove all debris, followed by instillation of a 50 per cent. solution of rectified spirit which will dry the ear and cause shrinkage of any granulations about the drum. Occasional politization, by forcing pus into the meatus, tends to cleanse the middle ear. It is important that the ear be kept as dry as possible. In this way we help to keep the perforation patent, so allowing drainage from the middle ear and giving its lining membrane a chance to recover. Except in very large perforations I cannot see that much lotion can ever reach the middle ear, let alone the antrum and mastoid cells, the real seat of trouble in most of these long-standing intractable cases.

Our object, however, is free drainage from the middle ear primarily, for there is not much chance of pus or muco-pus draining from the mastoid cells, antrum, and attic if the middle ear is more or less dammed. Thus with the external auditory canal kept clear and the Eustachian tube patent, by attention to the throat and nose we have a double outlet for discharge, so giving a chance for resolution in the middle ear, antrum, etc. Quite a number of very chronic cases do clear up under this treatment. Nevertheless there are very many which resist. These, having had a fair trial of two months without cure, I put on the list for a mastoid operation.

Out of 168 mastoid operations I have done during the last five years 95 have been on school children. The operation, put in a few words, consists in thoroughly opening up the mastoid antrum. All diseased cells and lining membrane are removed from the mastoid, the drum and ossicles being left. In a few cases I have also removed the outer attic wall, but left the drum and ossicles intact. A flap is made of the posterior membranous wall of the external auditory canal; the meatus is enlarged and a drainage tube inserted to keep the flap in position and at the same time to ensure the large meatal opening for post-operative dressing. The post-auricular wound is permanently closed. The middle ear is made thoroughly aseptic by syringing through the aditus at the time of the operation. The wound is smeared with bipp, and through the tube in the meatus the cavity is packed with gauze.

[A child, aged 12 years, one of a type of these operations, was shown who had the first operation done on the right ear three months before; this was followed, two weeks later, by a similar operation on the left ear. Both ears were seen to be soundly healed and dry. The walls of the cavity made in the mastoid, seen through the meatus in each ear, were lined with skin. The perforations in the drums were healed. The drums were much scarred, but the child had quite good, if not normal, hearing, though it had had "running ears" for eleven years.]

There have been no complications in any of these cases, and with few exceptions the temperature has not risen above normal. The average stay in hospital has been two weeks. After this period the post-auricular wound is healed and the head bandage is removed and the patient sent home, the remainder of the dressing through the meatus being carried out at the out-patient department, until the internal wound is covered with skin, which takes about six weeks. On the other hand, some of these cases have not been cured by this operation; there is still a discharge through the drum or a sinus, and in eleven cases I have had to do a radical mastoid operation—that is, clearing out the attic and removing the drum and ossicles and the bridge of bone separating the middle ear from the antrum which had been left intact at the first operation. But

surely it is better to do the less severe conservative operation first with a good chance of permanent cure, as one can always fall back on the major or radical operation if the first is not successful.

Cases Followed Up.

I have lately visited all the schools in the district and seen the majority of cases I have operated on during these five years. I have talked with the masters and mistresses of the various classes, and asked their opinion as to the benefit or otherwise to the children so treated. Practically without exception they noted the change in their condition, physical and mental—for example, the disappearance in many of former listlessness and inattention (probably due to slight deafness); loss of attendance at school due to frequent colds or chills with throat troubles; and especially, fewer cases of “running ears.”

Conclusion.

The question whether we are overzealous in our operative treatment is very pertinent. Some will ask, Is it necessary to remove all these tonsils and adenoids, ridding patients of lymphoid tissue which is possibly needful in their years of growth? So far all the cases operated on that I have followed up, and they number some hundreds, were in good health at the time of my examination, and certainly showed no signs of any deleterious effect from the loss of this lymphoid tissue.

In my visit to the schools I noted a great improvement in the children who had been operated on for chronic suppurative otitis media. A number suffered from a low form of toxæmia previous to operation, and the removal of this focus of infection had resulted in marked benefit to the child, quite apart from the improvement in hearing. Also, remembering what a large proportion of the tonsil and adenoid cases showed at the time of operation enlargement of the cervical glands, I carefully examined the necks of these children, and only in some few did I find any trace of these glands, and these only in those operated on during the last three months. I am sure that the general surgeon who can look back twenty or twenty-five years will remember the frequent occurrence of “cervical adenoma” in his morning operation list, and must have noticed the decrease in number during the last few years. The focal cause is now recognized and removed.

The systematic treatment of school children which is now carried out in all throat and ear clinics must have a great effect for good, and I feel confident that in the next decade there will be much less premature deafness in the adult.

EXPERIMENTAL RESULTS

SUGGESTING THE PRODUCTION OF IMMUNITY BY FILTRATES FROM STREPTOCOCCI ISOLATED FROM THE VAGINA IN PREGNANCY.

BY

MADGE E. ROBERTSON, M.D.

(From the Bacteriological Laboratory, Public Health Department, Glasgow.)

WHILST inoculating mice with broth cultures of streptococci isolated from the vagina during the course of an investigation on the vaginal organisms in pregnancy, in which I have been engaged for the past fifteen months, I was struck by the very marked immediate effect produced on the animal when certain virulent streptococcal cultures were used.

The dose used in these inoculations was 0.5 c.cm. of a forty-eight hours broth culture given subcutaneously, and as a rule little or no disturbance was produced. But once or twice the inoculation had a very marked effect—the mouse seemed dazed, remained still, breathing rapidly and looking very ill. In a short time this condition passed off and the animal appeared normal until, perhaps twenty-four hours later, symptoms of a general septicaemia manifested themselves.

I thought that this immediate effect (since it was observed only when certain virulent streptococci were used)

must be due to a toxin produced in the broth by the streptococcus, and to test this conclusion I prepared broth cultures which were filtered through a Berkefeld filter after forty-eight to seventy-two hours' growth. Results obtained with the filtrates (tried first subcutaneously and later intraperitoneally) were similar to those obtained with the broth culture—in some cases little or no effect was produced, in others the animal appeared seriously ill for a short time. Virulence (in the ordinary sense) and toxicity appeared in a general way to run parallel. Ordinary broth—as a control used in the same dose and same way—produced no ill effect. About fourteen days later I made use of one of these inoculated animals along with another untreated animal in a streptococcus virulence experiment, and was surprised to find that the untreated animal (which was considerably the larger) died in less than twenty-four hours (the streptococcus being recovered from spleen and heart's blood), whereas the one which had had a previous toxin inoculation remained perfectly well, and when chloroformed a week later cultures from spleen and heart's blood were sterile. It should be mentioned, however, that the untreated animal received 0.75 c.cm. of the broth culture because of its unusual size; the treated one only 0.5 c.cm.—a dose which had been sufficient with this particular streptococcus to cause death in mice in twenty-four to forty-eight hours on two previous occasions. The streptococcus used for the toxin inoculation was one giving similar sugar reactions to the one used for bacterial inoculation, but had been isolated from a different patient (vagina in both cases). Both were slightly haemolytic.

I determined to try further streptococcal broth filtrate inoculations with a view to finding whether or not any protection was thus afforded against the streptococcus used in the production of the broth filtrate or other streptococci.

The first series of experiments was inconclusive, owing to uncertainty as to dosage, length of time protection might be supposed to last, loss of virulence in organisms used for the final bacterial inoculation, so that neither treated nor untreated animals died—though the results in the main pointed to some degree of immunity being acquired.

Results in the second series of experiments, however, though the numbers are much too small for final conclusions, suggest so strongly that protection against the vaginal streptococci may be afforded by previous inoculation with the filtrates from their broth cultures that it seemed worth while to make them known even in their present incomplete shape.

Experiments.

Four mice were used in the experiments to be described—three were of almost equal size, one was considerably smaller than the others. The organisms used were isolated from the vagina in two cases of pregnancy and showed the following reactions. The broth used in preparation of cultures and filtrates was the ordinary laboratory lemco broth.

Strain.	Haemo-lysis.	Lactose.	Salicin.	Glucose.	Saccharose.	Raffinose.	Mannite.	Inulin.	Litmus Milk.	
R.V2	+	-	+	+	+	-	-	-	Very faint trace of acid.	Virulent.
C.V2	-	+	+	Trace	+	-	+	-	Acid and clot (pink ring)	Slight virulence.

R.V2 had been obtained from the same patient on two occasions with an interval of months between, and had always been virulent, killing a mouse in twenty-four to twenty-eight hours. The strain used had been isolated on October 13th, 1925, and had been used in four previous virulence experiments on mice with the following results:

- (1) November 2nd.—0.5 c.cm. forty-eight hours broth culture subcutaneously. Mouse died on night of November 3rd. Streptococcus recovered in pure culture from heart's blood.
- (2) November 17th.—0.5 c.cm. forty-eight hours broth culture subcutaneously. Mouse died on night of November 17th. Streptococcus recovered in pure culture from heart's blood.
- (3) November 26th.—0.75 c.cm. forty-eight hours broth culture subcutaneously. Mouse died on night of November 27th. Streptococcus recovered in pure culture from spleen. Present also in large numbers in heart's blood, but mixed with contaminating spore bearer which outgrew it on plates.

(4) December 9th.—0.5 c.cm. forty-eight hours broth culture subcutaneously. Mouse died at 12 noon, November 10th. Streptococcus recovered in pure culture from heart's blood.

G.V2 was of only slight virulence, producing no apparent ill effects when inoculated into a mouse, but being recovered from the spleen when the animal was chloroformed.

The mice had been kept under observation for some days and all appeared very healthy.

Mouse I was inoculated subcutaneously on December 15th with 1 c.cm. sterile filtrate from a forty-eight hours broth culture of R.V2, filtered through a Berkefeld filter, and on December 18th with 0.9 c.cm. of the same filtrate. It was not very well for two days after the second inoculation.

Mouse II (very much the smallest of the four) was inoculated subcutaneously on December 15th with 1 c.cm. filtrate from a forty-eight hours broth culture of G.V2, and on December 18th with 1 c.cm. of the same filtrate. It remained quite well after both inoculations.

On December 23rd Mice I and II were inoculated with 0.5 c.cm. of a forty-eight hours broth culture of R.V2 subcutaneously, and two other normal untreated mice (III and IV) were also inoculated with 0.5 c.cm. of the same culture from the same tube.

Mouse III was very ill the following morning (December 24th) and died that night. The streptococcus was recovered in pure culture from spleen and heart's blood.

Mouse IV seemed well enough on December 24th, but became ill on December 25th, and died that night. The streptococcus was recovered in pure culture from spleen and heart's blood.

Mice I and II remained in good health and are still quite well. It is interesting that Mouse II, which was much the smallest of the mice and obtained only the comparatively non-virulent streptococcus filtrate, remained particularly lively.

Though I was not aware at this time of the details of the Dicks' work on scarlet fever (beyond a general knowledge of the Dick skin test), these results suggested to my mind the question whether an antistreptococcal serum to be used for the treatment of puerperal fever might not be more potent and give more satisfactory results if made up of two components—an antitoxic and an antibacterial—the one to be obtained by the injection of streptococcal soluble toxins, the other by injection of the bacteria themselves in the usual way.

The paper by Dr. Robb in the *BRITISH MEDICAL JOURNAL* of January 2nd (p. 11) on the results of treatment of scarlet fever (a disease in which the organism is so closely allied to those most frequently found in puerperal fever) with the Dick serum prepared in this way or by the injection of toxin alone decided me to publish the results of these experiments.

THE ELECTRICAL TREATMENT OF TIC-DOULOUREUX.

BY

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IN the *BRITISH MEDICAL JOURNAL* of March 6th (p. 417) a writer on the surgical treatment of tic-douloureux made the very sweeping statement that: "Of the various procedures which have been devised for the cure of this most distressing malady two only have stood the test of experience. They are: (1) Some form of alcohol injection. (2) Operation on the Gasserian ganglion by the Hartley-Krause method of approach."

There is at least one other method, of which a trial should be made before destruction of the nerve is attempted by the injection of alcohol, or before resort is made to the severe operation on the Gasserian ganglion. This is the administration of the constant current of as high an intensity as the patient can readily tolerate. Its principle is by no means new, but recently its details have been entirely altered. Formerly a current of from 5 to 10 milliamperes for ten minutes was recommended; now we employ a current of from 60 to 90 milliamperes, usually about 80 milliamperes, for thirty or forty minutes; this is equivalent to a dose of 2,400 milliamperes minutes, compared with 50 or 60 milliamperes minutes. No difficulty attends the administration of the treatment, but the employment of this high intensity of current should always be under the direct supervision of an experienced electrotherapist. As a rule, better results will be obtained in private practice, where the operator can devote the whole of his attention to his patient, than in a busy hospital department, where it is often difficult to secure the undivided attention that

is so essential for the administration of the current to its full and most effective intensity.

The following is a list of cases of tic-douloureux that I have treated in hospital and private practice.

1. A man, aged about 65, a private patient, was treated during 1912. He gave a history of trigeminal neuralgia of several years' duration. Two courses of "ionic medication" with sodium salicylate were given, with only some slight temporary benefit.

This failure was probably due to the employment of too weak a current. Owing to inexperience of the method I was then afraid to increase the current beyond 20 milliamperes. At that date the benefits of the method were wrongly attributed to the specific action of the drug, which it was presumed was electrically introduced to the affected area. Now it is generally admitted that the benefits obtained result from the reflex stimulation and its consecutive effects set up by the current; on this theory the need for an intensive current is more evident. In each of the other cases sodium chloride solution was employed, and no attention was directed to the polarity of the active pad beyond employing the pole which appeared to excite the greater irritation. The presence of a large mass of nasal polypi, not suspected until the conclusion of the last treatment, may have contributed to the failure.

2. A woman, aged about 65, also a private patient, had suffered from severe tic-douloureux for several years. She was treated in 1918 by thirty-three administrations of intensive galvanism—60 to 80 milliamperes for thirty to forty minutes.

In reply to inquiries, this patient writes as follows on March 9th, 1926: "After I had your treatment and came home I found the pain in my face was much better, and gradually it went away; I was able to eat, and then it went away entirely for four years; I had no trace of it at all. I had it again once or twice after those four years... but it was not in the same place; I never had it where I used to have it, but lower down my jaw. I am much fatter than I used to be, and have been able to sing at concerts and give my lectures... I had injections of alcohol at Hospital by Dr. —, but he did not hit the nerve, and they were useless."

3. A woman, aged about 20, a private patient, a recent but severe case, was incapacitated from following any employment. "The attacks would come very suddenly, and the pain was very sharp and cutting, so fierce that she used to shriek with the pain." Treatment given in December, 1920, consisted of seventeen applications of 50 to 70 milliamperes for about forty minutes. On March 14th, 1926, the patient's sister reported that she had not had any repetition of the tic-douloureux, nor any pain at all in her face since the electrical treatment was finished.

4. A woman, aged about 50, a private patient with twelve months' history of severe tic-douloureux, was still undergoing a course of treatment commenced in January, 1926. The treatment in this case consisted of a constant current, 70 to 90 milliamperes for thirty minutes, preceded by diathermy for ten minutes. The patient states that she is now "very much better; can eat comfortably now. No throbbing pain. I am getting on splendidly; only a dull ache at times, chiefly in the jaw bone."

5. A woman, aged 77, a hospital patient. This was a very severe case of more than twenty-five years' duration. Treatment commenced on June 1st, 1922—30 milliamperes for thirty minutes. Treatment was applied continuously, with improvement and relapses, until June, 1925, when the patient expressed herself as "a great deal better in every way." She continued to go on with only slight attacks of pain at long intervals until towards the end of 1925, when the attacks became frequent and more severe. She resumed treatment on December 25th, 1925, with a current of 80 milliamperes; she had considerably improved on January 6th, 1926, when an attack of bronchitis prevented her from attending for further treatment.

6. A woman, hospital patient, had had tic-douloureux for five years. Daily treatments of 40 milliamperes for thirty minutes were commenced on December 18th, 1924. The patient reported on January 1st, 1925: "Much better—better than it has been for a very long time; it does not affect my eye now." On January 13th: "Much better; wishes to attend a little less often." On February 2nd: "Quite well; no pain for ten days." No further history was obtainable in this case.

7. A woman, hospital patient, had had tic-douloureux for eight years. The pain was at times so severe that she was unable to eat. Treatment was commenced on August 26th, 1924—40 milliamperes for thirty minutes. On January 19th, 1925, she reported: "No severe pain now, but not so well last few days, tingling after washing face." January 31st: "Very little pain now, only in the early morning. Goes three or four days without any pain." In reply to letter of inquiry she wrote on March 16th: "It has not disappeared, but seems to have settled more in the lower jaw, and underneath same; should you advise trying the electrical treatment again?"

8. A man, aged 61, hospital patient, had had tic-douloureux since 1919; worse since he had his teeth out two years ago. "Can't eat anything or spit on account of the pain." Current to toleration for thirty minutes. Commenced treatment March 10th, 1925; treatment ceased on October 23rd, 1925, when he reported: "Getting on grand, just a twinge when I washes my forehead. Can spit fine." Called up to report progress on March 15th, 1926, the patient stated: "Ten times better than it was. Slight pull on gums."

AMBLYOPIA WITH HAEMORRHAGES DUE TO TOBACCO AND (?) LEAD POISONING.

BY

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THE following case presents many points of both medico-legal and clinical interest.

A plumber, aged 43, was admitted to the Victoria Infirmary, Glasgow, as a case of intracranial pressure. He complained of dimness of vision of four to five months' duration. His family history was good. His health was quite good until five years ago. He was never off school nor off work till then. Since then he has had giddy turns occurring frequently, which pass off in a minute or two. He states that he was once treated by powders for those turns, and they got less, till he had them only once or twice a year. He himself thought his attacks were due to constipation.

On October 7th, 1924, he fell from a height of 9 ft. and bruised his left shoulder, but this, under his doctor's care and massage, got all right. A month later he noticed a slight shaking, especially when writing or when he got excited. This was diagnosed as neurasthenia, and treated successfully. He began work about the middle of January, 1925, and one month later noticed that his sight was failing, the right eye being worse than the left. As this got worse he was sent to the Eye Infirmary, and, on the report of the surgeon there, was sent into the Victoria Infirmary.

The surgeon's report was as follows: "Right optic disc is greatly swollen with haemorrhages in the fundus and choked disc. The left optic disc is paler, with no haemorrhages in the fundus. I am of the opinion that he is suffering either from head injuries from accident or from glycosuria, which may be due to the accident."

The house-surgeon's report on his condition on admission to the Victoria Infirmary was as follows: "Temperature, pulse, and respiration normal. He lies comfortably in any position; his gait on walking is normal. Pupils moderate and equal, react to light and accommodation. Elbow and supinator and knee- and ankle-jerks exaggerated. Ankle clonus fully present. Plantar flexor in type, sensation normal. Circulatory system normal, except slight systolic murmur. Gastro-intestinal system: tongue furred and teeth in bad condition, and has pyorrhoea. Urinary system: uric acid specific gravity 1020; no albumin, blood, or pus; i.o. acetone; sugar 2 per cent. Wafcr, trace of sugar only. Chronic suppuration in right ear and wax in tract."

On August 19th I was asked to examine his eyes. His vision was very defective. An ophthalmoscopic examination of the right eye showed some neuro-retinitis, tortuous vessels, and many haemorrhages in the fundus, especially in the course of the inferior retinal artery. In the left there was also neuro-retinitis, tortuous vessels, and some small haemorrhages, and the optic disc was rather pale. From an ophthalmoscopic examination I diagnosed a fair amount of refractive error, worse in the right. His vision in the right eye was 0/60 and in the left 6/36. A correction of his refractive error gave him in the right 6/60 and in the left 6/24. I found that he smoked 6 oz. of black twist in a week, and I cut this off entirely. On August 26th his vision under correction right spherical +1.5 combined with cylinder 1.5 vert. gave him 6/36, and left under spherical +0.25 cyl. +1 D. vert. gave him 6/18. There were still many haemorrhages in the right eye and a few in the left. He was then put on to a mixture of potassium iodide and nux vomica.

On September 2nd his vision had improved to 6/24 right and 6/18 left. On September 15th it was 6/18 letters right and 6/18 letters left. On September 23rd 6/12 right and 6/12 left.

On October 12th it was: right 6/9 letters and left 6/12 letters.

On November 11th it was 6/9 in both eyes, and no fresh haemorrhages had appeared in the fundi. His vision, with distance correction, continued practically the same until January 6th, 1926. With additional right and left spherical +1.5 added to his distance correction he gets easily Jaeger 1 with both eyes. As he was anaemic I prescribed an iron tonic, and now his general health is good, and he has been passed as fit for light work.

The case had an important medico-legal aspect. If the lesions were due to a cerebral condition—connected with the fall—compensation was due, and this might have been quite wrongly awarded. It is certain that the fall had nothing to do with the condition.

It is unusual to find so much neuro-retinitis and so many haemorrhages in tobacco amblyopia.

The patient is a plumber and tells me he was constantly handling white lead, and often ate his "piece" or his meals without washing his hands; the question arises whether there was an element of lead poisoning in this case.

There is also the question whether the state of his teeth and the pyorrhoea had anything to do with the condition. I do not think so, for none of his teeth were removed, and, beyond brushing them every day, nothing has been done. It may be asked also whether the greater refractive error in the right caused that eye to be more affected than the left.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

GLYCOSURIA AND ARTIFICIAL SUNLIGHT.

A MARRIED woman, aged 22, was sent to me for treatment of a disfiguring rash on the face of six months' duration; she had, she said, been treated medically for it for three months at least.

The rash had begun on the side of the nose, and when seen the distribution of the patches across the bridge of the nose, on the left ala nasi—especially along the edge of the nostril—on both malar eminences, and on the point of the chin, combined with the appearance and duration of the lesions to suggest lupus. On August 30th, 1925, the original Hanau-vacuum lamp was used for the first treatment at a distance of 2 feet for three and a half minutes, directed over the whole area of the face, the eyelids being held tightly shut.

Next day severe local reaction was evident in and around the eyes and nose, but the rest of the face showed only the degree of erythema anticipated. There was painful conjunctivitis in both eyes and oedema of the tissues surrounding the eyes and nose; here the skin was tense, red, glazed, and painful, and pitted on pressure, and for two days the patient complained of inability to see clearly, though she continued her duties as housemaid. Previous to treatment the urine gave a heavy precipitate with the usual Fehling's test. The conjunctivitis and oedema disappeared in four days and sight became normal; when examined six days after treatment all facial lesions except one very small patch on the left cheek had vanished. To remove this she was treated with a moderate dose of two minutes at 3 feet on the face only. The reaction on this occasion round the eyes was very mild, lasted one day only, and the skin of the face entirely healed.

The patient returned on September 21st, as a few nodules, more impetiginous in appearance, were showing further out on the cheeks, but none in the previous situations. She was given a general sun bath with the Hanau lamp—three and a half minutes at 3 feet back and front. There was little reaction, but as the facial lesions had not healed a similar dose was given on September 25th, after which they entirely disappeared. On October 7th four small spots had appeared on the face and she was given general treatment—four minutes each back and front at 3 feet. Two small lesions about the size of a sixpence had been present over the end of each radius on the flexor aspect of the wrist from the beginning of treatment, and these had never received special attention, and at this stage appeared to have slightly increased in size; on this occasion these received an extra four minutes at 18 inches.

Next day there was slight oedema round both eyes; she said the eyes felt "itchy" and that she could not see very well, but the conjunctivae appeared normal. On October 16th all skin lesions were healed and the patient not only looked better but remarked on the very great improvement in energy and health, so that she now felt "very well indeed and quite fit for work." There was, however, still a heavy precipitate with Fehling's solution in the urine.

This case is remarkable for various reasons. (1) The rapid effect of artificial sunlight on the chronic facial lesions which had resisted previous treatment. (2) The severe local reaction to a small dose of artificial sunlight which raised suspicion and led to the discovery of sugar in the urine. (3) The very definite improvement in general health and vigour of the patient, though the treatments given were of short duration and at infrequent intervals, and in spite of the fact that the amount of sugar in the urine remained apparently unaffected.

CHRISTINA BARROWMAN.

Newcastle-on-Tyne.

INTESTINAL OBSTRUCTION BY GALL STONE.

THE following case may be of interest, following on the series recorded by Mr. Bennett in your issue of March 27th (p. 565), and Dr. Coldrey's communication of May 1st (p. 783).

A married woman, aged 69, was on May 4th, 1926, admitted to the High Wycombe and District War Memorial Hospital suffering from abdominal pain and vomiting of forty-eight hours' duration. The abdomen was rigid; tenderness was most marked in the right iliac fossa. The conjunctivae were definitely, but not deeply, jaundiced. The vomit was doubtfully faecal. There had been no motion of the bowels for "several days"—a fact, however, which had not perturbed the patient until the onset of pain, as she had not uncommonly had but a single motion a week. Before seeking medical advice castor oil had been administered, but was rejected. An enema gave no results.

Laparotomy was performed by Dr. L. L. C. Reynolds. The appendix was found to be sharply kinked and bound down by adhesions; it was removed. At a point about six inches from the ileo-caecal valve the ileum was occluded by a solid body over which its walls were tightly stretched. The segment of gut above the obstruction showed the usual congestive and oedematous

changes resultant on blockage, but there was no extreme distension of the coils. On incising the bowel a gall stone was extracted, roughly cylindrical in shape; it was one inch in length, and its maximum width was seven-eighths of an inch. Its dry weight was 101 grains. The patient's recovery was uneventful.

So far as could be judged from appearances, the probability of the calculus negotiating the remaining six inches of ileum, or the ileo-caecal valve itself, seemed very small, while the patient's condition was critical when operation was undertaken. It is of interest that in Dr. Coldrey's case a considerably larger stone was passed by the rectum.

DOUGLAS J. B. WILSON, M.B., Ch.B.Glas.

High Wycombe, Bucks.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

EDINBURGH BRANCH.

THE CERTIFICATION OF INSANE PERSONS.

A MEETING of the Edinburgh Branch of the British Medical Association was held in the British Medical Association House, 6, Drumsheugh Gardens, on June 1st, when Dr. GEORGE KEMPE PATTERSON, senior Vice-President of the Branch, occupied the chair. The President of the Branch, Professor G. M. ROBERTSON, P.R.C.P., physician superintendent of the Royal Hospital, Morningside, gave an address on "The certification of insane persons."

The work of medical men was always, he said, of a very responsible nature and of a very personal nature. In the course of it they were frequently exposed to the danger of an action for damages. In dealing with people of unsound mind they were exposed to additional dangers, as many such persons made only partial recoveries, and were apt to harbour delusions, as the result of which they brought actions against the doctors who certified them. This was so well recognized that in English law such actions could be dealt with in chambers, and were very generally quashed. Although there was no similar provision in Scotland, there was in reality as much protection against such litigation as in England. Only one action had ever been brought in Scotland for wrongous certification, and that should never have been brought.

Professor Robertson strongly advised every member of the profession to belong to the Medical Defence Union. No one would think of driving a motor car without being insured against accident; it was infinitely more foolish not to be insured against the liability of an action. As a matter of fact, the medical profession was as well protected against actions for damages as was wellnigh possible. Under Section 73 of the 1913 Act the medical man was not liable if he had acted in good faith and with reasonable care. In practice, it was sometimes very difficult to convince a jury that reasonable care had been exercised. He advised his hearers in all doubtful cases to pay a second visit to the patient. It could not then be doubted that reasonable care had been exercised. It was wise also to make notes of such cases.

Professor Robertson went on to discuss the meaning of the term "lunatic." In the eyes of the law there must be not only disease of the mind but a definite disorder of conduct. The term had been defined in the Scottish Act of 1857 (Section 3) as "a person so diseased or affected in mind as to render him unfit to be at large." The Act was less happy in describing what was meant by unfitness; but it was clear that unfitness as regards personal safety and conduct or the safety of the persons and property of others referred to safety in the widest sense, and not merely as regards danger to life. It meant safety from harm of all kinds.

In regard to the certification itself, it must be borne in mind that the certificate was a great deal more than a certificate of insanity. It required to be shown that not only was the person of unsound mind, but "a proper person to be detained under care and treatment." The reasons for certifying a patient as a proper person to be detained under care had been stated by Sir Claud Schuster, Permanent Secretary to the Lord Chancellor, in his evidence before the recent Royal Commission. These were

very similar to the answers given by Sir Arthur Mitchell before a Select Committee in 1877. The reasons stated by Sir Claud Schuster were fourfold: to protect the public from injury; to protect the patient from self-injury; to give treatment with a view to cure or amelioration which cannot otherwise be given; to protect the patient from sustaining injury due to want of care. These statements, however, did not help very much in practice.

There was one way in which medical men could get out of their difficulties, and that was by inducing their patients to enter a mental hospital voluntarily. The majority of patients at the back of their minds knew that they were not well, and could be induced to go as voluntary patients. At the Royal Hospital, Morningside, 60 to 80 per cent. of patients came voluntarily. He urged the adoption of this course as far as possible. At the close of his address Professor Robertson replied at length to numerous questions with reference to the subject of his address.

Reports of Societies.

THE ORIGIN OF TUMOURS.

At a meeting of the Section of Surgery of the Royal Society of Medicine on June 2nd, when the President, Sir LENTHALL CHEATLE, was in the chair, Dr. W. E. GYE made a communication (postponed on account of the general strike) on the origin of tumours, illustrated by the epidiascope. When first he submitted the results of his work on this subject he had, he said, no idea how tenaciously pathologists held to the current views on what was known as the cellular hypothesis, the real meaning of which he declared he did not know. It was evidently felt that when a tumour was formed a change occurred in the internal mechanism of the cell, such as was induced by the action of tar or by some living virus. The evidence which, so far, had been advanced against the parasitic hypothesis of the cause of cancer had been negative only, which was useless for founding dogmatic conclusions. To be acceptable, any cause of cancer must fit into knowledge which had been definitely ascertained. The inoculation of the morbid material of cancer into another animal did not in itself cause cancer in the recipient animal if such animal was of a different species, nor in the same species when the cells were killed. Hence the position was not parallel with that of tuberculosis, for example, in which inoculation of Koch's bacillus into another animal produced in it the disease. The surviving spindle-celled sarcoma of the fowl, which Rous, of the Rockefeller Foundation, had been working on, could be filtered through fairly fine candles—not the finest—but the filterability was not a constant feature. From time to time filtrates prepared in precisely similar manner to those which were very infective were found to have scarcely any power of infection at all. This variability in filterability disposed of the argument which had been so widely advanced by pathologists that the fowl tumour could not be called a true cancer because it could be transmitted by filtrates. It was found that the tumour produced by filtrates bore a definite proportion to the size of the inoculum employed; measurement by weight was useless, owing to the varying involvement of surrounding tissue, therefore the rule measurement was used. Chloroform added to the filtrate was found greatly to inhibit its infectivity, and a sufficient quantity of it disposed of the infectivity altogether. But even with reduced infectivity the proportion of tumour formation in the two breasts was the same. The infectivity held in abeyance by chloroform could be restored by adding a culture from another tumour. Dr. Gye, in conclusion, said he felt now even more confident of his results, and of the soundness of the views founded on them given in the communication he had made to the profession last July.

THE PRESIDENT, in thanking Dr. Gye for his masterly review of his work, said it would be particularly valuable to bear Paget's disease of the breast in mind in researches into the origin and nature of cancer. In cutting whole sections of breasts it was sometimes found that the only abnormality discoverable was Paget's disease of the nipple.

He hoped the discussion would embrace benign tumours as well as those essentially malignant. In so-called fibroadenomata of the breast the growth varied according to the particular tissues involved, and this variety of form was no argument against an infective origin.

Mr. J. JACKSON CLARKE spoke of a number of new growths which he had long held to be due to parasites or some living organism, and showed on the screen histological sections he had made many years ago.

Sir ALMROTH WRIGHT, who spoke in response to an invitation from the chair, said that comments on this research, to have value, should come from those engaged in the same kind of work. Dr. Gye appeared to have discovered some of the factors producing cancer, but not all of them yet. He expressed his admiration of the extraordinary skill shown in carrying out these experiments.

Sir CHARLES BALLANCE also had a word of high praise for Dr. Gye, and for the manner in which he was carrying on his research.

Dr. WILLIAM CRAMER, speaking as a worker in the same field, declared that Dr. Gye's discoveries had removed a number of the investigator's difficulties which had appeared insoluble. For example, Dr. Gye had established the correlation between Rous's fowl tumour and the ordinary animal tumours, the only difference being that the fowl tumour was more malignant than were ordinary animal tumours. After very careful consideration of the subject, he found himself now a convinced supporter of Dr. Gye's views.

Mr. ZACHARY COPE, following up the chairman's remark as to the relation of benign to malignant tumours, said that such growths as fibromyoma of the uterus, though not malignant, grew so rapidly that there must be a potent multiplying factor in operation.

Dr. H. J. B. FRY described an experiment in which 0.5 c.cm. of a subculture virus was injected with 0.5 c.cm. of chloroformed extract into one breast, and into the other breast 1 c.cm. of chloroformed extract was injected high up, and 1 c.cm. of virus into the lower part. In the first breast no tumour developed, but in the other a tumour formed midway between the two inoculation sites, and there only.

Dr. GYE, in a very brief reply, said the inquiry in regard to benign tumours was now going forward.

ADENOFIBROMA OF THE OVARY.

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on May 6th, Mr. T. G. STEVENS, the President, in the chair, Dr. HERBERT SPENCER read a paper on adenofibroma of the ovary, and gave an account of two cases associated with multilocular cyst—in the first case in the opposite ovary, in the second case in the same ovary.

Dr. Spencer said that in the first case a large multilocular cyst containing masses of papilloma with proliferated epithelium had ruptured before the operation; the other ovary contained an encapsuled adenofibroma 1.5 cm. in diameter. The patient had had eleven children and one abortion. She was aged 62 at the time of operation, and remained well for sixteen years after removal of the ovarian tumours. In the second case the solid part (adenofibroma) weighed 4 lb. 4 oz.; the large multilocular cystic portion filled the abdomen. The patient, aged 77, had had five children and one abortion. She suffered from bronchitis and metrorrhagia, and died on the eleventh day after the operation (double ovariectomy and hysterectomy). The tumours were characterized by a dense fibromatous stroma beset with spaces filled with epithelioid cells, looking not unlike epithelioma, but there was no evidence of invasion of the stroma. The masses were for the most part solid, but in places were hollow in the centre; this was evidently due to degeneration of the central cells. In one section two gland spaces were found exactly resembling corporeal uterine glands cut across, with a single layer of columnar epithelium, but with no cytogenous stroma around them. In the second case the dense fibrous stroma was found immediately beneath the epithelial lining of the multilocular cyst. The thick degenerated stroma in places

somewhat resembled the wall of a blood vessel, suggesting at first sight the possibility of the growth being an endothelioma, but careful examination did not support this, the vessels in the growth showing no proliferation of the endothelium. Ovarian adenofibromata were rare. Three cases had been shown before the Section (by Macnaughton Jones, Darwall Smith, and Giles), in all of which doubts were expressed as to their malignancy. Dr. Spencer held that the appearance of the cells, the sharp delimitation of the epithelial masses from the stroma, the absence of any tendency to invasion and of small-cell infiltration, the slow growth, and the absence of recurrence (for two years, eleven years, thirteen years, and sixteen years), showed that the report of the committee of the Obstetrical Society of London, made twenty-seven years ago, that these growths were non-malignant adenofibromata, remained true, and that Pfannenstiel, Glockner, and Ortlmann were in error in attributing to these growths malignant characters. He observed that four out of the five English cases were associated with ovarian cysts. This association, as also the much commoner occurrence of simple fibromata in the walls of ovarian cysts (of which he gave two examples), was worthy of further study and research.

The paper was discussed by the PRESIDENT and Mrs. VAUGHAN SAWYER; and in reply Dr. SPENCER agreed with the President that small pseudo-mucinous cysts were rare; he had, however, met with one not bigger than a marble in a newborn child. He was not in favour of the suggestion that pseudo-mucinous cysts ordinarily developed from adenofibromata; the common pseudo-mucinous cyst was scantily supplied with fibrous tissue, and the pseudo-mucin was a secretion, and not a mere degeneration of cellular masses.

An Unusual Method of Caesarean Section.

Dr. F. J. McCANN read a paper on a new method of Caesarean section by removal of the placenta with the foetus contained in the unopened bag of membranes. The length of the abdominal incision should be sufficient to permit the uterus to be everted without difficulty. Six or seven inches would usually suffice, the greater part of the incision being above the umbilicus. After everting the uterus the abdominal incision was closed temporarily with volsellae or long Kocher forceps, and covered by a towel wrung out of hot saline solution. Another towel wrung out of hot saline solution was wrapped around the uterus, leaving the fundus exposed, and was clamped by forceps along the posterior uterine wall. All this was done with the utmost rapidity, everything necessary being in readiness before the abdominal incision was made. A medial incision six to seven inches long was made through the fundus uteri, being prolonged one inch further downwards anteriorly than posteriorly. The incision should be made accurately in the middle line with a sharp knife. After the fundal incision had been made the membranes bulged into the anterior half of the incision, and the placenta was exposed through the posterior half. The hand was then inserted and the placenta rapidly separated from the uterine wall. Whilst his assistant drew the two sides of the uterine incision apart, Dr. McCann compressed the uterus at its lower part through the towel and gently "milked" the uterine wall from below upwards, when the placenta and foetus contained in the unopened bag of membranes was shelled out of the uterus like a pea out of a pod. The bag of membranes was then slit, the child liberated, and the umbilical cord clamped and cut. The uterine incision was sutured with through-and-through linen sutures and superficial catgut sutures. The uterus was returned into the abdominal cavity, the omentum brought down and placed over the intestines behind the uterus, and the abdominal wall closed in layers. The patient made a smooth recovery, and her child, a boy, had remained well. This method prevented any escape of liquor amnii into the peritoneal cavity, and if the incision was made accurately in the middle line there was very little haemorrhage, and the operation could be completed with a degree of cleanliness difficult to excel.

Dr. HERBERT SPENCER remarked that the wisest of men had said "there is nothing new under the sun," and certainly this method of performing Caesarean section was

not new. It had some merit, but so many drawbacks that obstetricians, like himself, who had been acquainted with it for twenty-five years, had not been induced to employ it. As far as Dr. Spencer knew, it was first performed and recommended by Fournier of Amiens, in 1801; later he published many cases. Fournier called the operation "enucleation of the human ovum," and drew attention, as Dr. McCann had done, to the ease with which the uterus expelled the ovum, aided by slight pressure with the hands—as easily, he said, as a cherry-stone escapes when pressed by the fingers. The advantage of the method was that it prevented soiling of the peritoneum and wound with the liquor amnii, which would render it suitable for a case where toxins were being absorbed from a dead foetus. The disadvantages were: a long abdominal and uterine incision; delayed delivery of the child, which increased its risk; haemorrhage when the placenta was separated; difficulty of removal of the placenta, if adherent; difficulty of removal of adherent chorion through a fundal incision; and especially the greater risk of intestinal adhesions to the fundal scar, which had led to fatal ilios in several instances. For all these reasons Dr. Spencer considered the fundal incision and enucleation of the ovum far inferior, in a routine operation, to the usual anterior incision in the body, which he agreed with Dr. McCann was superior to the incision in the cervix.

Dr. McCann said, in reply, that he was not aware of the publication referred to, and that, so far as he was concerned, this method of Caesarean section was original. Dr. Spencer appeared to be quite satisfied with the usual method of Caesarean section, but there was always room for improvement; indeed, in Dr. McCann's opinion, every surgical operation could be improved. Adherence to routine was the curse of the medical profession, and new methods should receive at least a fair trial. The objections urged against this method of Caesarean section were easily overcome by careful technique, and the possibility of intestinal obstruction from adhesion of the small intestine was less than after myomectomy. Dr. Spencer had, however, stated his belief that in certain cases this method of Caesarean section would be useful. Dr. McCann claimed that a sagittal fundal incision was incomparably superior, both on anatomical and physiological grounds, to the transverse fundal incision of Fritsch. After the latter, several examples of rupture of the scar had been recorded, but he was not aware that any examples of rupture of the scar were recorded after a sagittal fundal incision. Dr. McCann had not seen gaping of the incision during this operation; on the contrary, the edges of the incision were pressed together during the uterine contractions, and he thought this would be so when the incision was made accurately in the middle line. Dr. McCann did not advocate this method for every woman requiring the Caesarean operation, but he thought that it was a method to be adopted in suitable cases. In the treatment of septic cases it offered obvious advantages, and might be the means of avoiding the sacrifice of the uterus. It was a method which was worthy of an extended trial, for the surgeon was able to unite the thick muscular wall of the fundus and so obtain a strong scar calculated to stand the strain of pregnancy and labour. It placed in the hands of the obstetric surgeon an alternative method of considerable value.

Total Transposition of the Viscera.

Dr. J. FORD ANDERSON, in a paper on total transposition of the viscera and its clinical importance, remarked that total transposition of the viscera was more than an anatomical curiosity and deserved more interest from clinicians. There were many cases recorded, chiefly in America, where ignorance of the presence of the condition had led to wrong diagnosis and wrong treatment and even disaster. It was of special interest to obstetricians in its causation and diagnosis at birth. Cases were fairly numerous, showing that total transposition and twins were allied abnormalities, both due to hereditary transmission. Virchow's observation, many years ago, was still valuable, that the vessels of the umbilical cord were wound from right to left instead of

from left to right, as was usual. This was an indication of the position of the liver, which, according to Serres, determined the "situs viscerum inversus." The importance of determining the frequency of the malformation was great, and practitioners should report such cases, while obstetricians were asked to note the presence of Virchow's sign of winding of the cord and report if it was associated with transposition of the viscera. The patient also should be warned of the abnormality.

Dr. HERBERT SPENCER had always accepted the teaching that the direction of the twist varied, but could not definitely answer the question from his own experience. He hoped some young obstetrician would set the matter at rest by careful examination of the direction of the twist in stillborn children.

RADIOTHERAPY IN BLOOD DISEASES.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on May 14th, the PRESIDENT (Dr. F. C. Purser) in the chair, Dr. R. STUMPF read a paper on Roentgen therapy in certain blood diseases.

Dr. Stumpf reviewed briefly the treatment of polycythaemia rubra vera, pernicious anaemia, and lymphatic leukaemia, and considered the subject of myelogenous leukaemia in greater detail. The treatment of choice was by x rays, especially combined with the administration of arsenic. There was never complete cure, but cases were known in which improvement sustained over many years had resulted from the x-ray treatment of this condition. Relapses occurred in weeks or months, each responding, but ever more slowly, to successive treatments. After each treatment there was a diminution in the size of the spleen, a drop in the leucocyte count, and an improvement in the patient's general condition. The focus for radiation was the spleen. The essential point to remember was that each case must be treated on its individual merits and no dogmatic scheme could be followed. Greater attention must be paid to the patient's general health than to attaining a rapid diminution in the size of the spleen and an immediate drop in the number of leucocytes. As regards technique, it was best to start with small doses, which were very carefully increased. The latest forms of apparatus, with their greater uniformity of conditions and improvement of dosage, were superior to the older ones. In conclusion, a case of myelogenous leukaemia was reported.

A married woman, aged 23, showed for several months atypical symptoms, and suddenly developed a severe pain in her abdomen about a year ago. The spleen was found to be much enlarged, and the leucocyte count was 250,000 per c.mm. She had had three courses of x-ray treatment, during part of which time she also received injections of arsenic. In the course of treatment the leucocytes gradually fell from 250,000 to 25,000 per c.mm. This favourable figure had not been maintained, since it was not considered necessary to give sufficient exposures to the x rays to bring about this result, because the patient's general health was so excellent. Frequent blood counts were made, and only sufficient treatment given to maintain the leucocytes somewhere between 60,000 and 90,000 per c.mm. At the beginning of treatment the spleen reached to below the level of the umbilicus and extended across the middle line. It was now three fingerbreadths below the costal margin, and was well to the left of the middle line. The patient's weight had increased very considerably, and her general condition was excellent.

Dr. A. R. PARSONS said that his results had been much the same as Dr. Stumpf's as regards early improvement and subsequent failure to repeat the first success. He asked whether deep x-ray therapy had any advantage over "ordinary" x rays.

Dr. MAURICE HAYES said that with deep x rays the number of treatments was less, the intervals between treatments were longer, and the risk of damaging the skin less; also by deep x rays it was possible to get a more uniform radiation at the first dose.

Dr. J. SPEARES was doubtful whether x-ray treatment did in reality prolong the life of these cases. In the case of lymphatic leukaemia it was his experience that the patient might live a very long time indeed. He was at present treating a patient who had had the disease for twenty-one years.

Sir JOHN MOONE read an historical note on alkaptonuria, and radiograms of various diseases were shown by Drs. J. SPEARES, G. BEWLEY, and C. L. McDONOGH.

Reviews.

MORISON'S "INTRODUCTION TO SURGERY."

IN the second edition of *An Introduction to Surgery* Professor RUTHERFORD MORISON has the assistance of his old pupil Professor C. F. M. SAINT of Capetown University, who is responsible for the "Appendix," which comprises 78 pages out of the total 347.

Any reader of Professor Rutherford Morison's writings must be struck by his originality and his philosophy, and it is clear that this book is the product of much thought. In many of the chapters his old students will recognize the tone and teaching of Professor Morison's systematic lectures. He displays a thorough grasp of surgical principles, together with a knowledge of pathology both wide and deep.

Professor Morison aims at simplifying surgery by means of taking a view of the whole. For example, he emphasizes the importance of realizing that malignant growth and inflammation are disseminated in similar ways. The art of surgery is made to appear to be easy, for he shows it to be so if only the principles are first mastered. He endeavours to make the student think for himself by applying surgical principles to any problem which may present itself, either in the wards or in his book; and excellent illustrations of problems are given. He deprecates the student being overwhelmed with a mass of surgical detail.

One difficulty in reviewing this book is that it is so orderly and schematic; after the principles have been enunciated different diseases are discussed, but each one cannot be commented on here.

Though not a systematic textbook, of which there are many, but supplementary to these, it can be warmly recommended to all students. The print is good, the book is of a handy size, while the large number of illustrations are most helpful.

APHASIA.

IN the introduction to his *Aphasia*,² forming the second volume of the series "Psyche Miniatures," Dr. S. A. KINNIER WILSON says that the study of this complex subject, which should be the meeting place of the psychologist, the physiologist, and the clinico-pathologist, has been handicapped by terminological disagreement and controversy; further, the "tendency to appear exact by disregarding the complexity of the factors" involved is brought out by reference to the numerous schematic diagrams of centres and their connexions in aphasia. As the symptom-complex of aphasia should be investigated from three points of view—the anatomical site of the lesions, the physiological mechanisms involved, and the nature of the psychological disorder—these are carefully discussed in three successive chapters. The opinion that the faculty of speech is not localized in any area of the cortex is shown to be true only in the sense that psychical processes cannot be "placed" by application of the criteria of physiological localization; the implication that there is absence of a localized physiological setting for the arrangements essential to the faculty of speech is contradicted by Henschen's analysis of 1,337 cases, which conclusively points to the existence of a cortical speech centre. Macroscopical without microscopical examination is not satisfactory evidence of the absence of a cerebral lesion, and cases which appear to contradict the old localization of the speech centre may be explained on the hypothesis of "stock-brainedness"; thus aphasia from a right-sided lesion in a right-handed patient may be due to his belonging to a right-brained stock in spite of his right-handedness—in other words, ectopia of the speech centre may occur in some right-handed members of left-brained stock.

The closely reasoned account of the physiological and

psychological aspects of the subject is followed by a consideration of the classification of aphasic disorders, in which it is pointed out that, while an anatomical, a physiological, or a psychological scheme might be adopted, terms used to describe defects in one of these systems should not be transferred to either of the others. The ideal is a correlation of the anatomical, physiological, and psychological aspects; a purely psychological scheme ignores the pathological aspects entirely. He considers that a scientific classification of aphasia should be physio-pathological, but as this is not yet available the clinician must be content with an empirical clinical division, the utility of which outweighs its patent drawbacks. In the chapter headed "Some clinical types of aphasia" there is an account of expressive aphasia, or that usually termed motor, receptive, or sensory aphasia, agraphia, and spelling defects, and the relation of aphasia to apraxia and agnosia is discussed.

Consideration of the treatment of aphasia brings to a close a book the small size of which contrasts with its concentrated and logical discussion of an extremely difficult subject.

THE CONTRIBUTIONS OF CHEMISTRY TO MEDICINE.

IN *Lectures on Certain Aspects of Biochemistry*³ we are given the substance of three series of lectures delivered last year in the University of London. One series was given by Professors J. C. DRUMMOND and A. V. HILL of the University, and the other two by Dr. H. H. DALE of the National Institute for Medical Research and Professor L. J. HENDERSON of Harvard. The preface makes the rather lame apology that "the coincidence of so many lectures on different problems of biochemistry prompted us to put them together in a volume." The matter of post-graduate lectures is not always suited to the more permanent form of the printed word, and it would be disquieting if the habit grew of burdening the publishers' catalogues with too many such. In the present case, however, we must be grateful that the lecturers have been constrained to seek a larger audience than that for which their material was first prepared. Each of them deals with problems in physiology to which chemistry has, in recent years, made fundamental contributions, problems in which they have each a personal interest and on which they have very definitely something to say. With the exception of those of Professor Henderson, the lectures have not the completeness of monographs, but rather possess a gentle discursiveness which gives them a happy individuality.

The text of Dr. Dale is "The chemical control of certain bodily functions." The first lecture is devoted to the control of the capillary circulation by adrenaline, histamine, and the pituitary, and the second to the many other activities attributed to this popular gland. Two further lectures discuss the nature of the chemical control of carbohydrate metabolism by insulin. The author's own clear-sighted researches in all these subjects give him a unique authority which is enhanced by the engaging quality of all his public discussions.

In "The mechanism of biological oxidations" Professor Drummond approaches a subject of peculiar interest to the chemical mind. So useful a review will be generally welcome, for the subject is in process of extensive revision as the result of much current work. In his third lecture there are brought together under the title "The rôle of phosphates in the cell" subjects so diverse as carbohydrate metabolism, the nature of the blood sugar, alcoholic fermentation, and calcification in bone. A fourth lecture deals in an unconventional but happy fashion with the very popular question of the vitamins.

Professor Henderson's section of the book is the *pièce de résistance*. His analysis of the blood as a physico-chemical system is an epic—an epic in Cartesian co-ordinates. To those familiar with the brilliant theoretical contributions of the author to the physical chemistry of the blood this review needs no recommendation. All who would appreciate the factors controlling respiration, blood neutrality,

¹ *An Introduction to Surgery*. By Rutherford Morison, M.D., F.R.C.S. Edin., F.R.C.S. Eng., M.A., D.C.L., LL.D., and Charles F. M. Saint, C.B.E., M.D., M.S., F.R.C.S. Eng. Second edition. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1925. (Demy 8vo, pp. vii + 347, 181 figures, 15s. net.)

² *Aphasia*. By S. A. Kinrier Wilson, M.D., B.Sc. Edin., F.R.C.P. Lond. *Psyche Miniatures*, Medical Series, No. 2. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1926. (Fott 8vo, pp. iii + 108, 2s. 6d. net.)

³ *Lectures on Certain Aspects of Biochemistry*. By H. H. Dale, M.D., F.R.S., J. C. Drummond, D.Sc., F.I.C., L. J. Henderson, A.B., M.D., A. V. Hill, Sc.D., F.R.S. London: University of London Press, Ltd. 1925. (Demy 8vo, pp. viii + 313; 20 figures, 12s. 6d. net.)

and the circulation will find in the effort of careful study which these lectures demand a rich reward.

Professor Hill engages us for an hour with a book of physical constants and we may be surprised to find that we have been entertained. He would persuade the biologist to find virtue in the enjoyment of mathematics. A second lecture reviews again the fundamental rôle of lactic acid in muscular activity.

We put down this volume with a reflection of some significance. There is evidenced throughout a confidence in the approach of the chemist to biological problems, a comprehensiveness, which gives the reader the feeling that the chemist has learnt to feel quite at home in his adopted field. He has reached adjustment of his chemical ways of thought to the appreciation of that kind of matter which is called "living."

In 1923 one of the best known of American organic chemists, Professor JULIUS STIEGLITZ, delivered in the Johns Hopkins Medical School a course of lectures which appear now in printed form under the title of *Chemistry and Recent Progress in Medicine*.⁴ The delay in publication is left unexplained, but, as opportunity has been taken to incorporate work published during the interval, the delay does not seriously detract from the value of the survey. The mere list of the synthetic contributions to therapeutics within the last few years makes an imposing claim for the service of organic chemistry. Sulpharsphenamine, tryparsamide, "Bayer 205," mercurochrome, acriflavine, rivanol, gentian violet—those to whom these names are familiar, and who are embarrassed by the claims and counterclaims which advocate their therapeutic use, may welcome an attempt to present briefly the investigations of the originators of these products. Chemotherapy has yet few principles to guide its labours, but what little chemical co-ordination is possible is succinctly put by the author. To these synthetic achievements must be added the progress in the purification of the active principles of the glands and of the immune bodies, subjects to which the second part of the book is devoted. The author concludes with an outline of the application to biological oxidation of the electro-chemical theory of organic oxidation reduction. Professor Stieglitz has long been an advocate of the electro-chemical view, and his discussion of the biological aspects is both wise and timely.

DISEASES OF THE GUMS AND ORAL MUCOUS MEMBRANE.

THE issue of a second edition of Sir KENNETH GOADBY'S *Diseases of the Gums and Oral Mucous Membrane*⁵ is proof of a very general appreciation of its merits, and we ought to have noticed its appearance before this. Though the book retains its original form, two important additions have been made—a section on the toxic heart in relation to the diseases of the mouth, and a chapter on vaccine therapy. The section on the toxic heart is welcome evidence that medical practitioners are ever becoming more alert to the dangerous possibilities of dental sepsis; the chapter on vaccine therapy epitomizes the indomitable and unremitting efforts of the bacteriologist to crown his work with the clinical success he feels sure awaits him. The section on the toxic heart gives us an unfortunate impression of superficiality, and that despite the fact that the illustrative electro-cardiograms (which would be more appreciated by the general practitioner if accompanied by legends explanatory of their lettering) are excellent, and the records of typical cases clear and well chosen. The chapter on vaccine therapy in oral disease bespeaks what the author himself might call a balanced phase of mind. "Too much is often expected of vaccine therapy in the cure of the local inflammatory condition of the mouth, and too little attention given to the essential surgical treat-

ment." "Judiciously spaced removal of teeth has the effect of auto-immunization . . . but any dentist who enquires into the after-history of operations such as extensive and deep scaling will discover many instances of an immediate exacerbation of chronic or intermittent disease such as muscular rheumatism . . ." The author, however, thinks that even the local treatment of a case of pyorrhoëa, entirely localized in its effects to the mouth, is helped by the intelligent application of vaccine therapy, and strongly advocates its use as an immunizing agent previous to extraction, especially in articular rheumatism or other chronic general disease. In reviewing the first edition of this work we asked for guidance in the selection of the probable offending organism. This the author gives in the course of the chapter on vaccine therapy in the form of a concise and valuable summary of his large clinical experience. "The majority of cases are streptococcal infections, but as the average mouth yields three to six varieties of streptococci, random selection of a strongly growing streptococcus is insufficient to secure success, and it is essential that the general pathology of the case be taken into account as well as the purely bacteriological investigation."

We recommended this book on its first appearance on account of its great clinical interest; perusal of the second edition has in no way diminished our appreciation.

THE ROUNDWORMS OF VERTEBRATES.

THE science of helminthology is one of the oldest branches of zoological knowledge, but it is only within recent years that it has been studied with the detail its importance deserves. The advances have been so rapid and in so many different directions that the literature has become to a large extent chaotic. An immense service has been rendered to parasitologists by the issue in America of the various parts of the *Index Catalogue of Medical and Veterinary Zoology*, an enormous work by Stiles and Hassall, which not only classifies all the papers in helminthology under their authors, but arranges them under their systematic headings—families, genera, and species. It has become an essential part of the equipment of every helminthologist, but it unfortunately notes all papers on the subject without in any way indicating their relative value. Classification also has been tackled by various workers in recent years: Looss, Railliet, Leiper, Travassos, and others have introduced a more rational system of classification of the parasitic roundworms, and so have enabled diagnoses to be more quickly made and relationships more readily understood. Professor WARRINGTON YORKE and Dr. MAPLESTONE have blended these classifications with the more important references to the morphology of the roundworms contained in the *Index Catalogue*, and the result is a most valuable book of reference, which is entitled *The Nematode Parasites of Vertebrates*.⁶

A compilation is always a thankless task, yet it is difficult to see how advances in any science may be made without it. In this case the workers have performed their task with great thoroughness and detail. They have used a system of classification (with keys to each group) which enables a genus to be diagnosed easily and rapidly. Each genus is illustrated by a figure of a typical species, but the other species are only mentioned by name and no attempt is made to provide specific diagnoses. An extensive generic and specific index is given at the end of the book, which on account of the rapid changes in nomenclature is an essential appendix. References for each genus are given and space is very effectively economized by using a numbered bibliography at the end and giving references to this by means of the number only.

There are over 300 line blocks in the text, and each block contains three or four figures. The great majority are good, but some could usefully have been omitted and others reduced in size without impairing the value of the book. A point of more importance, however, is the creation of new genera and species. In a work of this nature it is

⁴ *Chemistry and Recent Progress in Medicine*. By Julius Stieglitz. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1925. (Demy 8vo, pp. viii + 62. 7s. net.)

⁵ *Diseases of the Gums and Oral Mucous Membrane*. By Sir Kenneth Goadby, K.B.E., M.R.C.S., L.D.S., D.I.C. Second edition. Oxford Medical Publications. London: Humphrey Milford, Oxford University Press. 1925. (Roy. 8vo, pp. xv + 408; 215 figures, 8 plates. 52s. net.)

⁶ *The Nematode Parasites of Vertebrates*. By Warrington Yorke, M.D., and P. A. Maplestone, M.D., D.S.Q. With a Foreword by C. W. Stiles. London: J. and A. Churchill. 1926. (Roy. 8vo, pp. x + 536; 307 figures. 56s. net.)

inevitable that new genera should be made; but the description of new species in footnotes in a textbook is a practice which may give rise to some inconvenience to workers who are accustomed to look for these in the pages of scientific journals. None of the changes in nomenclature affect medical zoology, although several new genera of veterinary interest have been created. Medical readers will be interested, however, to recognize the old *Filaria bancrofti* under its new name of *Wuchereria bancrofti*. The work will be more useful to the systematic zoologist than to the medical man, of course, but it will be an indispensable volume in every parasitological laboratory.

Dr. H. A. BAYLIS and Mr. R. DAUBNEY have also written a book⁷ on the classification of the roundworms, but it differs in many respects from the preceding. Its field is much wider and it includes not only the parasites of vertebrates but also free-living forms and those parasitic on plants—a very considerable number. It is not illustrated, however, and beyond mentioning the type species of each genus no species are given. The class Nematoda has been divided into five orders, and the remaining lesser groups have been much reduced in number, an arrangement which, the authors claim, gives the nematode classification a more accurate standing in relation to the other members of the animal kingdom. Within these orders are placed over 600 genera. Each genus is briefly defined, the habitat of its species given and various important papers discussing its morphology are mentioned. In addition a short discussion is often added, and an index to the genera and higher groups is appended. Like the preceding book, this is based largely on the *Index Catalogue*. It does not include genera proposed after 1923. The classification used by the authors will doubtless meet with some criticism, but the perfect system of classification has not yet been evolved, and there is no doubt that they have produced an invaluable work of reference for the specialist, although the absence of keys, illustrations, and lists of species will make it less suitable for use by the more general worker.

TEXTBOOKS OF GENERAL BACTERIOLOGY.

PROFESSOR E. O. JORDAN's *Text-Book of General Bacteriology* is better known in America than in this country. It has now reached its eighth edition,⁸ and in the sixteen years which have passed since it first appeared it has grown with the science it expounds. The present edition contains new material on the bacteriophage phenomenon, tularaemia, botulism, scarlet fever, and other subjects in which recent progress has been made. It gives a straightforward account of what the student needs to learn about bacteria and their behaviour, avoiding unessentials and pointing the way by means of footnotes to more extensive sources of information. A feature of the book which has made it particularly useful to public health students is the attention given to the bacteriology of milk and milk products and the bacteriology of air, soil, and water. An additional interest arises also from the chapters on the nitrogen cycle, bacteria in the arts and industries, and the bacterial diseases of plants. The book is more expensive than similar introductions to bacteriology published in Britain, but those who can afford the luxury of collecting a few reliable books on bacteriology should certainly consider this treatise, written by an experienced teacher and well known research worker.

Dr. BAUMGÄRTL's small book on the foundations of the theoretical bacteriology⁹ provides a concise representation of the experimental basis of our present knowledge of the structure and life of bacteria. The author is a botanist, and directs his book to science students who wish to gain a clear view of what bacteria are and what they do. It is not the sort of book which medical students, even though

well acquainted with German, would find useful, but we draw attention to it because pathologists may be glad to know of its existence. It is divided into two parts, the first of which deals with the anatomy and the second with the physiology of bacteria. Many of the problems of the physics and chemistry of bacterial life are discussed more fully than is customary in textbooks of medical bacteriology.

NOTES ON BOOKS.

*Light and Health*¹⁰ is a book written by M. LUCKIESH, director of a lighting research laboratory, and A. J. PACINI, director of a department of biophysical research, both attached to the General Electric Company, U.S.A. The authors start with the assumption that solar radiation has been a powerful environmental factor in the evolution of life. "To assume that it is no longer of importance to the health of human races is as unreasonable as to assume that oxygen is no longer essential to the respiratory process." "Civilization has robbed mankind of much of the sunlight under which the organism and its many processes evolved." The material gathered by the authors has been presented in a manner as free as possible from specialized technical terms and as appeared best suited for general readers. There is a great deal in the book of interest to the general practitioner, such as the chapters on light and the blood, light and the skin, light and the skeleton (including the curative effect on rickets), light and the viscera (with an inclusion of the treatment of pneumonia by diathermy), the psychological effects of light, and lighting for health and happiness. An interesting story of Steenbock is told of spaghetti which used to be made in the Italian quarter of New York, and hung out to dry on the fire-escapes of the tenement dwellings. In this way it was sunned, and the antirachitic vitamin—that is, activated cholesterol—produced in it by ultra-violet radiation. The city fathers objected to this use of the fire-escapes, and consequently spaghetti was made in dark rooms, which led to a falling off in its nutritive value. Thus may the official mind unwittingly interfere with a health-giving instinct. A curious error of the authors is found on page 49, where they appear to regard haematin as the pigment in the skin, comparing the deposition of this with that of chlorophyll in the green leaf. The pigment, of course, is melanin, a derivative of the aromatic amino-acid products of protein decomposition, as correctly stated on page 107.

Much has been written in recent years on what is called by some "the newer cardiology," but the *Clinical Aspects of the Electrocardiogram*,¹¹ by Dr. HAROLD PARDEE, will be found quite a useful work by those who wish to have combined in one volume not only the interpretations of the records but also a practical guide to the working of the instrument. Such a book is probably of more value in America, where physicians who use the cardiograph are very numerous, but any work of Pardee deserves attention, as his researches in other departments of cardiology are well known. He adopts a systematic method of dealing with the subject. In the earlier chapters the significance and interpretation of the various deflections in the normal record are discussed, and thereafter the various abnormalities are considered seriatim. A considerable amount of theoretical matter is interspersed with the more practical applications of the electro-cardiograph, and illustrations of the records are numerous. The closing chapter gives a description of the type of instrument in common use in America, with clear details as to its adjustment and the avoidance of errors in its use. There is a short bibliography of works of historic interest in connexion with electro-cardiography. While obviously more adapted for physicians and students in America, the volume is well worth perusal by British readers.

A number of books have been written describing the structure and properties of the atom as revealed by the newer physical researches. Some of these are so well prepared as to leave little room for yet another writer, but the subject lends itself to varied forms of exposition. Dr. STEWART's *Recent Advances in Physical and Inorganic Chemistry*¹² is concerned with atomic structure and the history of the work that forms the foundation of present knowledge in atomic physics. It has, however, the distinctive merit of presenting the view most interesting to the chemist wherever that is distinct from the physicist's. It also

⁷ *A Synopsis of the Families and Genera of Nematoda*. By H. A. Baylis, M.A., D.Sc., and R. Daubney, M.Sc., M.R.C.V.S. London: The British Museum (Natural History) and B. Quaritch, Ltd. 1926. (Demy 8vo, pp. xiii + 277. 10s. 6d.)

⁸ *Text-Book of General Bacteriology*. By Edwin O. Jordan, Ph.D. Eighth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1925. (Med. 8vo, pp. 732; 177 figures. 25s. net.)

⁹ *Grundriss der Theoretischen Bakteriologie*. Von Dr. phil. Transgott Baumgärtel. Berlin: J. Springer. 1924. (Demy 8vo, pp. xxxviii + 259; 3 figures. 2.30 dollars, bound, 2.50 dollars.)

¹⁰ *Light and Health*. By M. Luckiesh and A. J. Pacini. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1926. (Demy 8vo, pp. xviii + 302; 31 figures. 22s. 6d. net.)

¹¹ *Clinical Aspects of the Electrocardiogram*. By Harold E. B. Pardee, M.D. New York: Paul B. Hoeber, Inc. (Demy 8vo, pp. xiv + 222; 56 figures. 4 dollars.)

¹² *Recent Advances in Physical and Inorganic Chemistry*. By Alfred W. Stewart, D.Sc. Fifth edition. London and New York: Longmans, Green and Co., Ltd. 1926. (Demy 8vo, pp. xi + 312; 29 figures, 5 plates. 18s. net.)

touches upon the theoretical considerations which still await the decision of experiment. The consequences resulting from the disintegration of an atom have a particular chemical interest as well as a physical, and are accorded due recognition. In the chapters on active hydrogen, active nitrogen, and certain new metallic hydrides much important and interesting matter will be found. The book contains a chapter on Tesla-luminescence spectra, and no outstanding recent work has been omitted. We recommend the volume as affording a complete and clear collection of the facts arranged in the form most suitable for the student.

THE ROYAL MEDICAL BENEVOLENT FUND AND THE BRITISH MEDICAL ASSOCIATION.

We have received the following letter from Sir Charters J. Symonds, K.B.E., M.S., treasurer of the Royal Medical Benevolent Fund:

Sir,

The discussion at Bath last year revealed certain misconceptions with regard to the relations between the two bodies which it is desirable if possible to correct. Of these, the most important is the impression conveyed by several speakers that a feeling of hostility exists. The history of the Fund shows that, while the two bodies have been from the first under independent administration, there has never been any hostility. On the contrary, the Association has supported the Fund in many directions, and the Royal Medical Benevolent Fund in dispensing the benefits has not taken into consideration the question of the applicant being a member of the Association, nor has this point been raised in filling vacancies on the Committee of Management of the Fund.

I begin with a brief note on the origin of the Fund.

At the first meeting of the Association, then called the Provincial Medical and Surgical Association, the question of establishing a charitable fund was raised. It was further considered at the two subsequent meetings, and at the fourth, held at Manchester in 1836, it was decided to create a fund under the title of "The Benevolent Fund of the Provincial Medical and Surgical Association." In 1856, when the name of the Association was changed to that of the British Medical Association, the Fund became the British Medical Benevolent Fund, and so remained until 1913, when, at the instance of Dr. Samuel West, His Majesty granted the title of "Royal." Since that date it has been known as the Royal Medical Benevolent Fund. Up to 1869 the annual report of the Fund was read at the Annual Meeting of the Association by the Secretary of the Association—not of the Fund—without any remarks. On the last occasion, however, an appeal for support was made by Dr. Hare. At this date the Fund held certain moneys invested in the names of trustees, and though no financial connexion existed with the Association it was considered by the trustees that even the slight connexion indicated by the presentation of the annual report should be discontinued. From this date the close association that had existed for thirty-three years was severed. This separation does not appear to have occasioned any ill feeling, nor to have withdrawn the support of the members of the Association, for the Branches continued to vote donations to the Fund out of surplus revenue.

When the Association was reconstructed and all subscriptions were gathered in the Central Office these Branch subscriptions ceased, and were not replaced by any direct grant from the Central Office. The Association has, however, rendered continual support to the Fund, by inviting the members through the annual circular to subscribe as individuals. Though the Branches discontinued to send subscriptions, this was not in any way due to lack of interest on the part of the members, but to the fact that under the new organization the Branches had no funds. Several of the Branch secretaries of the Association are also local secretaries of the Fund, and collect substantial amounts.

In view of the decision at the Annual Meeting of the Association in Bath to form a Charities Committee, and to show the importance attached by Dr. Samuel West to the influence of the Association, the following extract from his article in the BRITISH MEDICAL JOURNAL for December, 1905, will be of interest:

"If each Branch or Division had its local charity committee a further useful step in organization would have been taken."

At the time it seemed unnecessary to offer any reply to the criticisms, as the remarks made by the Chairman of Council (a member of the Committee of Management) and the defence of the Fund in the chairman's (Dr. Hawthorne, also a member of the Committee of Management) reply to these criticisms appeared adequate. As, however, a local secretary has written

to ask whether these criticisms can be met, it is clear that a reply is desirable. I beg, therefore, the hospitality of your columns for a brief rejoinder.

General Practitioners and the Management.

Dr. Walker complained "until recently the general practitioner was unrepresented on the Committee of Management of the Royal Medical Benevolent Fund." In reply to this statement, and going no further back than 1908, there were in this year nine general practitioners on the Committee; in the next year seven; five in 1911, 1912, 1913, 1914; six in 1915; five in the following year; two in 1917; three in 1918, 1919, 1920, and 1921; two in 1922; one in 1923; two in 1924. The decrease has not been due to any action of the Committee of Management, but to the difficulty of obtaining the services of those in general practice. It may be added that Dr. Haslip was a member from 1915 till the time of his death; Mr. Guy Elliston represented the Association till his death. At present the Chairman of Council (Sir Robert Bolam) and the Treasurer (Mr. Bishop Harman) are on the Committee, while Dr. Hawthorne sits as direct representative of the Association; and Mr. Ferris-Scott, the Financial Secretary of the Association, represents the Medical Agency, the most generous subscriber to the Fund. While the nominations have never borne any relation to the membership of the Association (such a point has never in my recollection been mentioned), it is of interest to note that of the present Committee eleven are, while ten are not, members of the Association.

Dr. Walker's next criticism was that "there was not a single representative of Wales, Scotland, or Ireland, and that was a lamentable defect." The necessity of having those on the Committee who can attend the monthly, and also the four quarterly, business meetings, makes the appointment of those living at a distance unwise. That the Fund has the support of Wales, it may be mentioned that the late Sir John Williams was, and Sir J. Lynn-Thomas is, a Vice-President; while in Scotland we have Sir R. Philip, Sir Harold Stiles, Professor Munro, Sir Donald MacAlister, all of whom are *ex officio* members of the Committee of Management. Ireland has its own Benevolent Fund. Another complaint of Dr. Walker is that "although the Fund has been in existence for 'forty years' only 7 per cent. of the profession had sufficient confidence in it to subscribe to it." The percentage is much higher, as can be judged from the amount received in donations and subscriptions by the parent Fund and the Guild in 1924—namely, £7,067, and contained in the eighty-ninth annual report. As a set-off against the charge of want of confidence might be brought many letters expressing approval, and many increases on previous subscriptions.

Apprised of the unjustness of his personal criticisms by Dr. Hawthorne's reply to the discussion, Dr. Walker, after saying that he "was sorry if any remark of his were construed as a personal criticism against the Benevolent Fund," added, "But could the Association be blamed, when it had made overtures to the Fund and had been severely rebuffed?" This, if well founded, would be a grave accusation. The only possible circumstance to which this remark can refer is to a conference called in 1922, at the instance of the late Dr. Haslip, at the time Treasurer of the Association and also a member of the Committee of Management, between the Association, Epsom College, and the Fund. The object Dr. Haslip had in view was to combine the charitable side of Epsom with the Royal Medical Benevolent Fund, and both these with a charitable fund, to be established under the aegis of the British Medical Association. Epsom was represented by the Treasurer (Sir H. Morris) and two legal members of the Council. They explained that an alteration of the charter would be necessary, and as they had only recently, by an alteration of charter, dropped the term "benevolent" as injurious to the College, and as the proposed amalgamation would revive this aspect of Epsom, they could not agree to the proposal.

The Royal Medical Benevolent Fund was represented by the President (Sir Thomas Barlow), the Treasurer (Sir Charters Symonds), and the Honorary Secretary (Dr. Newton Pitt). Our chief objection was that, seeing there were some 20,000 non-members of the Association, it was feared that many of the subscribers from this section of the profession might withdraw their support if such an amalgamation were to take place. Moreover, it was held that it would be unfair to Epsom should the Fund alone join the Association.

Dr. E. C. Douglas was of course quite right in stating that the Fund was a creation of the Association, but wrong as to the management of the Fund, as I have explained above. He gives his opinion rather than applies criticism, for while he considers Epsom "well worthy of support, he had nothing to do with the Fund." One cannot, and need not, support every charity, but good will has its value, and encourages those who, whatever their deficiencies, are doing their best.

Dr. Singleton Darling contrasted the income of the Fund

unfavourably with that of the Irish Fund, and stated "that in Ireland, with a very small number in the profession, they raised between £3,000 and £4,000." In the appeal recently issued by the Irish Fund the income for 1924 is given as follows:

Interest on investments ...	...	...	£	s.	d.
Subscriptions and donations ...	...	...	963	12	6
Other sources ...	...	...	620	15	6
			274	12	0
			1,859	0	0

If subscriptions and donations be compared, it will be noticed that, while the Irish Fund raised £620, our Fund raised £4,846, the Guild £2,221—or together £7,067. There are in Ireland 3,754 members of the profession. Mr. Souttar's remarks, while conveying a general dissatisfaction with the management, are some of them too indefinite for reply. One does not understand what is implied in the remark: "The Fund was managed under considerable difficulties, and, he thought, not always with great wisdom." Or again, that "The present arrangement was ridiculous." At the subcommittee to which he refers, he gathered, he stated, the view held was that "if the Fund had any official connexion with the Association the bulk of its subscriptions would be cut off." This is no doubt an unintentional exaggeration of what was urged by others, for there can be no doubt that the bulk of the subscribers are members of the Association. What we held was, that seeing there were between 16,000 and 20,000 non-members of the Association, it was reasonable to conclude that not a few would be offended, and the support of some of the largest subscribers might be lost. A reference to the historical summary at the beginning of this note will show that the Fund was always independent of the Association, and therefore it is incorrect to say that "the members of the Association had lost control." Finally, Mr. Souttar urges a course which would put an end to the existence of the Fund as an independent body. "Let the Association," he says, "have its own Charities Committee and obtain all the money it could, and then make terms with regard to this bulk sum." "When the Association had done what it could to find the funds it could regain control." If these criticisms mean anything, they signify mistrust of the management, especially of those whose daily duty it is to direct the business of the Fund.

I hope this simple statement of facts will allay some of the mistrust that has been aroused, and will result in encouraging a wider support to this and other medical charities. Above all, I trust that it will not arouse controversy, the last thing one desires in regard to any charitable undertaking, which should be above all party spirit.

Believe me, yours faithfully,

CHARTERS J. SYMONDS,
Honorary Treasurer.

DANGEROUS DRUGS ACT.

A LITTLE over three months ago (February 27th, p. 391) we published an analysis of the Report of the Departmental Committee on Morphine and Heroin Addiction. The Home Secretary has now published, in the *London Gazette* for June 4th, formal notification that after the expiration of forty days from that date he will make new regulations amending the Dangerous Drugs Regulations, 1921. The principal effect of the new regulations is to carry out the recommendations contained in the report of the Departmental Committee above mentioned. Opportunity has also been taken to remove the ambiguity which existed as to the requirements of Regulation 5 of the principal regulations regarding the particulars to be inserted in prescriptions, and to include a new regulation requiring retail chemists to keep their stocks of dangerous drugs under lock and key. Draft copies of the regulations may be obtained on application to the Under Secretary of State, Home Office, Whitehall, London, S.W.1.

DRAFT AMENDING DANGEROUS DRUGS REGULATIONS.

In pursuance of Section 7 of the Dangerous Drugs Act, 1920, I hereby make the following Regulations amending the Dangerous Drugs Regulations, 1921, hereinafter referred to as the Principal Regulations.

1. Regulation 5 of the Principal Regulations shall be amended and shall take effect as if—

(1) for the words "the total amount of the drug to be supplied on the prescription" were substituted the words "the

total amount of the morphine, cocaine, ecgonine, or diamorphine or salt thereof, to be supplied on the prescription, except that in the case of a preparation which is contained in the *British Pharmacopoeia*, the *British Pharmaceutical Codex*, or the Drug Tariff issued by the Minister of Health for national health insurance purposes, and which is not combined with any other preparation of any of the drugs not so contained, it shall be sufficient to state the total amount of the preparation to be supplied and."

(2) at the end of the first paragraph shall be inserted the following new paragraph:

A prescription shall only be given by a duly qualified medical practitioner when required for purposes of medical treatment.

2. Regulation 7 of the Principal Regulations shall be amended and shall take effect as if the following proviso were added to paragraph (d) of the Regulation:

Provided that the last foregoing provision shall not apply to any drug supplied to a person for his use by a medical practitioner or in accordance with a prescription if that person was at the time of the supply in course of receiving treatment from a medical practitioner in respect of addition to any of the drugs or otherwise, and of being supplied with any of the drugs by or on a prescription given by that last-mentioned practitioner, and did not disclose that fact to the first-mentioned practitioner before the drug was supplied to him.

3. Every duly qualified medical practitioner, registered dentist, and registered veterinary surgeon shall, if not already required to do so in pursuance of Regulation 9 of the Principal Regulations, enter or cause to be entered in a register kept for the sole purpose in respect of each supply of each of the drugs purchased or otherwise obtained by him, the particulars shown in Schedule 1 (a) to the Principal Regulations.

4. If the Secretary of State is of opinion that there is reason to think that a duly qualified medical practitioner may be supplying, administering, or prescribing any of the drugs either to or for himself or to or for other persons otherwise than as required for purposes of medical treatment, he may refer the case to a tribunal constituted in the manner described in the Schedule for examination and consideration, and if the tribunal so recommend, the Secretary of State may by notice in the *London* or *Edinburgh Gazette* withdraw the authorization of such practitioner to be in possession of or to supply the drugs, and may direct that the exception in Regulation 4 of the Principal Regulations in respect of drugs lawfully dispensed in pursuance of a prescription given by a duly qualified medical practitioner shall not apply in respect of prescriptions given by such practitioner as aforesaid.

5. Regulation 12 of the Principal Regulations shall be amended and shall take effect as if at the end were added the following sentence:

"Where such person is a duly qualified medical practitioner or registered dentist or registered veterinary surgeon, the Secretary of State may also, by notice given in the like manner, direct that the exception in Regulation 4 of the Principal Regulations in respect of drugs lawfully dispensed in pursuance of a prescription given by a duly qualified medical practitioner or registered dentist or registered veterinary practitioner shall not apply in respect of prescriptions given by such practitioner, dentist, or veterinary surgeon as aforesaid."

6. A medical practitioner, registered dentist, or registered veterinary surgeon shall not give any prescription for the supply of any of the drugs, if a direction has been given in pursuance of Regulation 4 or Regulation 5 of these Regulations that the exception in Regulation 4 of the Principal Regulations is not to apply in respect of prescriptions given by such practitioner, dentist, or veterinary surgeon.

7. Every person authorized in pursuance of Regulation 10 of the Principal Regulations to carry on the business of manufacturing, selling, or distributing the drugs shall keep the same in a locked receptacle of which the key shall be kept by himself or a qualified assistant.

8. These Regulations may be referred to as the Dangerous Drugs Regulations, 1926.

Home Office, Whitehall, 1926. One of His Majesty's Principal Secretaries of State.

SCHEDULE.

Constitution of Tribunal.

England.—The tribunal shall consist of three duly qualified medical practitioners appointed by the Secretary of State, one of whom shall be nominated by the General Medical Council, one by the Royal College of Physicians of London, and one by the British Medical Association, together with a legal assessor appointed by the Secretary of State.

Scotland.—The tribunal shall consist of three duly qualified medical practitioners appointed by the Secretary of State, one of whom shall be nominated by the General Medical Council, one by the Royal College of Physicians of Edinburgh, and one by the British Medical Association, together with a legal assessor appointed by the Secretary of State.

British Medical Journal.

SATURDAY, JUNE 12TH, 1926.

AN IMPROVED MATERNITY SERVICE.

The lecture by Professor Munro Kerr on "Preventive medicine as applied to obstetrics," which we print in this issue (p. 977), directs the attention of the profession to a subject decisions on which are becoming more and more matters of public importance. A good deal of thought has already been given to this problem by the British Medical Association, and two specially appointed committees are now considering both the scientific and the administrative questions connected therewith. When these committees have reported, as they may be expected to do within the next twelve months, it will be desirable, even necessary, to make a fuller and more formal statement as to the attitude of the profession towards proposals for an improved maternity service than has hitherto been possible. Important decisions, indicating a general trend of opinion, have already been arrived at by the Council and Representative Body of the Association and by the Conference of Local Medical and Panel Committees, and have been embodied in the evidence given before the Royal Commission on National Health Insurance. No doubt such decisions will be open to review and in need of development, and as a contribution to the discussion Professor Munro Kerr's lecture is timely and valuable. Attention may also be redirected to a letter from Professor Louise McLroy on "Obstetrics and local health authorities" which appeared in the JOURNAL of October 4th, 1924 (p. 642), and to the correspondence which followed during the ensuing fortnight. It is unlikely, however, that the administrative arrangements suggested by Dr. McLroy and Professor Kerr, which have a good deal of similarity, will be endorsed by the profession as a whole.

The argument as the result of which these suggestions emerge appears to be as follows. There has been little or no reduction in puerperal morbidity and mortality over the past generation, during which the practice of midwifery has been mainly in the hands of general medical practitioners. General practitioners are in this regard badly educated, poorly equipped, and liable to be hasty and careless, whereas specialists are invariably both skilful and careful. Administrative arrangements should therefore be made for setting up, under the auspices of local health authorities, an extensive service of whole-time specialist obstetricians, general practitioners being either wholly excluded from this work (Professor Kerr) or admitted to it only after strict tests of skill and reliability applied by "some competent authority" and on an obligation officially "to furnish a detailed report of his treatment" to the superior officer (Professor McLroy).

Neither the premisses nor the conclusion of this main argument can be accepted. It is, indeed, almost inconceivable that the profession would tolerate such a solution of the problem. Even the major premiss as to the non-reduction of the rates of maternal morbidity and mortality, though it has been too readily assumed since the wide quotation of certain sentences from the Ministry of Health's Report on Maternal Mortality by Dame Janet Campbell, is far from being universally true. No doubt circumstances vary, though it is admittedly difficult to get comparable figures. Those given in the Report of the Scottish

Departmental Committee give support to the contention, and these must be largely influenced by those of Glasgow and its neighbourhood, the conditions in which Professor Kerr no doubt had prominently in mind. But the official table in the Ministry of Health's report does not seem to support Dame Janet Campbell's statement based upon it, that "the maternal mortality rate is little lower than it was twenty years ago." Comparing the first with the last quinquennial period under consideration, the figures show a material reduction, the reduction in the sepsis rate being more than 20 per cent.; and no one who has a wide acquaintance with private practice during the past thirty years can doubt that the methods and results of obstetrical practice over at least the greater part of the country have immensely improved. In this connexion a pamphlet by Dr. C. E. Douglas relating to seventy years of midwifery practice in a Scottish rural area is of great interest and value. There is admittedly much room for improvement in the teaching given in this branch of medicine by some of the medical schools, though it is disappointing to find Professor Kerr, in his inaugural lecture to his own university class, expressing so complete a pessimism as to the results of further teaching with regard to the proper use of forceps. Admittedly, also, the lack of opportunity for gaining experience in the conduct of normal midwifery, owing to the increasing employment of midwives alone for normal cases, is somewhat disadvantageous—a disadvantage which Professor Kerr proposes to increase by the compulsory removal of all primiparae for institutional attendance. Admitting, however, that some practitioners may be imperfectly taught, and that all practitioners at the beginning of their career have a very limited experience, there is no justification for charging the body of general practitioners with any lack of skill and care in the conduct of maternity cases, and of requiring therefore that the great bulk of these cases shall be taken out of their sphere of practice. Even specialists begin by being inexperienced, and are not immune from fault. It seems much more likely that a further diminution of puerperal morbidity and mortality will be brought about by an improvement in housing conditions, and by increasing knowledge of possibly unknown factors of auto-infection, which are now the subjects of research. It is begging the question to assume, as seems sometimes to be done, that all cases of sepsis occurring in institutions or in the care of specialists are due to unknown, if not preventable, causes operating before they came under such care.

General medical practice is not, as a fact, developing on lines such as those which Professor Kerr indicates as, in his opinion, desirable. So far from restricting himself to pure medicine, afraid to use a knife or any other surgical instrument, shrinking from responsibility for a maternity case in any of its stages, antenatal, natal, or post-natal, the general practitioner, in partnership or association with his fellows, is finding it useful to his patients and advantageous to himself to undertake an even wider range of service than was at one time customary; and the results justify the method. Even if it were possible it would be lamentable to withdraw maternity from the purview of such a practice. The suggestions of the profession to the Royal Commission on National Health Insurance—suggestions endorsed by the Commissioners in their report—are in a contrary direction. They are that every pregnant woman should, early in her pregnancy, bring herself into relation with a general practitioner, who would be responsible for advising her during pregnancy, for attending her in confinement if she desired

it or if called in by a midwife, and for treating her during the puerperium. Along with this there should be an increase in institutional provision, but only for serious cases of ante-natal complications, for cases requiring major obstetrical operations, for cases where the home conditions are dangerous or quite unsuitable, and for cases where the isolation of septic infection is indicated. In such a scheme the consultant or specialist would have his more usual place, not as one set apart for the supervision of maternity to the exclusion of other members of the profession, and to his own exclusion from other spheres (gynaecology) now included in the same recognized branch of practice, but as one whose special skill, knowledge, and experience in his chosen branch of practice were available for such patients as might properly be admitted to an institution under his care, and for the help and guidance of practitioners who, in circumstances or cases of difficulty, appreciate such help and value it most highly. Such a scheme of public maternity service as that outlined by Professor Munro Kerr would, indeed, seem to involve, not only all the disadvantages of a too restricted specialism, but many of the most objectionable features which all public health schemes should endeavour to avoid as far as possible—namely, compulsory interference with the patient's choice and liberty, official reports and supervision of actual medical attendance, and bureaucratic regulation. Professor Kerr regards these lightly, but their effects both upon the public and upon the profession are very real.

THE IMPULSES PRODUCED BY SENSORY NERVE ENDINGS.

A COUPLE of months ago we gave some account of the history of the *Journal of Physiology* and of the changes in its editing rendered necessary by the death of Professor Langley, who, by his wisdom, knowledge, and unremitting care, raised it to its present position as one of the chief scientific journals of the world. Judging by the first two numbers of the new volume, it is not likely to lose that position under its present editorial control.

Among the papers published in these two numbers¹ is one by Dr. E. D. Adrian, F.R.S., on the impulses produced by sensory nerve endings. The researches on which it is founded were carried out in the Cambridge Laboratory of Physiology, and in it we are introduced to some of the most beautiful physiological work of recent years. By a combination of the capillary electrometer and a three-valve amplifier it has been possible to design an instrument with the capacity of responding to a change of potential of 0.01 millivolt lasting for one-thousandth of a second. All parts of the apparatus, including the preparation, are enclosed in a metal shield, which is earthed to the water pipes of the laboratory. Tests showed that electrical disturbances in the neighbourhood were without effect on the instrument. The possibility of distortion or of artefacts was finally ruled out by the comparison of tracings taken from different nerves.

By means of this instrument it has been possible to record the action-currents accompanying afferent impulses in the sciatic nerve of the frog when the gastrocnemius is stretched by a weight, in the cat's saphenous nerve when the skin is pinched, in the vagus of the cat and of the rabbit when the lungs are inflated, and in the cardiac depressor nerve of the

rabbit with each heart beat. The stretching of a muscle starts a stream of afferent impulses which last for as long as ten minutes, though becoming infrequent and irregular towards the end of this time. The flow of afferent impulses up the vagus continues so long as the lungs are held in an expanded state; deflation of the lungs, however, does not give rise to a renewal of the impulses. Afferent impulses appear to pass up the cardiac depressor nerve when the aorta is distended by the flow of the ventricular blood, and again, but to a lesser degree, when the aortic valves close. An analysis of the tracings leads to the conclusion that many of the oscillations represent the action-currents accompanying the afferent impulse of a single nerve fibre. A study of these shows that under similar conditions of temperature the form of the current is the same for all types of sensory nerve fibres. There is no infraction of the "all or none" law.

The second part of the paper is written by Dr. Adrian in conjunction with Dr. Zotterman. In the first part of the paper some of the conclusions about the behaviour of individual sensory nerve fibres needed qualification, for it was not possible to be absolutely certain as to the number of fibres actually involved. This defect has now been overcome by using the sterno-cutaneous muscle of the frog. It was found that the removal of successive portions of this muscle eventually left the experimenters with a strip which gave an action-current of perfect regularity, the period of each response being 0.03 second. Removal of a little more of the muscle abolished the response altogether, though what was left still responded to stimulation of the motor nerves.

From this crucial experiment the following conclusions are drawn. Pulling on the muscle does not excite the motor fibres. To a continuous stimulus, such as a weight attached to the muscle, the sensory end-organs do not respond synchronously. Impulses are started from different sense organs irregularly. A single end-organ, however, responds to a continuous stimulus with a regular series of discharges. Their frequency varies from 5 to 100 a second. This phenomenon introduces a property of the end-organ which is in direct contrast to that of the nerve fibre. As is well known, a nerve fibre only responds to a continuous current at the make or the break of the stimulus. No response occurs while the current is flowing, and, moreover, no response is obtained by increasing the current unless the gradient of the increase is sufficiently sharp. The nerve fibre is said to become adapted to the stimulus. This property of adaptation is much more pronounced in the nerve fibre than in the end-organ. It is, however, not absent from the end-organ, but is much more gradual in onset. An idea of its nature is gained from the fact that the frequency of the reaction of the end-organ has fallen to 50 per cent. of its initial value after ten seconds.

After an end-organ or a nerve fibre has responded, there follows a phase in which these structures are inexcitable. The duration of this refractory phase is found to be considerably longer in the end-organ (0.01 second) than in the nerve fibre (0.002 second). The result of this difference is that the nerve fibre can respond to every stimulus offered to it by the end-organ. The refractory period also enables us to understand how a continuous stimulus gives rise to a regular series of impulses. Furthermore, it is found that the response of the nerve fibre to each stimulus is a maximal one, and therefore follows the "all or none" law. Though there appears to be no grading in the

¹ *Journal of Physiology*, Vol. Lxi, Nos. 1 and 2, 1925. Cambridge University Press. Price 12s. 6d. net each. The *Journal* is the organ of the Physiological Society and is supplied free to members of that Society.

size of the impulse carried by each fibre, yet our sensations are graded. This investigation suggests one way in which the varying intensities of sensation may be brought about, since the frequency of the impulses aroused varies with the strength of the stimulus. Another interesting point is, that when a muscle is so lightly loaded as to appear slack, yet about 3 to 8 impulses a second are aroused in the nerve, and this may be the basis of the slight degree of tonic activity that is always present in voluntary muscle.

In general it has been shown that the end-organ has the same properties as other excitable tissues. It is permissible to assume that all other sensory end-organs would behave in the same way. Finally, these same properties might be expected to be present in the synapse. Apart from their great scientific interest and the wonderful technical achievement they represent, these results are of immediate clinical importance. Previous work had rendered it almost certain that there must be this stream of afferent impulses pouring into the central nervous system. We have now indisputable proof that certain bodily states do arouse these streams of afferent impulses. We learn which are effective and which ineffective, and, moreover, their duration and frequency can be measured.

AMENDMENTS OF THE DANGEROUS DRUGS REGULATIONS, 1921.

THE Home Secretary has published in the *London Gazette* for June 4th formal notification that after the expiration of forty days from that date he will make new regulations amending the Dangerous Drugs Regulations, 1921. In the main the amendments carry out the recommendations contained in the report of the Departmental Committee on Morphine and Heroin Addiction. An analysis of that report was published in our columns on February 27th (p. 391), and the draft amendments in the Regulations are set out in full elsewhere (p. 928) in this issue. The most important change is that the Home Secretary will now have power to withdraw a doctor's authorization to possess and supply the drugs without a previous conviction in the courts, which is now a necessary preliminary, if he be so advised by medical tribunals to be set up in England and Scotland; they would consist of three duly qualified medical practitioners appointed by the Secretary of State, one of whom shall be nominated by the General Medical Council, one by the Royal College of Physicians of London (or Edinburgh), and one by the British Medical Association, together with a legal assessor appointed by the Secretary of State. The Home Secretary will also have power to deprive a doctor of his right to prescribe the drugs, either after conviction in the courts or on the advice of this specially constituted medical tribunal. Doctors who do not dispense, and who are not therefore under an obligation to keep any record, must, under the new regulations, keep a record of their purchases of the drugs. It is further provided that a prescription for the drugs shall only be given by a duly qualified medical practitioner when required for purposes of medical treatment. Each of these provisions was considered and agreed to by the Representative Body of the British Medical Association at its meeting at Bath in 1925. An important new restriction is made in Regulation 2 to prevent any person acquiring any dangerous drug from more than one source at the same time. To this no exception is likely to be raised by any member of the profession. Opportunity has also been taken to remove the ambiguity which existed as to the requirements of Regulation 5 of the principal Regulations regarding the particulars to be inserted in prescriptions, and to include

a new regulation requiring retail chemists to keep their stocks of dangerous drugs under lock and key. It is of interest to note that no steps are being taken to enforce notification of drug addiction, or to make compulsory the seeking of a second medical opinion in the treatment of cases of drug addiction, and that no authoritative rules have been issued for guidance in the use of the scheduled drugs. The British Medical Association raised strong objection to all these proposals. Its chief contention—that drug addiction is a manifestation of disease, frequently associated with nervous instability and requiring treatment, and not merely a vice demanding punishment—appears to be now definitely recognized.

THE GENERAL MEDICAL COUNCIL.

THE General Medical Council assembled on the afternoon of Tuesday, June 1st, to hear the address of its President, which was published in the *SUPPLEMENT* last week, and separated on the following Saturday, having completed the business before it. Perhaps the most striking feature of the session was the fact that—for the first time, we believe, in its history—a member who does not belong to the medical profession took his seat. There has never been any reason why a layman should not be appointed or elected to the Council, but neither the Crown nor the universities, the corporations, or the profession has ever thought fit to do so. The President in his address said that only fifteen out of thirty-eight members need possess a medical qualification, and that the Council would be pleased were His Majesty to nominate a member of his Council to the seat rendered vacant by Sir Francis Champneys's retirement after fifteen years' service. Such a nomination, Sir Donald MacAlister said, would mark the close connexion of the General Medical Council with the Privy Council, to whose official direction it was by statute committed. At the close of his address he said he had just received an intimation from the Lord President of the Privy Council that the Right Hon. Edward Hilton Young, D.S.O., M.P., had been nominated by the Crown to be a member of the Council. Mr. Hilton Young is the third son of Sir George Young, Bt., who was chief Charity Commissioner and vice-chairman of the Education Committee. He was at Trinity College, Cambridge, and graduated M.A. in 1907; he was called to the Bar in 1904, and went the Oxford Circuit. He served in the navy during the war, first in the *Iron Duke* and afterwards in the *Centaur*, taking part in the actions on January 22nd and May 11th, 1917. He was in the *Vindictive* at Zeebrugge Mole in 1918, where he was severely wounded, and was specially promoted lieutenant-commander. He received the D.S.O. for his services in command of an armoured train in the Archangel campaign. He entered Parliament as member for Norwich in 1915; was defeated in 1923, but was elected again in 1924. He was Financial Secretary to the Treasury in 1921-22, and British representative at the Hague Conference on international finance in 1922. We should be curious to know what Mr. Young thought of his new experience; we have no doubt he found the work of the Council useful and its proceedings decorous, but he may have thought them a little dull. There was a debate, interesting at least to medical readers, on the readjustment of the medical curriculum, in which some differences of opinion were disclosed, and the Council adopted a resolution with regard to the revision of the *Pharmacopœia* after the matter had twice been discussed by the President, once in his address, and again in presenting the report of the *Pharmacopœia* Committee, which referred briefly to the conference held last February between the Committee and twenty-three delegates from twelve medical, pharmaceutical, and scientific societies and bodies. After considering the representations made at the conference

the Pharmacopoeia Committee decided that an authoritative inquiry should be held to hear evidence and obtain information not now in its possession. It accordingly asked the Lord President to appoint a special committee, including members of the Council, for this purpose, and to make recommendations as to the alterations, if any, which ought to be made in the next edition to fit it to the requirements of the British Empire. That matter, which has excited widespread interest, seems, therefore, in the way of being adequately determined. A great part of the time of the Council was devoted to the consideration of a case under the Dangerous Drugs Regulations as they now exist. It was, the President said, the first case under those Regulations which had been brought before the Council; after the public inquiry had concluded the Council sat *in camera* for over an hour, and the President then pronounced its decision at some length. The upshot seems to be that the Council dismissed two of the three charges, but on the third, which had been the subject of proceedings in the law courts, it decided to give the practitioner an opportunity of showing during the next year that he was conducting his practice in a manner conforming to the Warning Notice the Council has issued.

FOOT-AND-MOUTH DISEASE.

TOWARDS the end of May an outbreak of foot-and-mouth disease was notified from a farm in Lanarkshire after Scotland had been free from the disease for two years. The origin of the infection has been definitely traced to pig carcasses received from the Continent, and subsequently other consignments of carcasses landed at Leith and Newcastle were found to be infected. The Ministry of Agriculture has issued an Order prohibiting the landing of all fresh carcasses or offals from the continent of Europe. There is no ban on meat products which have passed through some process which will have destroyed the virus—such as curing, drying, or cooking; and there is no ban on imported frozen meat from outside Europe. There is accordingly no danger of a meat shortage in this country, as the great bulk of our beef and mutton is obtained in a chilled condition from Australia, New Zealand, and South America. There will, however, be a shortage of fresh meat and pork; not enough is produced within this country to meet our own needs; and it is estimated that the value of the trade so prohibited amounts to about 4½ million sterling a year. It would seem possible, however, that with some effective means of *ante-mortem* inspection of such meat, a certain amount of fresh Continental meat might be introduced under licence. Holland, for example, denies that its portion of the consignment was infected, and declares that all the infected pigs were of Belgian origin. If this is the case it is probable that some arrangement such as we have indicated above might be adopted. Although this discovery indicates one source of the infection in this country, it is highly improbable that it is the only one, as has been assumed in some lay newspapers. On the other hand, it suggests one means by which the disease may be spread throughout the country. The virus is found in the characteristic vesicles on the mouth, feet, and udders. But it is also found in the blood. The French authorities have pointed out that the blood infection may be present before there are any definite clinical lesions; and accordingly an animal slaughtered at this stage may, if the carcass is removed to a market, be a possible disseminator of the infection to new localities. The country is still suffering from this very serious disease, which threatens to become enzootic. Last winter over a quarter of a million pounds was paid in compensation, and this represents only a very small part of the total loss to the stock-breeding industry. We are still

very much in the dark as to the virus, and consequently as to effective methods of prevention on scientific lines. The Foot-and-Mouth Disease Research Committee is still at work, although in the past week it has lost its chairman, Sir William Leishman, and Sir Stewart Stockman, one of its official members. Serious as these losses are, we hope that they will not be irreparable and that the work will proceed apace. It is of the utmost importance to find some means, based on sound scientific principles, of keeping the country free from the disease: this can only come from the laboratory. Britain is no longer an island, and it seems obvious that the pole-axe method cannot be indefinitely used to stamp out the disease. It has been fairly successful in the United States—but that country is a much more effective "island" than is this country, and there is less danger of its reintroduction there. We are in a less fortunate condition here, and we cannot afford indefinitely to pay large sums in compensation for what is only a destructive policy. On the other hand, we cannot afford to have the disease permanently with us. It is only by continued and intensive laboratory and field work that we can hope to find a solution, and it is through the intensive co-operation between medical and veterinary scientists that we believe that a solution may finally be found.

RATS, WORMS, AND CANCER.

WHILE the London Zoo exhibits a number of strange animals from abroad, none are more strange than the large unseen fauna which has received the attention of so many distinguished parasitologists in the past. In describing the helminths found in the Zoo rats, at a meeting of the Zoological Society on June 1st, Professor R. T. Leiper, F.R.S., drew attention to the occurrence of *Gongylonema neoplasticum* in these animals. This was the first occasion, he pointed out, that this most interesting form had been found in Great Britain. Fibiger studied material which had reached Denmark from the West Indies and South America—where it is enzootic—and doubtless the infection had originally reached the Gardens from the same region; although it is now established there, there is no reason to suppose that it is found elsewhere in Britain, or, indeed, at all generally in Europe. The parasite had for a time a somewhat sinister reputation, as Fibiger had shown that cancer was sometimes caused by its presence; it was at one time utilized to reproduce the disease in the laboratory, but has since been replaced by tar painting as a more convenient cause of experimental cancer. A few years ago it was claimed that there was a peculiarly irregular topographical distribution of gastric cancer, and that a group of these cases was associated with definite streets in certain villages in Italy. The hypothesis was advanced that there was some correlation between gastric cancer in man and gastric cancer in rats—the double assumption that *Gongylonema* occurred in the rat and man in these regions was utilized to explain the old "cancer-house" theory, which thus received a new lease of life. Professor Leiper pointed out that recent investigations in Italy failed to substantiate either assumption, although it had been shown that an allied species of *Gongylonema* was very prevalent in sheep, cattle, and pigs in these regions. The incidence of these parasites, however, could in no way explain or be correlated with the cancer-house theory. Moreover, this allied species—unlike the *Gongylonema* in the rat—never produces cancer in its definitive hosts; and in the few cases in which this species has been found in man there is no evidence that cancer resulted. Only on the assumption that *Gongylonema* in the rat was the same species as that in the farm animals could the association of vermin in "cancer houses" with cancer cases in man be explained. The material obtained from the Zoo was utilized to clear

up this point, and it was shown conclusively that when sheep were experimentally infected with cockroaches, previously infected with the *Gongylonema* of the rat, the resulting worms differed morphologically from the species naturally found in sheep, and were identical with the species of the rat. It is clear, therefore, that the widespread distribution of *Gongylonema scutatum* of sheep and cattle in the neighbourhood of cancer villages gives no ground for the assumption that the rat harbours *Gongylonema neoplasticum* or that it transmits it to man. This experimental work illustrates also the danger of assuming that, because an animal can be infected with a parasite experimentally, it is a carrier of such a species in nature.

GEORGE BUCHANAN'S SKULL AND PORTRAITS.

A PUBLIC lecture on the skull and portraits of George Buchanan (1506-1582) was delivered under the Henderson Trust in the Anatomy Theatre of the University of Edinburgh on June 4th by Professor Karl Pearson, F.R.S., Galton professor of eugenics in the University of London. Professor Sir E. Sharpey-Schafer, F.R.S., presided. Professor Pearson said that George Buchanan, tutor of Mary Queen of Scots, and Scotland's greatest scholar, had been a subject of controversy for over three centuries, for his character had been read in two different lights by men of opposite political and religious views. At the present day this was simply a matter of history, and he did not intend to approach the question directly, but to examine the various portraits reputed to be delineations of Buchanan by the aid of the skull which was preserved in the Anatomical Museum at Edinburgh. By this means light could be thrown upon the type which represented the man whose brain once worked within the skull. If he could settle that one portrait was fitted by the skull and that others were not, his task would be accomplished. The science of physiognomy, he said, was a matter of instinct guided by experience, and when character was judged by facial expression people were right in nine cases out of ten, but might be badly in error in the tenth case. As examples of his method photographs were shown of the authenticated skulls of Sir Thomas Browne and Henry Stewart, Lord Darnley, and of various portraits of them upon which tracings of the skull had been imposed. Buchanan's skull, as compared with those of Sir Thomas Browne and Jeremy Bentham, was by craniometric measurements small. It would be best to compare it with the average measurements of a large number of seventeenth century Londoners. There was really no difference between the craniometric measurements of the Lowland Scot as carried out by the late Sir William Turner and those of the average early Londoner. The nearest congeners of both were not Celts and Anglo-Saxons, but the Iron Age invaders of Britain who were common to both countries. Examining the skull of Buchanan by measurements, the cranial capacity was found to be below the average. The cranium was apple-shaped, with flattening of the back and a depressed nasal bridge, very much resembling the head of the statue of Socrates. The skull was as authentic as such things could be. It had been obtained by Principal Adamson of the University of Edinburgh within thirty years of the burial of Buchanan. Adamson had been a shrewd man not likely to be deceived, and had written a eulogium of Buchanan. The skull had also been mentioned by Sir Robert Sibbald in the seventeenth century. The pictures of Buchanan were divisible into two types, which corresponded in physiognomy to the two types of character attributed to their subject. Portraits and engravings corresponding to the "Cato" type of the National Portrait Gallery and of paintings in Edinburgh and St. Andrews could not be accepted. These represented a man with high cheek-bones,

long nose, long upper lip, the harsh ascetic appearance of a reformer, and did not in the least fit the skull, of which, in the tracing, the teeth came upon the nose of the portrait, while the other anatomical points were far from corresponding. The "Catullus" type of face, shown by the portrait in the Royal Society of London, corresponded entirely with the features of the skull, and Professor Pearson felt no doubt that this was the real portrait of Buchanan. It showed a man strong, coarse, and blind to what truth might lie in his opponent's views, a second Scaliger rather than an Erasmus, More, or Colet. Gratitude was due to old Principal Adamson, that unique academic body-snatcher, whose act had preserved a real criterion of the true features of George Buchanan.

ANIMALS AS PATIENTS.

THE last "social evening" of the season at the Royal Society of Medicine took place on June 7th, when about 500 Fellows and guests were received by the President, Sir StClair Thomson. During the evening a lecture was given by Mr. Frederick T. G. Hobday, C.M.G., president of the Section of Comparative Medicine, on "Our animal friends as patients." Mr. Hobday emphasized the close analogies between veterinary and human medicine. He declared that every branch of medicine represented by the twenty-four sections of the society had its counterpart in veterinary practice, not excluding even psychiatry, for neurotic and hysterical animal patients were often met with, and the psychology of the horse and the dog in particular deserved study. It was not so widely known as it ought to be, Mr. Hobday continued, that the only person who was entitled to call himself a veterinary surgeon was one who had gone through an established course of study occupying from four to six years, and had obtained a diploma from the Royal College of Veterinary Surgeons enabling him to practise. In this and other countries women were now taking up this career, though it was a closed profession to them until after the war, and the pioneer, Miss A. Cust, sister of Sir Charles Cust the King's equerry, could not become qualified until 1922. There was now, in addition to Miss Cust, a second woman veterinary surgeon in this country, and there were quite a number of women students at the Royal College, some of them in their final year. He believed that in canine and feline practice particularly women had a great future; they seemed to have a greater capacity than men for establishing friendship with the animal patient. The diagnosis of disease in animals was in some respects more difficult than in the human subject, because the animal could not describe its condition, and reliance had to be placed upon observation and upon the history afforded by an observant or an unobservant owner. On the other hand, the veterinary surgeon had this advantage, that his patients could not mislead him about their symptoms. Mr. Hobday went on to describe and illustrate the various mechanical arrangements for restraining animals during the administration of anaesthetics, and the different patterns of operating tables in use. Anaesthetics, he said, were as generally used in animal as in human surgery, and various types of chloroform inhalers, adapted to the anatomy of the nostril, were employed; x rays were largely used to demonstrate fractures or foreign bodies. Some animals, especially young dogs, had a propensity for swallowing nails and other hard substances. One dog brought to him had disposed of several florins in this way, and from another, a dachshund, sixteen large-headed nails were removed. Some diseases from which animals suffered were contagious for man, including certain skin troubles. With Dr. Arthur Whitfield he had traced twenty-nine cases in which persons, mostly belonging to associated families, had become infected with mange through contact with an

dog. Ringworm also was transmissible from the dog, the cat, and the calf. He went on to describe some experiences in animal dentistry; he had provided dentures for dogs, and he caused amusement by telling how the dog's false teeth were taken out at night and put in water. Glass eyes also had been fitted, and still more frequently artificial limbs in the case of dogs and some farm animals, in the use of which they became quite expert, the dogs even using their wooden legs to whack an antagonist. Medicine given to animals was as far as possible concealed in tempting morsels of food, but animals were often too ill to take any food at all, and then more vigorous measures had to be taken to secure the administration of the pill. Drugs had diverse effects upon animals. For example, morphine on the dog had a narcotic and soporific effect, so that even major operations could be done under its influence, supplemented by some local anaesthetic, while, on the other hand, the horse and the cat under the influence of morphine became delirious.

THE SCIENCE OF WEIGHT AND MEASUREMENT.

AN exhibition of weighing and measuring instruments was held last week at Westminster in connexion with the annual conference of inspectors of weights and measures. To judge from the exhibition, by far the most important thing to be measured in modern civilization is petrol. Of the eighteen firms exhibiting, nearly one-half confined themselves to petrol pumps capable of delivering exact quantities of the spirit, and, what is equally important, of assuring the motorist by some infallible indication that he has received the expected quantity. The kerbside pump from which the motorist obtains fresh supplies without fuss or delay has come, deservedly or not, under some suspicion, and several of the exhibiting firms had taken a good deal of pains to prove that the measure given could be relied upon. Diverse as were the pumps shown in construction and action, they all claimed the utmost degree of mechanical accuracy, and had recording devices to show the motorist that he got full measure. Apart from petrol pumps, many other objects in the exhibition exemplified the extraordinary skill and precision with which the science of weighing and measuring now proceeds. There were instruments so conscientious as to furnish one hundred times greater accuracy than that required by any Government regulation, and instruments so adaptable that after registering a load of two or three hundredweight they could turn with equal facility to the task of weighing an 18-grain cigarette. The work assigned by the prophet to the Divinity, of comprehending the dust of the earth in a measure, was here performed by scales of such fine limits that the weight of a pencil stroke or a human hair could be recorded by the movement of a pendulum, which had to be viewed through a microscope in order to be appreciated; in addition to these instruments for the chemical laboratory, there were others of a capacity which lent some colour to the further prophetic passage about weighing the mountains in scales and the hills in a balance.

THE HOME AMBULANCE SERVICE.

THE annual report of the Home Service Ambulance Committee of the Order of St. John of Jerusalem and the British Red Cross Society states that the steady and consistent growth of the work of the Home Ambulance Service shows clearly that it is usefully and efficiently filling a place in the service of the country. In the past twelve months the Ambulance Service has again set up a new record in regard to the number of sick and injured carried. The increase is probably due to the large number of accidents that occur on the road, consequent on the increase in the volume and speed of traffic. There is also a growing

tendency among doctors to have their patients removed for treatment from their own homes to hospitals and nursing institutions. In this matter the supply of ambulances has undoubtedly increased the demand. It has been decided not to replace any of the old ambulances now on loan unless they are in charge of units of the Order of St. John or the British Red Cross Society, which ensures that they are served by an organized body of trained attendants who give their voluntary services to the aid of those who are laid low by sickness or accident. The capacity for rapid expansion in the Ambulance Service to meet emergencies was shown during the general strike, when, at short notice, the duty of providing transport for hospital patients in the London area was undertaken at the request of the Government. The work necessitated the use of a number of vehicles far in excess of the normal strength. The difficulty was met by the immediate enrolment of some eighty private cars, the use of which was offered by their owners. The transport of in-patients to and from hospital, of out-patients for treatment and return to their homes, and of a large number of maternity cases, was successfully carried out. The x-ray car has been actively employed throughout the year; the number of cases attended from April, 1925, to the end of March, 1926, shows an increase of 50 per cent. as compared with the previous year's work. The apparatus used is practically equal to the equipment of the working x-ray department of a large general hospital. Its adaptability for bedside work, without any detriment to its efficiency, is of the utmost importance where the patient must not be removed from the bed, as in such cases as intracapsular fracture of the hip and acute chest conditions. The Potter-Bucky diaphragm has been added to the equipment during the past year. From the report it is evident that the committee is carrying on work of very great value to the community.

THE PLANT AS SANITARY ENGINEER.

AN interesting lecture under the auspices of the Chadwick Trust was delivered in the Chelsea Physic Garden on June 3rd by Professor J. McLean Thompson, of the Hartley botanical laboratories, Liverpool University. Professor Thompson, whose subject was "The plant as a sanitary engineer," began with a comparison of animals and plants, describing the former as the parasites of Nature, taking from her the food they required, producing nothing for themselves, and being exploiters in every sense, whereas the higher plants had a much more creditable record. The plants were self-supporting; taking from the soil from which they sprang and from the air surrounding them the absolute minimum for the needs of their existence, and making of it the greatest possible use. The plant being a stationary and not a nomadic organism, its problem was to meet the conditions of life in the open, and so it had to adapt its construction to withstand climatic disturbances. The plants which did this successfully survived. A plant such as seaweed had little difficulty, being supported by the fluid in which it existed, but the higher we went in plant life the more did the difficulties increase. The forest tree, for example, was exposed to the winter gales and had to bear the weight of branch and leaf and fruit, and it had evolved within itself such a mechanical construction as to make this possible. It was required to bend and recover, to yield that it might conquer; its elastic limit must be such as to stand the strain, and when taxed beyond that limit it was shattered. Economy was as important in plant life as in bridge-building or house-making. The plant, said Professor Thompson, had to manufacture its own materials out of soil and air, and there was a lesson for engineers in the economy with which this was accomplished. The plant had two methods of maintaining its form and position. The first was by

turgescence—inflating a soft membrane with air or fluid and then surrounding it by a tougher wall of tissue. A lettuce, which was about 90 per cent. water and 4 or 5 per cent. firm tissue, was a good example of this method. The second method was by a mutual tension of tissues maintaining the body in firmness. There had been also other methods evolved for specific purposes, but always the problem was to maintain form and rigidity and yet not to be so hard as not to yield to pressure, atmospheric or other, or to retard growth and expansion. In the higher plant forms, the lecturer went on; came the interlocking of fibre tissues—dovetailing, in fact—to secure those two essential qualities of firmness and elasticity. The strength and elastic recovery of such substances as hemp fibre, flax, and garlic were compared with silver wire and wrought iron and steel. The comparison showed the plants to be superior in elastic recovery, but the metals to be superior in breaking strain. The principle of reinforced concrete had first been evolved by the plant, in the form of the distribution of strong fibrous rods through a mass of softer tissue. He also compared the surface-resistance of leaves with textiles, showing the superiority of the plant to the woven substance in this respect. The plant, he claimed further, got down to the A B C of living, making its own food from water, air, and mineral salts, just to the amount required, with no waste, and with no noise in the process, whereas the animal fed extravagantly on the elaborately produced vegetable foods of the earth. One of the greatest problems of man's social existence was the removal of the waste caused by the production of energy in animal life, but the plant had solved this problem by converting waste into wood for hardness, and by taking the impurities from the air and combining them with the salts of the earth to make its own nutriment. In fact, the plant had proved itself, not only a sanitary engineer in respect to its own economy, but also the bringer of sanitation for the benefit of the animal.

THE VICTOR HORSLEY MEMORIAL LECTURE.

THE second Victor Horsley Memorial Lecture will be delivered at the House of the British Medical Association on Friday, July 9th, by Mr. Wilfred Trotter, M.S., F.R.C.S., surgeon to University College Hospital. The subject of the lecture is "The insulation of the nervous system." The chair will be taken at 5 p.m. by Sir John Bland-Sutton, President of the Royal College of Surgeons of England. Members of the profession desiring to be present will be admitted on presentation of a visiting card. The first Victor Horsley Memorial Lecture was delivered by Sir Edward Sharpey-Schafer in 1923, and was published in our issue of October 27th in that year; its subject was the relations of surgery and physiology. The fund was established in 1921, largely through the initiative of the late Mr. E. J. Domville, and the object in view was to commemorate the services of Sir Victor Horsley to science and the Empire. Subscriptions were received from all parts of the world, and a sum of £1,000 was collected. This sum was invested in the name of trustees, who undertook to appoint every third year a person to deliver the memorial lecture in London.

COMPLIMENTARY DINNER TO SIR STCLAIR THOMSON.

HIS fellow laryngologists entertained Sir StClair Thomson, President of the Royal Society of Medicine, at a complimentary dinner on June 4th, when a distinguished company of more than 200 ladies and gentlemen assembled in the King Edward VII Rooms, Hotel Victoria, under the chairmanship of Dr. W. H. Kelson, president of the society's Section of Laryngology. Dr. Kelson, in proposing the health of the guest, recalled his first acquaintance with

their guest, which was in 1893, when they both took the Fellowship of the Royal College of Surgeons. He went on to describe the successes Sir StClair Thomson had gained in many fields—first of all as a specialist in diseases of the larynx, then as author of a textbook which must be called the laryngologists' "bible," a fluent interpreter at international congresses, and a very good host at the Royal Society of Medicine, also a golfer of some repute, and a practised artist in the ballroom, where he was seen to advantage at the social assemblies during the Annual Meetings of the British Medical Association. In all these directions he had compelled their admiration, and for his personal charm and kindness he had gained their love. Laryngologists to the number of 175 had subscribed for the presentation of a handsome silver loving-cup, which he had the honour to hand to their guest. It bore the inscription: "Presented to Sir StClair Thomson by members of the Section of Laryngology to commemorate his presidency of the Royal Society of Medicine, and as a recognition of his services to laryngology." Sir StClair Thomson, having first taken a deep draught from the loving-cup, expressed his great appreciation of the presence of so many distinguished colleagues, among them the President of the Royal College of Physicians (Sir John Rose Bradford) and two vice-presidents of the Royal College of Surgeons. It was a coincidence that one of them, Mr. Walter Spencer, began as a laryngologist, and the other, Sir Charles Ballance, as an otologist, although they had both wandered since into wider fields. Then he rejoiced to see his successor, the president-elect of the Royal Society of Medicine, Sir James Berry; the orator of that year's summer meeting of the Section of Laryngology, Sir William Willcox; and many friends with whom he was associated before there was a Royal Society of Medicine at all, among them Sir James Dundas-Grant, Dr. William Hill, and the senior survivor of the presidents of the old Laryngological Society, Dr. do Havilland Hall. When he had the good fortune to ascend the chair of the Royal Society of Medicine nearly two years ago a friend remarked that it was a nice finish to his career. He did not appreciate that at all, and even that night's gathering he could only look upon as another milestone, and not as a finish. Bacon said that when the populace applauded you it was time to ask yourself what faults you had committed. But this was hardly the case when the applause came from one's own colleagues. There were various ways of succeeding in the medical profession. One, a very dull way, was to survive one's contemporaries. Another, a very mean way, was to depreciate one's colleagues. For his own part he liked to think that a successful career in medicine was exactly the reverse of that pictured by one writer in a different connexion: "First she got on, then she got honours, and last of all she got honest." The first thing was to be and to remain honest, and after that some got on and a few got honours. He himself had had two ambitions. One was to till to the best of his ability the small corner of the field of medicine in which he worked, and the other was to accomplish it in such a way as to keep the esteem and regard, and if possible the affection, of his fellow workers. He had tried to follow the advice of Shakespeare in *The Taming of the Shrew*, to "do as adversaries do in law, strive mightily, but eat and drink like friends." In all these respects his endeavours had fallen far short of his desires, but the reward that evening greatly exceeded anything of which he had dreamed when he started as a laryngologist thirty-three years ago. He accounted himself in nothing so happy as in the number of his good friends. The only other toast was the health of the chairman, proposed by Mr. Herbert Tilley, and the floor was then cleared for dancing, which was indulged in until a late hour. Those present in addition to those already named included Dr. Logan Turner, Dr. F. Howard Humphris, Dr. A. A. Gray, Mr. G. J.

Jenkins, Mr. Harold Barwell, Sir Henry Simson, Mr. P. J. Franklin, Mr. Norman Patterson, and Mr. L. Ferris-Scott; and amongst those who sent apologies for inability to attend were Sir John Bland-Sutton and Sir Dawson Williams.

We deeply regret to have to record the death, at the age of 72, of Sir Frederick Mott on June 8th. Last Wednesday week (May 26th) he was taken ill in the train whilst travelling to Birmingham to visit the laboratory of the Hollymoor Asylum in the course of his duties as honorary director of research on mental disease for the Corporation and University of that city. On arrival at Birmingham he was taken to the General Hospital, where he was under the care of Dr. W. H. Wynn. It was found that he had a widespread cerebral thrombosis, from which he never rallied. We intend to publish a detailed biographical notice in our next issue.

At the annual meeting of the Royal Society of Tropical Medicine and Hygiene, to be held at 11, Chandos Street, W.1, on Thursday, June 17th, at 8.15 p.m., the Manson Medal will be presented to Professor Ettore Marchiafava of Rome in recognition of the part he took in the elucidation of the life-history of the parasites of human malaria.

The foundation stone of the new house of the London School of Hygiene and Tropical Medicine, the gift of the Rockefeller Foundation, will be laid at 3.30 p.m. on Wednesday, July 7th, by Mr. Neville Chamberlain, Minister of Health.

The conversazione of the Royal Society, which was postponed owing to the general strike, will be held on the evening of Wednesday next, June 16th.

THE SPAS OF WESTERN GERMANY.

The Englishman in search of health or change of air no longer knows much about the resources of Germany for these purposes. Hydrology, as practised in French and Czechoslovakian resorts, has attracted attention; it may be of interest to know what signs of progress are to be found in German spas. We have availed ourselves, therefore, of an opportunity for obtaining information about some of the principal spas in Western Germany, the state of their equipment, the facilities they offer for treatment, the measure of comfort provided for visitors, and the cost of a "cure." Such information may be of value to practitioners in this country, especially those who practise balneology or hydrotherapy. The views of German investigators who are trying to place hydrology on a scientific basis are of interest; and a study of the results of the inclusion in Germany of spa treatment amongst the benefits obtainable by insured persons should be useful to those who are contemplating similar benefits under our National Health Insurance Acts.

THE INDICATIONS FOR TREATMENT.

It is, perhaps, unfortunate for hydrology that in all countries there is a tendency to make excessive claims about the range of diseases which can be treated at each spa. The tendency befalls the practitioner who wishes to prescribe a suitable place for his patient, and it lowers the prestige of the spas. Most of the places visited have established reputations for the treatment of particular diseases, whether as the result of old-established custom or of definite therapeutic value of the waters, climate, or regime. Thus Neuenahr is suitable for diabetes and for digestive troubles, and Ems, with its alkaline waters, for diseases of the respiratory mucous membranes. At Wiesbaden rheumatism and gout are treated. Langenschwalbach's chalybeate waters and peat baths are useful in chlorosis and women's diseases. Schlangenbad is said to be suitable for nervous irritability; it looks, indeed, a quiet, restful beauty spot. At Kissingen

digestive and other troubles are treated. The fame of Nauheim for heart disease is wide. The waters of Wildungen are diuretic; they are bottled and exported. Pyrmont treats diseases of the female pelvic organs, and has a reputation for the cure of sterility. Oeynhausen is full of innumerable bath chairs, motor and hand driven; its patients suffer chiefly from nerve diseases, organic and functional. It is strongly asserted that the symptoms of tabes, and even of syringomyelia, are alleviated. In all these spas, however, other diseases are treated; but in many cases the claims are of doubtful validity. The waters of nearly all the spas come from a great depth, are warm, and are impregnated with CO₂, free or loosely combined; but they vary in the nature and amount of the salts they contain.

THE EQUIPMENT OF THE SPAS.

In Germany spa treatment is taken far more seriously than in England. In all the places visited, with the possible exception of Wiesbaden, the "cure" is the only *raison d'être* for the town. Treatment is provided even for the insured person, as will be shown later. The equipment of each spa is very complete, covering in most cases the whole range of hydrotherapeutic treatment. In addition to the completeness of installation, a feature of the German spas is the concentration of the hotels and bathing and other establishments within a compact area, generally in and around a beautifully laid out garden. The completeness and concentration are probably due to the fact that a large number of the spas are owned by the State. However poor the individual German may be, the State seems to have plenty of money to spend. Even in spas directed by a company, such as Pyrmont, the State is the landlord, and with the county (*Kreis*) and municipality owns the bulk of the shares. The large hotels are well appointed and comfortable; the food is good, and arrangements are made for supplying suitable dietaries; in one of the Neuenahr hotels there is a triple menu daily—ordinary, diabetic, and digestive. In many places the spa water is laid on to one or two of the hotels, so that the baths may be taken without going to the spa bath-house. The springs for drinking are usually, situated in a large and lofty *Wandelhalle*, where the patients can stroll or sit, and can listen to an orchestra while sipping their daily doses of water. In Pyrmont the *Wandelhalle* is enclosed by a series of huge glass panels, which can be slid along rails and stacked at the end of the building. Thus in warm weather the building is thrown open, and becomes a sort of colonnade.

The baths are made of various materials. At Kissingen Professor Haertl has experimented in an old bath-house with the different materials in use. He considers the porphyry bath most durable, but it has the disadvantage of taking time to become warm. The English porcelain bath is very good, but too expensive. The iron bath, enamelled, is satisfactory and easily heated. At Ems copper baths are used, and in many places the material is an Australian wood, stated to be a kind of eucalyptus. Sometimes the baths are made of pine wood, and are cleaned with acid. The tile-lined bath is thought to be objectionable because of the crevices between the tiles and the greater difficulty in cleaning. Peat or mud baths are generally given in movable wooden tubs, the bath being wheeled out of the bathroom for filling and emptying. In Wiesbaden the mud bath is fixed; the peat mixture is forced into the bath through a large tap, and the used material washed into the drains. There are usually from 100 to 300 bathrooms, or even more, in a bathing establishment, and the number of baths given in a day may reach 3,000 or 4,000. At Nauheim it was stated that 6,000 baths could be given daily. It was interesting to find that rooms for rest after the bath were almost non-existent. Even at Nauheim patients with heart disease are sent straight back to their hotels for rest. When the water needs heating steam pipes are generally used. At Kissingen an ingenious steam-pipe apparatus is fixed above the bath, is lowered into the water, and is withdrawn when the required temperature is reached. At many of the spas Turkish or Irish baths can be obtained, and fango packs are used.

In the douche room a convenient table, from which sprays and douches of various kinds can be directed at will, is a frequent form of equipment.

In addition to the baths and springs most of the spas provide an inhalatorium, with a room filled with vapour impregnated with a medicament, rooms for throat and nose spraying, a gargling room, and in some cases one or more pneumatic chambers. Naturally this equipment is most complete at Ems.

Amongst the accessory equipment available at some of the spas are rooms for x-ray and electro-cardiograph work, Zander apparatus, and institutions (generally under a Government official) for laboratory work in connexion with the waters and with clinical examinations. In one or two places an apartment still remains labelled "radium emanations"! Milk-cure establishments are attached to some spas, and the idea that longevity is promoted by the Bulgarian bacillus and by kephir seems still to linger in Germany.

RECREATION AT THE SPAS.

To each spa there is attached a *Kurhaus* or casino. This building reaches the acme of magnificence in Wiesbaden, where the decoration does not err on the side of quietness. In the *Kurhaus* there are one or two concert halls, reading and writing rooms, rooms for so-called "games of skill," and an excellent restaurant. The cost of musicians seems to be a serious worry to Kur directors. Tennis courts are provided; but the only golf course discovered was at Kissingen, though faint remains of a pre-war course were visible amongst the hills of Wildungen.

THE COST OF SPA TREATMENT.

Owing to the disappearance of much wealth during the period of inflation, the expense of living in first-class hotels appears to differ very little from that in second- and third-class establishments. The average cost of living in Germany seems to be high; to live in first-class style is cheap. Thus it is possible to live in the best hotel at 12 to 15 marks a day. If a bathroom is attached to the bedroom the cost may rise to 20 or 25 marks. In a second-class hotel the charge is 1½ marks and in a third-class hotel 3 marks cheaper than in the first-class. Every visitor to the spa pays a *Kurtax* of 40 marks. This gives him free use of the springs and of the *Kurhaus*, including admission to the concerts. Where a theatre or opera house exists there is, of course, a charge for admission. The cost of the baths is from 3 to 5 marks; a peat bath costs 7 or 8 marks. The doctors' charges are not high; generally 15 marks, at the most 20 marks, for the first visit, and anything from 3 to 10 marks for subsequent attendances.

THE NEED FOR SCIENTIFIC INVESTIGATION.

There is no doubt that many spas are deficient in having no proper institution for the scientific investigation of the effects of the waters. This remark applies also to spas in England. The treatment is in most cases empirical; and from this cause arises much of the scepticism with which spa treatment is regarded. At Ems, however, there is an excellent laboratory under the charge of Dr. Diener. At Kissingen Professor Haertl, a chemist who has specialized in mineral water engineering, and has worked with Dr. Baudisch under the aegis of the Rockefeller Institute, is carrying on interesting investigations and displaying great ingenuity in invention. His interests, however, are mainly constructional. At Nauheim Professor Weber has a well equipped institution, and is carrying on good work. There are, however, too many places where no such institution exists; very often only the simplest clinical examinations can be carried out.

The statement is made that such and such waters and baths, and a particular diet, are found suitable in certain cases, but no one knows why. In one place the electro-cardiograph has been relegated to the cellars, no skilled operator being available. Without scientific institutions it is impossible to answer questions as to the effect of baths loaded with carbonic acid gas. In most of the spas visited the water was warm, and contained much free and partially combined gas. It was asserted that the expired air of a patient in a bath of these waters contained more

CO₂ than the normal. One professor declared that the increase was due to absorption by the skin. Another said that the bubbles of gas covering the body prevented excretion of CO₂ by the skin, and so increased the amount in the expired air. A third suggested increased metabolism in the tissues. It is clear that nothing but experimental investigation can settle this point, or clear up the further question whether a "bubbly" bath of carbonic acid gas has any therapeutic effect whatever. Similarly with the other constituents of the water. Does the presence of calcium chloride in addition to ordinary sodium chloride make any difference in the treatment of heart disease by baths? Or is the drinking of water of more importance than bathing? Or, on the other hand, was the statement made by a spa practitioner, that the temperature of a carbonated water is of greater effect than its saline content, correct? Furthermore, if it is true that natural CO₂ has a different effect from that artificially produced, the first lowering blood pressure, the second raising it, is the difference purely mechanical and dependent on the size of the bubbles deposited on the skin? An assertion of this kind needs experimental proof; at the same time it would be interesting to know whether CO₂ collected from the earth in cylinders is natural or becomes artificial. Where institutions for proper investigation exist, much interesting work can be done. Thus the depicting on chest walls of the contraction of dilated hearts by means of ausculto-percussion has now been exploded. It has been found that the areas of dullness, mapped out by various distinguished observers, not only differ from one another, but in every case are totally different from the result obtained by x-ray examination and the orthodiagram. It is clear that much experimental investigation is necessary; and the antiquity of the profession of the balneologist does not justify silence on the scientific aspects of his art.

THE INSURED PERSON AND THE SPA.

In Germany every person whose income does not exceed 5,000 marks a year must be insured. There are four categories of insurance: (1) Sickness, which is in the hands of the *Krankenkassen*, bodies which correspond to our approved societies. (2) Accident, similar to our workmen's compensation. (3) Partial disablement, death, and dependants (*Invaliden Versicherung*). (4) Black-coated insurance for clerks, and so on. In addition to this, people with more than 5,000 marks a year can become voluntary contributors; and this class in Germany is sufficiently numerous to perturb the medical profession. The voluntary contributor can get his treatment at insurance rates.

The *Krankenkassen* seem to share with the State the possession of such wealth as exists in Germany. Consequently, while paying to the doctor's societies the princely annual sum, apparently, of 11½ marks for attendance on a working man and all his dependants, they are able to embark on schemes for giving the insured person additional benefits in the shape of magnificent *Heims* or convalescent homes.

The *Invaliden Versicherung*, or third category of the insurance organization, takes charge of the insured person when his disability has extended beyond the twenty-six weeks for which the *Krankenkasse* is responsible. Moreover, this category is supposed to have preventive functions; and it is in this connexion that spa treatment is brought in, even during the time that the patient is receiving his benefit from the *Krankenkasse*. Large hotels have been bought up at spas, and are now run for the benefit of the insured person; so that Homburg, once the resort of kings and emperors, is said to be largely used for insurance treatment. The insurance authorities hold the view that control is even better than waters in the management of patients! Consequently the insured person is usually sent to a spa at which the authorities have an institution; though it is not disputed that waters have a specific action, so that where the indications are sufficiently clear the patient is sent to the appropriate spa, whether the insurance authorities have a home there or not. In many cases these homes have whole-time doctors, who are sometimes allowed to do consulting work outside the institution. In spas without an institution the *Invaliden Versicherung* has a list of spa doctors

from whom the patient may choose. The doctors are paid a lump sum, varying in different places from 20 to 50 marks for a six or seven weeks' "cure."

Apparently the German doctor does not mind accepting these cases; but he is perturbed about the voluntary contributor, who, as we have said, can obtain his spa treatment on the same terms as the compulsorily insured person. It appears that 80 per cent. of the German population now come under insurance, so that the scope for private practice is narrowing. And as the fee that can be taken from a member of the Krankenkassen at all events is fixed by the Government at 9¹/₂d. for an attendance and 1s. 6d. for a visit, it would appear that the German doctor has to work hard for his living. It is interesting to note that the system of payment by attendance in Germany has resulted in protests by Krankenkassen and specialist that the patient's doctor keeps the patient under his care as long as possible, instead of sending him to a spa. On the other hand, a capitation system might possibly flood the spas with insured persons, notwithstanding the efforts of the insurance referees to stem the tide.

If the time should come when spa treatment will be considered necessary or advisable for insured persons in this country, and will be offered as an additional benefit by approved societies, it will be necessary for the British Medical Association to watch carefully the arrangements made. There can be little doubt that the panel doctor in this country is in a better position than the insurance doctor in Germany, and for this position he has to thank the Association. In Germany the doctors' societies, which came into being after—and as a result of—the establishment of the Krankenkassen as approved societies, have a difficult task in fighting these well established bodies. Presumably the introduction of spa treatment as an additional benefit in this country would have to be discussed with the approved societies; and it is from such direct dealing with the Krankenkassen that the troubles of the German doctor have arisen.

CONCLUSION.

In conclusion it may be said that spa treatment is organized in Germany on a much larger scale than in England, that it is most complete, and very well equipped. The treatment is no more expensive—possibly somewhat cheaper—than in this country, though the mark is now equal to the shilling. At the same time, there is no startling novelty to be observed; and though efforts are now being made to establish laboratories for scientific investigation under Government officials the treatment remains mainly empirical.

HERBERT JONES TESTIMONIAL.

THE presentation of the testimonial to Dr. Herbert Jones was made at his residence at Hereford by Dr. GERARD STEEL, President of the Herefordshire Medical Society, who was accompanied by Dr. John Steed, honorary treasurer to the society, and Dr. J. R. Bulman, honorary secretary to the Hereford Division of the British Medical Association. Dr. James Wheatley, medical officer of health for Shrewsbury, who was to have represented the Society of Medical Officers of Health, was unfortunately prevented from attending by sudden illness. The testimonial took the form of a Sheffield plate casket, which was suitably inscribed, contained a cheque for £250, and was accompanied by a list of the names of the subscribers.

Dr. Steel, in asking Dr. Herbert Jones to accept the casket, said that he must call him "a dear old friend," not on account of his age, but because of the number of years over which their friendship had lasted. He referred to the privilege and honour conferred upon him in that it fell to his lot to present the casket and its contents as a token of the esteem in which he (Dr. Herbert Jones) was held by the whole profession. He then read extracts from letters which had been received from subscribers to the testimonial, and continued: "You must feel great satisfaction in hearing these many expressions of gratitude for the good work you have done. They are a certain proof that the whole of your professional life is approved and

acknowledged by your confreres, who sincerely wish you the peace and comfort in your retirement which you so richly deserve. At the same time they hope that your help will always be available in cases of difficulty, when your ripe knowledge, experience, and judgement will be invaluable, as has ever been the case; for you have never failed your professional brethren by your tact and kindness to one and all."

Dr. HERBERT JONES said that he was unable to make a long speech, but he thanked everyone who had helped in the testimonial. The work had ever been a labour of love, and he never had any idea of any such reward as this. In glancing through the names on the list of subscribers he was much touched to notice the names, not only of many old friends, but of several men who were scarcely known to him.

After partaking of tea the deputation withdrew.

Final List of Subscribers.

£10 10s.—West of England Branch of the Society of Medical Officers of Health; Midland Branch of the Society of Medical Officers of Health (per Dr. Ridley Bailey).

£3 3s.—Sir William H. Willcox, K.C.I.E.

£2 2s. 6d.—Dr. Alexander Robb (Edinburgh).

£2 2s.—Drs. H. Hanslow Brind (West Byfleet), *Mabyn Read, *P. H. Stirk.

£1 1s.—*Dr. George Adkins, *Dr. F. J. Allan, Sir Robert Bolam (Newcastle-on-Tyne), *Dr. Joseph Coates, Dr. Howard Davies (Pontypridd), Dr. R. Green (Stroud), Dr. H. W. Harding (Edmonton), *Dr. A. Bostock Hill, Dr. T. E. Hinks (Hay), *Dr. J. Johnstone Jervis, Dr. C. Courtenay Lord (Orpington), Dr. Edward H. Nash (Cranford), *Dr. H. Cooper Patten, *Dr. W. G. Savage, *Dr. C. E. Tangye, Dr. T. M. Tibbets (Old Hill, Staffs), Dr. W. W. Wells (Bromyard), *Dr. James Wheatley (Shrewsbury), and Dr. J. Arthur Wood (Rugby).

10s. 6d.—Dr. H. Dundas McCall (Leominster).

* Through The Medical Officer.

† Through the BRITISH MEDICAL JOURNAL.

‡ Second subscription.

Erratum in last list: "Dr. George Parker (Cardiff)" should read "Dr. George Parker (Bristol)."

Scotland.

THE PREVENTION OF HEART DISEASE.

Discussion by the Society of Medical Officers of Health.

A DISCUSSION on the prevention of heart disease was held in Glasgow a few months ago at a meeting arranged by the Society of Medical Officers of Health, and a full report has now been published.¹ It was remarkable in part for the constructive proposal referred by the meeting to the council of the society, and in part for the rather merciless light cast on the existing situation. Dr. A. K. Chalmers, until recently medical officer of health for Glasgow, who opened the discussion, dealt with the administrative aspect of the problem, and indicated some of the many questions which must be solved before preventive measures can be put on a sound basis. He felt sure that if local authorities in Scotland possessed the power of providing hospitals for rheumatic diseases it would not remain for long inoperative. Dr. George A. Allan, who followed, put the physician's point of view. He began by saying that he had been given to understand that by "heart disease" rheumatic heart disease was intended; consequently he restricted himself to the field thus defined. He touched on the etiology of rheumatism so far as understood, laying stress on the danger to the heart of the subacute form, its usual manifestation in childhood. This form, which may be attended merely by slight joint pains, with or without fever, occurring at an age when the heart is specially vulnerable, is liable, he said, in the absence of appropriate care, to cause grave or permanent cardiac damage. Dr. Allan urged the value of prompt treatment, prolonged rest, and after-care for these early conditions, the possible fore-runners of heart disease, and commended the issue of instructions to parents, teachers, and the medical profession itself regarding the signs of danger. He believed that effective co-operation between clinicians and administrative medical officers would lead to a prompt decline in the prevalence of rheumatic heart disease. Dr. Allan's

¹ Public Health, April, 1926, pp. 203-224.

observations conveyed an impression of clearness. It is no disparagement of the other principal speakers to say that he seemed to surpass them in this particular: and it is no disparagement of Dr. Allan that his outstanding lucidity was due in some measure to the fact that he had taken the precaution to limit his discourse to one type of heart disease. He could name the cause of this type, and could describe its precursors. He was therefore in a position to advance suggestions for its prevention which stood in pertinent relation to the conditions they were designed to combat. The other speakers, taking a wider survey, addressed themselves, not to a single form of cardiac lesion, but to the problem of heart disease as a whole. They furnished statistics and quoted experiences of great general interest, but none of their points, though excellent otherwise, bore very closely on either causation or remedy, for the expression "heart disease" includes forms of illness whose origins are still uncertain, and there can be no apt remedy under such conditions. This aspect of the question appears to have been in the minds of at least two subsequent speakers. Sir Leslie Mackenzie, dealing with the statistical side, said, "I have never found the statistical material at this stage anything more than an indication that something should be done"; and Dr. J. J. Buchan, touching on the clinical side, said it was for the clinician to describe accurately what exactly was the heart disease which caused the 50,000 or 60,000 deaths which annually occurred.

During the discussion a proposal was advanced, along the line already suggested by Dr. Chalmers, that local authorities should provide special beds for heart disease. Dr. Chalmers, in replying to the discussion, so far accepted the suggestion as to appear to approve the establishment of rest hospitals for children suffering from conditions which might be called "pre-rheumatic" but did not come within the definition of rheumatic fever. The proposal that local authorities should provide special hospitals was referred to the council of the society for consideration.

TREATMENT OF TUBERCULOUS EX-SERVICE MEN.

A conference was held at Edinburgh on May 31st, under the auspices of the Tuberculosis Committee of the British Legion (Scotland), to discuss the formation of a village colony for the after-care of tuberculous ex-service men in Scotland. Lord Glentanar, chairman of the British Legion in Scotland, presided, and among those present were Field-Marshal Earl Haig, K.T., and Countess Haig. Earl Haig, in recalling the resolution passed at a previous conference for assisting tuberculous ex-service men in Scotland, said that there were still 4,500 of these, and he was grateful for what was already being done on their behalf. He paid a compliment to the work of the British Legion, which, he said, was a society described as one of the greatest organizations for doing good by aiming in a non-political and non-sectarian fashion at perpetuating in civil life those principles of liberty and justice for which the nation fought during the war. Its ideals were loyalty, good fellowship, and service, and hence in the recent industrial crisis the members of the British Legion had been on the side of law and order, and their attitude had exercised a powerful effect on the spirit of the nation. The adequate medical treatment of ex-service men was one of the most important aims of the Legion. There had been 75,000 men who, at the time of their discharge, were suffering from tuberculosis. Of these, 20,000 were now dead. The remainder asked for sanatorium treatment, combined with industrial training, and, finally, life in suitable cottages and suitable factories. A Legion settlement and training colony had been established at Preston Hall in Kent, and he hoped that a scheme might be evolved on similar lines for Scotland. Lord Glentanar said that there were now 4,518 tuberculous ex-service men in Scotland, of whom 1,849 were not receiving treatment of any kind. An institution was needed in Scotland where a tuberculous man could receive after-care, and where he could live in healthy conditions while working at some trade or occupation which would enable him to avoid the detrimental effects of enforced idleness. The committee realized that for any hope of success sufficient capital and a full measure of support from the medical profession must be secured. It hoped for

financial assistance from Government and local authorities, and proposed to acquire a mansion house with suitable grounds to be used as an administrative building, around which would be placed open-air huts or shelters, hostels, dining and recreation halls, and other accommodation required by tuberculous patients. Sir Robert Philip said that Great Britain was very well forward in the treatment of tuberculosis, the country being provided with a complete service of preventive, curative, and relief agencies such as did not exist anywhere else. Sir George Beatson said that three factors materially helped the defensive power of the body against the advance of tuberculosis—fresh air with sunshine, good food, and rest with suitable exercise. These could only be got in a sanatorium, and he was strongly in favour of having in Scotland such an institution for tuberculous ex-service men. Some of the mansion houses which had been used by the Red Cross during the war, and on which money had been spent to make them suitable for hospitals, would be ideal for this purpose. Sir Leslie Mackenzie, of the Scottish Board of Health, said that if 1,800 men were without treatment the fault lay with themselves and their friends. There was nothing to prevent any man who needed treatment from getting it. While he could not commit the Scottish Board of Health, he was quite sure that the Secretary for Scotland, who had every sympathy for the ex-service man, would be desirous of doing whatever was practicable in the most complete way open to him. Dr. MacGregor, M.O.H. Glasgow, expressed the opinion that a number of patients in sanatoriums were not suffering from tuberculosis, and emphasized the importance of proper diagnosis before admission. It was quite easy to run a colony with non-tuberculous persons, and he was afraid that in a number of cases that had been done. In Glasgow it had been found that ex-service men who had been diagnosed as tuberculous were now roughly divisible into two classes—those whose disease was practically arrested and who were able to continue in their ordinary occupations, and those whose disease was in a quiescent condition but who were also suffering from chronic bronchitis. He had been very much struck by the fact that ex-service men of the best type were often very well cared for by their employers. The proceedings terminated with a vote of thanks to Lord and Lady Haig for their attendance, and to Lord Glentanar for presiding.

SCOTTISH VITAL STATISTICS.

During the first quarter of 1926 the births registered in Scotland were 26,171 and the deaths 17,928, equivalent to rates of 21.6 and 14.8 a thousand respectively. The birth rates for the corresponding quarter were—in England and Wales 18.2 and in Northern Ireland 22.1. The death rates were—in England and Wales 13.6 and in Northern Ireland 16.6. The Scottish birth rate is the lowest on record for the first quarter of the year, four years excepted. In civil counties it ranged from 24.9 a thousand in Lanark to 11.1 in Argyll. In the larger burghs the highest rate, 27.2, was in Hamilton, and the lowest, 17.6, in Dunfermline. The Scottish death rate is 2.4 below the mean of the first quarters of the preceding five years. Only once before since the institution of national registration has the death rate of the first quarter fallen below 15. In civil counties the range extended from 19.1 in Selkirk to 11.3 in West Lothian. Among larger burghs the highest was Glasgow, with 18 a thousand, and the lowest, the joint burgh of Motherwell and Wishaw, with 11.2. There were in all 9 deaths from enteric fever, 41 from encephalitis lethargica, and 25 from cerebro-spinal meningitis. Deaths of children of less than 1 year of age numbered 2,520. The infantile mortality rate was 96 a thousand births. This rate is lower by 24 than the mean of the first quarters of the preceding five years. In England and Wales the infantile mortality rate of the first quarter was 85, and in Northern Ireland 95. Among the larger Scottish burghs the infantile mortality rate varied from 124 in Glasgow to 37 in Falkirk.

SIR WILLIAM MACEWEN MEMORIAL.

A Sir William Macewen Memorial Oration will be given in the Bute Hall of the University of Glasgow on Wednesday, June 23rd, at 11.30 a.m., by Professor Archibald

Young, Sir William Macewen's successor in the Regius chair of surgery, on "Sir William Macewen." During the ceremony busts of Sir William Macewen will be presented to the University and to Lady Macewen.

GIBSON MEMORIAL LECTURE.

The George Alexander Gibson Memorial Lecture will be delivered before the Royal College of Physicians of Edinburgh on Wednesday and Thursday, June 23rd and 24th, by Dr. John Cowan, physician to the Royal Infirmary, Glasgow, who has chosen for his subject "The failing heart." He will discuss the mortality bills of heart disease, the effects of disease of the coronary arteries, of chronic valvular disease, and of acute endocarditis, the causes of death in these diseases, and the recognition of the failing heart.

Ireland.

THE LOCAL AUTHORITIES BILL (IRISH FREE STATE).

In the debate in the Dail on the Local Authorities Bill (Irish Free State) Sir James Craig, M.D., expressed the hope that it would be passed. It was one of the most important measures the Government had brought forward, and it would be most disastrous if it were delayed at that stage. He felt sure the Minister would agree to Deputy Johnson's suggestion, that the two or three best men should be placed on a panel and recommended to the local authorities for election. Dr. Hennessy also urged the necessity for the bill. The Free State was a food producing country, and, unfortunately, it had an unsavoury reputation in their chief market, where it was said they had no county officers of health to look after the food supplies. He did not agree as to the selection of a panel. It had not been received with favour from the medical profession. The bill should provide for the election of the best man. They did not want any camouflage. Ceann Comhairle (Speaker) said it was worth while experimenting to see whether the bill could be amended in committee without any lengthened debate. It might be arranged that the committee stage should be fixed for a fortnight ahead and provide that amendments should be handed in by a certain date. The movers of amendments and the Minister could then have time to come to agreement.

MEDICAL BENEFITS IN NORTHERN IRELAND.

In the Northern House of Commons recently a vote of £90,000 for national health insurance was moved, in committee of supply, by the Parliamentary Secretary to the Ministry of Labour. Mr. Kyle moved a reduction of the vote by £100 to call attention to the neglect of the Ministry of Labour in not bringing in some scheme of medical benefits for insured persons in Northern Ireland. Mr. Devlin said it was a great mistake that they did not have medical benefits under the national health insurance scheme in Northern Ireland from the very start. Professor Johnstone, F.R.C.S., said he was opposed to medical or any form of benefits on the same lines unless the people concerned were prepared to pay for them. He believed if a thing was worth having it was worth paying for, and he was sure that they could have medical benefits here at any time when the workers and employers were prepared to pay for them as they paid for them in Great Britain. The Minister of Labour said he had kept an open mind on this question. A commission had recently reported on a continuance of medical benefits in Great Britain, and he, the Minister, had felt that he would not be justified in asking that House to proceed to legislate on the matter until he had had the advantage of knowing what the views of that commission appointed by the Imperial Government were. The matter was somewhat complicated by the fact that a Home Office inquiry was going on in regard to many matters affecting local administration. Among the matters which were being investigated by that commission was the question of the application or otherwise of medical benefits to Northern Ireland. The wide dispensary system, already in existence, was a great advantage to the poor people, and the suggestion

Young, Sir William Macewen's successor in the Regius the medical benefits introduced as well. That, however, would not be keeping in step with Great Britain, and there would also be the difficulty in finding the money for both systems; in Great Britain there was only one system. The times were difficult, and he had hesitated to ask workers and employers to bear an additional burden, though not a heavy one. However, his mind was open, and when he was convinced that it would be to the advantage of the workers of Northern Ireland that medical benefits should be extended to it, and when he was satisfied that the workers desired them, he would not hesitate to ask his colleagues to approve the introduction of a bill to give effect to that view. On a division the amendment was defeated by 18 votes to 4, and the vote was passed.

England and Wales.

HONOUR TO A METROPOLITAN MEDICAL MAYOR.

It is a common reproach to the twenty-seven boroughs of London that their local patriotism is small, but, to judge from a complimentary dinner to the Mayor of St. Pancras, Alderman Dr. E. A. Gregg, at the Holborn Restaurant on June 3rd, this does not apply to that borough. The dinner was also in a sense to be regarded—although it had a much wider character—as the first annual dinner of the St. Pancras Division of the British Medical Association, the members of which attended in large numbers. Altogether 300 of his municipal and professional colleagues, many of them accompanied by ladies, were present. On the municipal side every public activity in St. Pancras appeared to be represented, including, of course, the borough council and the board of guardians, and various social and philanthropic institutions. The six members for St. Pancras on the London County Council, and the three members of Parliament for the borough (one of whom, Sir Richard Barnett, presided), were all present. The chairman, in proposing the health of the guest, said that they had come together to honour one of the greatest of St. Pancras citizens. Dr. Gregg was an Ulsterman, and represented the best qualities of Ulster—modesty, tenacity of purpose, and fighting spirit. Dr. Gregg, while still a young man, had attained the highest honour that St. Pancras could give him, and it could not be doubted that further honours awaited him in wider fields. Dr. Geoffrey Evans, chairman of the St. Pancras Division, who also spoke to the toast, referred to Dr. Gregg's assiduity on numerous committees. His public work had been of a diverse character, but all of it was informed with a desire to render social service to the community. He was well known as a lecturer on nursing, hygiene, infant welfare, and ambulance, and in these and other ways he was an interpreter of medicine to the larger public. Dr. Evans saw in Dr. Gregg the promoter of new developments in medicine whereby some of the hospitals in St. Pancras would become centres for post-graduate instruction, and centres also for consultation and investigation, so that the work of the general practitioner would be furthered. The toast was received with great enthusiasm, and Dr. Gregg, in his response, expressed himself as being made both proud and humble by the number of friends whom that gathering had called together. Their names were to him a kind of epitome of sixteen or seventeen years' work in St. Pancras. He went on to mention by name several of those present, including Dr. G. C. Anderson, Deputy Medical Secretary of the British Medical Association, his first home and gathering place in his professional life; Dr. Cardale, chairman of the London Panel Committee, who had had a good deal to do with giving him an interest in and incentive towards public work; and Sir Thomas Neill of the London Insurance Committee, a redoubtable opponent with whom he had had many a contest. Public life had many disappointments, criticisms, and misunderstandings, but an evening such as that went a long way towards recompense. Lord Riddell, proposing a toast to the borough of St. Pancras, mentioned incidentally that it had more hospitals within its boundaries than any other borough in London.

Several aldermen and councillors joined in the eulogies of their borough and their mayor, and the proceedings ended with a dance.

THE STANNINGTON SANATORIUM EXTENSIONS.

On May 28th the Duke of York visited the Stannington Children's Sanatorium, near Newcastle-on-Tyne, to open the Joseph Brough wing, the new nurses' home, the building for the treatment of tuberculosis by artificial sunlight, and the farm colony buildings. This sanatorium was the first British sanatorium for tuberculous children, and the extensions, which were urgently needed, have entailed an expenditure of £26,000, of which £16,000 has so far been raised. The sanatorium was opened in 1907 by the late Duke of Northumberland; it provided accommodation for forty patients. A second wing was later erected by the late Sir William H. Stevenson and his daughters, and in 1920 three large new wards and school premises were added, bringing the accommodation up to 250 beds. The waiting list is, however, very long, and the present extensions are, therefore, of great value. The new wing, presented by Mr. J. W. Brough at a cost of £6,000, will increase the number of beds to 312. Treatment by artificial sunlight has been given in the sanatorium for the last six years, and the new building now opened will enable it to be employed more effectively in a larger number of cases. The new model dairy farm will supply all the milk required by the patients. The Duke of York referred warmly to the value of the work carried on by the sanatorium, the boys' farm colony, and the open-air school, and called attention to the need for a seaside branch of the institution.

Correspondence.

AMBULATORY TREATMENT WITH TUBERCULIN.

SIR,—Your editorial commentary (p. 953) on Dr. Camac Wilkinson's letter on the tuberculin dispensary in the *JOURNAL* of June 5th is welcome evidence of a movement to raise the specific treatment of tuberculosis out of the apathetic condition into which it has fallen in this country. In Germany, as the recently published third edition of Dr. Klemperer's book on pulmonary tuberculosis shows, critical curiosity is very much alive on the subject, but in England the situation still seems to be dominated by the damaging and now long antiquated Brompton Hospital report of 1898, and the most that is conceded to tuberculin therapy is a grudging and illogical admission that in certain cases, "where ordinary methods fail and which seem to stick half-way," tuberculin, in selected cases and in special circumstances, may in some mysterious way be responsible for "getting a move on"; but, so it is stated, "so indefinite are the results that it is generally conceded that it is a waste of time and expense for patient and physician to use it as a routine procedure." As for tuberculin diagnosis by its most effective method—namely, subcutaneous injection—it is concluded that "when reliable, the use of these tests is fraught with grave danger, and that when not fraught with grave danger they are unreliable." Such is the current position.

One therefore welcomes Dr. Wilkinson's experienced support and ardent reiteration of Koch's matured claims on behalf of tuberculin in both directions of diagnosis and treatment.

There is, however, something to be said in opposition to the proposed ambulatory treatment at the tuberculin dispensary. Certainly it cannot be sound clinical practice, however interesting as a comparative experiment, to submit open cases of pulmonary tuberculosis among the wage-earners in large cities to a process of intensive active immunization, and that in the face of coexisting disease, while such patients are actually in continuation of their more or less arduous daily work. This is asking too much from the human system. Nor is there any justification for so doing. With all the public money which is now being spent on tuberculosis, not to mention the funds available under the National Health Insurance Act, all cases undergoing this treatment should be placed for a few months at

least in enjoyment of such conditions of rest, food, and housing as should give to each patient fair conditions for treatment. I am aware that ambulatory treatment can be carried out while the patient continues at work, and I have personal experience of the possibility of so doing, but I regard it as an unfair disadvantage. It must be remembered that intensive tuberculin treatment is a method of active immunization, and active immunization carried out in the teeth of a virulent and insidious enemy. It exploits the vital properties of the body, and of the body more or less devitalized by disease. It is an active poison which benefits only by consequent recovery from the poisonous action. Tuberculin therapy of an intensive character in accordance with Koch's matured directions, and illuminated by the experience of subsequent workers, may certainly be carried out elsewhere than in sanatoriums; but it is best carried out under, as much as possible, sanatorium conditions. Given sufficient corroboration of Koch's original claims, which corroboration, with its developments, should be the objective of all who desire to advance the cause of humanity in this direction, there should be no difficulty, between the resources of existing tuberculosis schemes and National Health Insurance funds, in the way of securing the most suitable conditions with complete relief from daily toil for at least a few months.

I am not writing in opposition to the method of intensive tuberculin treatment or specific diagnosis: far from it—these methods have my personal adherence; but they should be supported up to the hilt by every other possible useful adjunct, especially during the acquisition of the initial immunity to tuberculin.—I am, etc.,

ROBERT CARSWELL, M.A., M.B., Ch.B.

Wandsworth, June 7th.

THE PROPHYLACTIC VALUE OF SCARLET FEVER ANTITOXIN.

SIR,—In the *JOURNAL* of May 22nd a paper appears under the above title, in which the authors, Drs. Harries, Hervey, and Fellowes, draw a conclusion from defective premisses that the practitioner can now exercise a "prompt control of an outbreak of scarlet fever" by the use of the Dick test and antitoxin injections. They report that a definite case of scarlet fever arose in a diphtheria ward. This is not an uncommon experience, but it is uncommon in such an event for the disease to extend to any considerable number of contacts, or otherwise to show urgent need for control by an extraordinary method. A search being made for any causing case amongst the other patients in the ward, one was discovered in a diphtheria case that was also peeling on the hands, and with the history of a rash on back and legs suffered some twenty-seven days previously, she having been in the diphtheria ward six days for her later complaint.

There were sixteen contacts in the ward, of which fourteen were Dick-positive. It is assumed, without any corroborative control evidence, as by the exposure of as many other equally susceptible persons to the same infection without antitoxin treatment, that cases of scarlet fever must have occurred amongst those fourteen but for their being injected with antitoxin. There is no warrant for any such assumption. The proposition requires the expectation that every "outbreak of scarlet fever," in which the case is permitted contact with a considerable number of other people, will result in an extension of the disease. After an experience of thirty-five years as medical officer of health, I can give an emphatic contradiction to this supposition. It is a common experience, with quite free home contact, for the disease to be limited to one sole individual, and desquamating cases are not infrequently discovered in children attending a school without any obvious result of their contact with their fellow scholars, although this may have been continued for several weeks. In such circumstances possibly another case or two may arise, and that is about the limit and end of the matter as a rule. Epidemics from such a source may be imagined, but have very rarely come to pass.

The limits of liability of extension from most cases of scarlet fever are so marked as to cause a number of us more experienced medical officers of health to be now questioning the value of hospital isolation for this disease, and our

evidence on this score is in the hands of the Ministry of Health, which sent out a questionnaire upon the subject about a year ago.

The degree of infectiveness of the particular case that is in a position to spread scarlet fever is so germane to any such experiments as those I am criticizing, that for it to be ignored is sufficient of itself to vitiate the results whatever they may be. The seriously infective scarlet fever case is an occasional case, or an occasional condition occurring in a case. What this condition is has not been plainly shown. A particular strain of micro-organism may be surmised. According to the matter reported, fourteen persons were due to get scarlet fever as evidenced by the Dick test. It is a pity the authors did not divide them into two sevens, operating on the one seven and reserving the other seven for control. Then, that either of the seven untouched would have developed scarlet fever is improbable. They had all fourteen been exposed for six days to such infection as there was, before the experiments began.

In fact, expectancy of further cases as evidenced by a positive Dick test, and expectancy of further cases according to the experience of a medical officer of health; are at wide variance, and until they have been brought more into coincidence, experience being more valuable than theory, I suggest that to attempt a "prompt control of an outbreak of scarlet fever" by the use of the Dick test, and antitoxin injections, is inadmissible, both logic and best regard for the welfare of the children requiring it to be eschewed.—I am, etc.,

J. H. GARRETT, M.D., D.P.H.,
Medical Officer of Health, Cheltenham.

May 24th.

THE SPAHLINGER TREATMENT.

SIR,—I have not impugned the good faith of the Science Committee, but I have criticized the tone of the original article (May 1st, p. 805) and the attitude of mind displayed by the committee. If the committee thinks it its duty to discredit the treatment, it is completely within its rights in so doing: no charge of "bad faith" can be made against it, although its wisdom may be questioned with equal legitimacy.

I submit that nobody could read that article without forming the opinion that the committee is hostile. The committee is as responsible for the general tone of a communication as it is for the facts contained in it.

Dr. Hawthorne (May 8th and 15th, p. 846) has invited our co-operation, and I have previously stated some facts concerning the proposed financial position as they were given to us. I am sure the Salford Committee will be only too pleased to co-operate with any body that is disinterestedly trying to bring this matter to a head—that is to say, to procure an investigation in this country.

We have already discovered some obstructions which have been created by various parties concerned in this matter. We have already in our possession a number of scraps of information—most of them confidential—which throw an interesting light upon some aspects of the business and which lead us to believe that the obstructions in this many-sided problem are not all coming from the same direction.—I am, etc.,

C. E. JENKINS,
Honorary Secretary, Salford Division.

Manchester, June 2nd.

THE DEFINITION OF BLINDNESS.

SIR,—If Dr. Tivy will do me the favour of reading my article again, and then his own letter, I think he will perceive that article and letter deal with different subjects. In my article I am concerned with one point only—the definition of blindness. In his letter he deals with local administrative arrangements, and he shows by examples how bad these can be when the determination of the state of blindness is left in the hands of lay persons, whether pension officers or others. Ophthalmic surgeons have never wavered from the belief that certification should only be made by qualified practitioners, and that their services in this regard would be a saving to the State.

Dr. Tivy raises another point—the remuneration for adequate certification. I judge from his statement he is giving certificates of blindness gratis. That is his own fault. Note has been made in the JOURNAL more than once that the Ministry has made arrangements for obtaining the opinion of an ophthalmic surgeon when it so desires, and for paying a proper fee. But these local matters have nothing to do with the discussion of what constitutes "blindness."—I am, etc.,

London, W.1, June 5th.

N. BISHOP HARMAN.

ANGINA PECTORIS.

SIR,—Your notice of Mr. Fowler's *Dictionary of Modern English Usage* (BRITISH MEDICAL JOURNAL, May 22nd, p. 877) revives a controversy that was eagerly debated in my undergraduate days. I mean the quantity of the second syllable of the word "angina."

I have not yet had an opportunity of reading the book, but you quote Mr. Fowler as writing: "Since the ailment that he [the scholar] long insisted on our calling *angina pectoris* was discovered to be *angina* after all, his pleadings are suspect."

I should think that all of us who are old enough to have been spanked at school for making a false quantity will wonder at Mr. Fowler's marking of the first syllable of the word as short. Most of us will remember that a vowel preceding two consonants (other than a mute and a liquid) must be long according to the rules of Latin prosody.

But the question of interest is the metrical value of the "i" in the second syllable of "angina." When I was a student in Dublin this question was raised, and it became the fashion to pronounce the word "angina." I searched the classical scriptures, and could only find the word in the work of one Latin poet, and that a mere Silver Latin author. Unfortunately I kept no record of the name of the author, and I admit that his line was a thoroughly bad hexameter. It was as follows: "Haustum angina tibi mistum sale poscit acetum."

This was accepted among the staff of my hospital as settling the question in favour of the old-fashioned pronunciation "angina." I am now unfortunately too much out of touch with the minor poets of later Rome to verify the quotation, but perhaps some of your more scholarly readers will identify the line, or tell us what authority Mr. Fowler has for saying that the word should be pronounced *angina*.

Horace was fond of medical terms, and mentions the "polypus" in the nose of one of his ladies. In one of his Epistles also occurs the phrase, "Nisi cum pituita molesta est." If the word "angina" had really been a dactyl he could hardly have resisted ending one of his "Archilochians" with "angina pectoris." But he never did.—I am, etc.,

Sheffield, June 3rd.

FRED. E. WYNNE.

** In Bailey's edition for English readers of the Facciolati-Forcellini Latin Lexicon the "i" is shown long, but the illustrative quotations do not include a line of verse. We have therefore appealed unto Mr. E. E. Sikes, President and classical lecturer, St. John's College, Cambridge, who has kindly sent us the following reply, at once authoritative and light in touch:

"Scholars have often for the last hundred (or perhaps thousand) years pointed out that the *i* in *angina* is short. This is settled by Plautus, *Trinummus*, II, iv, 139:

"Sues moriuntur angina (hie) accerrime"

"and by the end of a hexameter in Lucilius *ap. Non.* 35, 10—

"..... Una angina sustulit hora."

"Personally I have not any views, being accustomed to many scientific words which, as a living wit once remarked, 'are compounded of two languages and one false quantity,' and *angina* errs only in the latter defect. But there may still be purists in country rectories who would deplore the popular diagnosis on more grounds than one."

Obituary.

LIEUT.-GENERAL SIR WILLIAM LEISHMAN, Kt.,
K.C.B., K.C.M.G., M.B., F.R.C.P., F.R.S., LL.D., K.H.P.,
Director-General, Army Medical Service.

By the untimely death of Sir William Leishman, which occurred, after a short illness, on June 2nd in Queen Alexandra's Military Hospital, Millbank, the whole scientific world has been deprived of one of its most brilliant workers, and the army of one of its greatest benefactors. Born on November 6th, 1865, in Glasgow, William Boog Leishman was educated at Westminster School and at Glasgow University, of which his father was the distinguished professor of midwifery. He graduated in medicine and surgery there in 1886,

and in the following year entered the army as surgeon. Until 1890 his service was at home stations. He then went to India, where he served until 1897, with the exception of a year at home on sick leave in 1892-93, and took part in the Waziristan expedition of 1894-95, receiving the medal and clasp. Promoted to the rank of major, R.A.M.C., in 1899, he was appointed in the same year assistant professor of pathology in the Army Medical School, Netley. Almoth Wright was at that time the professor of pathology, and Leishman succeeded him in 1903 on the transfer of the school to London. It was during the association with Wright that his work on anti-enteric vaccines commenced. The years of his professorship, which he held till 1913, were memorable for the brilliant advances made in elaborating and perfecting the means of preventing enteric fever by prophylactic inoculations. Leishman's method became world-renowned and was copied in other countries, notably and with great success by the United States of America. The value of this work can be realized when we compare

the relative incidence of enteric fever in the South African war and in the great war. But for the prophylactic measures so widely applied in the latter it has been estimated that the cases of enteric fever would have reached the enormous total in all theatres of war of some 551,000, with over 77,000 deaths, had the troops been affected in the same ratio as in South Africa; the actual incidence was only 20,139 cases during the years 1914-18 in all theatres, with 1,191 deaths, or about one-seventh of the total deaths, 8,022, from this group of diseases in the war in South Africa. This is a measure of the debt of gratitude the country owes him.

On the termination of his professorial appointment his researches into the etiology and prevention of disease did not cease, for he was appointed the expert in tropical diseases on the Army Medical Advisory Board in succession to Lieut.-Colonel C. Birt, and had ample scope for continuing his research work in the laboratories of the Royal Army Medical College. He retained his membership of the board during the great war, although most of his time was spent in an advisory

capacity in France, for, when there was much anxiety on account of the unexpected prevalence of tetanus, gas gangrene, and the graver forms of sepsis among the wounded, he was sent to the Expeditionary Force early in October 1914, with the designation, a few months later, of adviser in pathology. He remained in France until April, 1918, when he was recalled for duty at the War Office, and, on the reorganization of its Army Medical Department and the creation of the two new directorates of hygiene and pathology in June, 1919, was appointed director of pathology, a post which he held until selected to succeed Sir John Goodwin as Director-General on July 29th, 1923.

During his career in the army Leishman's brilliant scientific attainments were widely recognized. In 1905 he obtained a brevet lieutenant-colonelcy on account of the

distinction gained by him in Oriental investigations and research, and in 1909 he received the honour of knighthood. In 1910 he was elected a Fellow of the Royal Society. After promotion by seniority to lieutenant-colonel's rank in December, 1911, he was gazetted in October, 1912, to a brevet colonelcy, and became colonel in the long list of promotions to that rank in March, 1915. In October, 1918, he was gazetted major-general, and, on his appointment as Director-General, lieutenant-general. In 1912 he became an honorary physician to the King, and in 1914 a Fellow of the Royal College of Physicians. He was also M.R.C.P.Ed. and F.R.F.P.S.Glas. Glasgow University and McGill University conferred on him the honorary degree of LL.D. For his services during the great war he was thrice mentioned in dispatches, was created C.B. and Commander of the Legion of Honour in 1915, K.C.M.G. in 1918, and received from the United States of America the Distinguished Service Medal. After he became Director-General he was created a K.C.B., and was promoted to the grade of

Grand Officer of the Legion of Honour. He was also a Knight of Grace of the Order of St. John of Jerusalem. An honour which he greatly prized was his election to the Athenaeum at the end of last year on account of his eminence in science and his public services.

In 1902 Sir William Leishman married the elder daughter of the late Lieut.-Colonel E. Gunter, of the 59th Regiment, who survives him with one son, now studying medicine at Oxford University, and three daughters.

Leishman's activities in the domain of scientific research were not limited to his work in the army, although he was never seconded for duties outside the R.A.M.C. at any period of his career. He was an examiner in pathology for Oxford and in tropical medicine for Cambridge University. In 1910 he was Harben lecturer and in 1925 Linacre lecturer, Cambridge. Many scientific committees, including the Medical Research Council, claimed his services. Among others he was chairman of the Foot-and-Mouth Disease Research Committee of the Ministry of Agriculture, was this year elected president of the Section of Comparative Medicine of the Royal Society of Medicine, and was to



SIR WILLIAM LEISHMAN, K.C.B., M.B., F.R.S.

have presided next month at the sessions of the Section of Pathology and Bacteriology at the British Medical Association's meeting in Nottingham. He contributed widely to scientific literature, his best known work being on the parasites of kala-azar and Oriental sore to which the name of leishmaniasis has been attached.

Until he became Director-General Sir William Leishman had held no administrative appointment or command in the R.A.M.C., and some fears were expressed lest this lack of administrative experience and the many years devoted to pathological and bacteriological research would unfit him for the duties of Director-General; but these fears were soon dispelled by the marvellous grasp he at once took of the responsibilities of his office and the broad views he brought to bear on the problems with which he was faced. If there was any proved advance in medicine he strove to place it at the disposal of the army at large; and he always took a human view of whatever affected the welfare of the soldier. No problem of administration, however difficult, was shirked by him, and as a member of the committee appointed by the Cabinet, under the chairmanship of Sir Warren Fisher, to consider the shortage of medical officers in the Services, he devoted hours of anxious thought and endeavour to present a just and true estimate of the situation in the R.A.M.C., and of the cogency of removing the causes which were preventing candidates from coming forward.

His quiet manner, calm intelligence, and sound judgement created a feeling of confidence amongst the members of his staff, and encouraged them to take broad views of the problems with which they had to deal. To all these qualities his success as an administrator must be attributed. They added to the lustre of the renown already achieved by him in the domain of science, and his loss will be felt deeply by all ranks of the Royal Army Medical Corps, whose interests he had so much at heart, by his many friends in the army, and by his fellow workers throughout the world. He was not only a great scientist, but also a great administrator.

In response to our request we have received from Professor ROBERT MUIR, F.R.S., the distinguished occupant of the chair of pathology in the University of Glasgow, the following:

I readily respond to the request of the Editor to add something of a personal nature to the account which has been given of Sir William Leishman, though I fear that what I have to say is of an incomplete and fragmentary character. I first came to know Leishman some twenty-five years ago, and since then our friendship has been one of growing intimacy. It began shortly after his powers as a scientific worker were becoming evident—his research work, it is noteworthy, started at a later period of life than is usual. In the years following, his results of investigation were obtained in rapid succession, and he quickly earned a world-wide reputation. But it is not my purpose to review his scientific work. It is of permanent value, suitably commemorated by the word "Leishmania"; and his powers in training and in administration, revealed especially during the war, would likewise be sufficient to ensure for him a lasting place in medical history. His achievements in these two departments are so outstanding that some others are apt to be overshadowed.

I should like to refer to his work as a teacher. For a year or two just before the beginning of the war I acted as examiner of his students at the Royal Army Medical College. The standard reached, especially in the examination for promotion to the rank of major, was remarkable, and almost uniformly so—I may say that I have scarcely seen it equalled in any other examination. And this was the outcome, not only of Leishman's ability and powers of inspiration, but also of his painstaking effort, attention to details, and interest in his students. One does not care for the word "conscientious," but in its best significance it applies to Leishman in every capacity. I think that hardly too much emphasis can be laid on the fact that it was largely due to his quiet and untiring work in teaching and training that the Royal Army Medical Corps was so fully prepared to deal with the problems of disease which met it at once on the outbreak of the war.

Those who have attained are sometimes content to rest on their oars, and render service by the magic of their names. To such an attitude nothing could be more dissimilar than Leishman's. His ideal of work demanded much, and he never spared himself in response. Recently we have been members together on research committees in connexion with cancer and with foot-and-mouth disease, and I have constantly marked his devotion to the elucidation of what was in hand. This devotion has been recognized by all his colleagues. Youthful in outlook; impatient of the non-progressive, suggestive in proposals, and full of unselfish interest, he has freely given all in his power, and his death means an irreparable loss.

A man such as Leishman could not fail to win the affection and stir the enthusiasm of younger men who worked with and learned from him; he had indeed a rich reward in the devotion which he inspired and in the service returned. His interest in them and in what they were doing was great, and there was no more appreciative listener at meetings of societies. He possessed in no small degree a literary taste and the power of expression; he was an excellent speaker, forcible in argument and graceful in phrase. It is not unworthy of mention that, with the receipt of ever-increasing recognition and honours, Leishman remained unchanged, and showed in no way that he was sensible of what he had accomplished. His was a charming personality, modest, kindly, courteous, wise in counsel. He was the same when I last saw him as when first we met.

Dr. ANDREW BALFOUR, C.B., Director of the London School of Hygiene and Tropical Medicine, writes:

The scientific work of Sir William Leishman, whose untimely death is so greatly deplored, was marked by care, caution, accuracy, and thoroughness. In the three outstanding lines of research by which he will be remembered these qualities were evident. He may not have had the intuition of genius, but he possessed in no small measure the patient, persevering spirit of the born research worker, coupled with a cool and critical judgement, and controlled by sound common sense. Much of his work was devoted to practical ends. He was not content to make a discovery; he endeavoured, where possible, to apply the knowledge gained. Thus he was a distinguished hygienist as well as a successful pathologist, bacteriologist, and protozoologist. The best example of this combination is seen in his work on anti-typhoid inoculation. He did not initiate this revolution in immunology—Professor Almroth Wright and Major Semple started the ball rolling; but Leishman, sure and steady, proved an invaluable colleague to Wright; with whom he became associated when assistant professor of pathology at Netley. He was an excellent technician with a clever pair of hands, and was an artist of no mean ability. Hence it is no wonder that he improved upon the Romanowsky stain and employed it to good effect. It was characteristic of Leishman that, when he wrote on this subject, he gave full credit to Maurer. Indeed, he was punctilious to a degree, careful to give credit where credit was due, modest and unassuming, yet conscious of his abilities and prepared to defend his opinions.

No doubt his technical skill aided him in his discovery of the parasite of kala-azar, a discovery made in 1900 in a case of so-called Dum-Dum fever, but about which he published nothing until May, 1903, when some idea of the true significance of his observations occurred to him as the result of studying a case of trypanosomiasis in a laboratory rat. In films from this rat he noted forms like the bodies he had seen in the spleen smears from the human case of fever and cachexia, and he hazarded the suggestion that trypanosomiasis of man occurred in India. He was nearer the mark than some who, as Leishman's discovery was confirmed by Donovan and others, imagined the parasite to be something very different from what it eventually proved to be. Leishman, indeed, eventually came to the conclusion that it was the involuted stage of a flagellate. It was Sir Ronald Ross who suggested that the kala-azar bodies should bear Leishman's name, a happy thought, which has given us the term "leishmaniasis" applied to the group of diseases associated with the presence

in the tissues of Leishmania, as Ross named the genus. Still it is strange that, for a time, no one remembered that Lieut.-Colonel Cunningham of the I.M.S. had, long before, in 1885, seen and described in Delhi sore the organism now known as *Leishmania tropica*, which was rediscovered by J. H. Wright. Leishman's work on kala-azar led to great and momentous developments and is one of the landmarks in the history of medical protozoology, and indeed of tropical medicine.

His third notable piece of research, the most difficult, the least satisfying, is that on the developmental cycle of *Spirochaeta duttoni* in the African tick, *Ornithodoros moubata*, first published in 1909. He made his observations on what he called the granular phase of this spirochaete in ignorance of the fact that Dutton and Todd had already drawn attention to this spirochaetal segmentation, but he went much further than they had done and explored the whole question of the life-cycle of the organism. His work was interrupted by the war, but he returned to it after the cessation of hostilities, and it formed the subject of an interesting and suggestive lecture before the Royal College of Physicians in 1921. The question of a granule stage in the life-history of spirochaetes remains unsettled, but it is significant that recent work in various fields, both bacterial and spirochaetal, seems to point to the fact that Leishman's views were sound. These three lines of research by no means exhaust Leishman's contribution to science. He wrote largely on bacterial vaccines in addition to his work on typhoid fever, he dealt with tetanus and tetanus antitoxin, he described cell inclusions in blackwater fever, and he was a valued member on a multitude of committees.

His courtesy and kindness made him exceedingly popular, especially amongst the younger workers, whom he was always ready to help and advise. He was a clear and convincing lecturer, and did a great deal to kindle enthusiasm and to promote useful lines of inquiry in the Army and elsewhere. Many hoped that, when his period of service as Director-General ended, he would again be seen in the laboratory where he was truly happy and for which his gifts specially fitted him. It has been willed otherwise, and his death leaves a great gap in the senior ranks which cannot be filled, but his memory will be kept green, not only by the record of his work, but by those personal traits which endeared him to his colleagues and his students.

We are indebted to Colonel D. HARVEY, C.M.G., Director of Pathology at the War Office, for the following appreciation of his predecessor's scientific work in the army.

Captain Leishman was one of the few officers who at the period when he proceeded to India for his first tour of foreign service took a microscope with him, knew how to use it, and made good use of it there. Even at that early age—for he graduated at 21 and came straight into the service—he disclosed that inquiring turn of mind which must always distinguish the great research worker. On his return to England he was posted to Netley—a most fortunate posting, for this move determined his future and gave to science one of its most distinguished servants. He was in charge of wards in the Medical Division at Netley, a duty he discharged in a most efficient manner; his disciplinary methods were the admiration of the surgeons on probation under his command. He spent his leisure time, however, in the laboratory, where Wright and Semple were then at work, and on the departure of the latter to India Leishman succeeded him as assistant professor of pathology. During his tenure of this office much of his best scientific work was accomplished in the laboratory at Netley and the foundation of his world-wide reputation laid. Among other work may be mentioned his association with Wright in the beginning of the preparation of typhoid vaccine and its final establishment in the form in which it is now used all over the world with so much success and with so large a preservation of valuable lives.

At this time also he prepared the stain which is now known everywhere by his name. This stain was a modification of Romanowsky's stain, but it has been truly described as a great advance on previous methods of staining as the breech-loading gun was an advance on the

muzzle-loader. This stain was not the work of a day or a month, but evolved after many months of patient investigation, guided by a most acute and critical mind. By means of this stain the way to the discovery of the parasite of kala-azar was made easy for such a worker as Leishman. At the post-mortem examination of a soldier, dead of this disease, which he himself carried out, he made several smears from the spleen pulp and was able to demonstrate clearly the small parasite, to which his name has been given.

Among other of his duties at Netley was the preparation for the army of antitoxic serums, such as that for diphtheria, and here again he was able to improve methods by his exceptional technical skill. At this time also he perfected his method of estimating the phagocytic power of the whole blood—a most ingenious method which has been largely used since in various researches.

On coming to London as professor of pathology he continued his researches, but much of his time was, of course, spent in teaching the various classes passing through the Royal Army Medical College, and leisure for research was, indeed, limited. In spite of this his was the guiding mind and hand in the further perfection of prophylactic vaccines against typhoid fever and other bacterial diseases, and in this matter he not only showed his well known powers at the work bench, but foreshadowed administrative abilities of the highest order and of a most courageous character, for there were many obstacles to be overcome apart altogether from the difficulties in the laboratory.

During this period Major Leishman continued his researches into kala-azar, a disease which naturally greatly interested him. In one of his earliest publications he suggested that the parasite discovered by him "might be a stage in the life-history of a trypanosome." If he had said "flagellate" he would have been correct, for I well remember a dramatic day in the college laboratory when a telegram was received from Calcutta from Rogers, saying that he had succeeded in developing flagellates in a culture of the kala-azar parasite.

Much of his spare time at the college was spent in a very laborious investigation of the fate of the spirochaetes of relapsing fever in the tick, work which employed him for some years, and owing to his masterly technique—a technique which was the despair of his assistants and colleagues—he was able to demonstrate the granular stage of these spirochaetes, which has been so fully exploited by other and later workers.

After leaving the college and relinquishing the post of professor, Sir William could rarely find time to return to actual laboratory work; but it was always pathetic to see how he longed to return to actual practical work with those skilled hands of his, and with what regret he laid down his tools. However, as adviser in pathology and later as director, he was an inspiration to all workers, not only in the army but in the much wider circle which he reached during the war and as a member of the Medical Research Council and numerous other scientific committees.

His last contribution to the *Journal of the Royal Army Medical Corps* was published in December, 1925, under the title "Research in the medical services," and embodies his views and is an epitome of his life.

It may not be generally known that Sir William, in addition to being a skilled bacteriologist, was also an accomplished artist and musician: one of his favourite recreations on his brief holidays was landscape sketching and painting.

Major-General Sir WILLIAM MACPHERSON has sent us the following tribute to Sir William Leishman's services to the Royal Army Medical Corps:

The sudden and unexpected death of Sir William Leishman has brought more poignant sorrow to the Royal Army Medical Corps than has ever been experienced in the whole of its history. He had won for himself the loyalty, devotion, and affection of all ranks to a degree seldom vouchsafed to the head of the Army Medical Service; and this not only because of his world renown in pathological science and his dominating influence in wide branches of medical research, but also because of his humane and wise Army Medical Corps, since he in 1923, and

his single-hearted efforts for its welfare. His interest in everything concerning the Corps in work and in sport never flagged. Before he became Director-General he was known to it chiefly for his far-reaching work in the prevention of enteric fever in the army, and for pathological research and organization, and those who attended his lectures when he held the post of professor of pathology at the Army Medical College never ceased to speak of the value of his teaching and his charm and lucidity of expression. All his research work, which gained for him such wide fame, was carried out while performing active duties in the Corps, and what he did to enhance its reputation, both within the army and throughout the medical profession, cannot be expressed in words. When he became Director-General his great ambition was to see all ranks of the Royal Army Medical Corps closely united in word, thought, and deed, with a view to maintaining the high reputation it had won for itself in the great war. He initiated the Royal Army Medical Corps Association as the first step to achieve his purpose. It was only the other day that he expressed how much he had this at heart, when he took the chair at the reunion dinner of the warrant officers and sergeants of the Royal Army Medical Corps on April 10th. Others are more able to write of his immense activity in the field of scientific research; but to us of the Corps what we valued most was his great heart and his loyal and abiding friendship, qualities which can never fade from our memory of him. He has died in harness, and at a time when his loss to the Royal Army Medical Corps is irreparable.

An impressive funeral service was held with military honours on June 5th in the chapel of Queen Alexandra's Military Hospital, and in the presence of a large and representative gathering of mourners. The street along the frontage of the hospital was lined by a battalion of the Grenadier Guards, with colours and band, and the drive from the chapel to the street by nursing sisters, and officers and men of the R.A.M.C. The hearse moved from the chapel after the service at a slow pace, accompanied by the pall-bearers, along these lines to the strains of Chopin's soul-stirring funeral march. When it reached the end of the line the military part of the service broke off, and the interment afterwards took place privately in Highgate Cemetery.

The service was conducted by the Rev. A. C. E. Jarvis, Chaplain-General to the Forces, assisted by the Rev. C. C. Thacker, chaplain to the hospital, and the Rev. P. McCormick, vicar of Croydon. The choir boys of Westminster Abbey attended. The chief mourners were Lady Leishman, her son and daughter, and other members of the family. The King was represented by Colonel C. E. G. Norton, the Queen by Sir Edward Wallington, and the Duke of Connaught (Colonel-in-Chief of the R.A.M.C.) by Colonel Douglas Gordon. The pall-bearers were Lieutenant-General Sir Arthur Sloggett, Lieutenant-General Sir Hugh Jeudwine, Major-General A. A. McHardy, Major-General Sir William Macpherson, Surgeon Vice-Admiral Sir Joseph Chambers, D.G. (R.N.), Major-General G. J. Farman, Air Vice-Marshal David Munro, and Major-General J. W. O'Dowda. Others who attended the service included:

Countess Roberts, Lord Dawson of Penn, Group-Captain A. L. Godman (representing the Secretary of State for Air), Surgeon-Commander Lewis Smith (representing the Medical Directorate, the Admiralty), General the Hon. Sir Neville Lytton and Major-General Hugh Sutton (representing His Majesty's Commissioners, Royal Hospital, Chelsea), Lieutenant-Colonel Sir William Prout, Lieutenant-General Sir John Goodwin, Sir Lisle Webb (representing the Ministry of Pensions), Sir Matthew Fell, Colonel Barrow, Colonel Harvey, and Colonel Fawcett (representing the R.A.M.C.), Major-General Sir Alfred Blenkinsop (representing the British Medical Association), General Sir Walter Braithwaite, Major-General Sir Francis Treherne, Major-General Sir Wilfred Beveridge, Sir Walter Fletcher (representing the Medical Research Council), Air Vice-Marshal Sir Philip Game (representing the Air Council), Colonel Sir Reginald May, Sir Ronald Ross, and Sir William Simpson (representing the Ross Institute), Sir John Parsons, Sir Robert Firth, Sir Arbutnot Lane, Sir Almoth Wright, Sir Anthony Bowlby, Sir St. Clair Thomson (President of the Royal Society of Medicine), Sir William Smith, Sir Arthur Stanley and Brigadier-General H. Bateman-Champain (representing the British Red Cross Society), Sir Richard Luce, M.P., Sir David Bruce, Professor Ledingham, and Dr. Arkwright (representing the Lister Institute), Sir George Makins and Sir John Ross Bradford (President of the Royal College of Physicians) (representing the Army Nursing Board); Dr. H. H. Dale (representing the Royal Society), the Dean of Westminster, Mr. E. F. Knapp-Fisher, Dr. H. P. Newsholme, Dr. E. W. Morris (representing the Minister for Defence for the Commonwealth of Australia), Captain G. S. Elliston (representing the Society of Medical Officers of Health), Miss Hodgins (matron-in-chief), Miss Osborne (principal matron), Miss Haldane.

Many floral tributes were sent, and amongst other touching messages of sympathy and regret was one from the Pasteur Institute in Paris, signed by Professors Roux, Calmette, and Martin.

DONALD FRASER, M.D.,

Consulting Physician to the Paisley Mental Hospital and the Royal Alexandra Hospital.

WE regret to record the death of Dr. Donald Fraser at Woodlands, Elderslie, the residence of his son-in-law, Mr. Gardner, on May 19th, in his 86th year.

Dr. Fraser commenced his medical education at Glasgow University in the last years of its location in the old buildings in High Street, and graduated M.B. in 1867, C.M. in 1868, and proceeded M.D. in 1870. At the Royal Infirmary he studied under Lister, an experience which was one of his most cherished memories. His reminiscences of that time and his profound admiration for his teacher reflected Lister's nobility of character and his inspiring influence on his pupils. Shortly after graduating Dr. Fraser settled in Paisley, and in that town and neighbourhood for over half a century his high professional skill, progressive spirit, and inspiring personality gained for him a very extensive practice. In his earlier years he had fought cholera and typhus, and later he took a leading part in work for the prevention of tuberculosis, being president of the local branch of the National Association for the Prevention of Consumption. He strove successfully as a lecturer to awaken the public mind to its responsibilities in the prevention of this disease. Dr. Fraser's activities also found a congenial sphere in the study of mental and nervous disorders. He was a profound admirer of Hughlings Jackson, and always said he owed much of his success to the teachings of that master mind. In his presidential address, delivered on October 11th, 1897, to the Glasgow Pathological and Clinical Society, of which he was one of the original members, he took as his subject hysteria as a psychosis. As early as 1878 he had made a special study of this subject, and was one of the first in this country to take an interest in psychotherapy. For over fifty years he was actively associated with the Paisley Mental Hospital at Riccarton as visiting physician. While conducting one of the largest practices in the West of Scotland, he yet found time to devote several hours a day to work in this hospital, where he early introduced methods of treatment and investigation which have only recently become universal. With unabated enthusiasm Dr. Fraser visited the hospital as its consulting physician two days before his last illness and saw several patients. At the time of his death he was engaged in the preparation of a volume embodying his ripe experience of psychological work and bringing under review the theories of Freud and his school. In November last he went to winter in Kilmacoll to be near his old associations and to carry on research into the psychology of epilepsy at the Bridge of Weir Colony of Mercy, of which he was one of the medical directors. On giving up general practice about twenty-three years ago for reasons of health, he devoted more and more time to mental work, and in 1910 became a consultant in mental and nervous diseases in Glasgow. A serious illness stopped his work in Glasgow seven years ago and he retired to the country, but studying and writing still occupied much of his time. As a result he published a book on epilepsy based on clinical studies in epilepsy, which was reviewed in our columns on October 11th, 1924 (p. 671). It was his hope that it would serve in some measure to dissipate that professional pessimism as regards the cure of epilepsy which demoralizes both patient and doctor.

Dr. Fraser's status as a physician was early recognized by his election in 1875 to be a Fellow of the Royal Faculty of Physicians and Surgeons and by his appointment as examiner in medicine in the University of Glasgow. He

was elected to the staff of the Royal Alexandra Infirmary, Paisley, in 1885, and at his death was still attached to it in the capacity of honorary consulting physician. He maintained a truly remarkable alertness and freshness of mind in his later years, and the most recent lines of advancement and research always found in him a keen student and critic, especially in the department of psychological medicine; it is an attestation of his vigour and enthusiasm that he attended a post-graduate course on mental deficiency and crime at Birmingham at the age of 80. He was a member of the British Medical Association. As was natural to a man of such wonderful vitality and to whom life was so full of zest, Dr. Fraser had many interests outwith the realm of medicine. In every situation in which he found himself—in his house, in his garden, on his farm—his conversation was brilliant and enlivened from a retentive memory of men and matters; there are many to whom his name and the privilege of his friendship will remain a grateful memory. As a physician he was trusted and beloved by rich and poor alike, on whom he expended his sympathy and skill without distinction.

Dr. Fraser, who was predeceased fifteen years ago by his wife—a sister of the late Professor Joseph Coats—is survived by a family of five daughters, one of whom is Dr. Kate Fraser, Deputy Commissioner to the Board of Control for Scotland.

SIR STEWART STOCKMAN, M.R.C.V.S., Chief Veterinary Officer, Ministry of Agriculture.

We regret to announce the sudden death, at Glasgow, of Sir Stewart Stockman, the chief veterinary officer of the Ministry of Agriculture.

Sir Stewart Stockman was born at Edinburgh in 1869, and was educated at the Royal High School and the Royal (Dick) Veterinary College. He became a Member of the Royal Veterinary College in 1890, and shortly became professor of pathology and bacteriology in his old college. This appointment was held for a few years only, as he resigned to serve in the South African war. At the end of the war he was for a short time in India, but was then appointed principal veterinary officer in the Transvaal. In 1905 he became chief veterinary officer to the Ministry of Agriculture, an office which he occupied at his death. It was largely due to his administrative ability that this country remained free from some of the serious animal plagues prevalent abroad. In addition to controlling such purely animal diseases as swine fever and mange, his department had a share in the eradication of rabies from Britain, and, with the co-operation of the Royal Army Veterinary Corps, for the exclusion of glanders. His name is probably best known to the medical profession, however, in connexion with foot-and-mouth disease. He was mainly responsible for the execution of the drastic "slaughter" policy which this country adopted in order to stamp out the disease. In the execution of the onerous duties which this policy entailed he was unsparing of his own health, and he had only recently returned from the Argentine, where he had been investigating the methods of control practised there. He was a member of the committee recently appointed under the chairmanship of Sir William Leishman to investigate the disease.

Although Sir Stewart Stockman was primarily an administrator, his work was not confined to routine duties. He was director of the research laboratory of the Ministry of Agriculture at Weybridge, where, in addition to research work into the diseases of animals, a considerable amount of routine diagnostic work was carried on, and large quantities of serum and vaccines were produced. This laboratory is an integral part of the veterinary health service of this country, and made considerable demands on the time of its director. He was able, however, to assist in the production of the *Journal of Comparative Pathology and Therapeutics* and to edit a *Textbook of Meat Inspection*. He had long been a member of the Council of the Royal College of Veterinary Surgeons, which elected him president two years ago. He was president also of the National Veterinary Association.

Sir Stewart Stockman was a brother of Professor Ralph

Stockman of Glasgow University. He is survived by Lady Stockman, who is a daughter of Sir John McFadyen, and two daughters.

Dr. WALTER COURTENAY RIVERS, who died on April 23rd, aged 51, received his medical education at Charing Cross Hospital, where he was Roan exhibitor in 1892; he obtained the diplomas M.R.C.S., L.R.C.P. in 1898, and the D.P.H. of the Royal Colleges of Physicians and Surgeons in Ireland in 1903. Before the age of 20 he had developed pulmonary tuberculosis, which handicapped him severely for the remainder of his life. He held the appointments of house-surgeon at the Stamford, Rutland, and General Infirmary, senior clinical assistant at the Throat Hospital, Golden Square, resident medical officer to the Newcastle-on-Tyne Sanatorium at Barrasford, and assistant tuberculosis medical officer for the Barnsley district. He had also held a commission for some time in the Royal Army Medical Corps. His literary interests were varied, and he published articles on tuberculosis and sex psychology in particular; he had a strong bent for journalism and wrote on a great variety of subjects, with a critical attitude, which at times became caustic. In recent years he had contributed occasional paragraphs to our *Epitome of Current Medical Literature*. His last book, entitled *Through a Consulting Room Window*, was reviewed in the *BRITISH MEDICAL JOURNAL* of April 10th (p. 661). Dr. Rivers was one of the founders of the Yorkshire branch of the Tuberculosis Society; he took a keen interest in politics and social problems.

We regret to announce the death of Dr. HENRY SIMPSON of Brenchley, Kent, on May 30th, as the result of a motor accident two months earlier. He was born at Market Weighton, Yorkshire, sixty years ago, and received his medical education at Cambridge and St. Thomas's Hospital. He was a scholar of St. John's College, Cambridge, gained a first class in the Natural Sciences Tripos, took the diplomas of M.R.C.S., L.R.C.P. in 1891, and graduated M.B., B.Ch. in 1892. After holding the appointments of assistant house-surgeon and clinical assistant in the ear department of St. Thomas's Hospital, he practised for a time in Yorkshire, and then, after spending some years as a ship surgeon, settled in Brenchley, where he practised for some twenty-five years. He was an active member of the British Medical Association, and at the time of his death was chairman of the Tunbridge Wells Division. During the time he spent at Brenchley he had built up a large practice and was deservedly successful, for he was a sympathetic doctor, a hard worker, a man who read largely in professional subjects, and gave much anxious thought and care to his patients. The result of all this was that he was very popular and greatly trusted by all, and his untimely end was a cause of sorrow to the whole district, as was well shown by the large attendance of mourners at the funeral. He leaves a widow, one son, and two daughters. In his life we have another instance of an able man who was content to settle down single-handed in a country practice and keep up the traditions of his profession by hard work and devotion to duty.

The Services.

I.M.S. DINNER.

The annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant on Wednesday, June 16th, Lieut.-Colonel R. H. Elliot in the chair. Tickets and all particulars may be obtained from the joint honorary secretary, Colonel J. J. Pratt, I.M.S. (ret.), 18, Nevean Mansions, Warwick Road, London, S.W.5.

TERRITORIAL ARMY AMBULANCE CHALLENGE SHIELD.

The annual competition for the Territorial Army Ambulance Challenge Shield will take place at the Duke of York's Headquarters, Chelsea, on Saturday, June 26th, at 2 p.m. The competition is open to squads of Territorial Army medical units and of recognized stretcher bearers borne on the establishment of other units of the Territorial Army. The following units will compete: 128 (W. Yorks.) Field Ambulance; 131st (Home Counties) Field Ambulance; 132nd (Essex) Field Ambulance (holders); 152nd (Highland) Field Ambulance; 164th (West Lancs) Field Ambulance; 16th (City of London) Field Ambulance; 170th (Cavalry) Field Ambulance; and 2nd (London) Casualty Clearing Station.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons resumed on June 1st after the Whitsuntide Recess.

The House of Commons has this week been four days in Committee on the Finance Bill, and discussions have arisen on the medicine stamp duties, optical glass duties, and motor duties. The Parliamentary Medical Committee met on June 9th. At a meeting of the Unionist Health and Housing Committee at the House of Commons on June 8th, Dr. Fremantle in the chair, Lord Newton spoke on the Smoke Abatement Bill, claiming that it was a distinct advance on the present law, which was fifty years old. He said the English were a clean people, but their country was the dirtiest in Europe, and this grime engendered social discontent. At present the country was only clean during coal stoppages and on Bank Holidays. Dr. Vernon Davies, speaking of smoke in the cotton industry in Lancashire, said that in one town where new methods of stoking, said to abate smoke, were introduced from Chicago, the fuel consumption of the mills increased by 13 per cent. Other speakers questioned this figure. Sheffield members denied that the bad reputation of that city for smoke was deserved.

Lead Paint Poisoning Bill.

Sir William Joynson-Hicks moved, in the House of Commons on June 4th, the second reading of the Lead Paint (Protection against Poisoning) Bill. While total prohibition of lead paint would be the most complete means of prevention, there was a great demand for lead paint, and employers who used it said the substitutes were not in all cases satisfactory, though the use of substitutes was increasing. Consequently the bill proposed regulation, not prohibition. The regulations had been agreed upon between employers and employed. They would enable substitutes to be used, and would reduce the possibility of poisoning by lead paint. Mr. Rhys Davies said the Joint Industrial Council of the painters and decorators had declared that it could not support any bill which gave less protection to persons employed in painting than the Convention adopted at Geneva provided. Cases of white lead poisoning were increasing in this country (in 1919, 207; in 1922, 246; in 1923, 337; and in 1924, 486). How could the Home Secretary enforce regulations on wet rubbing down, the use of overalls, the cleaning of finger-nails, when 70,000 painters and decorators were distributed among 20,000 houses? The Home Secretary replied that he was going to ask for more factory inspectors. Mr. Harney said that white lead represented 20 per cent. of the lead output of the world, and 90 per cent. of white lead was converted into paint. The danger was in the dust of lead. In factories the dust, disease, and death were appalling at one time, but regulations were applied, and there was now no extraordinary danger in working in lead factories. Lord Henry Bentinck said the regulations would be useless to check the spread of disease. Wet rubbing down of paint was a fraud as a safeguard. Mr. Clayton hoped the regulations would insist that the working overalls of painters were not to be taken to their homes. In chemical works the men's overalls were washed on the premises. Mr. Viant said that paragraph (d) of the regulations under the bill was to provide for the medical examination of persons employed in painting with white lead. Who was to maintain the painter and his family when he could not get a clean bill of health? He did not think the Workmen's Compensation Act provided for this. Mr. West Russell said that Sir Thomas Oliver, a physician who had done so much to bring before the country the dangers of lead paint, had declared that before prohibiting white lead in paint the regulations should be given a longer trial and fresh investigation made. Captain Hacking (Under Secretary for Home Affairs) said that if a workman was suspended from employment on the ground that he was suffering from lead poisoning he would be entitled to compensation under the Workmen's Compensation Act, but where suspended as a precautionary measure would not be entitled to compensation.

The House read the bill a second time by 131 to 56.

Midwives and Maternity Homes.

On June 8th the House of Lords considered the Midwives and Maternity Homes Bill in committee. (The bill was read a third time in the House of Commons on April 27th; see *JOURNAL*, May 1st, p. 810.)

Part I amends the Midwives Acts, 1902 and 1918. Clause 1 provides that if any person, of either sex, not certified under the bill, attends a woman in childbirth otherwise than under the direction and personal supervision of a duly qualified medical practitioner, he or she shall, unless the court is satisfied that the attention was given in a case of sudden or urgent necessity, be liable on summary conviction to a fine not exceeding £10.

Lord Stanmore moved an amendment to provide that this should not apply in the case of a person who, while undergoing training with a view to becoming a duly qualified medical practitioner or a certified midwife, attended a woman in childbirth as part of a course of practical instruction in midwifery. It was possible that, in the future, the courts might hold that the words "personal supervision" implied the actual presence of the qualified medical officer. If that were to be the case the present system of midwifery training would become unworkable. It was very unusual, where a student had to deal with an emergency case, that the delay of an hour or so before a qualified practitioner came had any bad effect on the patient. The student, having had training, was in a position to give general treatment. No authority on obstetrics would consider it necessary that a student should be accompanied by a medical man in all the cases that he had to attend. On the contrary, he could not learn his work properly without having responsibility during his period of training. The case of the pupil midwife was very similar to that of the student. Training was carried out under the superintendence of experienced midwives who were recognized by the Central Midwives Board. It was not only undesirable that they should be subjected to the personal supervision of a medical man in all these cases, but if that supervision was insisted on it might have the effect of greatly reducing the number of midwives.

Viscount Knutsford, in supporting the amendment, said that only the other day all the medical schools in London met and proposed that an amendment should be moved to the bill very similar to that of Lord Stanmore's. The amendment might be accepted with the certainty that the women who were being treated would be properly attended to, and that the pupils or students would be properly taught. He thought the word "training" in the amendment should be strengthened by the substitution of the words "training recognized by the General Medical Council or the Central Midwives Board."

The Marquess of Salisbury said it was quite true that since this bill was read a second time very strong representations had been made to the Ministry of Health and the Government in regard to this particular point. It had been represented to them that if the clause passed in its present form it would lead to considerable difficulty in the training both of medical students and pupil midwives, and would really constitute a great disadvantage to the public interest. On the other hand, the women concerned must be adequately protected. Lord Stanmore had sought to steer a middle course between two extremes, and had on the whole succeeded. As regarded the words suggested by Lord Knutsford, it might be considered between now and the report stage whether they were necessary. He thought Lord Stanmore's amendment was required; there was no desire to interfere with the medical schools; that was a matter of national importance. It was a tremendous charity which these women were receiving, because they were attended by the medical students and pupil midwives for nothing. He understood that no medical student would be allowed to act on these cases except towards the end of his training. In other words, the medical student was almost a qualified doctor before he was allowed to attend midwifery cases. The pupil midwife was not allowed to attend them except in the presence of a trained midwife, who showed her how to do her work. Adequate care was therefore taken.

Lord Dawson of Penn said that the remarks of Lord Salisbury as to whether the public were adequately protected in the course of medical education was of considerable public interest. It was very important that the public should be reassured on that point. The public were adequately protected. To begin with the medical student when he started his training had been through several years of preliminary education. He had been trained in the basic sciences on which medicine was built. That was one advantage he had over the midwife. Before he was sent out to practise midwifery he was put through a course of education in the hospital where he was given actual instruction in maternity cases. Having got so far it was very important to send the student out so that he could learn to be self-reliant. One of the most delicate questions in regard to medical education was as to the right moment when the medical student should be sent out to cases alone, with the right sort of advice in the background. But when he did go out he went with the full knowledge that if the case to which he went was abnormal or any difficulty presented itself he could immediately send for a highly skilled person. It was far better that a medical student should be trained in the habit of self-reliance during his period of education than that he should postpone it until he went into practice and had no one behind him. In actual practice the system worked extremely well. The service was very popular. The patients themselves were attached to the students largely because they found themselves coming into contact with the innate friendliness which seemed to be part of the make-up of the British medical student. The students, on the other hand, found how closely allied were the human and scientific sides of their art. Altogether it was an excellent arrangement, not only in regard to the training in medicine, but also the training in the management of people. The patients got very fond of the students, and the latter generally ended their week on duty with larger hearts but certainly with emptier pockets. He had been through this training himself. Before now he had washed a baby and baptized a baby, how efficiently he did not know, but he rather thought he found the baptism more easy than the washing. (Laughter.) He thought that the machinery of medical education and the public interest would both be damaged if some sort of amendment as that proposed by Lord Stanmore was not inserted in the bill.

The amendment was agreed to, and Clause 1 as amended was added to the bill.

Lord Strachie moved to leave out Subsection (1) of Clause 2, which provides that where a midwife has been suspended from

practice in order to prevent the spread of infection she shall, if she was not herself in default, be entitled to recover from the local supervising authority such amount by way of compensation as is reasonable in the circumstances of the case. The amendment was moved, he said, at the request of the County Councils Association, but so far as was known no injustice had ever been done. Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health) had defended the clause because he said that one or two authorities in the past had not acted fairly to the midwives who were suspended; he did not say what authorities, nor did he describe the circumstances of the particular cases. If there were only one or two cases this clause was not necessary.

The Marquess of Salisbury said it was vital to remember that if there was the least temptation on the part of those concerned to conceal possible contact with infection, grave risks would be run. Although he was a very great advocate of local government independence, the Government was more concerned with the safety of the patients and was very anxious to go the whole length it could in order to protect them. Lord Strachie had truly said that the great body of county councils would act with due regard to the interests of the patients and in a proper public spirit in matters of this kind. The Government wished to reassure the midwives themselves, to make them certain that they would get compensation. For that reason the Government desired to go to the extreme length that it could, and he hoped the amendment would not be pressed.

Lord Strachie thereupon withdrew the amendment.

In Part III of the bill, Clause 11, in which the expressions used are interpreted, the term "maternity home" is defined as not to include "any hospital or other premises for the conduct of which a duly qualified medical practitioner resident therein is responsible."

The Archbishop of Canterbury moved an amendment providing that there should be lodged with the local supervising authority a certificate signed by two duly qualified medical practitioners, practising or residing in the county, not being in partnership with the first-mentioned practitioner or each other, and having no financial or other interest in the home, to the effect that the premises and their equipment were in all respects suitable for the purpose, and that the medical practitioner carrying on, or proposing to carry on, such a hospital was a fit and proper person. The provision in the clause, as it stood, practically said that any man who had attained due qualification in medical work was to be exempted from inspection if he opened a home for the purposes referred to in the bill. He yielded to no one in his whole-hearted admiration for the medical profession. No profession in the world stood higher in regard to the character of its members, and in regard to their public spirit and desire in all cases—and their qualification in almost all cases—to act in the public interest and to do what was right. But even in that great profession there might here and there be a man who, while possessing the technical qualifications, could not be regarded as altogether relieved from the possible suspicion of having other motives in what he might be endeavouring to do. In order to protect the homes, the medical men, and the public, there ought to be some modification of the complete exemption which was offered to a man who might be opening a home dealing with this delicate and difficult matter, entirely on his own responsibility. He had taken the wording of the proposed safeguard from the General Purposes Act of the London County Council (which body had the same matter to deal with), which laid down the restrictions in its case. Lord Banbury supported the amendment. There should be some safeguard to prevent a person starting a home of this sort merely in order to make money out of it. He was not quite certain that all these nursing homes were what they should be.

The Marquess of Salisbury said that there was no difference of opinion between the Government and the Archbishop of Canterbury as to the absolute necessity of some such limitation of the clause. Undoubtedly what Lord Banbury had said was true, that there were a certain number of maternity homes which were anything but admirable places—in fact, very disreputable. The only real question was what form the amendment should take. There was a good deal to be said for the Archbishop's proposal, but the method of trying to effect a safeguard by a definition and by a certificate of other medical practitioners was not wholly satisfactory. The suggestion, of the medical profession who would be guilty of conducting a maternity home of this kind. The number might be very small out of all the medical men in the country, but it would certainly not be impossible for one black sheep to find two other black sheep, and that was really the only protection which the Archbishop's proposal gave; no doubt they must not be technically in partnership with the medical practitioner himself; but there were all sorts of indirect methods by which evasion could be carried out. The Government therefore thought the object in view would be better achieved by a safeguard of a different kind. Instead of trying to fortify one medical practitioner by two others, it was suggested that it should be made a matter of discretion by the supervising authority. The Government proposed that the supervising authority should have absolute discretion in that way, through having local knowledge, be able to protect the public and the women concerned. Only those would be exempted from the provisions of Part II of the bill who got an exemption from the local supervising authority, leaving it open to the authority to refuse an exemption when it thought fit. That would be the only really efficient safeguard. It might be said that to leave the discretion wholly in the hands of the supervising authority was going too far. The Government agreed with that view, and was providing an appeal in order to prevent any possible injustice following upon this amendment.

Viscount Haldane said that on the whole he preferred the Government amendment, and he thought the House should adopt it.

Lord Merrivale said that the proposal of Lord Salisbury was much more stringent than that of the Archbishop of Canterbury. He supposed that the local supervising authority would not see fit to exempt anyone from the operation of the general law unless it were satisfied that he ought to be so exempted.

The Archbishop of Canterbury said that after what had been said he would withdraw his amendment, provided that he might bring it up again on the report stage if he found it to be necessary.

The Archbishop of Canterbury's amendment was, by leave, withdrawn.

Amendments to Clause 11 were moved by Lord Salisbury providing (1) that any hospital or other premises for the conduct of which a duly qualified medical practitioner resident therein was responsible might be exempted from the provisions of Part II of the Act by the local supervising authority; and (2) that any person who was aggrieved by the refusal of such authority to grant exemption, or by the withdrawal of exemption, might appeal to the Minister of Health, who might give such directions to the local authority as he thought proper.

Viscount Knutsford said that if the bill passed in its present form any hospital or other premises maintained or controlled by a Government department or local authority or by any other body of persons constituted by special Act of Parliament, or incorporated by Royal Charter, would be exempted from registration. Hospitals under a Government department or a local authority needed inspection rather more than others. He once saw a Poor Law infirmary in Great Britain where there were 800 patients, 200 of whom were very seriously ill indeed. There was a resident medical officer who was responsible for the management, and therefore the hospital would be exempted from this Act. There was a filthy syphilis ward, and only one medical officer, who had to do all the *post-mortem* examinations and attend the delivery of women. She was a girl, 26 years of age, holding her first appointment. When he exposed this case he was called a liar. The city fathers denied that such a thing ever existed, but he was glad to say that they had to admit it in the end and the conditions were altered. That was an instance where inspection by the supervising authority would have done infinite good. So far as the voluntary hospitals were concerned, the more they were inspected the more those who were responsible for them would be pleased. He hoped the Government would agree to take out the provision exempting these institutions from registration and inspection.

The Marquess of Salisbury said that Lord Knutsford would like to see all hospitals brought within the restrictive provisions of the bill. That was a view which, coming from him, was bound to be treated with very great respect, but his (Lord Salisbury's) impression was that the great body of hospitals did not quite share the noble lord's opinion. What the Government had to consider was how far it could carry exemption safely, and the clause, together with the amendments, had been drawn so as to cover the ground as well as possible.

Lord Salisbury's amendments were agreed to and Clause 11 was added to the bill.

The bill passed through Committee and was reported to the House.

Foot-and-Mouth Disease.

In answer to General Clifton Brown and other members, on June 3rd, Mr. Guinness (Minister of Agriculture) said that thirteen cases of foot-and-mouth disease, recently confirmed in South-West Scotland and Cumberland, had occurred in or were attributed to imported carcasses of pigs. Steps had been taken for disinfection of persons who had handled these carcasses, of the bacon factories, of railway and other vehicles which had been in contact with them, and, where practicable, of the ships in which they had been conveyed. An Order had been issued prohibiting the landing of any part of a carcass of cattle, sheep, pigs, or goats from the continent of Europe except fully-cured bacon and ham, lard, other cooked or preserved meat, and treated hides. Carcasses could be highly infective, though no definite lesions could be detected. Therefore inspection of carcasses, either before shipment or on arrival, would not protect against the risk of introducing the disease to this country. The new regulations would be maintained till they could be relaxed without danger to the British farmer. The Government's technical advisers were satisfied beyond a shadow of doubt that recent outbreaks at Carlisle and at Newcastle-on-Tyne were due to imported carcasses of pigs. The use of hay and straw from the Continent as fodder or litter for animals was prohibited. When used as packing material it must be kept from contact with animals and destroyed when no longer required for that purpose. There was no definite evidence of other vegetable products having caused outbreaks of foot-and-mouth disease in this country, and he did not propose to prohibit the importation of any such products. There was much greater danger from the direct infectivity of a diseased carcass than from the purely secondary infectivity of vegetable matter which could only be a mechanical carrier.

In the House of Lords on the same day Lord Strachie congratulated the Ministry of Agriculture on having forbidden the importation of swine, and said the general belief among farmers was that the disease was introduced not only by swine but by skins, through hay and straw, and through vegetables which were largely used in feeding animals. It was significant that there had been no outbreak during the war. Lord Bledisloe (Parliamentary Secretary for Agriculture) prefaced his reply with an expression of regret for the death of Sir Stewart Stockman (Chief Veterinary Officer of the Ministry of Agriculture) and of Sir William

Leishman (Chairman of the Foot-and-Mouth Disease Research Committee). Lord Bledisloe said that in the Carlisle outbreak the probability was that the germs of the disease were contained in washings from a bacon factory which were carried to a sewage farm and that cattle on that farm took the disease through grazing on tainted grass. The incubation period of the disease was considerable, and it was more easily communicable when incubating than when the lesions were to be found on the imported animals. A question had arisen on the importation of meat and of meat offals from the Argentine, but meat offals from that country were so treated as to make them innocuous so far as foot-and-mouth disease was concerned. The whole matter was being examined most meticulously by the Ministry of Agriculture. Lord Haldane said Sir William Leishman had rendered immense service to the army by his researches. Though head of the committee on foot-and-mouth disease, Sir William had not been able to give his whole time to that research. He had been appointed by the late Government when an announcement had just been made that in Germany the bacillus of the disease had been identified. Lord Haldane remarked that they now required as chairman of the committee someone who could give his whole time. If possible the first bacteriologist in the country should take the chair. It was no use appointing an administrator. He was not at all sure that the germ had really been identified, but if it could be and if the proper antitoxin could be discovered, it would be possible to treat infected animals. It would then be possible also to treat articles in such a way that there would be no chance of the disease spreading. Answering the Earl of Stair, Lord Bledisloe said that last year and in the early part of this year an unprecedented number of young pigs had been imported into this country from Holland and Belgium to be consumed as fresh meat.

The Bethlem Hospital Bill.

The Bethlem Hospital Bill, which has already passed the House of Lords, was read a second time in the House of Commons on May 19th. The House ordered that it be an instruction to the Committee on the bill that it have power to insert therein such provisions as may be necessary for the purpose of confirming the agreement entered into between the governors of the hospital and Viscount Rothermere with respect to Bethlem Hospital and for the vesting of the hospital site or part thereof in the London County Council as an open space.

Stamp Duties on Secret Remedies.

On June 7th the House of Commons began the consideration of the Finance Bill in Committee, Mr. James Hope being in the chair. Clause 2 enacts that the additional excise duties imposed by the Finance Act (No. 2), 1915, on medicines liable to duty shall continue to be charged until August 1st, 1927.

Captain W. Benn asked the Financial Secretary of the Treasury to look into this clause, which dealt with matters going back to the seventeenth century. It would be much simpler, from the point of view of the taxpayer, if the Treasury would produce a clause showing what would be levied, instead of referring in the clause to another Act, and then, by that, to another Act; and so on back nearly to 1600.

Mr. McNeill (Financial Secretary to the Treasury) said that when Captain Benn raised this matter last year his predecessor gave an undertaking that it would be considered before the introduction of the present Finance Bill, with a view to a codification of the various old statutes. After consideration it had been decided that codification by itself would be useless. What was needed was a drastic revision of the statutes. That, however, had not been possible before the introduction of the present Finance Bill, but it was intended in the near future to appoint an inter-departmental committee to consider exactly what ought to be done in order to get rid of the superfluity of old and obsolete statutes dealing with particular specifics. There was one particular specific in the schedule called the "elixir of longevity," which had remained in the schedule to the statute of 1812. He understood that the elixir was no longer efficacious, and that showed that mere codification would not meet the case. He hoped that before this time next year something would have been done to remedy the present state of things in this respect.

The clause was carried.

General Medical Council.—On June 7th Mr. Forrest asked the Vice-Chamberlain of the Household, as representing the Lord President of the Council, whether the Crown nominee on the General Medical Council would make any annual report to the Government on its proceedings; and whether, in that case, the document would be published. Major Hennessy (the Vice-Chamberlain) in reply said the hon. member appeared to be under some misapprehension. The meetings of the General Medical Council were open to the public and were reported in the daily press and professional journals. The official minutes of the proceedings were published and were supplied to the Privy Council, and were also available to the public. Mr. Hore-Belisha asked whether Mr. Hilton Young would answer questions in the House of Commons concerning the General Medical Council. Major Hennessy replied that he could not answer that without notice.

Medical Inspection of Emigrants.—On June 7th Sir Burton Chadwick told Mr. Day that he was not aware of any complaint regarding the present method of examination of emigrants on board ship. If the hon. member had any suggestions to make, however, he would see that they were considered.

Notes in Brief.

The Royal Commission on Lunacy hopes to present its report before the end of next month.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on June 5th the following medical degrees were conferred:

M.B., B.Chir.—S. M. Milner, D. Aserman.
M.B.—R. F. Guymer.

UNIVERSITY OF LONDON.

THE following have been appointed teachers of the University in the subjects and at the institutions indicated:

University College.—Mr. Max E. Delafield (hygiene and public health), Mr. F. R. Winton (pharmacology).
London School of Hygiene and Tropical Medicine.—Mr. J. T. Duncan (bacteriology).

Sir Cooper Perry, M.D., F.R.C.P., has been elected chairman of the Architectural Committee for 1926-27.

Applications for grants from the Thomas Smythe Hughes Medical Research Fund, allocated for assisting medical research, must be received not later than June 15th. Further particulars can be obtained on application to the Academic Registrar.

The following candidates have been approved at the examinations indicated:

THIRD M.B., B.S.—"Kath"
*A. Byrne-Quinn, *J. J. Low, *Mary C. Luff, *J. H. Simmons, *Jean Walker (University me E. C. Archer, E. Bacon, R. T. Bannister, J. M. Barnard, C. E. Beare, H. C. Beccle, J. G. Y. Bell, J. S. Benzecry, S. Berman, F. A. Bevan, O. P. Bowers, Margery G. Blackie, J. R. Blazé, Anna M. V. Bonhote, H. C. Boyde, Lucy J. Burnett, Olive K. Burnett, L. W. Cann, Elizabeth J. Carpenter, W. S. Chapman, F. W. Charman, Euid Clarke, Violet H. Comber, L. N. R. Comby, Victoria M. Crosse, Evelyn J. Curtis, P. E. J. Cutting, Gweneth M. Daniel, D. J. Davies, T. D. Deighton, M. De Lacey, Alma Downes-Shaw, G. E. Ellis, H. G. Escourt, W. G. Evans, Charles S. Eyre, Rachel D. Fox, D. B. Fraser, E. R. Garrett, Winifred M. Gibson, J. F. E. Gilliam, Edith L. Gould, Agnes H. S. Gray, F. H. K. Green, C. S. Hallpike, Helen M. Harris, Lella M. Hawkeye, T. R. Hill, Katherine M. Hirst, Janet K. Holgate, Ruth T. Hurnard, K. M. N. Isaacs, A. D. W. Jones, R. H. Knight, G. L. S. Kohnstam, Leesmith, S. Lerner, L. O. Lindsay, M. Lyons, D. C. McIntosh, J. H.

N. Moulson, Margaret I. Neal, Gr Olive, J. O. Oliver, J. Parrish, H. L. Peake, J. Pearce, N. R. Pooler, Dorothy E. Pratt, L. Reuvig, G. H. Roberts, Victoria A. Roberts,

Josephine I. Terry, B. M. Tracey, H. Treissman, Kathleen C. Vost, L. B. Ward, Hilda M. Weber, Janet Welch, H. V. Wells, W. S. Whimster, Dahlia Whitbourne, Gwendolen I. Wilkins, Katharine G. L. Williams, Ada R. Winter, Dorothy E. Wright, J. C. Young.

* Honours. † Distinguished in Medicine.
‡ Distinguished in Surgery. § Distinguished in Pathology.
¶ Distinguished in Midwifery.

Group I.—Florence A. Adam, S. C. Bakke, Kathleen Blake, J. W. Bottoms, Edith D. Boyd, Alison M. Clark, F. J. T. Foeander, Dora J. Fox, Elsa G. A. Fristedt, B. M. C. Gilson, Minnie Gosden, C. H. Hampshire, Catherine M. Hext, D. P. Holmes, M. R. Jones, M. C. Levin, S. Levy, N. W. Mackeith, Evelyn T. D. MacLagan, Evelyn M. Pakeman, W. E. Parry, G. E. G. Pelrose, Agnes M. Ramsbotham, J. W. Schabert, E. F. Stead, Edith A. Straker, Sylvia Sworn, F. W. Ta'Bois, Edith M. Webb, H. F. Wilson. Group II.—J. R. Beagley, W. R. V. Bonner-Morgan, Rose A. Carter, Evangeline A. Clark, A. C. Counsell, B. R. Crossley, Muriel Davies, J. O. G. Dickinson, J. D. Durand, D. C. Fairbairn, O. F. Farnoud, M. Fishman, S. O. Gawne, S. A. Grant, J. I. Griffiths, F. D. M. Hocking, D. E. Huskisson, F. H. K. Knight, Elsie Lyon, Margaret B. MacDonald, L. J. McGregor, I. McPherson, Mary A. Marshall, G. A. Martin, Grace E. Mizen, G. A. H. Norman, B. Phillips, H. J. Powell, Muriel A. Pugh, J. E. C. Rouse, D. J. L. Routh, L. H. Savia, S. T. Seccombe, W. D. Sheldrake, Mary Stirk, S. V. Strong, O. G. Tippet, J. R. Tree, Elizabeth M. Whishaw, J. T. Wybourn.

DIPLOMA IN PSYCHOLOGICAL MEDICINE (with Special Knowledge of Psychiatry).—D. E. Cameron, E. C. T. Emerson, C. O. Perera, J. S. I. Skottowe, R. Thompson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Subjects of Prizes.

THE subject for the Jacksonian Prize for 1926 is "The pathology, diagnosis, and treatment of abscess of the brain," and for 1927 "The pathology, diagnosis, and treatment of bronchiectasis and abscess of the lung." Dissertations for the prize for 1926 must be delivered at the College by 4 p.m. on Friday, December 31st, 1926, and for the 1927 prize by 1 p.m. on Saturday, December 31st, 1927.

The next award for the Cartwright Prize will be for the five years ending December 31st, 1930. The prize, which consists of a medal executed in bronze and an honorarium of £35, will be awarded to the author of the best essay written in English on "The etiology, pathology, and treatment of chronic general periodontitis (pyorrhoea alveolaris)." It is open to persons engaged in the study or practice of dental surgery and possessing the qualifications capable of registration under the Medical Acts of the United Kingdom. Essays must be received by the Secretary of the College not later than 4 p.m. on December 31st, 1930.

Further particulars can be obtained on application to the Secretary of the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C.2.

Medical News.

PROFESSOR JOHANNES FIBIGER of Copenhagen, in recognition of his eminent services to cancer research, was entertained by the medical staff of the Cancer Hospital, London, to dinner at the Langham Hotel, on Monday last. The chair was taken by Mr. Ernest Miles, F.R.C.S., senior surgeon to the hospital. Among those present were Lord Dawson of Penn, Sir Humphry Rolleston, Sir John Bland-Sutton, Sir Frederick Andrewes, Sir Walter Fletcher, Professor Muir of Glasgow, Dr. H. H. Dale, Professor Bulloch, and Professor Dean of Cambridge.

THE last of the series of lectures on pathological research in its relation to medicine arranged for the summer session by the Institute of Pathology and Research, St. Mary's Hospital, Paddington, W.2, will be given by Mr. J. E. Barnard, F.R.S., on Thursday, June 17th, at 5 p.m., the subject being the microscopy of filterable viruses. The lecture is open to medical practitioners and to all students in medical schools without fee.

AMONG the provisions of the Criminal Justice Act, 1925, which came into force on June 1st, are those extending to twelve months the period within which prosecutions for giving false information for insertion in the birth or death register may be undertaken, and increasing the maximum penalty on summary conviction of such offences from £10 to £50. The Registrar-General considers it important to secure a full public appreciation of the seriousness of such offences and the grave and far-reaching consequences which they may involve.

THE inaugural meeting of the Welsh Branch of the Central Committee for the Care of Cripples will be held at Carnegie House, 117, Piccadilly, London, on Thursday, July 1st. Lord Kenyon, Pro-Chancellor of the University of Wales, will take the chair at 5.30 p.m., and Sir Robert Jones, Bt., will deliver an address on the solution of the problem of crippleddom in Wales by means of a national organization. On the following morning a visit will be paid to the Heritage Craft Schools, Chalfey, Sussex, when Mrs. Kimmias will explain the scheme in operation there. Dr. Llewellyn Williams and the Honorary Secretary, Sir John Lynn-Thomas, K.B.E., F.R.C.S., will meet the delegates at 9 a.m. on July 2nd, at 117, Piccadilly, when charabancs will be waiting to carry them to Chalfey.

THE sanatorium erected at the Bermondsey Tuberculosis Dispensary will be opened by the Mayor of Bermondsey to-day (Saturday, June 12th), at 3 p.m., when Professor Leonard Hill, F.R.S., will give an address on sunlight and open air.

THE Fellowship of Medicine has arranged two clinical demonstrations on Wednesday, June 16th. Mr. Greeves will give a demonstration in ophthalmology at the Royal London Ophthalmic Hospital, City Road, E.C., at noon, and at 2 p.m. Mr. Sidney Boyd will give a surgical demonstration at the Hampstead General Hospital, Haverstock Hill, N.W. From July 5th to 17th the National Hospital for Diseases of the Heart will hold an intensive course. Beginning on the same date there will be an afternoon course at the Hospital for Diseases of the Skin, Blackfriars. Instruction will be given in the out-patient department, and venereal clinics will be held twice a week. The City of London Maternity Hospital hopes to begin a week's special course in obstetrics on July 5th. There will be a fortnight's special course of demonstrations, at 3 p.m., at the Royal Eye Hospital from July 12th to 24th. There will be an intensive course at the Prince of Wales's General Hospital, Tottenham, N., from July 19th to 31st, in medicine, surgery, and the specialties. Clinics will be held throughout the day in the various departments of the hospital and there will also be demonstrations on fevers and mental diseases. From July 19th to August 14th the West End Hospital for Nervous Diseases will hold a late afternoon course (5 o'clock) in neurology. Copies of all syllabuses and of the general course programme may be had on application to the Secretary of the Fellowship of Medicine, who will also supply copies of the *Post-Graduate Medical Journal*.

THE University of London Club, founded in 1914 for members of the University, has recently been reconstructed, and holders of certain diplomas granted by the University of London and its colleges, graduates of other universities, and holders of certain professional qualifications will in future be eligible. The chairman and committee will give an At Home on June 22nd, at 8.30 p.m., to meet the Chancellor of the University and members of the Senate. The Club House is at 21, Gower Street, W.C.1.

THE Public Health Department of the Essex County Council has issued invitations to a meeting at River Plate House, 7, Finsbury Circus, London, E.C., at 3 p.m., on Friday, June 18th, to hear an address by Sir Robert Jones, K.B.E., F.R.C.S., on the cripple problem.

THE coming-of-age of the University of Sheffield will be celebrated on July 1st and 2nd, when the Chancellor, the Marquess of Crewe, K.G., will unveil the University war memorial, and a number of honorary degrees will be conferred.

AT a meeting of the Society of Antiquaries of London on June 3rd Drs. T. A. Bowes, J. D. Rolleston, and R. A. Young were elected Fellows.

A MEETING of the Biochemical Society will be held in the Wellcome Physiological Laboratories, Langley Court, Beckenham, to-day (Saturday, June 12th). The various departments of the laboratories and the stables and grounds will be visited from 11.45 a.m. to 1.30 p.m. Papers will be read during the afternoon, beginning at 2.30.

THE prizes at the London Hospital Medical College and Dental School will be distributed in the College Library on Monday, June 28th, at 3 p.m., by Mr. Neville Chamberlain, Minister of Health.

PRIZES and certificates won by the students of the London School of Medicine for Women will be distributed by Sir John Ferguson, K.B.E., on Friday, June 25th, at 3.30 p.m. Lady Barrett, C.B.E., M.D., M.S., dean of the school, will be in the chair.

DR. NORMAN TATTERSALL, who has been for the past fourteen years tuberculosis physician for the Mid-Glamorgan area of the Welsh National Memorial Association, has been appointed tuberculosis officer to the city of Leeds. On May 22nd, at Bridgend, Glamorgan, he was the guest of a number of his medical friends at a dinner at which a bureau and an illuminated address were presented to him.

THE Wellcome Historical Medical Museum, 54a, Wigmore Street, W.1, was partially reopened on June 1st. It can be visited by members of the medical profession, chemists, pharmacists, nurses, and research workers generally from 9 a.m. to 6 p.m. on week-days, except Saturdays, when it is closed at 1 p.m.

THE reports received by the Colonial Office on the recent outbreak of sleeping sickness in the Ulupa district of Tanganyika show that an area of 10,000 square miles was involved. Its population, however, is sparse, averaging only about one per square mile; 3,000 natives were removed to fly-free areas; approximately 300 cases of the sickness were found, and 90 deaths were ascribed to it. Treatment by "Bayer 205" and trypanamide proved effective. Although the infection is widely spread, it has not attained epidemic proportions. The total number of deaths among natives recorded in 1925 was 161. No European died. A distinct branch of the medical department of the Government is being organized to deal with sleeping sickness, and during the past year six medical men have been exclusively employed on such investigations.

A NEW Order (1926, No. 535/S.24), dealing with factories and workshops in Scotland in which herring curing is carried on, came into force on June 1st, and contains regulations for the provision of adequate washing and first-aid accommodation. The circular containing details of this Order may be obtained from H.M. Stationery Office, price 1d. net.

FOR those who wish to take a holiday abroad various new opportunities are offered. Thus the Italian State Tourist Department, 12, Waterloo Place, S.W., is organizing a trip for British doctors to Italian health resorts, details of which were given in the *BRITISH MEDICAL JOURNAL* of April 17th (p. 728). A correspondent, who writes to us from Cortina d'Ampezzo in the Dolomites, praises highly the bathing equipment, the comfort, and the beauty of the surrounding scenery, at Meran, one of the resorts included in the tour. He mentions also the mud baths of Badgastein. Those who suffer from skin disease and a spirit of adventure may try the sulphur springs of Pasvalls in North Lithuania. It is said that the use of these baths was greatly interfered with during the war, because the German occupants would not allow patients to travel freely to the spot! But the baths were reopened in 1922, and the equipment is being improved. Finally, the P.L.M. railway has arranged a motor "Tour du Mont Blanc," which begins on July 10th. Starting from Chamonix, and passing through the Petit St. Bernard, Courmayeur, and the Great St. Bernard, the tourist can circle completely round Mont Blanc, through France, Italy, and Switzerland, in two days.

DR. SERGE VORONOFF of Paris has offered a prize of 10,000 francs and a consolation prize of 5,000 francs for the best work on excessive and deficient action of the endocrine glands. Candidates must be members of a Latin race and possess a "Latin mentality."

THE Belgian National League for Combating Tuberculosis recently celebrated the twenty-sixth anniversary of its foundation under the presidency of Dr. Dewey, who has held office for twenty-five years.

AN international congress for combating the improper use of narcotics will be held at Philadelphia from July 5th to 10th.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring **REPRINTS** of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, Mcdisceca Westcent, London.

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

REFERRED PAIN.

DR. J. N. DEACON (East Molesey) writes in reply to "Y. T.": *Symptoms and their Interpretations*, by the late Sir James Mackenzie, deals with this subject.

DR. J. E. SHARPLEY (Kirkton Lindsey) writes in reply to "Y. T.": *Pain: Its Origin, Conduction, Perception, and Diagnostic Significance*, by R. J. Behan, M.D. (New York and London: D. Appleton and Co., 1914), is a comprehensive work containing many references; an excellent index to referred and reflected pain.

INCOME TAX.

"J." is one of four partners, and by agreement with the other three has insured himself against sickness; the inspector refuses to allow the deduction of the premiums in computing the firm's profits.

* In our opinion the premiums paid by "J." in regard of the future risk of sickness cannot in strictness be deducted as expenses incurred in earning the profits assessed. On the other hand, we are clear that any sums payable under the policy in the event of "J.'s" sickness are not taxable. We suggest that if his inspector will give him an assurance on the latter point he might drop his contention that the premiums should be allowed to him.

"N. G." and his partner gave up a dental practice in London at January 31st, 1926, and have since started a new practice elsewhere in medical radiology and electrology. They hold appointments at a hospital in London, and since January "N. G.'s" partner has seen private patients there.

* We assume that "N. G." can show that the dental practice was definitely given up—for example, by sale or mere discontinuance. On that assumption the partners are liable for the year ended April 5th, 1926, on (1) ten-twelfths of the average profits of that practice plus (2) their actual earnings for the two months, February and March, 1926. For the year ending April 5th, 1927, they will be liable on (1) their actual profits in the new practice for the first twelve months (or for the less period if the practice was started after April 5th, 1926) plus (2) the amount of their earnings from the hospital appointment and the casual dental patients whom they have retained. The expense of travelling to London to see the patients there seems to us to arise from the removal to set up a practice elsewhere rather than from the nature of the work, but there is a chance that the inspector would allow it.

LETTERS, NOTES, ETC.

THE ACTION OF DRUGS ON PLANTS.

SIR JAGADIS BOSE returned to the Royal Society of Medicine on June 2nd to deliver another "occasional lecture" on the action of alkaloids and other substances on the pulse of the plant and of the animal. The lecture and the experiments were largely a repetition of what he gave before the society in December,

1923, reported in these columns at the time. He began by drawing attention to the similarities between the plant and the animal in respect of contractile tissue and what he called in both cases nervous reactions; and described his own attempts to obtain an exact record of the responses to stimuli in the mimosa and other sensitive plants. The heart of a plant, he said, was not easy to discover, but it was affected, in the same way as the animal heart, by the administration of minute quantities of certain drugs in the way of stimulus and depression. There were substances which stopped the heart at contraction and others which stopped it at diastole, and it was possible to inflict what appeared to be a mortal blow upon the plant's heart with one drug and almost immediately to revive it with another which acted as an antidote. The sap of the plant, as the conveyor of nutrient material, corresponded to the blood of the animal, and he contested the theory that the movement of the sap was not physiological, but due to some unknown physical cause. To get a record of the mechanical pulsation of, say, the desmodium or any plant was difficult because the arteries of a plant were buried deeply in its interior, and the dilatation and contraction, compared with those of the animal, were extremely feeble, but the task was not hopeless. It needed a hand of infinitely more delicacy than the human hand to feel the plant's pulse, but with the help of an electric probe and a galvanometer he had succeeded in recording pulsations. He produced a plant which, on a dull day of London June, he had been restoring to vitality, right up to the moment of the experiment by a prolonged bath of artificial sunlight, and on this he brought to bear in turn a whole battery of stimulants and depressants, poisons and their antidotes, administering to the plant a small amount of each, to illustrate the plant's alternate failure and revival. The attention of the audience was directed to the movement of a slit of light on the screen; when it moved in one direction it signified that the plant, under the almost immediate action of, say, potassium bromide was dying, and when it moved in the other direction that it had revived under the influence of a cardiac stimulant. He repeated this experiment with many substances, including small doses of cobra venom, which on plants and on small animals (though the animals did not figure in the demonstration) had an effect quite surprising in its violence.

A TRIBUTE TO SIR THOMAS BROWNE.

THOSE members of the medical profession to whom Sir Thomas Browne of Norwich, the author of *Religio Medici*, is still a lively inspiration and an "inexhaustible store of entertainment" may be interested in a copy of the second edition (published 1650) of his *Pseudodoxia Epidemica: or, Enquiries into Received Tenets and Commonly Presumed Truths*, which is to be sold by auction at Hodgson's Rooms, Chancery Lane, this afternoon (Friday, June 11th). On the flyleaf of this volume is a manuscript note, written in a fine hand, as follows: "FRANCES LE GROS: THIS BROOKE GIVEN MEE BY THE WORTHY AUTHOUR MY HONOR'D FREINDE, when I was one of his family and most happy in beinge so: 1650." It was to Thomas Le Gros, of Croxtwick, that Browne dedicated a few years later his *Hydriotaphia*; doubtless he was a relative of the Frances to whom Browne gave this copy of the *Pseudodoxia*. Further still, the volume contains the bookplate of Sir William Trumball (1639-1716), who is known to have travelled in 1664-65 in company with Edward, the eldest son of Sir Thomas Browne. In the same sale are a considerable number of old medical books, none of them of really surpassing interest or rarity: the best is an English translation of Alexis of Piedmont in three parts (1562-63-66), printed in London; and another worth mentioning is a French treatise on sterility, miscarriage, obstetrics, and gynecology, by L. Bourgeois (1609), midwife to the Queen of France.

MEDICAL GOLF.

THE summer meeting of the Shropshire Medical Golf Association was held on the Church Stretton course on Sunday, May 30th. The course was in excellent order, but a very strong wind prevailed throughout the day.

The Captain's Prize, presented by Dr. Richardson (Grinshill), for which there were twenty-eight entries, was won by Dr. T. R. Elliott. Leading scores were:

Dr. T. R. Elliott...	82	- 7 = 75
Mr. W. S. Edmond...	97	- 20 = 77
Dr. I. B. Richardson...	90	- 12 = 78
Dr. J. Wheatley...	97	- 38 = 79
Dr. G. Laurence...	95	- 14 = 81
Dr. A. V. Mackenzie...	90	- 8 = 82
Dr. R. H. Urwick...	92	- 10 = 82
Mr. A. Lavelle...	97	- 15 = 82
Dr. J. A. Ireland...	93	- 10 = 83
Dr. H. G. Beckett...	96	- 13 = 83

The foursomes competition was won by Mr. A. Lavelle and Dr. Glynn Pigott = 4 down, Dr. J. Wheatley and Dr. T. R. Elliott = 7 down, Dr. Richardson and Dr. H. G. Beckett = 8 down. The next meeting has been fixed for October 10th at the Wrekin Golf Club, Wellington.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 38, 39, 42, and 43 of our advertisement columns; and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 215.

A Chadwick Lecture ON HEREDITY IN RELATION TO MENTAL DISEASE AND MENTAL DEFICIENCY.*

DELIVERED AT THE UNIVERSITY OF LIVERPOOL

BY

THE LATE SIR FREDERICK MOTT, K.B.E., M.D.,
LL.D., F.R.S., F.R.C.P.

The subject of this lecture is an important question to the ratepayer and the race. It can only be answered by a careful consideration and comparison of published statistics, carefully recorded pedigrees, and an accumulation of facts obtained by systematic investigations regarding mental deficiency and insanity, registered and unregistered, in the past and present.

If insanity and mental deficiency be on the increase, as a superficial glance at the rapid rate of increase of registered cases during the past thirty years would indicate, the causes for the increase should be apparent in the answers to the two questions: (1) Have the conditions required for certification undergone any change; has the standard of sanity and mental efficiency been raised so that a larger number of individuals are admitted and detained in asylums? The corollary to this is the rapid increase of provision for housing and maintaining persons of insane and defective mind. (2) If there be a rapid increase of insanity and mental deficiency among the population, as the increase of certified insane and mental defectives, with increased provision, appears to show, what are the causes of this increase?

On the one hand, the eugenists would associate it with the tendency of modern civilization to interfere with natural selection and survival of the fittest, whereby, in the struggle for existence, poor types are weeded out; and to them (the eugenists) the inborn factor is paramount. On the other hand, the social reformer would associate the increase with drink, syphilis, and infectious diseases. As an example I would cite the recent epidemics of lethargic encephalitis, in which the moral sense of children and young adolescents is affected. Poverty, overcrowded dwellings, and all that this entails in improper upbringing, especially in our large towns and cities, must tend to mental and bodily defect. It is the old question of the relative importance of nature and nurture, in which is involved the great problem of heredity and the transmission of acquired characters. The eugenists will allow that good raw material, likewise bad raw material, may be found in all classes, and that there is abundance of good raw material spoiled by bad upbringing and bad conditions of environment. The social reformer should exercise discrimination and recognize the fundamental teaching of heredity that like tends to beget like, and that the most he can do by his efforts is to prevent good raw material being spoiled, and bad raw material being made worse. Undoubtedly education, sanitation, the feeding of the mother and offspring—in fact, child welfare—can, by providing a healthy body, develop and improve such potential mental energy and bodily conditions as the individual possesses. But if there is an inborn failure of mentality, either in psycho-physical energy, educability, or moral sense, then there must be an innate predisposition to some form of mental deficiency. Or if there be a lack of balance and control of the innate potentialities of mind, there will be a tendency towards the development of

insanity at the critical periods of life when the sex instinct matures and wanes.

The increase of registered insanity may be partly explained by a diminution of unregistered insanity as asylum accommodation has increased. Large numbers of this class of patient with chronic incurable mental disease have been admitted and detained for life in asylums. I need only refer to facts regarding accumulation, prior to the war, of 20,000 registered lunatics in the London County Council asylums. Of these, more than 10,000 had been there for ten years, and over 4,000 had been there for twenty years or more. The sheltered conditions under which the inhabitants of asylums lived was doubtless the means of increasing their length of life. During the war, however, there was a great increase of the death rate of the insane owing to low vital resistance, due to an insufficiency of animal fat in the food, and overcrowding, owing to many of the mental hospitals being used for war hospitals, thereby increasing greatly the liability to infectious diseases, especially to influenza, to pulmonary complaints, and to tuberculosis and dysentery.

The fact that a person died in an asylum does not necessarily show that he or she was suffering from a mental disease capable of hereditary transmission. For there are many cases of organic brain disease, such as general paralysis, arterio-sclerosis, and other conditions such as senile decay, which do not indicate hereditary transmission. This necessarily vitiates the value of statistical data and, to a less degree, pedigrees; for, very often, the only information that can be obtained is that the patient's parent or grandparent died in an asylum. There are a great number of cases which are not certified or sent to asylums which are more likely to transmit a neuropathic or psychopathic disposition than many of those who have been certified as insane.

In the past the legal conception of insanity has outweighed the medical conception. Nevertheless, it is primarily a medical question, and it is being recognized by the public that it is undesirable to send acute recoverable cases into asylums, without a chance of their being treated upon hospital lines in special institutions for that purpose. It must be recognized, however, that the great percentage of persons who are sent to asylums suffer with a form of mental disease which is transmissible; for it was found in the London asylums that 28 per cent. of recoverable cases relapsed within five years, and that 12 per cent. returned within one year. This periodic insanity is especially liable to be transmitted, either in an atypical form, or, more often, as dementia praecox in the next generation.

PREMISES OF MIND IN RELATION TO BODY.

Before considering the accumulated facts bearing upon heredity in relation to mental disease and mental deficiency it is desirable to lay down certain premises. The first is: What is mind? There can be no mind without memory; there can be no memory without body. All psychic processes are dependent upon physiological processes occurring in the body. The furniture of the mind is the memory store of our experiences and the bonds that unite them. The avenues of our experience are the senses which continually tell us of the existence of our body, its desires and aversions in relation to the world around, and how these desires and aversions, necessary for the preservation of the individual and the preservation of the species, may be effected by voluntary effort and judgement of value based upon our own experience or the experience of others. The dictum of Aristotle, "*Nihil in intellectu quod non fuerit prius in sensu*," would be more correct if "*et in motu*" were added; for every idea, every thought, tends to activation, either motor or glandular. The store of experience, then, depends upon the whole of the nervous system, but it also depends upon the circulating blood carrying oxygen by the arteries to the capillaries and there removing and carrying away by the veins carbonic acid and other products arising from the functional activity of all the tissues of the body, including the brain. If the blood carrying oxygen to the brain be cut off for a few seconds, unconsciousness occurs, and while this lasts it ceases to be a receptor of sensory impressions—therefore for a brief

*In his introductory remarks in this, the first of a course of Chadwick Lectures, Sir Frederick Mott spoke of the great pioneer work in sanitary science of Chadwick, in whose honour these lectures were given. He was the first to call attention to the necessity of legislation for systems of water supply and drainage in our cities and large towns. This he did in a report in 1842 of the sanitary condition of the labouring population of Great Britain. Sir Frederick Mott also called attention to the fact that most of his work on heredity was done at Collins, one of the trustees, was the originator of the investigation of the causes of insanity by the London County Council and was chairman of the Council when the laboratory was established; the lecturer took this opportunity of expressing his acknowledgement of the great service Sir William Collins had rendered to psychological medicine.

time there is no memory of the events happening in the world around; and for that period of time memory is not being furnished. The same happens in concussion and sleep. The quantity and quality of the furniture of the mind depends first upon the innate-hereditary dispositions dependent upon species (*Homo sapiens*), sex, race, and familial ancestry. The brain is the material basis of mind; it acts as a receptor of sensations pouring in from the world around or from the body itself. Physiology and medical science have taught us that psycho-physical energy is dependent upon biochemical substances circulating in the blood, and that absence of one of these internal secretions or derangement of the normal balance can seriously affect bodily and mental processes. The truth of this statement is best exemplified in the case of the internal secretion of the thyroid gland. In districts of Switzerland and Central North America iodine is deficient in the water and the soil, and there myxoedema and cretinism are very prevalent. It has been found that cretinous idiocy is due to an absence of thyroid secretion; there is stunted growth of the body and arrest of development of the brain. If thyroid gland be administered to infants suffering with cretinous idiocy, the growth of the body is promoted, the brain grows, and the mind develops, in virtue of its being able to act as a receptor and store of experiences. In districts where there is a subminimal deficiency of iodine, the prevalence of goitre, myxoedema, and cretinism has been enormously reduced by adding iodine in the form of sodium iodide in the salt. This is supplied by the Government, or small amounts are added to the drinking water. The effect upon the prevalence of this disease has been extraordinary.

The cerebrum, so far as we can judge from the cranial capacity, has not increased in size during the last twenty thousand years, nor improved in its capacity of storing experiences. Man has so developed as to be able to make continually enormous progressive advances in culture and control of the forces of Nature by the invention of articulate and graphic language by which the great social heritage of mankind has been built up in successive ages of civilization, whereby everybody who has a normal healthy body, especially a healthy brain, can fashion his mental furniture not only out of his own actual life experiences, but by abstraction from the collective experiences and judgements of past and present civilizations.

The three springs from which all the streams and rivers of mental activity have their source are: the primal instincts of self-preservation, preservation of the species, and the social instinct. Even the most complex and refined feelings and conduct of cultured people, when analysed, can be shown to have their vital urge—*elan vital*—deep down and unconscious in one of these instinctive forces.

The social instinct occurs only in some animals—for example, the bee, the ant, the dog—and the result is more intelligence and more unselfishness. Man has become what he now is by the progressive development of this social instinct. Man has had two languages for intercommunication—gesture language (the language of the emotions) and articulate symbolic intercommunication; also by beliefs, symbolic rites and ceremonies, traditions, customs, and usages directly or indirectly associated with the sex instinct and the preservation of the species, and indirectly and collectively connected with the preservation of the individual. There is an instinctive dread of loneliness, there is an instinctive moral sense—that is, a tendency to a sense of right and wrong—common to all human beings, and there is an inborn aesthetic sense in some favoured human beings, even shown in prehistoric times by the artistic efforts of man.

HEREDITY.

The life of the individual begins at conception when the male and female germ cells unite, each bearing the characters of the species, sex, race, and familial ancestry. The latent potentialities of body and mind constitute the raw material of inheritance out of which the furniture of the mind will be fashioned. The raw material of mental inheritance consists of psycho-physical energy, emotivity, educability, moral and aesthetic sense, and highest control.

The nearest approach to identity of mind and body in two individuals is, as Galton showed, in similar twins; there is identity because they are both derived from a single fertilized ovum, whereas dissimilar twins are derived from two separate fertilized ova. Galton found that similar twins brought up in different environments remained identical in bodily condition and mental disposition; whereas dissimilar twins brought up in the same environment remained dissimilar in bodily condition and mental disposition. Observations and calculations made by Professor Starch tend to show that from 60 to 70 per cent. of mental character and disposition is due to heredity and only 10 to 40 per cent. to environment and upbringing. Inborn characters are fixed and preorganized. What is the latent factor in the fertilized ovum which enables it to extract food and force from the maternal blood during the successive stages of pre-natal growth and development? A repetitive cell division to form organs and tissues with specific differentiated function occurs. By a vital harmonious interaction of the organs and tissues with differentiated functions a social organization of cells is built up on a definite plan of the species. The circulating blood and lymph and the nervous system integrate the functions of these differentiated structures and bring the whole into harmonious interrelation. The well-being and life of the individual from the time of conception onwards depends upon biochemical and biophysical processes in which oxygen is an essential agent. If time be altogether disregarded, heredity may, like habit, be conceived to correspond to memory and based—as Hering, Samuel Butler, and Laycock assumed—on one and the same dynamic principle. This theory has been elaborated by Semon in his work on the Mneme. The mnemonic principle is, that when living matter is excited by a stimulus it is altered dynamically, for when the stimulus has ceased the evidence of excitability is no longer observable and the organic living matter returns to rest; but that a dynamic alteration in the living matter has occurred is shown by the fact that a weak stimulus of the same nature suffices to provoke a revivescence of the same reaction in the living matter. Now if two stimuli simultaneously or successively excite living matter either of the two stimuli or successive stimuli will suffice to effect a revivescence of the whole simultaneous or successive reactions. The progressive development of the embryo from the fertilized ovum may be explained upon the mnemonic principle of an orderly sequence of similar repetitive stimuli proceeding generation after generation in the process of evolution. There has been established a preorganized mechanism in the fertilized ovum of man by which the embryonic cells in the course of their successive phases of development are able under favourable dynamic and circulatory conditions to extract from the maternal blood the materials necessary for building up all the tissues of the body upon an ancestral plan of species, sex, race, and familial pattern. "Like tends to beget like" is a well accepted truism from the time of Lucretius.

An inquiry which was carried out for me by Miss Agnes Kelley in the parish of Bethnal Green showed that like tends to beget like.

This inquiry was made with the object of comparing the heredity and social conditions of a certain number of insane, mentally defective, and normal persons. Sixty cases were taken in each group. The first group was of adult patients in the London County Council asylums; the second of high-grade mental defectives; the third of normal children from the elementary schools. The last two groups were at schools in different districts of Bethnal Green. Every care was taken to make as full and complete a family and social history as possible, and pedigree charts were constructed. The report was published in Part II, Annual Report of the Board of Control, 1915, and the following is a very brief summary of the results of this inquiry.

Insanity was very much more prevalent in the pedigrees of insane persons than in those of mental defectives—namely, in the proportion of 50 per cent. as against 25 per cent. of the defective cases. Conversely, mental deficiency was more apparent than insanity in the family histories of the defective children; while the charts of the normal school children only showed insanity and mental deficiency in a very small percentage of cases.

Good trades and high wages were rare in the mentally defective group. Though there were a few exceptions, the general type of employment was poor, and 75 per cent. of the fathers were casuals and unskilled workers.

There was a corresponding dead level of poverty in the home conditions of these cases, and the incapable mother was very

conspicuous in this group. In few of the asylum cases, and among still fewer of the mental defectives, could the home conditions be described as good, while one-third of the homes in each of these two groups were classed as "homes in which the food was quite inadequate, the clothing very poor, and bare necessities were lacking." The normal group showed a decided improvement in industrial conditions and in the care of home and children, and there were very few cases of intense poverty or neglect. There was, further, a very striking contrast in the dependence on parish and charitable assistance among the families of the normal group on the one hand, and of the insane and mentally defective groups on the other. The normals not only applied less often to the parish, but they were also less well known to charitable agencies.

It is a well known fact that a general durability of all the organs and tissues of the body, manifested by longevity, is inherited. This general durability implies not only functional harmonious interrelation of organs and tissues, but a generalized vitality of the body manifested by a psycho-physical energy and capacity of resistance to disease and recuperation from the effects of bodily injury and disease.

Conversely, a study of heredity shows that the life of the individual *ab initio* may be deficient, inasmuch as the fertilized ovum from the start has inherited a lack of durability or *vis propria*; it may be of the whole body or of some special organ or structure. The cerebrum, which from an evolutionary and developmental point of view is the last to come and is the most complex and refined in structure, is the first to go.

All the physico-chemical processes upon which mental activity depends take place in the thin layer of grey matter which covers the surface of the brain. These countless thousands of millions of cells which constitute the anatomical substance are developed from a relatively small number of cells of the original neural blastema by continuous repetitive divisions upon an ancestral plan of species, sex, race, and familial ancestry, and the result is a convoluted pattern first of the species, then of sex, then of race, and lastly of family. An arrest of development in the number of cells, so that we have a small ill formed brain with a defective convoluted pattern, will cause idiocy or imbecility according to the amount of arrest of development. The superficial extent of the cortex if spread out would be found in these cases enormously diminished as compared with a normal brain, and the dendrites are incompletely developed. They are, therefore, incapable of functioning. Proportional to the failure of development will there be a failure of capacity for mental processes—amentia. Mental deficiency is proportional to the defect of development of the organ of mind.

In dementia not due to heredity but to invasion of the brain by the spirochaete of syphilis there is progressive destruction of the normal developed brain by the poison generated by the multiplication of the specific organism, and the loss of mind is proportional to the degree of destruction.

A lack of psycho-physical energy may be transmitted in the male or female germ cells, causing an innate hereditary deficient *vis propria* which may lead to death at any period, pre-natal or post-natal. This is true hereditary deficiency and must be distinguished from congenital deficiency of the *vis propria*, which is due to devitalizing conditions affecting the growing embryo prior to birth. Often the two conditions are combined. There may be a lack of vital force (*vis propria*) on account of age of parents—namely, immaturity or senility at the time of conception. The question arises, Can exhausting conditions cause a lack of vital force of the male germ cells? Lead poisoning seems to be able to do this. There is evidence to show that lead poisoning in males whose occupation exposes them continuously to its influence leads to death of the embryo and abortion. It is conceivable that sexual excess, especially of the male, may greatly increase the chance of an immature sperm cell fertilizing the ovum. Nature seemingly has provided against this happening by storing the seed in vesicles, thereby permitting time for the healthy vigorous spermatozoa to grow and the weak to lose their vitality and die, thus permitting a process of survival of the fittest. But if there is continuous stimulation of the reproductive glands, the vesicles will only contain immature sperm cells with a lack of *vis propria* similar to those of the old man.

Lack of *vis propria* affecting the psycho-physical energy of the offspring is more likely to arise in the male germ cell than in the female germ cell because an extensive active process of cell reproduction only occurs in the female after fertilization of the ovum and growth of the developing embryo, otherwise there is nothing like the amount of cell reproduction there is in the male.

The observations of Kyrle, which I can confirm, show that a large percentage of male infants and children that die of marasmus or tuberculosis have testes in which the embryonic cells of the spermatid tubules show no signs of development beyond the embryonic stage present at birth. This may be explained by an inherent lack of *vis propria* in the most important tissue of the body, and consequently a low power of general resistance to disease. A lack of *vis propria* may also be manifested in the highest evolutionary level of the brain with inability to complete its development; or there may be a premature failure of durability which shows itself after birth by various grades of mental deficiency and dementia *præcocissima*. In such cases an arrest of growth of the branching processes of the neurones, which are the anatomical correlation for higher mental processes, may be found.

Various forms of mental deficiency and mental disorder occur in primitive races similar to those occurring in civilized races, but the symptoms are coloured by the beliefs, social usages, and customs. Natural selection and the struggle for existence tend to eliminate the unfit more in primitive races than among civilized people, where pity and altruism are a part of culture. There is a tendency to end or mend a degenerate stock by the law of anticipation, whereby the offspring of insane parents who become insane do so at an earlier age, and in a more intense form, so that they are segregated and procreation is prevented. Not only is there a tendency for insanity to occur in the offspring of insane parents at an early age in adolescence, but there is a lack of vital urge, shown in a regressive atrophy of the sexual organs, especially in males. This leads directly to a lack of procreative power and indirectly to an absence of desire for the opposite sex. In females the sexual act, as compared with males, is passive, and therefore many cases of dementia *præcox* marry and have one or more children. But the stress of this normal physiological condition is sufficient to bring on the mental disease. The sex instinct is a great source of psycho-physical energy, and coexistent with a lack of this energy is a change in the behaviour of the male. He is brooding, introspective, and his mind is engaged in fantasy rather than reality.

A study of 4,000 cards of relatives in the London County Council asylums and a large number of carefully recorded pedigrees has shown that certain types of insanity are very liable to hereditary transmission. They are: (1) involutional melancholia, (2) manic depressive insanity, and (3) dementia *præcox*. Involutional melancholia in a grandparent may be followed, in the next generation, by manic depressive insanity, or dementia *præcox* in the third generation. A frequent sign of hereditary transmission was the existence of two, three, four, or five members of the same co-fraternity affected with dementia *præcox*, manic depressive insanity, or imbecility.

Eugenists would consider heredity the main cause of insanity and mental deficiency, and would affirm that the State should adopt means to prevent procreation by feeble stocks either by segregation or sterilization. But I do not propose to discuss this very debatable question of sterilization of the mental defective, such as the higher grade imbecile or the moral imbecile, which are found in all grades of society. Before any such proposal could be the subject of legislation much more information is required regarding heredity in relation to mental deficiency and the influence of education and social reforms. It must be remembered that social reformers, at any rate, are able to point to the fact that a larger number of people are living to old age with improved conditions of environment, and if there is a smaller birth rate there is a proportionally lower infantile death rate. Truth appears to me to be with both schools of thought. But, it may be asked, Would it not be wiser to spend the ratepayers' money in the preservation of good types and not waste money in trying to teach mental defectives who are uneducable; each of

whom costs three times as much as a normal child to educate? I do not infer that they must be left without any endeavour being made to develop such aptitudes as they possess. They have neither initiative nor creative ability; they do not possess the imitative faculty necessary for storing up in memory words and numbers, much less of utilizing them for various processes of abstract thought and reason. Now the association of the eye and hand appears before speech in the developing infant and in the process of evolution, therefore simple manual operations can be more easily taught by imitation than can book knowledge. It is reasonable to suppose that a certain degree of skill can be acquired in handicraft by imitation, whereas abstract symbolic thought and reason by means of words and numbers, except in the most simple way, cannot be acquired by the mentally deficient, owing to arrest of development of neural structures and function of the latest highest evolutionary level of the brain. The most successful colonies for mental defectives are those where manual occupational education and treatment are best carried out. Manual occupation has an uplifting effect on these poor children, for it affords a certain satisfaction to them to know that they are not so inferior to normal children as book learning, of which they are incapable, makes them feel. Successful occupation, emulation, and reward, moreover, engender self-respect and a sense of well-being. Rhythmic movements, singing and dancing, also are easily acquired by imitation for similar reasons, and produce a sense of well-being and a joy in life. Especially is it desirable to place mental defectives in colonies at an early age before the sex instinct matures, for owing to the mental deficiency there is a lack of control of the animal passions; they are unable to sublimate the vital urge along healthy lines.

The high-grade imbecile and the moral imbecile are found in all grades of society, and it may be difficult to find sufficient grounds for compulsory segregation till adolescence or until repeated delinquencies lead to a proper inquiry into his or her mentality. With the idiot and low-grade imbecile there is not this difficulty, and they are either infertile or are cut off in early life by disease or neglect, if not placed under care in an institution; whereas the higher grade imbecile, especially of the female sex, is fertile, and very liable to be the mother of a large illegitimate family of children, many or most of whom are weak-minded. In large cities and towns immoral imbecile women sooner or later, however, suffer with venereal disease, and this leads to sterilization and abortion or to the birth of dead children.

In rural districts the migration to the cities and large towns for higher wages has led to a steady and progressive deterioration of the mentality of the population. This is shown by the fact that although there is less drink consumed in rural populations than in industrial and maritime, yet there is, *pro rata*, a higher percentage of registered mental deficiency and insanity. This is a strong argument in favour of encouraging legislation which will lead to an increasing number of a better type of men and women being able to remain on the land and obtain a decent living. A policy which brought this about could not fail to be an important factor in the betterment of the race. Moreover, such a policy would be of great national economic value, inasmuch as the more land that was under prosperous cultivation the less would the nation expend in imports of food. The time has come when the nation must recognize the necessity of regaining a mentally and physically capable rural population with a higher standard of living and a higher birth rate of children potentially sound in mind and body. The Bible says that men do not gather grapes of thorns or figs of thistles. Neither can we expect to have a mentally efficient rural population under present conditions.

The dominions take elaborate measures to prevent mentally deficient emigrants arriving and settling in their country. They prefer to have those that are able to work on the land, so that this is another reason why, unless something is done to improve the conditions of our workers on the land, a steady further deterioration of the race must ensue.

A Post-Graduate Lecture ON HAEMORRHAGE ABOUT AND AFTER THE MENOPAUSE.

DELIVERED AT THE MANCHESTER ROYAL INFIRMARY ON
MARCH 16TH, 1926,

BY

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EXCESSIVE or irregular haemorrhage about the menopause and haemorrhage after the menopause are among the commonest symptoms which make women seek medical advice. The symptoms are produced by many different pathological conditions, but this must never allow us to treat the condition lightly, or forget in any case that malignant disease of the uterus is one of the most frequent and by far the most important cause of this symptom.

I have chosen this subject for the particular purpose of emphasizing this fact, and what I wish to be remembered of this lecture can be epitomized in one sentence: "Excessive or irregular haemorrhage about the menopause and any haemorrhage after the menopause should always make us suspicious of malignant disease of the uterus, and we are never justified, in any circumstances, in treating these symptoms without making a vaginal examination, and, in the case of haemorrhage after the menopause, where vaginal examination reveals no growth in the cervix, without curetting the uterus to eliminate the possibility of malignant disease of the body." We all know this, we were taught it as students, and in the majority of instances we act up to it; but there are odd cases which escape, and these are those the consulting gynaecologist so frequently sees.

I do not think anyone but a gynaecologist realizes how many cases come for advice when the disease is past all hope of cure. Of course, in the majority of instances the fault lies with the patient herself; there is an ineradicable belief among women that haemorrhage at that time is quite normal; little attention, therefore, is paid to it, and the difficulty is to make this knowledge general among women without unduly scaring them.

Although the majority of cases brought too late for any hope of cure are thus accounted for, there are nevertheless a very large number who are kept under medical supervision for long periods without an examination being made, and when finally this is carried out the time for useful intervention is past.

Of all the cases of carcinoma of the cervix who consult me in private or in hospital I find I am able to perform a complete Wertheim's hysterectomy in only about one third, and yet if these cases come early very good results are obtained; taking all my cases together, the earliest with the least favourable, and not making any allowance for death from intercurrent disease or operation mortality, I find that of all I operated upon more than five years ago there are alive and well at the present time 33 per cent. If only we could get all these cases in the earlier stage the curability would be much greater.

Operative treatment of malignant disease of the body of the uterus gives much better results than in the same disease in the cervix, and, moreover, the disease does not so readily invade other structures; still, in this situation as in all others, the earlier the disease is recognized the better is the chance of its total eradication.

It is a simple and easy matter to suggest and carry out an examination upon a complete stranger, especially where she has consulted a gynaecologist for the special purpose, but quite another matter when the patient is a personal friend or acquaintance, as she so often is to the general practitioner; and so, when first consulted about this symptom, quite naturally the practitioner is inclined to temporize, and hope that the cause may be one of the many simple ones and not the one he fears. In this way much valuable time is frequently lost, and it is necessary in the

interests of the patient that this diffidence be put on one side at the first consultation, and a determination made not to treat this symptom until the possibility of malignant disease has been definitely eliminated.

MENORRHAGIA AND METRORRHAGIA ABOUT THE MENOPAUSE.

Carcinoma of the cervix is a very common disease about the menopause, though it may occur at almost any age, and I have seen it as early as 22 and 24 years of age respectively. It is much more common in parous uteri, and is especially liable to commence in lacerations of the cervix. Usually the diagnosis is easy, as a friable area is found on the cervix, and the examination is followed by free haemorrhage. This sign alone should make us very suspicious of malignant disease of the cervix, as should a history of haemorrhage after coitus. The only type which presents any difficulty in diagnosis is that where the growth commences in the cervical canal and exposes only a tiny area of friable surface at the external os. In any doubt the patient should be examined under anaesthesia and a piece of the cervix excised for microscopical examination; but this is rarely necessary.

Erosion of the cervix consists of a slightly raised velvety red area extending on to the vaginal surface of the cervix from the external os. Haemorrhage is readily produced by the examining finger, and so this condition is that most likely to be mistaken for carcinoma of the cervix; firm scraping on the area with the finger generally settles the diagnosis, as the erosion extends only a few cells deep and the subjacent tissue is firm and resilient, whereas in carcinoma of the cervix the friable tissue extends much deeper, and it is usually possible to dig out a fairly deep ulcer with the finger. In a case of doubt it is necessary to examine the patient under anaesthesia and curette the cervix, or even, rarely, to excise a piece of the cervix for microscopical examination. Erosion is not a primary pathological lesion, nor has it any symptoms, but is itself merely the result of some irritating discharge, usually from the interior of the uterus, and curettage of this organ usually cures the condition.

Physiological Atrophy of Muscle.—As a uterus approaches the menopause the blood supply diminishes and the muscle atrophies; normally these changes run concurrently, so that the diminishing muscular tissue is able to exercise the same control over the diminishing blood supply as it did in full vigorous life. If, however, the atrophy of the muscle outstrips the diminution of the blood supply the same control cannot be exercised and menorrhagia occurs. It is the knowledge that this physiological change may explain the onset of haemorrhage which hurls our suspicion, and examination of the patient is often deferred in the hope that this will prove the cause of the symptoms. The only treatment is the administration of pituitrin, ergot, or hydrastis—drugs which will stimulate the weakening muscle to greater effort—but it is necessary again to emphasize the fact that these drugs must never be administered without a vaginal examination being made to eliminate any possibility of carcinoma of the cervix being the cause of the trouble.

Subinvolution.—If involution does not progress normally during the puerperium the uterus is left enlarged and hard, but regular in outline and mobile, and usually gives rise to menorrhagia during all subsequent menstrual periods, but frequently menstruation is quite normal for some years, and then, as the patient approaches the menopause, menorrhagia commences and becomes worse and worse until she is compelled to seek medical advice. At first sight it seems curious that haemorrhage at the menopause should be caused by a lesion produced during a puerperium, possibly many years previously, and that menstruation during the interval should have been quite normal. The explanation is simple. During involution two main changes take place: the excessive muscular tissue is absorbed, and the large blood vessels are replaced by small ones. This change in the blood vessels is one of the most interesting processes in the human body. Instead of the old vessel merely shrinking in size, new vessels are formed within the old one, and at the same time the elastic and fibrous tissues in the old vessel walls swell up, soften, and lose their staining

properties. In normal involution the old vessel wall is absorbed completely, leaving the new vessel to function in the involuted uterus. If involution is not complete portions of the old vessel wall remain, and the internal elastic layer of the vessel will remain permanently surrounding the new vessel; the less complete the involution the larger the amount of elastic tissue surrounding the new vessels. The increased bulk of a subinvolved uterus is due to want of absorption of the muscle fibres, and so this uterus can exert a greater muscular control over the vessels, but to counteract this the vessels are surrounded by varying amounts of elastic tissue. If the elastic tissue is in preponderance the patient will have menorrhagia from the confinement; if the elastic tissue only equals the extra contractile power of the uterine muscle menstruation will be normal until the menopause is approached; then the muscle atrophies, and even though the blood supply diminishes in normal amount the relationship between the two is upset, and the muscle has to exert its effect on the

ss of inert elastic tissue, and so menorrhagia commences. The only cure of subinvolution is another pregnancy with a normal puerperium; but in these cases with late onset of the symptoms this is usually impossible. Pituitrin, ergot, or hydrastis will frequently diminish the amount of haemorrhage by stimulating the weakening muscle to fresh exertions; if this fails, curettage followed by these drugs is usually successful. If this also fails, it is necessary, in a few cases, to stop the haemorrhage by x rays, radium, or hysterectomy; the latter is more generally useful, as there are frequently other complications—matted appendages, prolapse, etc.—which can be cured at the same time.

Chronic Metritis.—This term is frequently used clinically to include subinvolution or any bleeding uterus which is enlarged, hard, and regular in shape; but in a strict pathological sense it means a uterus in which much of the muscular tissue has been destroyed by inflammation and replaced by fibrous tissue; this condition, by weakening the action of the muscular tissue, allows haemorrhage to occur, especially as the uterus approaches the menopause. Chronic metritis and subinvolution often occur in the same uterus. The only treatment is to administer pituitrin, ergot, or hydrastis, curette, and finally, if these fail, hysterectomy or radium.

Polypus.—Either mucous or fibroid polypi frequently produce haemorrhage at this time. The diagnosis is easy, as the polypus can usually be felt by the examining finger. Occasionally a fibroid polypus is entirely within the cavity of the uterus, and we can then do little more than suspect its presence from the fact that the uterus is a little enlarged and possibly the cervical canal somewhat dilated. Examination under anaesthesia and dilatation of the cervical canal allows a definite diagnosis to be made and at the same time the polypus to be removed.

HAEMORRHAGE AFTER THE MENOPAUSE.

Carcinoma of the cervix is one of the commonest causes of haemorrhage after the menopause. The diagnosis and treatment is the same as before the menopause.

Carcinoma of the body of the uterus is not nearly so common as carcinoma of the cervix, and does not occur before the menopause, although in some cases the period of amenorrhoea is only very short. There are no physical signs of this disease except a slight enlargement of the body of the uterus, and a definite diagnosis can only be made with the curette, when the material removed is usually so characteristic that a definite diagnosis can be made without waiting for a microscopical examination, and so hysterectomy can be completed under the one anaesthetic. Fortunately, simple panhysterectomy gives as good results as the extensive Wertheim's hysterectomy, and the mortality is much less. If examination of the cervix in haemorrhage after the menopause does not reveal any growth, curettage must always be undertaken to complete the diagnosis.

Senile endometritis is, fortunately, a very common condition. The atrophic endometrium is readily attacked by organisms from the vagina, becomes inflamed, and produces haemorrhage. Curettage completes the diagnosis, as the endometrium is always thin, quite unlike the thick

cheesy material in carcinoma of the body, and at the same time the curettage cures the condition. Senile endometritis is a definite inflammation, and the microscope reveals much small-celled infiltration.

Mucous Polypi.—An atrophic tissue like the endometrium after the menopause would not be expected to produce polypi, but it does so not at all infrequently, especially in the cervix, and I have seen at least half a dozen cases in the last six months. The polypi can usually be detected protruding from the external os, and curettage usually reveals no others in the body of the uterus. Curettage cures the condition.

CONCLUSION.

These are the commonest causes of haemorrhage about and after the menopause, though a number of others, like carcinoma of the vagina, do occasionally occur, but so rarely that we need not keep them constantly in our minds.

The one point we must constantly keep before us is the frequency of malignant disease as a cause of haemorrhage, and the fact that haemorrhage is usually the only early symptom of this disease, and so we must always consider any of these cases as likely to be malignant until we have proved the haemorrhage to be due to some other cause. If we will only do this these malignant cases will be detected much earlier and a far larger number cured of this dread disease.

COMPRESSION OF NERVE FIBRES.

BY

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COMPRESSION OF PERIPHERAL NERVES.

DURING a study of the lesions of peripheral nerves caused by missiles of war observations were made which indicated the possibility in certain circumstances of being able to diagnose compression of a peripheral nerve. The earlier investigations¹ led me to the conclusion that in a case of progressive compression of a nerve, uncomplicated by division of any fibres or serious intraneural changes, three stages could often be recognized.

1. The earliest sign generally found was increasing weakness of the muscles innervated by the affected nerve, demonstrating a loss of conduction in the efferent fibres, which was commonly associated with pain of a neuralgic character radiating along the course of the nerve and induced by movement or stretching of the nerve trunk.

2. The appearance of objective sensory disturbances which exhibited a characteristic type of dissociation. In uncomplicated examples of compression, hypalgesia and thermo-hypaesthesia progressing to analgesia and thermo-anaesthesia have been found to occur almost constantly before any definite tactile anaesthesia, even to the lightest possible tactile stimulus, could be recognized. During the appearance of analgesia the tactile sensibility diminishes and not uncommonly complete disappearance of the development of analgesia in the full area of distribution of the nerve. By this time complete paralysis of all the muscles supplied by the nerve distal to the site of compression is to be expected.

3. The development of tactile anaesthesia, which remains less in extent than the analgesia and thermo-anaesthesia, unless the compression proceeds to complete physiological division and causes an absolute obstruction to the transmission of all impulses.

A knowledge of these three stages in the development of complete strangulation of a nerve, in conjunction with the study of a carefully elicited history, makes it possible to diagnose correctly a large proportion of examples of uncomplicated compression of some part of the peripheral nervous system. In my experience, such complications as partial division or the occurrence of intraneural fibrosis very commonly render diagnosis much more difficult and uncertain. The characteristic manifestations of compression are well illustrated by patients suffering from compression of the lower trunk of the brachial plexus by a cervical or first dorsal rib, and in a study of its production by the latter cause² it was found that in nine out of ten patients the objective sensory disturbance was

distinctive; further observations since the publication of that paper have confirmed this. The dissociated sensory loss is undoubtedly the most striking and the most helpful sign, and possesses the clinical advantages of being rapidly and easily demonstrated and not readily confused with any other neurological condition excepting possibly syringomyelia, an error which ought to be avoided without difficulty. It is important to mention that quite frequently patients are unaware of any sensory loss, and are surprised at the analgesia and thermo-anaesthesia which clinical examination reveals.

COMPRESSION OF THE SPINAL CORD.

During recent years my attention has been directed to the frequent appearance of a similar dissociation of sensation as a result of compression of the spinal cord by such lesions as extramedullary tumours, and this observation has proved on several occasions of considerable diagnostic value. The first occasion on which I noticed this was about eight years ago when investigating a patient suffering from fracture dislocation of the cervical spine and subsequent compression of the spinal cord. The man merely suffered from weakness of the muscles, altered reflexes, and hypalgesia and thermo-hypaesthesia below the level of the lesion, and after relief of the compression all these manifestations almost completely disappeared. Recently I was permitted to examine at the Manchester Royal Infirmary a patient who illustrated particularly well the manifestations of uncomplicated compression of the spinal cord, and exhibited undoubted resemblances to the observations made upon patients suffering from compression of a peripheral nerve. I am obliged to my colleague, Dr. E. Bosdin Leech, under whose care the patient was, not only for the opportunity of making several examinations, but also for permission to publish a brief report of the most significant features.

A man, aged 44, previously very robust and healthy, began to suffer from pain in the region of the shoulders about December, 1924. The pain often travelled down the trunk, especially on the right side, and after a time became very severe, attacks of exceedingly sharp pain occurring frequently and persisting for many hours at a time. He then suffered from stiffness of both legs and attacks of "pins and needles," extending from the level of the umbilicus down the front and back of both lower limbs. The stiffness was succeeded by progressive weakness of both legs until, at the time of his admission to hospital in November, 1925, he was unable to walk without assistance. Shortly before admission to hospital he also complained of difficulty in beginning the act of micturition, but he was able to pass urine normally once he had started the stream.

On examination there was no absolute paralysis of any of the muscle groups of the lower limbs, but very profound paresis and marked spasticity was obvious. The deep reflexes of both legs were greatly exaggerated, and there was an extensor plantar response and ankle clonus on both sides. On testing sensation it was found that there existed, as high as the level of the nipples, complete analgesia and almost complete thermal anaesthesia, although the patient was not aware of any objective sensory disturbance. No defect of any other form of sensation could be discovered, although carefully tested.

A provisional diagnosis of extramedullary spinal tumour at the level of the fifth dorsal segment was made and an injection of lipiodol made by Mr. H. H. Rayner, F.R.C.S., for confirmatory purposes. An x-ray examination after the injection demonstrated the presence of an absolute obstruction at the vertebral level suggested by the clinical investigation.

At the operation, performed by Mr. Rayner, it was found that the spinal cord was compressed by a tumour lying between the dura and bones. The tumour was exerting direct pressure upon the cord both posteriorly and laterally, but had not at any point penetrated the membranes. Microscopic examination of a piece of the tumour, made by Dr. G. E. Loveday, showed it to be an angioma.

A similar dissociated sensory disturbance has been seen in so many cases of spinal compression that I have come to regard it as a valuable aid to diagnosis, and it is primarily for this purpose that the report of this patient has been recorded, since it demonstrates unusually clearly the clinical manifestations of the progress of the compression, and bears rather a startling likeness to what has been found in similar circumstances in the peripheral nervous system. In a recent paper on extradural spinal tumours Stookey³ regards it as possible that the tracts in the white matter are more vulnerable to pressure gradually applied to the cord than the grey matter, and it is interesting to notice that in two of five cases of cervical extradural tumours he mentions that "early evidence of

disturbance in the pyramidal and spino-thalamic tracts was found." It is necessary, however, to point out that later in the paper it is stated that the tumour in one of these cases, a small pointed chondroma, was placed in such a position that it could compress a small circumscribed area of cord in the region of the left spino-thalamic tract, and that in this case the sensory disturbances were confined to the right side.

From personal observation it appears that uncomplicated compression of the spinal cord is commonly manifested by the following symptoms and signs, which as a rule present themselves in the order given:

1. Pain of a severe character, commonly described as of a "burning" or "tearing" nature, in the lower limbs and trunk below the level of the lesion. This may or may not be accompanied by pain in the distribution of the spinal nerves arising at the site of compression and produced by pressure on, or irritation of, nerve roots. In a few cases pain is absent, and the initial symptom is weakness of the legs.

2. Weakness and stiffness of the lower limbs and alteration of reflexes.

3. Objective sensory disturbances below the point of compression, at first affecting conduction in the spino-thalamic tract, but later affecting elements of sensation dependent upon other sensory tracts.

4. Bladder symptoms, accompanied in the limbs by more profound loss of voluntary power and movement and more profound and complete sensory loss.

It is not easy to offer any explanation for the occurrence of this dissociation of sensation, found often in compression of a peripheral nerve or of the spinal cord, as it is difficult to perceive any reason why the fibres conducting impulses concerned with pain and temperature should be more vulnerable than the others. In the case of compression of a peripheral nerve the effect must be upon the peripheral sensory neurones which have their cell station in the posterior root ganglion, whilst in compression of the spinal cord the mechanical effect of the lesion must be exerted upon the secondary sensory neurones, which for the pain and thermal paths have their cell station in the grey matter of the cord. It has been possible to follow the results of release from compression in a large proportion of the examples seen in the peripheral nervous system, and from the rapidity with which recovery of sensation appears in the earlier cases it seems improbable that actual degeneration had occurred during the early stages of the manifestation of the dissociated sensory loss. If the compression persists for some time before it is relieved it seems likely that degeneration subsequently occurs, but from the extremely rapid recovery in the earlier cases (within twenty-four hours of release in a few instances) it does not seem possible to conclude that degeneration of the fibres concerned with pain and thermal sensations is a necessity for the production of the characteristic sensory dissociation. It has not been possible to keep under observation a sufficient number of spinal cases after relief of the compression to express a definite opinion about the possibility of recovery from the objective sensory loss. In early cases where there has been only hypalgesia and thermal hypaesthesia, recovery, as far as one can determine by the customary clinical tests, has occurred. Nevertheless, it is very doubtful if recovery of sensation ever succeeds the establishment of complete analgesia and thermal anaesthesia, and this suggests the early development of degeneration, since there is no possibility of the fibres in the spinal cord undergoing regeneration.

When the analgesia was first observed in compression of peripheral nerves I was attracted for an explanation to the work of Ranson,⁴ which suggested that the afferent fibres concerned with protopathic sensibility are non-medullated, but subsequent researches have failed to support Ranson's view, and there appears to be no reason for believing that the protopathic fibres differ in structure from other sensory fibres.

SUMMARY.

Attention is directed to the frequent occurrence in spinal compression of a dissociated sensory loss, similar to that previously described as a result of compression of peripheral nerves.

Since the first indications of this characteristic sensory disturbance may be discovered at a fairly early stage in

the development of the compression and before the onset of profound paralytic symptoms, they may be regarded as a valuable aid to diagnosis. This often renders it possible to undertake the relief of compression before it has caused irreparable damage to the spinal cord.

In the present state of knowledge it is not possible to advance any explanation of the occurrence of this dissociation, but there is evidence which suggests that hypalgesia and thermo-hypaesthesia may appear before actual degeneration of fibres has occurred in either the peripheral nervous system or the spinal cord.

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THE EFFICACY AND STANDARDIZATION OF HAEMOSTATICS.

BY

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DURING the last two decades the use of organic extracts and of haemostatic serums in the arrest of obstinate haemorrhage has gained some prominence in medical practice, but no unanimity exists as to the value of the preparations in use. On the one hand, the claims of the makers of haemostatics are supported by a considerable amount of clinical evidence; on the other hand, the results of laboratory experiments by different observers are contradictory, the same preparations being described by some as active and by others as inactive (cf. ¹⁻⁴); whilst one well known haemostatic has been included amongst the nostrums described in *The Propaganda for Reform in Pharmacy* (1922).

The work here summarized was undertaken to ascertain the causes of these discrepancies and to devise, if possible, simple and reliable methods of standardization of those haemostatics which decrease haemorrhage by increasing the coagulability of blood.

Previous Experiments.

An examination of the experimental methods used in testing the efficacy of haemostatics reveals the causes of the varying results obtained by different observers, and shows that the conditions imposed differ radically from those existing in blood escaping from wounds. This is apparent from the following summaries of the methods employed.

1. The blood is kept fluid by the addition of either soluble oxalates or citrates which remove or immobilize the calcium ions of the plasma. The haemostatic is then added and coagulant action is noted when present. Blood under these conditions only clots on the addition of thrombin, and this technique merely indicates either the presence or absence of that coagulant. As calcium ions are essential for spontaneous clotting conditions are introduced which are never present either in normal or pathological bloods.

2. A variant of this technique is commonly used by the manufacturers of haemostatics in the standardization of their products. The speed of the clotting of blood after oxalation and recalcification at room temperatures is compared with that of blood similarly treated to which the haemostatic to be tested has been added. The efficacy of the haemostatic is estimated by any increase in the speed of clotting following its addition. Several errors are inherent in this procedure. The acts of oxalation and recalcification modify the stability of the plasma, so that its coagulability differs markedly from that of normal

blood,⁵ whilst the texture of the clots formed depends both on the speed of recalcification and on the temperature of the reaction.⁶ The consistency of blood clots is as important a factor in the arrest of haemorrhage as is the speed of clotting, since loose clots provide but slight resistance to the escape of blood and are readily broken up when bleeding is rapid. The value of this method is also strictly limited. Solutions of both oxalates and citrates partially inhibit the coagulant action of free cephalin,⁷ which is the active constituent of the large group of haemostatics known as "thromboplastins."

3. Blood kept fluid by the action of "peptone" has been used as a test fluid for appraising the activity of coagulants containing cephalin,⁸ but this method is not generally applicable, as some substances which provoke clotting in "peptonized" blood have little or no action on pure blood.

4. Three other methods of standardization were introduced by Hanzlik.^{2, 3} In his earlier work the preparations to be tested were dissolved in sodium citrate and were allowed to flow rapidly over the denervated pad of a dog's foot which had been cut down to below the papillary layer. The amount of blood escaping in a given time was gauged colorimetrically, and coagulant action was thus appraised. Tested by this method most of the newer haemostatics gave negative results, and were accordingly condemned as worthless. The favourable clinical reports were dismissed as examples of the inexplicable cessation of haemorrhage which sometimes occurs spontaneously. Later Hanzlik³ recognized that the use of citrates was a source of error, and he substituted normal saline as a diluent, again applying continuous irrigation. The efficacy of various haemostatics in the treatment of inaccessible haemorrhage was estimated by observing variations in the amount of blood issuing from a wound after their intravenous injection. In these experiments the wound was continuously irrigated with normal saline. In both groups of experiments either cessation or reduction of haemorrhage was frequently followed by a recurrence of bleeding. It was therefore concluded that the coagulant action of haemostatics is both variable and incomplete. Several circumstances contributed to these results. Continuous irrigation disturbs and dislodges clots, and thus favours a recurrence of bleeding. Although local vaso-constriction of the arterioles was prevented, alterations in the general blood pressure and changes in the tone of the capillaries of the wounded area were not estimated; consequently there were variations in the amount of escaping blood. The amount of tissue coagulant exuding from the cut tissue was not controlled, and in those experiments in which a haemostatic was injected intravenously and the wound continuously irrigated with normal saline uniformity of the dilution of the escaping blood was not assured. Nevertheless, experiments open to these objections have been used as the basis of statements intended to be authoritative.

Essentials in the Standardization of Coagulant Haemostatics.

The essential conditions for the accurate standardization of haemostatics may be summarized as follows: (1) No substance which acts either chemically or physically on blood, other than the haemostatic, should be present. (2) No substance should be removed from the blood. (3) The blood should be uncontaminated by tissue juices. (4) The blood should remain fluid sufficiently long to observe the effect of the haemostatic. In addition, the action of the haemostatic should be studied in different concentrations and at different temperatures, as these conditions modify its efficacy.

The Methods Employed.

Advantage was taken of the fact that blood shed through a paraffined cannula into a vessel completely coated with paraffin wax remains fluid at room temperature (17° C.) for at least an hour, provided the animal has not suffered severe haemorrhage. Blood under similar conditions remains fluid for thirteen to fifteen minutes at 37.5° C. Fluidity is thus preserved sufficiently to test the coagulant action of any haemostatic under the conditions previously named. Cat's blood was used, as it reacts more constantly to coagulants than that of the dog or rabbit. The animals were anaesthetized with a mixture of chloroform and ether.

In the standardization of the local action of haemostatics 10 to 12 c.cm. of blood was shed from an artery into a paraffined vessel through a paraffined cannula. By means of paraffined pipettes 1 c.cm. of blood was immediately transferred to each of a series of paraffined vessels containing 0.25 c.cm. of the haemostatic to be tested in the dilutions recorded in Table I, isotonic sodium chloride being used as a diluent. The speeds of clotting were then observed at 17° C. and at 37.5° C.

The efficacy of haemostatics when administered internally was tested as follows: 1 c.cm. of blood was shed through a paraffined cannula into a paraffined vessel, and was used as control blood. The haemostatic was then administered, and after an appropriate interval 1 c.cm. of blood was shed through another paraffined cannula inserted into another artery. The time of completion of clotting of this blood was observed at 17° C. and at 37.5° C. By "time of completion of clotting" is understood the time occupied in the conversion of the whole of the blood into a gel. The results given in Tables I and II are representative of 400 experiments. Fresh preparations of the haemostatics were used.

Results.

The haemostatics which precipitate blood plasma, such as ferric chloride and alum, have a low efficacy, as the coagula are loose in texture and permit the escape of blood from damaged vessels. The clots produced by the haemostatics named in Tables I and II are firm in texture and contract normally. They are thus efficient in the arrest of bleeding.

TABLE I.—Time of Completion of Clotting after the Addition of 0.25 c.cm. of various Haemostatics to 1 c.cm. of Pure Blood at 17° C. and 37.5° C.

Name of Haemostatic.	Source of Haemostatic.	Temperature.	Time for Completion of Clotting at Dilutions Stated.				
			Full Strength.	Half Strength.	Quarter Strength.	Eighth Strength.	Sixteenth Strength.
			min. sec.	min. sec.	min. sec.	min. sec.	min. sec.
Coagulen (Ciba)	Blood platelets	17° C. 37.5° C.	14 12 3 40	14 55 3 20	12 50 3 40	12 10 4 10	12 0 3 20
Thromboplastin (Armour)	Brain tissue	17° C. 37.5° C.	4 0 2 0	4 0 2 15	4 45 1 35	5 35 1 40	6 45 1 35
Thromboplastin (Ledele)	Brain tissue	17° C. 37.5° C.	2 5 1 0	2 15 1 5	2 20 1 0	2 50 1 0	2 40 1 35
Thromboplastin (Squibb)	Brain tissue	17° C. 37.5° C.	3 0 2 10	3 15 2 0	3 40 2 0	3 30 1 55	3 45 1 53
Cephalin (Armour), 3% solution ...	Crude cephalin	17° C. 37.5° C.	47 0 4 50	41 48 5 45	26 50 5 45	23 0 6 25	23 50 5 10
Protogulin	Thrombin	17° C. 37.5° C.	1 20 0 15	1 40 0 45	1 10 0 50	1 45 1 40	2 10 1 10
Hemoplastin (Parke, Davis) ...	Serum of ox and horse	17° C. 37.5° C.	19 30 8 10	19 30 8 25	16 10 4 57	15 0 4 48	15 0 3 25
Fibrinogen (Merrell)	Lung extract	17° C. 37.5° C.	8 5 2 35	8 30 3 0	9 17 3 30	10 33 4 0	13 50 4 55

TABLE II.—Times of Completion of Clotting of Pure Blood shed into Paraffined Vessels after the Internal Administration of the Haemostatics Named.

Name of Haemostatic.	Amount Administered.	Mode of Administration.	Dose in Man Recommended by Makers.	Time of Completion of Clotting at 17° C.	
				min. sec.	min. sec.
Coagulen (Ciba)	1.25 c.cm. of a 3% solution	Intravenous	10 to 20 c.cm. of a 3% solution	24 0	10 55
Fibrogen (Merrell)	0.5 c.cm.	Intramuscular	3 c.cm. orally followed by 1 c.cm. subcutaneously for each 75 lb. of body weight	9 20	5 20
Thromboplastin hypodermic (Squibb)...	2.5 c.cm.	Intravenous	10 to 20 c.cm. every 24 to 48 hours	20 10	8 5
Thromboplastin hypodermic (Squibb)...	7.5 c.cm.	Intravenous		19 0	7 20
Hemoplastin (Parke, Davis)	0.25 c.cm.	Intravenous	2 c.cm. either intravenously or subcutaneously; in severe cases 5 c.cm.	11 0	8 0
Sodium citrate... ..	5 c.cm. of a 10% solution	Intramuscular	30 c.cm. of 10% solution intramuscularly	17 30	5 40

Note.—Hypercoagulability is evident in a few minutes after intravenous injection (two to three minutes). In intramuscular injection the results are naturally slower. In the experiment recorded with fibrogen (Merrell) the blood was shed three hours after injection, in that with sodium citrate one hour after injection.

Conclusions.

Each of the newer haemostatics accelerated the clotting of pure blood *in vitro*. Table I shows that preparations which appear inefficient at room temperature (17° C.) are active coagulants at body temperature. The standardization of haemostatics by reactions at room temperature is therefore undesirable. It also follows that coagulant haemostatics should be applied locally at body temperature and the wound should not be allowed to cool.

The application of a haemostatic by continuous irrigation is inadvisable, as the clots formed are disturbed by the moving liquid and complete clotting of the escaping blood is thus hindered. The use of a hot bandage (37° to 40° C.) soaked in the haemostatic avoids disturbance of the clots whilst providing a temperature at or near the optimum for haemostatic action. This practice is also useful when the haemostatic is administered internally when haemorrhage continues from an accessible wound.

Of the preparations investigated only those mentioned in Table II are used internally. They do not produce either a severe fall in blood pressure or intravascular clotting in the cat when administered by the routes and in the concentrations named. The experimental results thus agree with the clinical observations. Periodicity is evident in the coagulant action of some of the preparations, the lower dilutions being more active than the higher. These results correspond with those shown in the experiments of Waksman⁷ on the coagulant action of cephalin. The greater activity at lower dilutions may account for the sudden cessation of bleeding which sometimes occurs when initial haemostatic action is small.

The increased coagulability of the blood after the intra-

venous injection of small amounts of sodium citrate is not described, as it is established both experimentally^{8,9} and by numerous clinical observations.^{10,11,12}

Summary.

1. A method of standardizing the coagulant action of haemostatics is described.
2. Those haemostatics which precipitate blood plasmas are ineffective.
3. All the haemostatics named in Tables I and II are effective coagulants when the temperature of the blood is maintained at 37.5° C. Some are also effective at room temperature.
4. Stress is laid on the maintenance of the temperature of the wound at 37.5° C. in the use of haemostatics.
5. The experimental results recorded in this paper agree with the clinical observations on the efficacy of the haemostatics investigated, but are at variance with the findings of those investigators who have employed blood kept fluid by either oxalates or citrates.

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ACUTE DUODENAL OBSTRUCTION DUE TO NEO-NATAL VOLVULUS.

BY

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We think this case may be of interest as illustrating one of the congenital causes of vomiting in infants dealt with by Dr. H. C. Cameron in his Lumleian Lectures, which were published in the *BRITISH MEDICAL JOURNAL*.

J. W. B., a male infant, born in the obstetrical unit of the Royal Free Hospital on July 23rd, 1925, after a normal pregnancy and delivery, was healthy, weighing 8 lb. 1 oz., at birth. Breast-fed, his progress was in every way normal for the first six days of life, and on the seventh day his weight was 8 lb. 6½ oz. On this day he began to vomit at irregular intervals after feeds, sometimes immediately, sometimes after a lapse of ten to thirty minutes. For three days he was given mercury and chalk 1/8 grain twice daily, and his food was changed successively to diluted breast milk, to Nestlé's milk (one part in twelve), to albumin water and brandy, and, finally, to normal saline.

On the second day of illness the vomit contained much bile, and on the third day vomiting became projectile. On the fifth day visible peristalsis of the stomach was observed. The abdomen was scaphoid, and at no time could any tumour be felt.

At first the stools were normal milk stools, but on the twelfth day of life (fifth day of illness) two stools were passed consisting apparently of pure meconium. All later stools consisted of mucus only, tinged green. On two occasions the stomach was washed out with sodium bicarbonate; the fluid returned contained large quantities of bile.

The diagnosis of low duodenal obstruction was made and the question of operation considered. The general condition of the infant, however, contraindicated operative measures. The child gradually grew weaker, and on the evening of the eighth day the temperature rose suddenly to 104° F., death occurring on the tenth day of illness.

Throughout the illness the baby at no time showed any sign of pain or shock suggestive of acute abdominal lesion. From the seventh day of life, when his weight was 5½ oz. above birth weight, he lost weight progressively, until at death, on the eighteenth day, he was 2 lb. 9 oz. below birth weight.

Post-mortem Examination.

On opening the abdomen the much dilated stomach and first and second parts of the duodenum presented; they formed one continuous distended cavity, the stomach passing from the pylorus to the left and upwards, to press on the left lobe of the liver. The coils of small intestine were collapsed and purplish-black. Gangrene of the small intestine had begun, and there was a very

fetid odour. The caecum lay on the left side of the abdomen, with a retrocaecal appendix. The tense ascending colon passed from left to right across the fourth part of the duodenum, under cover of coils of ileum. The transverse colon lay coiled under the dilated stomach on the left side. The descending and pelvic colons and the rectum were normally situated and attached.

Between the pylorus and the splenic flexure of the colon there was no direct attachment of the intestines to the posterior abdominal wall. The duodenum had a mesentery. There was acute torsion of the third part of the duodenum, and, round this point as axis, there had been a volvulus of the entire gut distal to the third part of the duodenum and proximal to the middle of the transverse colon. The superior mesenteric artery was twisted spirally round the third and fourth parts of the duodenum. The presence of the artery, together with the acute torsion, effectually obstructed the lumen of the gut at this part. The vascular lumen was apparently also partially, or completely, obstructed.

The torsion of the duodenum was readily undone by twisting the mass of intestine from left to right, through an angle of 180 degrees. The duodenum was then seen as a straight tube

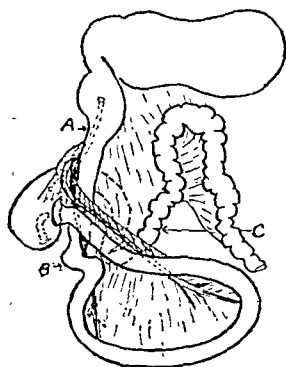


Diagram of position of viscera at birth. A volvulus of 180 degrees occurred, secondary to this condition, the caecum passing forward and to the left in front of the duodenum. The superior mesenteric artery was carried across the third part of the duodenum. A=Superior mesenteric artery, B=Duodeno-jejunal flexure, C=Transverse colon.

with a much thickened muscular wall, running straight down the abdomen; the birth condition had apparently been re-established, any further reduction producing a torsion in the opposite direction. The caecum now lay directly to the right of the duodeno-jejunal flexure. The main loop of small intestine between the duodeno-jejunal and ileo-caecal junctions passed from left to right, the returning limb of the loop (ileum) crossing to join the caecum directly in front of the duodenum.

The ascending colon passed round behind the duodenum through an arc of three-quarters of a circle; there was an acute bend, and then the transverse colon passed upwards and to the left, to lie under the stomach, as described above. The knuckle of bowel caused by the bend was tightly bound down on the left of the duodenum to the upper surface

of the mesentery of the ileum. The ascending colon was also adherent to the root of the mesentery as it passed behind the duodenum. The rest of the gut had a free mesenteric attachment.

The mesentery was drawn tightly round the third part of the duodenum, drawing with it the superior mesenteric artery, which thus passed successively downwards behind the duodenum, forwards round the right side of the duodenum between the duodenum and ascending colon, then transversely across the duodenum, passing into the mesentery of the ileum. A large branch of the artery passed obliquely downwards, crossing anterior to the duodenum, and then behind the duodeno-jejunal flexure, to supply the jejunum. This artery appeared to cause partial obstruction to the duodenal lumen. The lumen of the colon was obstructed by the acute flexure at the junction of ascending and transverse colons. The caecum and ascending colon contained faeces of a normal yellow colour. The ascending colon was tense and smooth.

The specimen suggests a primary malrotation in a direction the reverse of the normal, bringing the colon behind the duodenum, this rotation being arrested, at the stage where the ileum had passed forward across the duodenum, by the firm adhesion of the transverse colon to the mesentery of the ileum. Any further rotation could only occur by torsion of the duodenum and volvulus. After birth the irregular peristalsis induced by the obstruction at the duodeno-jejunal flexure, and more especially at the junction of the ascending and transverse colons, determined the occurrence of the volvulus, which carried the caecum through an angle of 180 degrees across the duodenum to the left, twisted the superior mesenteric artery tightly across the third part of the duodenum, and thus produced acute duodenal obstruction.

Our thanks are due to Professor McIlroy and to Mr. Norbury for permission to publish the case.

A CASE OF EMBOLECTOMY.

BY

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Mr. GEOFFREY JEFFERSON is to be heartily congratulated on the successful case of embolectomy recorded in the *BRITISH MEDICAL JOURNAL* of November 28th, 1925. In a leading article in the same issue some comments are made (to which I shall refer later) on a case upon which I operated in 1911; the details of this were published in a clinical lecture on post-operative embolism of the femoral artery in the *Clinical Journal* of December 10th, 1913.

The publication of Mr. Jefferson's case has stimulated me to record a case on which I operated in 1914 at St. Bartholomew's Hospital, and which I should probably have published before but for the war.

A married woman, aged 27, was admitted to the maternity ward at St. Bartholomew's, under Dr. Barris, on March 2nd, 1914. She was suffering from mitral stenosis, and had severe albuminuria with oedema of both legs. On March 4th she was delivered with forceps. On the following day marked dilatation of the heart was noted, followed by dyspnoea. During the morning of March 13th sudden acute pain was felt in the right foot below the knee, and no pulsation could be felt in the leg below the groin.

I saw the patient about five hours after the onset of symptoms. She was desperately ill, with feeble pulse and severe dyspnoea. The right limb was somewhat mottled below the knee, cold and insensitve. No femoral pulse could be felt. I exposed the common femoral artery under local anaesthesia, the patient being propped up in the sitting position as she was unable to lie down. I removed an embolus from the bifurcation of the artery with some recent thrombus from above, passing a probe up the artery until blood flowed. The artery was closed with fine vaselined silk, and pulsation was restored to the limb immediately after the operation. Shortly after the patient was returned to bed it was noted that pulsation in the femoral could not be obtained. The patient died the same evening, about three hours later. Before death pulsation was absent from both femorals.

Post-mortem examination showed that thrombosis had occurred in the right common femoral artery up to the bifurcation of the aorta and down to the junction of the external and internal iliacs on the left side. Mitral stenosis, bilateral pleural effusion, and chronic interstitial nephritis were also found.

It is doubtful if this patient would have recovered in any circumstances in view of the severe kidney and heart disease, but the rapid and extensive thrombosis above the embolism showed that the operation was performed too late. It seems probable that after the embolus had been removed the probe passed through and did not dislodge to any extent the thrombus, which possibly was even then extending up to the bifurcation of the aorta. So feeble was the action of the heart that the channel was soon blocked up again—a block which before death occurred extended to the left common iliac.

This case emphasizes the importance of early operation if any benefit is to accrue.

In the case which I published in 1913 (operation in 1911), referred to in the *BRITISH MEDICAL JOURNAL* of November 28th, 1925, an embolus occurred in the common femoral artery a fortnight after laryngectomy for carcinoma. At the operation the embolus became dislodged when the artery was lifted up in the wound in order to apply a Crile clamp before arteriotomy, and was checked at the bifurcation of the popliteal. I did not expose the popliteal but awaited events. Gangrene occurred below the knee. I subsequently amputated just above the condyles, and the patient made a good recovery.

It has been argued (*BRITISH MEDICAL JOURNAL*, November 28th, 1925, p. 1018) that the lower end of the popliteal should then have been exposed and the clot removed, a procedure which may present considerable difficulties. In the *Clinical Journal* I argued that immediate massage or pétrissage, as described and advocated by M. Paul Claisse (*Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris*, June 10th, 1910, p. 766) in reporting a successful case, might have been

successful in breaking up the embolus at the time of lodgement and before thrombosis had occurred. I still think that this might have succeeded and ought to have been tried. Such an opportunity of breaking up an embolus at the instant of formation, before thrombosis had commenced, is not very likely to occur again. In this case no serious thrombosis had occurred above the femoral bifurcation, as femoral pulsation was restored after dislodgement of the embolus, and remained intact down to the knee.

Massage, by the breaking up of a peripheral embolus, deserves more attention than it has met with, especially in the aged.

ACUTE SUFFOCATIVE PULMONARY OEDEMA.

PREVIOUS references to acute suffocative pulmonary oedema seem to indicate that this condition is less rare than was previously thought. The etiology is uncertain, but the notes and reports recently received throw a little light on this problem which has an important bearing on treatment. Hitherto such remedies as atropine, strychnine, and pituitary extract have been prescribed for the relief of symptoms in the absence of a clear conception of the underlying cause. Disturbance of the vasomotor mechanism of the lungs was suggested by Dr. F. B. Julian (April 17th, p. 697), while Dr. M. Cohen (March 20th, p. 528) ascribes the occurrence of the symptoms to a sudden transient relative failure of the left ventricle.

I.—ASSOCIATION WITH CARDIAC DISEASE.

Acute suffocative oedema of the lungs is an event so serious and so far from being a rarity that I may perhaps be allowed to give my conclusions, based on a series of cases from 1921 to 1925, which I studied in some detail. The one factor common to all is an advanced degree of cardio-vascular sclerosis. Valvular disease was present in some, but not in others; in all of them there was just prior to the attack or had been at some time evidence of auricular fibrillation. The onset is sudden in patients previously comfortable, or at any rate not distressed by their arrhythmia, and in no case was there peripheral oedema. During the attack the patient is only partially conscious and may have no recollection next day of any measures taken during the attack. With one of my series I had several opportunities of examining the chest very early in an attack, and the picture presented to the mind by auscultation is that of an attack of asthma without the lengthening of the expiratory phase; the oedema process creeps over the lung lobule by lobule, and with the extension the distress increases steadily. I have not in any of my cases been able to make out increase in the diameter of the heart over what it had been the day before. As to treatment, all my cases responded to hypodermic administration of atropine, with or without morphine, but in some resection is necessary in addition.

I think the routine treatment for the cases with free expectoration should be 1/50 grain of atropine followed at once by resection to about 20 oz.; as the attack subsides a further dose of 1/100 grain of atropine should be given with at least 1/4 grain of morphine to ensure sleep and give the neurones time to recover.

I have used adrenaline and also amyl nitrite, and found them without appreciable effect. The events are intensely dramatic, and the patient, who at 10 p.m. was moribund, at 10 a.m. next day may be enjoying his ordinary breakfast without an added sound in his lungs and without recollection of the events of the night before.

The pathology seems to be some vasomotor derangement. It certainly is not heart failure in the ordinary sense, for in one of my patients the attacks lessened and ceased as the ordinary signs of muscle failure appeared, and in the last few weeks of her life she was free from the attacks, though she had the peripheral oedema and other signs of progressive heart failure.

The late Sir James Mackenzie in a private communication said he had done autopsies on several of these cases without being able to discover the actual cause of death: that the dilatation of right heart theory was not true—enormous dilatation was common enough but never in

association with this peculiar oedema; that he had little doubt it was a vasomotor phenomenon and not explicable on a mechanical basis, but that he had never found or known of any sensible explanation, experimental or otherwise.

It seems that we must wait on the physiologists to enlighten our darkness by further experimental work directed to this particular subject, which may also help to elucidate angina pectoris.

Stafford.

A. E. HODDER, M.B.

Of the cases cited in the JOURNAL of April 17th (p. 696) and by Dr. Cohen, March 20th (p. 528), no fewer than eight out of the eleven were the subjects of valvular heart disease. Dr. Coleman's fifth case may possibly also have been. The cardiac condition is not mentioned in the remaining two cases.

The known association of auricular fibrillation with mitral stenosis raises the question whether acute suffocative pulmonary oedema may be due to paroxysmal auricular fibrillation.

The following case is significant.

An adult woman was admitted to hospital one evening under my care with an acute abdominal condition; there were abundant moist râles all over the chest. The pulse was so rapid that it was impossible to count it with any accuracy. The patient was in the same distress as is seen in acute suffocative pulmonary oedema. Though she was spitting up frothy mucus it was not pink or abundant. The heart beat did not sound irregular, but it was so fast that it was difficult to estimate the rhythm. Something made me suspect that the auricle was fibrillating, and when the ward sister told me that the patient had previously been in the ward with some heart condition I no longer doubted it. Neither a general anaesthetic nor any operation was admissible; either would have been fatal; 1½ drachms of tincture of digitalis was given at once, and at six-hourly intervals 1/45, 1/30, and 1/15. The result was most gratifying, and next evening a laparotomy was performed under local anaesthesia, and a band which was obstructing the bowel was divided. The patient recovered.

I know that dyspnoea and attacks of nocturnal cardiac dyspnoea occur in patients whose ventricular beat is not so irregular as to suggest auricular fibrillation (I do not speak of the actual attack), but the presence of this condition may be demonstrated by a polygraphic tracing. I would suggest that a very careful investigation of the cardiac condition in all cases of acute suffocative pulmonary oedema may lead to an elucidation of the true nature of this condition. Such cannot, of course, be made during the urgent symptoms, but possibly some of the patients who survive the attack may show evidence of fibrillation in a venous tracing made when the urgent symptoms have subsided.

S. M. HEBBLETHWAITE, M.D.Lond., M.R.C.P.

Cheltenham.

The following case of recurrent attacks of acute pulmonary oedema may be of interest.

The patient is a woman, aged 52 years. She has aortic incompetence, signs of which were first observed three years ago. Between her attacks she is very pale; the heart is moderately enlarged, and the systolic blood pressure in the arm is 160 mm. Visible pulsation in the carotid arteries and water-hammer pulse are well marked. There is oedema of the feet, but no signs in the lungs. She is irritable and difficult to manage.

During the past year she has had nine attacks of acute oedema of the lungs, all of a similar character. The interval between the first two was about three months, but they have gradually become more frequent, only a fortnight intervening between the last two attacks. They all occurred (with one exception) between 10 and 12 p.m., and nearly all on Sundays—perhaps brought on by excitement and overeating on these days. The onset is sudden and without any previous warning. On arrival, she is found making efforts to sit up in bed; she is anxious and terrified and appears to be aware of the danger of the attacks. The breathing is rapid and difficult. The face is pale and covered with a cold sweat. The lips and nose are livid. The fingers are cold and clammy. The pulse is feeble, small, and rapid. The temperature is subnormal. There is a profuse pink frothy expectoration and foaming at the mouth. After a short time consciousness is lost. Over the entire chest are heard numerous coarse bubbling râles. The attack lasts about two hours. On one occasion the patient had two attacks in one night, between which she recovered consciousness and lost her distress. On the day following an attack she feels quite well, and has often been found out of bed.

The treatment adopted in each attack consisted of a hypodermic injection of morphine 1/6 grain and atropine 1/100 grain, aromatic spirit of ammonia (1 drachm) by the mouth, and a hot-water bottle to the feet. If there was not much improvement in fifteen minutes the atropine was repeated.

London, N.

M. ROCKFELT, M.B., B.S.Lond.

In the *BRITISH MEDICAL JOURNAL* for April 17th I notice some published cases of acute pulmonary oedema. My case was as follows:

A man, aged 60, with high arterial tension and mitral regurgitation, commenced his illness with acute bronchitis; on the second day bubbling râles were audible without a stethoscope, accompanied by considerable dyspnoea.

At 5.30 p.m. on the third day I was called in and found him with marked dyspnoea and cyanosis, drowning in his own secretion, although in the morning his condition was better than on the second day. Diarrhoea was present, and his pulse rate was 136, occasionally irregular. I immediately gave him a hypodermic injection of digitalin 1/100 grain, strychnine 1/64 grain, and atropine sulphate 1/75 grain. In two and a half hours' time he had completely recovered, with a pulse rate of 80. He asked me, in fact, what he might eat.

Kensington, W. E. V. SLAUGHTER, M.R.C.S., L.R.C.P.

II.—OCCURRENCE IN CHILDREN.

THE case of acute pulmonary oedema which Dr. Kenefick recorded (*JOURNAL*, January 9th, p. 55) draws attention to a condition which is probably far from uncommon, yet only dealt with casually in textbooks and the medical schools. On January 9th I read in a newspaper an account of an inquest on a child aged 2, who was stated to have died from an acute exacerbation of a latent pneumonia, but, from the description given, I imagine that this was also a case of acute oedema of the lungs. During 1919 and 1920 there were recorded in the columns of the *JOURNAL* several letters on acute suffocative catarrh—again, presumably, the same condition. Personally I have seen two definite cases, one of which I reported (*JOURNAL*, February 28th, 1920, p. 293). Both were fatal, but indeed they were moribund almost at the very beginning of the attack. To deal effectually with the condition as Dr. Kenefick did requires an exceptional combination of circumstances, since the acute cases of the disease are sudden in onset, occur in previously healthy patients, and are rapidly fatal. It must therefore be admitted that acute oedema of the lungs is a disease in which sudden death may occur in the apparently healthy, and which, if from no other point of view than the medico-legal one, warrants adequate consideration by general practitioners. The point I wish to make is that there are probably many cases of less acute or subacute oedema of the lungs in children which are not fatal, which are generally diagnosed as acute bronchitis, and which I certainly hold are non-microbial or non-inflammatory in origin. It is not uncommon to be called to a child who was quite well on the previous day or even on the same morning, and yet has suddenly developed a severe cold. Examination reveals some difficulty in breathing, and maybe some degree of cyanosis, while loud crepitant sounds are heard all over the chest, both back and front. A diagnosis of a very acute bronchitis is made, treatment prescribed, and a guarded prognosis given. On the next day, however, the patient is found quite well and perhaps playing. I do not now regard such a case as acute bronchitis, but as subacute oedema of the lungs, which, in my opinion, is essentially anaphylactic in origin. The mother cannot tell how the child caught the chill, but may state that the patient on a day or two previously had eaten something unsuitable.

The diagnosis is made by the history, the rapidity of onset, and the absence of pyrexia. The only other disease which somewhat resembles it is acute diphtheritic laryngitis, but a careful examination will distinguish between the two conditions. The treatment is an emetic, followed later by a small dose of calomel and the administration of tincture of belladonna. The ordinary expectorant mixtures should not be given.

There is an analogous group of cases which, clinically at any rate, usually come under the category of acute nephritis, and which I view as essentially similar in origin. How often does one see a child with all the physical signs of acute Bright's disease, yet no history is obtained of any previous chill or acute infection, and in the course of a week or so the patient is quite well. No trace of albumin is found in the urine, whereas at the onset the urine was loaded with albumin and perhaps contained blood. In some of the recorded cases of acute oedema of the lungs

the abundant frothy expectoration was albuminous and accompanied by blood.

The study of acute pulmonary oedema is eminently one for the general practitioner who has the opportunity of seeing and treating it from the beginning. I do not think there is a more dramatic calamity than an acute case of this condition. I have been informed that Zola, somewhere in one of his books, describes a case; if any reader can supply the reference I should be very grateful.

Stewart McNaughton,
Monkwearmouth Hospital, Sunderland. M.D., D.P.H.Camb.

III.—FATAL TYPE.

THE series of cases of this condition published in the *JOURNAL* of April 17th demonstrates, not the value of any particular line of treatment, but the fact that one type of the disease will recover in spite of the adoption of the classical heroic methods or of other methods of an empirical nature. I wish to counteract the unjustifiable optimism engendered by the recording of successful cases, and to point out that there is a type in which no treatment is of avail, as death occurs before aid can be summoned.

My personal experience extends to three cases; in one of them, occurring during the course of status epilepticus, the subcutaneous injection of camphor in olive oil resulted in subsidence of the oedema of the lungs; in the other two the result was not so happy. The first of these fatal cases was in a woman, aged 60, who was brought into hospital dead, with the typical pinkish froth issuing from her lips and lying on the front of her blouse; she had felt faint, gone into a shop, and horrified the shopkeeper by suddenly expectorating an enormous quantity of frothy fluid and dying within thirty seconds. The next case was in an old man with what at autopsy proved to be syphilitic aortitis and coronary disease; his death was no less dramatic. He had been in hospital for about six hours, and was fairly comfortable in spite of his failing heart and cardiac oedema of the lungs of a slight degree; suddenly he sat up in bed, called a nurse, jumped out of bed with foam issuing from his mouth copiously, and fell dead before he could reach a chair three yards away.

For the less acute type I would suggest that the rational treatment is the immediate subcutaneous injection of 1 c.cm. of pituitrin to reduce the pressure in the pulmonary circulation, atropine sulphate 1/30 grain to reduce the pulmonary oedema, with the knowledge that its action will not develop for about twenty minutes; phlebotomy to the extent of a pint from the external jugular vein; and oxygen if it can be administered through the froth issuing from the upper respiratory tract.

Birmingham. ERNEST BULMER, M.D., M.R.C.P.

IV.—DRY CUPPING: RECOVERY.

MAY I add my experience with reference to the cases of acute pulmonary oedema reported in the *JOURNAL*?

In March, 1925, at 2 a.m. I was called to see a lady, aged 65, a visitor at a hotel. On first observation the patient appeared to be in *extremis*. She was deeply cyanosed, speechless, and orthopnoic. There was some coughing, with frothy mucus, and a hurried physical examination revealed dullness with moist sounds, but no heart murmurs. The pulse was very feeble; the temperature was normal.

A hypodermic of caffeine was administered, and the patient was dry-cupped extensively over the front and back of the chest. For this purpose a miscellaneous assortment of glasses were requisitioned, such as champagne, wine, and ordinary tumblers. The result was not picturesque, but the almost instantaneous relief afforded was striking and remarkable.

This lady has been a visitor again this year, and in the interval has remained well.

In this case I should certainly not think of administering antimony tartrate, as recommended by one of your correspondents; such treatment, in my opinion, is open to serious criticism.

Cairo.

T. GERALD GARRY, M.D.

We may note here that in the *Journal of Physiology* for March (vol. xxi, No. 1, p. 98) there is a paper by R. K. Lambert and H. Gremels from the Institute of Physiology, University College, London, relating some

experiments on the factors concerned in the production of pulmonary oedema. By means of the heart-lung preparation, the use of saline injections, and estimating the extent of effusion into the lung tissues by measuring the increase of electrical conductivity the course of the development of pulmonary oedema was followed. It was possible to rule out such factors as the rise of pulmonary pressure, the dissociation of the outputs of the ventricles, and affirm that the real cause of oedema lay in the changes which occur in the endothelium of the capillaries. This experimental conclusion seems to be in agreement with the results derived from clinical observation.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SCURVY SIMULATING ACUTE INTUSSUSCEPTION.

The following case, being one of scurvy in a somewhat atypical form, presents certain features of interest.

A male child, aged 2½ years, had for three weeks been peevish and shown a disinclination for food. Two hours previously the child had vomited, and had suffered spasms of abdominal pain recurring every twenty minutes. Streaks of blood had been passed twice with normal motions. He was fat and slightly pale, but otherwise healthy in appearance. Abdominal pains of a colicky nature were obviously present. Physical examination revealed nothing abnormal, but the temperature was 101°.

Rectal examination showed no abnormality, and urine was normal. The symptoms of abdominal colic with passage of blood in a healthy-looking boy baby led to a tentative diagnosis of intussusception. It was decided to wait a few hours, however. Six hours later a very marked purpuric eruption was present over the abdomen and buttocks. This was followed within an hour by a large boggy swelling over the right side of the head and orbit. Shortly afterwards a similar tender swelling occurred over the lower end of the left femur. The gums were not affected. Scurvy was diagnosed and antiscorbutic treatment instituted. Within twelve hours the rash faded, and within forty-eight hours a great reduction in the size of the swelling occurred. Inquiry into the previous feeding of the child showed that there had been a vitamin deficiency in the foodstuffs given.

The chief points of interest in this case are: (1) that the child is older than is usual for this disease; (2) haemorrhage from the bowel is not a very common symptom in scurvy, and in this case made the clinical picture approximate to that of acute intussusception; (3) the purpuric rash, taken in conjunction with the abdominal pain, simulated Henoch's purpura, and it was not until the large haemorrhages occurred elsewhere that this diagnosis was abandoned.

ROBERT R. FOOTE, M.R.C.S., L.R.C.P.Lond.

Maidenhead.

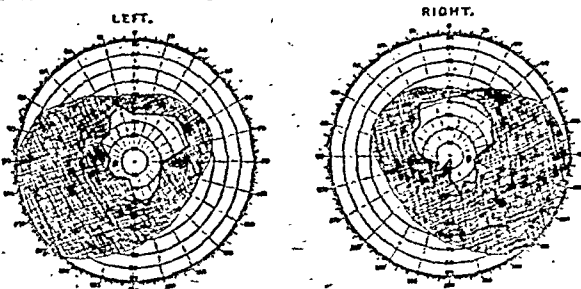
A CLINICAL OBSERVATION BEARING UPON THE CORTICAL LOCALIZATION OF VISION.

The visual centre is situated in the cerebral cortex; around the calcarine fissure, on the mesial aspect of the occipital lobe. Each occipital centre corresponds to the homolateral half of each retina and to the contralateral half of each visual field. Hence destruction of one occipital cortex results in loss of the field of vision on the opposite side—homonymous hemianopia. The calcarine fissure divides the half-vision centre into an upper and a lower part, which correspond to the upper and lower quadrants of the related half-retina. A lesion of one of these parts causes a condition of quadrant hemianopia, a lesion above the fissure resulting in a loss of lower quadrants in the visual fields, a lesion below the fissure, of upper quadrants.

Special reference to the localization of central and peripheral vision has been made by Gordon Holmes in his Montgomery Lectures. From his cases of war injury he drew the conclusion that the macular and perimacular regions of the retinae are represented at or near the occipital poles of the hemispheres, and assumed that the centre for peripheral vision lies in the anterior portion of the visual area. He quotes a case of Riddoch's in support of this latter view. A missile and fragments of bone had inflicted injury on the mesial aspects of the occipital lobes, probably in the anterior portions of the visual centres; there resulted a contraction in the peripheral field of vision of each eye.

The case here put on record is a parallel one.

Trooper S. was thrown from his horse on September 15th, 1915. His head struck a sharp point of rock, which penetrated the skull at a point 5 cm. anterior to theinion, and exactly in the middle line. A gap of 2 cm. diameter was made in the skull, the superior longitudinal sinus was torn across, and fragments of bone were driven between the occipital lobes. A small amount of brain tissue was escaping. The bone fragments were removed,



and the sinus was plugged. The man made an easy recovery, but complained that he seemed to be looking through two tubes. Examination of his visual fields showed extensive and remarkably symmetrical loss in the peripheral portions (see figure). I have seen this man again after an interval of ten years. He had no disability from his injury other than the narrowed vision, which remains unchanged.

KENNETH MACKENZIE, M.D., Ch.M.Ed.,
Auckland, New Zealand. F.R.C.S.Eng.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

OXFORD DIVISION.

A MEETING of the Oxford Division was held at the Radcliffe Infirmary on May 26th, when Dr. CHEATLE presided over a gathering of thirty-six members.

Mr. WAGSTAFFE related the surgical results of a rather unique motor accident, in which one car crashed into another (a three-seater) at right angles. The car was not overturned, and no one was thrown out. Two of the three occupants in the second car, both young women, received fractured pelvis; while the male companion who was on the side distant from the blow escaped injury. The patients were able to walk after two and a half and three and a half months respectively.

Mr. HUGH WHITELOCKE showed a case of a man aged 61, who had had difficulty in swallowing since 1910, gradually becoming worse. In 1918 x-ray examination showed a pharyngeal pouch, and gastrostomy was performed. The question of removal of the diverticulum was discussed. He also showed a woman, aged 51, with a spontaneous fracture of the humerus. Malignant disease as a cause appeared to be excluded, but it was uncertain whether the break resulted from a simple cyst, a blood cyst, or a condition of fibromatosis.

Mr. BEVERS showed a specimen of the complete sac and ovum in a case of tubal gestation, and also a fine example of a uterine cast from the same patient, whose recovery after operation was uneventful.

Mr. MAX PAGE gave a valuable address on the treatment of some common fractures, illustrated with lantern slides. His paper was subsequently discussed by several members.

ULSTER BRANCH.

THE annual meeting of the Ulster Branch of the British Medical Association was held in the King Edward Memorial Hall of the Royal Victoria Hospital, Belfast, on May 27th; the President, Dr. GAUSSEN (Dunmurry), occupied the chair.

Clinical and Pathological Demonstrations.

The following demonstrations were given:

Professor MACILWAINE showed three cases of endocarditis—one of specific origin, one rheumatic, and one of subacute endocarditis.

Dr. MORROW showed a case of splenic anaemia, and one of specific enlargement of the liver.

Dr. G. G. LITTLE and Professor THOMSON showed a case of achalasia of the cardia.

Dr. BOYD CAMPBELL showed a case of intermittent claudication improved by removal of the arterial nerves from an inch of the femoral.

Dr. MARSHALL (Ulster Hospital for Children, Belfast) showed some cases of congenital heart disease, including two of patent ductus arteriosus.

Dr. ALLEN (Queen Street Hospital for Sick Children, Belfast) showed some cases of rheumatic endocarditis in various stages, a case of congenital heart disease, probably the patent ductus arteriosus type, and a case of coeliac disease with infantilism.

Dr. TURKINGTON showed a case of syringomyelia with cervical ribs, and a case of functional paraplegia.

Dr. McCaw showed a case of monilethrix of the hair in a woman.

Dr. FOSTER COATES showed a case of dementia praecox, and a case of disseminated sclerosis.

Mr. MITCHELL showed a case of abdomino-sacral excision of the rectum with preservation of the sphincter.

Mr. KIRK showed a case of pyrorectomy, of fibrosarcoma of psoas muscle, of epithelioma of the scalp, and of hypernephroma.

Professor FULLERTON showed a tuberculous kidney with cystograms; a fixation forceps and its use for ureteral calculus; epithelioma of lip, resection and plastic modelling of face; spinal graft; a case of cancer of the breast removed twenty years ago and now showing recurrences in abdomen.

Dr. CREECH (Coleraine) showed skiagrams of a case of chronic obturator hernia and reported the condition found at operation.

Mr. IRWIN showed a case of Perthes's disease; of congenital coxa vara; of a mongolian child with cleft palate; of dysostosis cleidocranialis; of spastic paraplegia after Stoeffel's operation; of pathological fracture of femur; of transplantation of tendons for claw-hand; three cases of gastric ulcer operated on by Polya's method; of papilloma of renal pelvis.

Mr. CRYMME showed a case of toxic adenoma of thyroid after operation; he also showed three consecutive cases of partial gastrectomy with retrocolic end-to-side gastro-enterostomy: (1) hour-glass stomach; (2) pyloric stenosis with cardiac lesser curve ulcer; (3) prolonged pylorospasm terminating in pyloric cancer; and the skiagram and specimen of a small gastric ulcer situated at the incisura angularis, treated by wedge resection and isoperistaltic proximal gastro-enterostomy.

Mr. MALCOLM showed a case, with recovery to normal function after five years' treatment for multiple surgical tuberculosis of hip, spine, phalanx, and subcutaneous tissue; a case of angioma of foot simulating caries of bone; two cases illustrating the treatment of dental cyst.

Pathological and Biochemical Demonstrations.

Demonstrations were given as follows:

Professor MACILWAINE, a specimen of an aortic aneurysm. Dr. HOUSTON, a method of demonstrating blood platelets; a coccus isolated from ulcerative colitis and found in four cases of the disease, but not in a fifth; a new method of complement fixation. Professor THOMSON, the kidneys of a fatal case of interstitial nephritis in a boy of 15. Dr. T. A. L. JOHNSON, methods of estimating blood sugar and blood urea. Dr. J. S. CAMPBELL, slides showing phagocytosis of red cells in four cases of pernicious anaemia, and cultures of gonococci. Dr. J. CREECH (Coleraine), blood smears of two cases of asthma taken during severe paroxysms—one purely spasmodic in a lad of 13 with 12 per cent. of eosinophilia and 67 per cent. of polymorphs, and the other a case of catarrhal asthma in a woman with no eosinophilia and 90 per cent. of polymorphs.

Reports of Societies.

EDINBURGH OBSTETRICAL SOCIETY.

A MEETING of this society was held on May 12th, the President, Dr. R. W. JOHNSTONE, being in the chair.

Concealed Haemorrhage with Placenta Praevia.

Dr. F. J. BROWNE described a case of concealed haemorrhage with placenta praevia. The patient was a primigravida who had completed eight months of her pregnancy and was admitted to hospital on account of vaginal bleeding. Placenta praevia was diagnosed and the vagina was packed. Twelve hours later the pack was removed and external version attempted, but was not persevered with on account of the large amount of old blood clot that was passed. The membranes were therefore ruptured and spontaneous delivery took place three hours later. The placenta was normal in appearance and size, but overlying it was a quantity of fairly old blood clot, which covered practically the entire portion which had been praevia and extended into the upper portion as well. The clot weighed over 12 ounces. A catheter specimen of urine contained a moderate quantity of albumin. Three other cases described by Holland, Williamson, and Swayne were discussed, after which Dr. Browne stated that none were cases of purely unavoidable haemorrhage, and his own case

showed that in some cases of placenta praevia the haemorrhage might be concealed; the concealed haemorrhage, however, might be due to mechanical separation of the portion of the placenta situated in the lower uterine segment, and therefore was unavoidable. Thus placenta praevia could not be excluded in a case of concealed haemorrhage, and some cases of concealed haemorrhage without albuminuria might be accounted for in that way. In all cases described, however, albuminuria was present, and therefore it was justifiable to presume the bleeding to be of toxæmic origin, and thus bleeding in placenta praevia might sometimes be accidental.

Ante-natal Care.

A communication was read by Dr. W. F. THEODORE HAULTAIN on some practical aspects of ante-natal care, the great importance of such care to mother, child, doctor, and the State being pointed out. In the first place Dr. Haultain disagreed with the relative frequency of the vertex positions as stated in the leading textbooks on the subject. From statistics of 1,000 cases seen within fourteen days of labour at the ante-natal clinic of the Simpson Memorial and Royal Maternity Hospital, Edinburgh, and another 1,000 uncomplicated full-term cases delivered in the labour ward of the same hospital, the relative frequency in round figures was found to be L.O.A. 60 per cent., R.O.A. 30 per cent., R.O.P. 8 per cent., L.O.P. 2 per cent. The figures for primiparae and multiparae were taken separately in each case, but little variation was shown in these two main groups.

TABLE I.—Relative Frequency of Vertex Positions.

	Primiparae.		Multiparae.		Total.	
	Ante-natal. 452 Cases.	At Labour. 477 Cases.	Ante-natal. 548 Cases.	At Labour. 523 Cases.	Ante-natal. 1,000 Cases.	At Labour. 1,000 Cases.
L.O.A.	255=56.4%	304=63.7%	304=55.5%	350=66.9%	55.9%	65.4%
R.O.A.	146=32.3%	129=27.0%	188=34.5%	132=25.3%	33.4%	26.1%
R.O.P.	36=8.0%	40=8.4%	39=7.1%	31=5.9%	7.5%	7.1%
L.O.P.	15=3.3%	4=0.9%	17=3.1%	10=1.9%	3.2%	1.4%

The efficacy of pads as described by Buist in posterior cases was then discussed, and statistics were given of 70 consecutive occipito-posterior cases, which had been treated at the ante-natal clinic during the last two years; 38 of these were primigravidae, and in these the pads proved successful in 33 by substituting an anterior position for the posterior; in multiparae 25 were successful; thus in the whole 70 cases success was obtained in 82.8 per cent. In every case success or failure was judged by the position at labour as well as that found in the clinic after removal of the pads. To achieve success it was stated that (1) the treatment should not be done till the last month of pregnancy, (2) the head must be movable, and (3) castor oil should be taken at night when the pads were in position. No danger could be ascribed by the treatment to either mother or child, and the difficulty of the future labour could not be aggravated by the treatment, which was very simple and would in many cases avoid a tedious and often dangerous labour.

TABLE II.—Application of Pads in Occipito-posterior Positions.

	No. of Cases.	Successful.	Failure.	Per cent. Successful.
Primiparae ...	38	33	5	86.9
Multiparae ...	32	25	7	78.1
Total ...	70	58	12	82.9

The statistics of a consecutive series of cases of external version in breech presentations were then given. In all 23 cases had been so treated in the last one and a half years—12 in primiparae and 16 in multiparae. Among the primiparae version was successful on 9 occasions, and

among the multiparae 14 successes were reported; thus 82.1 per cent. were successful in the total number. Anaesthesia was recommended to aid success in primigravidae, and the manipulation was not advised till the last month of pregnancy. Failure in the primigravidae was attributed to the cases being of the "frank breech" variety, the failure in each case being noted at the time of manipulation, whereas in the multiparae the two failures were caused by a return of the breech presentation after it had been turned.

TABLE III.—*External Version in Breech Presentations.*

	No. of Cases.	Successful.	Failure.	Per cent. Successful.
Primiparae ...	12	9	3	75.0
Multiparae ...	16	14	2	87.5
Total ...	28	23	5	82.1

The technique to be employed in the all-important measurement of the diagonal conjugate was then gone into fully, and it was advised that it should not be taken more than six weeks before full term, for by that time the perineum and soft parts were soft and the promontory of the sacrum could be reached in most cases with comparative ease, whereas earlier in pregnancy it was usually a very difficult procedure. By the estimation at this time, there would still be plenty of time to decide on induction of premature labour if required, and if the pelvis was too small to warrant induction at that time then the case was one for Caesarean section and not induction. With regard to the position of the patient to allow this measurement to be taken with the greatest ease, Dr. Haultain advised the exaggerated left lateral position, the woman flexing herself as much as possible. Extreme gentleness in making the estimation was insisted upon so as to obtain satisfactory results.

In conclusion, Dr. Haultain thought that ante-natal care did not begin early enough, and suggested that patients should be seen after having missed one period; by that means a large number of abortions might be averted, especially those due to a retrodisplacement of the uterus, the bowels could be looked after, and all cases of slight sickness could be treated; thus might hyperemesis gravidarum be practically obliterated. Rarer conditions such as tubal gestation could also be recognized before rupture occurred and the woman's life put in danger.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

A MEETING of the Aberdeen Medico-Chirurgical Society was held on May 6th, the President, Dr. J. CROMBIE, in the chair.

Dr. J. CRAIG read a paper on acute rheumatism in childhood. Although, he said, the term "rheumatism" was unfortunate, they could now pick out a definite entity, a disease that worked by successive recrudescences and reinfections and produced clearly defined clinical pictures. The manifestations of the disease were: (1) carditis, when the heart was mainly affected; (2) arthritis, when the joints were affected; (3) chorea, when the brain was affected; and (4) subcutaneous nodules, when the subcutaneous tissues were involved. These four chief phenomena, he went on to say, as might be expected in a general infection, often occurred together, but in the young invasion of the body by this disease was synonymous with invasion of the heart. It was pointed out by Dr. Craig that many series of statistics could be given to show the seriousness of the problem. In 1925, 13.5 per cent. of medical admissions to the Royal Aberdeen Hospital for Sick Children were cases of active rheumatism. These patients occupied beds for long periods, and the strain on the hospital accommodation was very great. Rheumatism was a disease of childhood. It was a little more frequent in girls than in boys, and more common in urban districts and in the artisan and labouring classes. The problem of the exciting cause was still unsolved. In Dr. Craig's opinion the real causal organism had not yet been found. The essential pathology

of the disease was one of focal nodules disseminated in the fibrous structures of the body. In the heart these nodules were found specially about the central fibrous body. Anatomical specimens were exhibited showing this body and its intimate relationship to the valves. Clinically the mitral valve was most frequently affected; but the aortic valve was more frequently involved than clinical examination showed, and rather as a valvulitis than as a simple endocarditis. In all the other parts affected the same nodules could be found. No special type of child was found to be the subject of rheumatism in Aberdeen. The children were often nervous children, but this nervousness might be due to the disease itself. The symptoms were often vague, but the combination of pallor, languor, and wasting was suggestive. A high temperature, though often present at the onset of the active phase, was not a striking symptom. Dr. Craig then dealt with the signs of carditis in some detail, and the significance of an accentuated second pulmonic sound, of the so-called reduplication of the second sound at the apex, and of mitral diastolic murmurs. In Dr. Craig's opinion the charting of the pulse rate was far more important than charting the temperature. Subcutaneous nodules were found to be not uncommon in Aberdeen—five out of thirty-six cases showed them. All the cases with nodules had marked involvement of the heart, and these nodules must be searched for, as they caused no pain and no symptoms. Tonsillitis was common in Dr. Craig's cases, but the role of the tonsil in rheumatism was somewhat difficult to define. Treatment should be centred on saving the heart, rest and patience being most useful in this connexion. The length of the period of rest in bed should certainly be at least six months. A home for treating the cases during convalescence was required, as accommodation for long periods could not be found in the hospitals. The child should be kept at rest so long as the pulse rate was falling and had not reached normal. The return to normal life should be gradual, and at each progressive stage the effect of graduated exercise on the heart and pulse rate should be noted. In most cases, in Dr. Craig's opinion, removal of the tonsils and adenoids was necessary; but the removal had little effect on the rheumatism itself. The use of salicylates in treatment was discussed; and Dr. Craig was of opinion that their usefulness was somewhat over-rated.

In a discussion which followed Dr. WILLIAM BROWN, Professor ASHLEY MACKINTOSH, Professor R. G. McKERRON, Dr. CHRISTIE, Dr. A. G. ANDERSON, and Dr. SOUPER took part.

THE RELATION OF THE BLOOD FLOW THROUGH THE KIDNEY TO URINE EXCRETION.

At a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland on April 16th, the President, Dr. C. M. WEST, in the chair, Professor J. M. O'CONNOR demonstrated Indian ink injections of the living kidney blood vessels, and read a paper on the blood flow through the kidney and its relation to urine formation. Professor O'Connor said that by diverting the blood of the left kidney down the vena cava into a reservoir while the blood pressure was maintained by a reserve of blood in a compensation tube connected with the aorta, the blood flow through the kidney at constant arterial pressure could be examined. On closing the compensation tube the flow with falling pressure could be determined. If the blood flow was compared with the prevailing pressures there was found with falling pressures a kink or kinks in the graph indicating increases or decreases in the blood flow. These kinks occurred at various levels of blood pressure and of blood flow, and were in the one animal relatively the same at all levels. A similar kink could be produced by diminishing the pressure in the renal artery by a clamp on the abdominal aorta, while the pressure was maintained constant in the rest of the body by a carotid artery connected with the compensation tube. Similar alterations in flow either positive or negative resulted from the injection of diuretics. These results were in keeping with the suggestion that the flow of blood through the kidney was regulated by a compression of the glomeruli by the secretion pressure of the urine. Experiments in which the

kidney vessels were injected with Indian ink showed in agreement with the theory that the relative number of glomeruli uninjected or only partly injected corresponded with the kink on the graph of blood pressure and blood flow.

The PRESIDENT said that until he had heard Professor O'Connor's paper he had not been aware of any opening of the glomeruli, and he did not see why destruction of the capsule should block up the vessels of the glomeruli. Referring to the injection and non-injection of glomeruli, he asked if Professor O'Connor allowed the injection to flow for any length of time first, and to continue flowing till the kidney got black, or if the injection just flowed through the kidney vein. He himself did not see why the blood should flow through every vessel of the kidney simultaneously.

Dr. W. A. TAYLOR asked if Professor O'Connor had ever tried to determine the amount of blood flow through the kidney in a given time, and to calculate from this the relation between the time and the amount of the blood flow through the kidney. He believed this flow was very great.

Dr. F. H. MOORE asked if Professor O'Connor had found the urine altered in any way after he had performed his experiments; if, for example, when the vessels were clamped and the blood flow altered, there was any albumin in the urine. Referring to nephritis, he said that he thought more investigation of the physiology of this disease was required. Oscar Clotts of Montreal, in referring to the altered circulation of the blood in a nephritic kidney as compared with that in an ordinary kidney, had said that in nephritis the kidney was altogether different from the original healthy kidney. Dr. Moore believed that rabbits suffered from chronic interstitial nephritis in their old age, and the study of these animals might throw some light on Professor O'Connor's theory, especially in relation to nephritis.

Dr. L. G. GUNN asked if, when Professor O'Connor was experimenting on one kidney, the second kidney was left alone, and said that sometimes the secretion of one kidney stopped altogether for a time, but that then the other kidney acted very vigorously. After nephrectomy it was quite common for patients to get pronounced attacks of polyuria, without any apparent reason at all.

Professor O'Connor, replying, said that the kidney was almost stony-hard, and this hardness varied according to the activity of the kidney. If the kidney was secreting well it was specially hard. When an injection was given it always came out through the renal vein. The blood flow through the kidney was very great; the maximum flow in a rabbit's kidney was 6 c.cm. of blood a minute. Cutting the kidney nerves caused vaso-constriction, which gradually passed off, but sometimes the constriction was so great that no urine flowed for a considerable time. The second kidney was hardly ever touched, but was nearly always left alone. It was commonly thought that the greater the amount of urine passed the better the kidney was working; but from his experiments he did not think it was so. He believed that as often as not, when the flow was small, the kidney was doing just as much work as when the flow was big.

THE CURE OF HERNIA.

At a meeting of the Brighton and Sussex Medico-Chirurgical Society held on June 3rd, the President, Dr. E. RIVAZ HUNT, in the chair, Mr. M. FITZMAURICE-KELLY read a paper on the cure of hernia.

In reviewing the progress made in the last quarter of a century, Mr. Fitzmaurice-Kelly remarked that the title of his paper represented an ideal, but that they were now substantially nearer to attaining it. One of the chief factors in the causation of recurrences, wound sepsis, was now to all intents and purposes abolished. Discussing the sacculus theory of Hamilton Russell, he expressed the opinion that though it accounted for many cases, it was not as universally true as its advocates claimed, and that, from the practical point of view, while there were many cases in which the sac was the cause of the hernia, and its removal was sufficient to effect a cure, there were many in which there was damage, either primary or secondary, to the abdominal walls, which called for some measures of plastic repair. Discussing the methods advocated, Mr.

Fitzmaurice-Kelly thought that any method which sought to displace muscles by sutures was foredoomed to failure, and that such stitches did more harm than good. For a time the method of filigree implantation had many advocates, and in many cases of ventral and umbilical hernia had given good results; in large inguinal hernia the results were less certain, and any recurrence was very difficult to deal with. Further, the occurrence of wound infection was not uncommon, and was fatal to success. Transplantation of patches of fibrous tissue was introduced to deal with cases, such as direct inguinal and ventral hernias, in which there was a defect of the abdominal wall to fill. The immediate results were good, but many recurrences were reported, owing, it was said, to the absorption of the transplant. But this conclusion was traversed by Gallie of Toronto, who showed by careful experiments that the union of the transplant to the edge of the defect was the weak spot. To meet this he devised the method of using his fibrous tissue transplants in strips, in the form of living sutures, thereby fixing them immovably to the margins of the defect to be filled. The application of this method to many varieties of hernia, especially to recurrences and to cases not amenable to other methods of operation, was described, and Mr. Fitzmaurice-Kelly claimed that since its introduction a large number of patients previously regarded as hopeless could now be cured, and that in all cases in which the removal of the sac was insufficient it was the method of choice. Particularly was this the case in old patients with direct hernias, and in this connexion the use of spinal analgesia, and the consequent immunity from lung complications, was insisted upon.

The PRESIDENT asked whether it was necessary for the patient to lie up for a longer period after the living suture operation than after the more usual methods.

Mr. GEOFFREY BATE said he had originally been rather sceptical, but was now a convert to the method. He asked if any trouble was experienced with the wound in the thigh, and thought that many patients might object to such a large incision apart from the hernia wound.

Mr. H. N. FLETCHER mentioned Souttar's method of silk implantation. In umbilical hernia he had had very good results with Mayo's method of overlapping the aponeurosis. While the living suture method was probably the best for large ventral hernias, many of the slighter cases could be cured by layer-to-layer suture. He emphatically agreed as to the importance of spinal analgesia in preventing post-operative lung complications.

Mr. FITZMAURICE-KELLY, in reply, said that Gallie's researches showed that vascularization of the graft was complete in three weeks, and there was no reason in these cases for a prolonged convalescence. He had had no symptoms referable to the thigh incision in any of his cases; in most, it was easy to suture the gap in the fascia, but when three or more lengths had been taken the gap had been left open without any disability resulting. With regard to Mayo's operation for umbilical hernia, and many other of the older methods, it was certain that good results had been achieved. But all along the line the difference between the best surgery and the second best was represented by a small but constant percentage, and any method which gave a prospect of definite improvement in results should be adopted. Gallie's results, in over a hundred cases (mostly relapsed or rejected as unsuitable by others), so far showed no relapses, and this was a great advance on the results of any other method in similar cases. While not denying that the filigree method and Souttar's method had rendered service, he thought the method of living sutures was sounder in principle and better in practice, and should supersede them.

TYPES OF MENTAL DISEASE.

A MEETING of the Devon and Exeter Medico-Chirurgical Society was held on May 20th at the Devon County Mental Hospital; in the absence of Dr. R. Worthington the chair was taken by Mr. J. M. ACKLAND.

Dr. R. EAGER, medical superintendent of the hospital, showed cases illustrating some of the types of mental disease. The mental deficient type was exemplified by a man, aged 37, who was an imbecile of the "savant" type,

his specialty being the hymn-book. The titles and numbering of the hymns had been memorized by him from cover to cover so far as could be judged by the several tests put to him by the meeting. As an introduction to the manic depressive psychotic class of case, Dr. Eager gave a short explanation of the term defining the condition, and deprecated the loose nomenclature often associated with the melancholic form of the affection. There were two distinct phases for consideration in the manic depressive psychosis. The first was the melancholic phase, of which the chief feature was depression, as indicated by the abject misery in the face, by the general tendency to flexion throughout the muscular system (as evidenced by the bending of the trunk forwards with the chin sunk on the chest, knees flexed), and by retardation of thought. Two middle-aged men were shown in illustration of this phase. In each case the gait was typical, the general appearance miserable, and a very prominent detail was the difficulty in arousing them from absolute silence. In one of the cases there was difficulty in feeding. In contrast to these types, patients were shown of the manic phase, one of whom, a man aged 36, had been recently admitted in the acute stage; although his state was still critical he had made some progress with the continuous warm bath treatment. Four patients—a woman and three men, aged 40 to 65—were also shown, illustrating the milder and more chronic stage where volubility and a braced-up extensor carriage were the common features, with a mental condition varying from mild elation to considerable exaltation. Dr. Eager pointed out the physical wear and tear involved in this phase, whereas in the melancholic phase there was conservation of energy. Passing to consider dementia praecox, Dr. Eager emphasized the potency of hereditary influences in this condition and its occurrence in adolescence, at the threshold perhaps of a promising professional career. There was then a reversion to infantile habits; introspection, a "shut-in mentality," and a lack of concentration were predominating features. The facial aspect denoted surprise as contrasted with the misery depicted on the face of the melancholic type of depressive psychosis. Delusions occurred of the pseudo-type without a "reason basis"; the emotional reactions were indifferent, there were no interests, no anxieties, and no fears. The patients were imitative in action and in speech, and in attitude might show cataleptic phases, katatonia, antics, and mannerisms. Among other cases shown were a youth, who was an example of the "antic" class, and performed somersaults so continuously that a bald patch had appeared over his occiput; and a young bank clerk in whom micrographia and the habit of copying from books in his minute neat handwriting were the outstanding features.

Malarial Treatment of General Paralysis.

Dr. BAINBRIDGE gave a short account of general paralysis of the insane, and of his recent experience of the malaria treatment. The salient points in this disease were the long latent period and the earlier signs which so often appeared to be trivial. There might be a slight diplopia, a slight ptosis, or a transitory fit. As time went on pyrexial attacks might occur, and with coarse tremors, altered reflexes, Rombergism, and slurring speech the diagnosis soon left little to doubt if it had not been already established by an examination of the cerebro-spinal fluid. Dr. Bainbridge briefly touched on the various mental states associated with the disease—namely, the melancholic, paratoid, and the excitable. He urged the importance of carefully choosing patients for malaria treatment, and of not accepting as a cure what might prove to be only temporary improvement. He then showed cases in which malaria treatment had been employed.

Dr. J. W. MURDOCH demonstrated the following cerebro-spinal fluid tests: Lange's colloidal gold test and the Kalkas colloidal paraffin test, both showing the type of reaction found in general paralysis, and the Nonne-Apel (globulin) reaction. Slides were also shown illustrating the fourth ventricle with the well marked "frothing" or cat's tongue appearance in this disease; the cerebral cortex from a case of general paralysis of the insane with proliferation of glial cells and fibres, and degeneration of cortical cells; and a smear showing *Spirochæta pallida*.

Reviews.

TUBERCULIN: ITS VALUES DEFENDED AND EXPLAINED.

THE title of Dr. CAMAC WILKINSON's book, *The Principles of Immunity in Tuberculosis*,¹ has an academic quality that may possibly fail to invite the practical clinician. It is well therefore to state at the outset that, whether the doctrine which the author proposes is or is not accepted, the purpose of its presentation is a therapeutic one. The argument leads to measures of treatment and to methods of prevention, and full recognition is given to the claim that it is by success in these directions and not by ingenious speculations that the validity of the statements advanced can be effectively justified. The book, in a word, presents a scheme for the prevention and treatment of tuberculosis, and more particularly of pulmonary tuberculosis; and this scheme in essence is the use of tuberculin as a diagnostic and therapeutic agent and the establishment of tuberculin dispensaries for the thorough training of practitioners in the administration of this agent. It is an essential part of Dr. Wilkinson's case that such training is an indispensable condition of success and that only by prolonged and practical experience can the wise use of tuberculin be attained. So long ago as 1908 he wrote, "tuberculin is an invaluable and indispensable agent in the diagnosis of early tuberculosis"; and again, "pulmonary tuberculosis can be cured with certainty by tuberculin." After eighteen years of further experience he maintains and emphasizes these positions, and to explain and justify his faith is the purpose of the present volume. A very different verdict has been pronounced and is widely accepted. Dr. Wilkinson challenges this verdict on the basis of his personal observations, and the weight to be given to these must be a matter of individual judgement. What we have to do here is not to appraise the claim, but briefly to describe it.

The following are some of the principal propositions that Dr. Wilkinson sets out to establish: Infection by tubercle is a frequent occurrence in the early years of childhood; the usual avenue of invasion is the respiratory tract; the event may be unattended by any suggestive clinical disturbance, though evidences of pleurisy may sometimes be detected; the primary lesion tends to heal and may completely disappear, but bacilli travel from it to infect the neighbouring lymphatic glands; occasionally resistance here is ineffective and a generalized tuberculosis follows; for the most part, however, the invasion is controlled and localized after a process of struggle between the tissue cells and the attacking bacilli; this struggle may be indicated by fever and other evidences of toxæmia, but not necessarily by physical signs of pulmonary disease; a successful resistance—and this is a frequent experience—confers on the patient a large measure of immunity and protects him from reinfection in later life; the immunity, however, may fail in face of a mass reinfection, and this is the natural history of the ordinary case of chronic pulmonary phthisis; such a condition is not an early or primary manifestation of tubercle, but is, on the contrary, a late development in a patient in whom the first infection occurred in earlier years.

In accordance with these statements it follows that early mild infection with tubercle proves for most people a valuable protective influence, and, but for it, acute tuberculosis at various ages would be a common experience. The immunity is ample against what may be called the ordinary risks of infection, but it may break down in presence of a mass infection, and in such circumstances chronic pulmonary tuberculosis is established. Thus there arrives a new source of potential infection in the community, with the chance, or rather with the certainty, that the vicious and miserable circle will be repeated in other individuals.

It is common ground to all the authorities that protection from mass infection is of the highest importance, for immunity, however established, never reaches a level at

¹ *The Principles of Immunity in Tuberculosis*. By W. Camac Wilkinson, B.A. (Sed.), M.D. (Lond.), F.R.C.P. London: Nisbet and Co., Ltd. 1925. (Demy 8vo, pp. viii + 141. 10s. 6d. net.)

which such infection can be confidently and surely defied. Dr. Wilkinson by no means neglects this aspect of the question—indeed, he emphasizes it. But he wishes to start both prophylactic and therapeutic activities at a much earlier stage, and he asserts this to be possible. His claim is that by the use of tuberculin a pulmonary infection can be recognized before the arrival either of physical signs in the chest or of bacilli in the sputa; that by the same agent, in doses gradually increased to relatively large amounts, the tissue resistance to the invading organisms can be stimulated and carried to success; and that, consequently, the development of what he regards as a late event—namely, chronic pulmonary tuberculosis—can be prevented; and this alike to the advantage of the individual patient and the protection of the community. Further, Dr. Wilkinson affirms that the use of tuberculin in proper doses as a diagnostic agent is entirely free from danger and that in a non-infected person it produces neither a reaction nor other form of disturbance; that treatment by tuberculin in many cases allows the patient to attend to his ordinary calling and has therefore a decided economic advantage; and that even in advanced cases of open pulmonary tuberculosis it may free the sputa from tubercle bacilli, and in this way lessen opportunities for mass infection.

Naturally, in view of all these confident propositions the question arises: If tuberculin is of such high value, why, after so many years, is it so little used? Or rather, Why is it feared and condemned? Dr. Wilkinson will find many authorities who will agree that slight infections in early life have a protective value against non-massive infections in later years; but he ploughs for the most part a lonely furrow when he advocates tuberculin in the fashion he here proposes. Not that he is dismayed on this account. On the contrary, his answer is his own personal experience and the contention that his critics have not satisfied the conditions that he defines; and he warns the practitioner against the use of tuberculin, whether for diagnosis or treatment, unless he has had "three months' training, notably at a tuberculin dispensary." Dr. Wilkinson has made some converts, and he is resolute in his endeavour to make more. But he insists that the way is a hard one and that only those who follow it can be trusted as safe guides. He is evidently fully assured of the soundness of his position, and his book has the interest which belongs to the able and vigorous statement of a strongly held conviction.

TESTS FOR HEPATIC EFFICIENCY.

FULLY recognizing the difficulties of estimating the efficiency of the liver by tests, FIESSINGER and WALTER have reviewed this rather burning subject in a monograph, *L'exploration fonctionnelle du foie et l'insuffisance hépatique*,² which, while written in a philosophic vein, provides an up-to-date account of the now numerous methods of testing the various functions of the liver. The authors give useful references to the literature, especially of their countrymen, who have done so much in advancing new conceptions of this subject.

The monograph is divided into three parts: A summary of the physiology of the external and internal secretions, which occupies about one-fifth of the whole text, appropriately precedes the detailed descriptions of the tests for these functions; this section is the largest of the three. The functions of the liver, beginning with the external secretion of bile, are then taken seriatim, and the tests applicable discussed and their limitations indicated; among the tests for the glycogenic function the authors' honey test is briefly mentioned. The concluding part deals with the clinical aspects of hepatic insufficiency which may be complete, and then presents a uniform picture, or partial, due to disorder of one or some only of the numerous functions of the liver cells, with the result that very varying syndromes may be produced. These minor degrees of hepatic insufficiency are very common and readily induced by osmotic factors and by various poisons, and have been

specially investigated by Fiessinger, who insisted on the fragility of the liver cells. The commonest sign of moderate and chronic hepatic insufficiency is wasting, which is seen not only late but early in the course of cirrhosis.

The monograph closes with a chapter on the treatment of hepatic insufficiency, in which the use of waters, as at Vichy, Vals-les-Bains, Pougues, and Le Boulou, finds a place. In this open-minded treatise there is no attempt to insist on the value of laboratory tests at the expense of the information to be obtained from ordinary clinical examination.

MALARIA AND THE ENGINEER.

A SERIOUS responsibility rests upon engineers of the public works departments in the various colonies in that, after consultation with the health officer, on their shoulders is laid the burden of dealing with one of the gravest of the health problems of the empire—namely, malaria. This burden will be vastly lightened by Mr. HOME's book on *The Engineer and the Prevention of Malaria*.³ Too often works entailing enormous expense are undertaken on general lines of antimalarial campaigns without sufficient regard to the nature of the problem as presented in some special locality. Mosquitos differ in their habits and habitat; the growth of trees may screen a district from invasion, and the removal of them consequently make matters worse; drainage of large sites may be performed without producing eradication of the pest; in short, in many tropical countries money has been wasted owing to the measures undertaken being of the nature of trial and error instead of being the outcome of reasoned discussion of the particular local problem at issue.

Mr. Home's work is based upon wide experience of the question on the Central American coast, in the West Indies, in West Africa, Egypt, and Syria, and is of an eminently practical nature. After brief introductory accounts of the economic loss due to malaria (in which might be included the equally great financial loss from erroneous and ill considered antimalarial measures), and of the vectors of the disease, there follows an interesting summary of different schemes. The large question of low-land drainage is next taken up, and the methods applicable to salt marshes, lagoons, mangrove coasts, rice fields, river marshes, townships, and so on, and the special advantages of different systems in varying conditions. Hill drainage is next dealt with, and then the question of oiling, the use of larvicides, and the biological means of combating the mosquito. There is an excellent chapter on houses and quarters, their site, aspect, and construction.

Due credit is given to other workers, and the illustrations throughout are very clear and really explanatory of the points they are designed to represent. There are remarkably few misprints; in fact we have only noted two—the specific name of *Stegomyia* in the footnote on page 14, and an extra syllable given to Mr. MacGregor on page 22.

There are four appendixes to the book, all of a most practical character. The first, by Lieut.-Colonel MacArthur, D.S.O., M.D., is on mosquito netting, a subject which should by now be well known to medical workers in the tropics from his writings in the *Journal of the Royal Army Medical Corps*. This is a matter on which knowledge has been, and is even now, hazy. The kind of netting to use, the reasons for the size of mesh to be employed, and the correct way of measuring and ordering it are all dealt with. The next two sections, from the pen of Dr. A. P. Buxton, now Director of the Department of Entomology at the London School of Hygiene and Tropical Medicine, are concerned with applied entomology in relation to mosquitos and houseflies. The importance of a knowledge of the meaning of the pH values of waters and of the way to estimate them is by no means a mere academic question in the breeding of insects; the last section of the appendix explains this matter very clearly, though briefly.

To sum up: This is a book which every public works engineer in the tropics should read and keep for future

² *L'exploration fonctionnelle du foie et l'insuffisance hépatique*. Par Noël Fiessinger et Henry Walter. Paris: Masson et Cie. 1925. (Med. 8vo, pp. 267, 5 figures. 30 fr.)

³ *The Engineer and the Prevention of Malaria*. By Henry Home, M.Inst.C.E. London: Chapman and Hall, Ltd. 1926. (Fanny 8vo, pp. x + 176; 43 figures. 35s. 6d. net.)

reference, and every medical officer in charge of a district would reap advantage from it, in that from his medical investigations he would be on firm ground in discussing the relative values of possible measures suggested for dealing with the particular combination of factors presented in his own area.

STRUMPELL'S "PATHOLOGY AND THERAPEUTICS."

A work which has reached its twenty-fifth edition¹ in forty-three years and has been translated into eight languages does not call for review in the ordinary acceptance of the term. The continued demand for it is sufficient proof of its usefulness. The death of Professor STRUMPELL early in 1925 necessitated another being entrusted with the present issue, and the choice of Professor CARL SEYFARTH was a happy one in that his association with the original author, as assistant, has led to the retention of the general plan of the work. Throughout, the clinical aspect of disease is constantly borne in mind and the correlation of symptoms, as far as is possible, with the underlying pathological conditions is never lost sight of. These are points which the student wishes to know, and which the physician should always visualize if his treatment is to be on rational lines and not purely empirical.

No book of so large a size as this—the two volumes before us contain 1,847 pages—can be quite up to date at the time of publication, but we notice the omission of certain matters which have been long enough before the medical world to be included in a work so recently revised as this. Thus, in the section on small-pox and varioloid in the first volume, no mention is made of alastrim, though epidemics have occurred in various parts of the world during the last five or six years; the value of the Schick test is now sufficiently established to warrant inclusion; the use of antidyenteric serum in toxic cases, especially of infection by the Shiga-Kruse organism, is not discussed at all; van den Bergh's test is not mentioned; the causal organism of Weil's disease is said to be a spirochaete, and the differences between spirochaetae and leptospirae are passed over, and there are other ways of diagnosing the disease than by injection of the patient's blood into a guinea-pig; trichiniasis in pigs is not contracted by eating the faeces of trichinosed man; *Ankylostoma duodenale* is described, but the equally if not more common hookworm, *Necator americanus*, is not even mentioned. *Taenia nana* is said to be exclusively a parasite of man, and we have found no reference to the work of the last two or three years on the identity of this with the *Hymenolepis fraterna* of rats and mice. The sections dealing with tropical diseases, if they are to be judged by the standard of the rest of the work, would have been better omitted altogether. It is not possible to deal at all adequately with eleven important diseases in thirteen pages. Some tropical conditions—malaria and dysentery, for example—are not treated in this section, but among the general infective diseases; even there, however, amoebic dysentery is all too summarily dismissed, especially as amoebiasis is assuming increasing importance in Europe; its causation, symptoms, diagnosis, pathology, and treatment are all disposed of in a couple of pages.

The second volume is concerned chiefly with diseases of the kidney, the blood, and the nervous system. The last subject is treated under four main headings—the peripheral nerves, the spinal cord, the medulla oblongata, and the brain. These articles fill 574 pages.

The work seems to have been carefully revised, the coloured plates are excellent, misprints are few, the print and paper are good. There is an index filling fifty pages at the end of the second volume; it would be a great advantage if there were one also to the first. It is a matter for regret that the price of German books is maintained at a level which is almost prohibitive for the practitioner.

¹ *Lehrbuch der Speziellen Pathologie und Therapie der inneren Krankheiten für Studierende und Aerzte.* Von Professor Dr. Med. Adolf Strümpell. Fünfundzwanzigste völlig neu bearbeitete Auflage von Professor Dr. Med. et Phil. Carl Seyfarth. Erster Band und Zweite Band. Leipzig: F. O. W. Vogel, 1926. (Sup. roy. 8vo: Bd. I, pp. xi + 872, 137 figures, 10 plates; paper cover M.50, bound M.53. Bd. II, pp. ix + 855, 194 figures, 6 plates.)

NOTES ON BOOKS.

IN the new edition of Instructions for Collectors, No. 7, *Blood-sucking Flies, Ticks, etc.*,⁵ issued from the British Museum (Natural History). Major AUSTEN has brought his work up to date by incorporating knowledge established so recently as the beginning of the present year. Mosquitos are not included; these are dealt with in a special issue of this series. In the first part are notes on the various blood-sucking flies, their geographical distribution, and the appearance, life-history, and habits of each. Any work written by this author can confidently be expected to be expressed with conciseness, accuracy, and clearness; but the accounts of the habits of these pests are so graphic and realistic that for one who has lived in the tropics the mere reading of them makes him hear again their hum and feel their vicious stings, though he does not suffer from the irritating after-effects. The remainder of the work deals with the collector's outfit and the best ways of collecting, killing, labelling, preserving, and transmitting. The directions are so clear that there is no longer any excuse for the arrival of bruised, broken, mould-covered specimens at the entomologist's laboratory. The illustrations are excellent. In a future edition drawings of some of the larvae might with advantage be included to round off the information imparted by the descriptions.

The third edition of *A Text-Book of Medical Diagnosis*,⁶ by Drs. JAMES M. ANDERS and L. NAPOLEON BOSTON, of which the first edition was reviewed by us nearly fourteen years ago (*JOURNAL*, September 28th, 1912, p. 796), has been brought up to date by inclusion of a large number of new subjects, such as filterable virus, blood pressure, electro-cardiograph, endocrine glands, lipodystrophia progressiva, bronchospirochaetosis, thromboangiitis obliterans, aplastic anaemia, pyorrhoea, fractional gastric analysis, duodenal intubation, estimation of liver function, botulism, basal metabolism, sickle-cell anaemia, trench fever, acute epidemic encephalitis, alastrim, epidemic pleurodynia, and the Bárány test. The general arrangement is excellent and the descriptions are clear, concise, and accurate, so that we have no hesitation in recommending this volume, in spite of its unwieldy size, as a work of reference. The illustrations are good, with the exception of the photographs of the acute exanthemata, which are too blurred to be of any value.

The third edition of *A History of the London Hospital*,⁷ by E. W. MORRIS, house governor since 1903, will be welcomed by all who have a personal interest in hospitals in general and "the London" in particular. We reviewed the first edition at considerable length on October 8th, 1910 (p. 1063); the present edition has been revised and largely rewritten, with the result that its historical value is considerably enhanced. The dramatic difference in the treatment of the sick poor in early days and in the present is brought into vivid relief by the plentiful illustrations scattered through the book. The pleasant style in which the numerous facts are narrated is a marked feature of the volume; the chronology of the hospital and the bibliographical list of bygone members of the hospital staff are particularly valuable. We anticipate that the demand for this really interesting history will be large.

Lov's Handbook of the Charities of London, 1926,⁸ gives the objects, dates of formation, offices, and secretaries of over 1,200 charitable institutions. It remains a standard work of reference, particularly notable for its well classified table of contents, and has proved its worth by reaching its ninety-first year of publication.

⁵ *Instructions for Collectors: No. 7. Blood-sucking Flies, Ticks, etc.* By Major E. E. Austen, D.S.O. Fifth edition, revised and enlarged. London: British Museum (Natural History). 1926. (5½ x 8½, pp. 28, 13 figures, 6d.)

⁶ *A Text-Book of Medical Diagnosis.* By James M. Anders, M.D., Ph.D., LL.D., and L. Napoleon Boston, A.M., M.D. Third edition, entirely revised. Philadelphia and London: W. B. Saunders Company. 1926. (Roy. 8vo, pp. iv + 1422; 528 figures, 20 plates. 55s. net.)

⁷ *A History of the London Hospital.* By E. W. Morris. Third edition, revised and largely rewritten. London: E. Arnold and Co. 1926. (Cr. 8vo, pp. vii + 263; illustrated. 7s. 6d. net.)

⁸ *Lov's Handbook of the Charities of London, 1926.* Ninety-first year of publication. London: F. A. Newbery. 1926. (Cr. 8vo, pp. lxxi + 157, 1s. 6d. net.)

PREPARATIONS AND APPLIANCES.

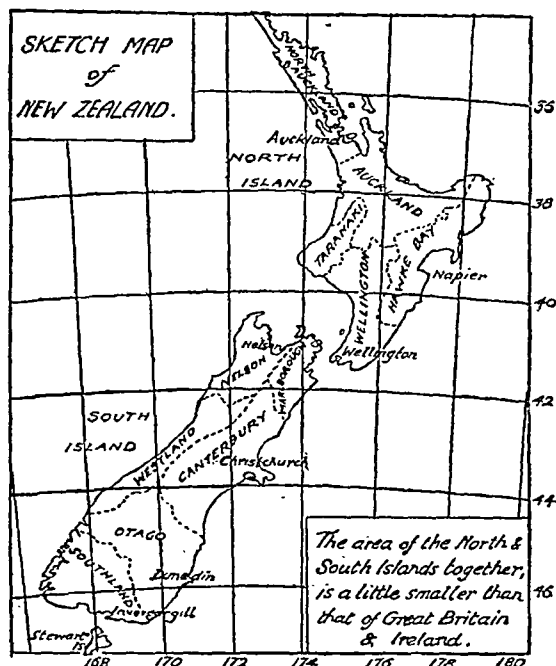
An *Appliance for Bedridden Patients with Incontinence.* As appliance for ensuring increased comfort to helpless paralysed cases suffering from incontinence of urine has been devised by Messrs. W. B. Hilliard and Sons, of 123, Douglas Street, Glasgow, C.2. It consists of a closely fitting rubber scrotal receiver, a rubber tube with spiral attachment preventing compression, and a hollow metal piece which is thrust through and remains in the mattress and allows the tube to be passed freely through it. The urine is collected below the middle of the bed in a receiver. The appliance is of value in rendering constant changing of the bed linen unnecessary and in relieving the patient's discomfort and the nurse's labour. The price of the complete set, with directions, free by post is 70s.

THE SECOND AUSTRALASIAN MEDICAL CONGRESS.

UNDER THE AUSPICES OF THE BRITISH MEDICAL ASSOCIATION,
DUNEDIN, NEW ZEALAND, FEBRUARY, 1927.

LAST summer we announced that the second session of the Australasian Medical Congress (British Medical Association) will be held in Dunedin, New Zealand, in February, 1927. The scientific proceedings will be conducted in twelve sections, which will meet in the buildings of the medical school, to which important additions are now being made. The President of the congress is Dr. L. E. Barnett, C.M.G., Emeritus Professor of Surgery in the University of Otago. The congress will be opened by Sir Charles Fergusson, Bt., Governor-General, on February 2nd, and will continue until February 9th. A list of the sections was published in our columns of August 29th (p. 392). Further particulars can be obtained from Dr. W. P. Gowland, honorary general secretary, Australasian Medical Congress, Dunedin, New Zealand.

Early this year (January 16th, p. 117) we published an article furnished by the Executive Committee of the congress on the general arrangements and on the opportunities New Zealand affords, especially in its mountain districts, for tours of great interest. The authorities of the congress hope that as many members of the Association at home as can spare the time will attend the congress and visit the numerous beautiful and interesting places to be found in the two islands.



By the courtesy of the High Commissioner we are able to illustrate this article by a sketch map. The North Island is approximately 515 miles long and the South Island 525; the area of the two taken together is a little smaller than that of Great Britain and Ireland. The ordinary route from Dunedin to the North Island is by train to Christchurch, and thence by boat to Wellington. It is possible to go from Dunedin to the North Island by steamship direct; most travellers, however, will prefer the land journey, which will give them an opportunity of making a trip to the Southern Alps, which form the boundary between Westland and Canterbury. From Wellington there is a railway to Auckland and beyond to almost the extreme northern point of the North Island.

The journey from here is, of course, long. There are several routes, each of which presents certain advantages and disadvantages. We are indebted to the White Star Line for the following particulars:

SERVICES TO NEW ZEALAND.

By the White Star and Associated Lines.

Direct Route.—From Southampton, calling at Colon (Panama Canal), to Wellington. Return fares: first class, £175; second class, £122. (Shaw, Savill and Albion Company.) Time, five to five and a half weeks.

By South Africa and Australia.—From Liverpool, via Capetown, Albany, Adelaide, Melbourne, and Sydney. Sydney to New Zealand by intercolonial steamer. (Aberdeen, Blue Funnel, and White Star Joint service.) Return fares: first class, £179; cabin class (White Star steamers only), rates from £128. Time, about eight weeks.

By Canada or United States.—Southampton or Liverpool to New York (or Montreal during summer season). Rail journey through United States, or Canada, to San Francisco or Vancouver (with option of various routes). Steamer from Vancouver, via Honolulu and Suva, to Auckland, or San Francisco, via Papeete and Rarotonga, to Wellington. Return fares: first class £212 10s.; cabin class Atlantic, first class beyond, £188; second class Atlantic, first class beyond, £183. (These fares cover an Atlantic fare of £44 first class, £31 cabin class, and £28 second class.) Meals and sleeping-berth charges extra on the railway portion of the journey. Time, four and a half to five weeks.

Passengers selecting to go out by any of the above routes (excepting only White Star cabin class Australian steamers), and purchasing a return ticket at the rate quoted, can, if they wish, arrange to use the return ticket by any of the other routes above mentioned; the return tickets would also be available by steamers of certain other lines homewards via Australia and the Suez Canal. In the case of such availability being used, the fare would be readjusted to the half return fare of the carrying line, by extra collection or refund. If it is desired to visit other points outside the above routes, the White Star Line (1, Cockspur Street, London, S.W.1) will be pleased to make up itineraries and give advice in accordance with any special requests received.

Similar accommodation by Canada or United States can be arranged by the Canadian Pacific Company (62-65, Charing Cross, S.W.1).

The P. and O. Steam Navigation Company (32, Lime Street, London, E.C.3) has kindly supplied the following particulars:

P. and O. Service by the Cape and Australia.

The P. and O. one class steamers to Australia via the Cape (with through connexions for Dunedin) carry third-class passengers only, including a large number of assisted migrants. The accommodation is excellent of its kind, but naturally the conditions generally are essentially those which would be found in the third class of any steamer. The fares for through tickets to Dunedin via Sydney range from £39 to £55 single, £71 to £100 return, the fare being governed by the size and position of the cabin occupied.

Messrs. Thomas Cook and Son (Berkeley Street, London, W.1) have also expressed their readiness to give information.

New Zealand has been called the paradise of the trout fisher, and the chief places at which this sport can be enjoyed are easily reached. But there are other sorts of fishing, including sea fishing.

We have now received an article by Professors Malcolm and Carmalt-Jones on the development and present condition of medical education in New Zealand.

MEDICAL EDUCATION.

In order, they say, to understand more clearly the present position of affairs, it is necessary to recall briefly the early history of the colony.

Following the visits of Captain Cook towards the end of the eighteenth century, the history of New Zealand for about seventy years consists chiefly of accounts of whaling and trading expeditions, with frequent encounters between the natives and landing parties, and of the missionary efforts of such men as Marsden, Selwyn, Williams, and others. About 1840 the British Government somewhat reluctantly decided to recognize New Zealand as a British colony, and soon afterwards settlements began to be made at Wellington, Nelson, and New Plymouth, in addition to the earlier trading and missionary stations at the Bay of Islands and at Auckland.

About 1850 two important church settlements, in the style of that of the Pilgrim Fathers, were made—in Otago by the Presbyterian Church of Scotland, and in Canterbury by the Church of England. In each of these cases the conditions on which the settlements were founded included the setting aside of a certain amount of public land as an endowment for the purposes of education, including the establishment of universities or colleges.

For ten to fifteen years these were small communities isolated from each other by almost trackless bush and almost fordless rivers, while communication by sea was infrequent and uncertain. But about 1861 the discovery of gold in Otago and in Westland led to a great influx of emigrants, and for a few years Otago was one of the chief gold-producing areas in the world, while, by supplying food

to the increased population, the Canterbury settlement shared in the general prosperity.

When the rush had died down, owing to exhaustion of the more readily worked gold, the agricultural and pastoral value of the new country began to be more fully realized, and a great impetus was given to the settlement of parts of the country that would otherwise have developed but slowly. The main routes for all kinds of traffic to these more remote districts still follow the tracks made by the toiling men and heavy laden pack-horses of those strenuous days, and the small townships have generally started as the lonely "pubs" of the same period.

The University of New Zealand.

It was during the later stages of this prosperity that the University of Otago, the earliest of its kind in New Zealand, was founded. At that time (1869) the separate communities of New Zealand had a large degree of local government under the control of a General Assembly in Wellington. The project of establishing a university at Dunedin roused the jealousy of the older, but at the same time less prosperous, provinces of the North Island, and, although Otago had secured by legislative enactment the right to confer degrees, the conflict ended in the establishment (in 1870) of the University of New Zealand as an examining body, to which Otago University, and subsequently the University Colleges of Canterbury, Victoria (Wellington), and Auckland, were affiliated. The organization corresponds to that of the University of London, and, as in that case, it has been subjected to much adverse criticism, but on the whole it has suited the country and a recent Royal Commission has recommended its continuance, at least until the population in the four centres warrants a separate university in each.

The Otago Medical School, Dunedin.

The one great difficulty is the question of the special schools for medicine, engineering, law, mining, etc. At present the Government cannot afford to maintain a separate medical school in each centre or even in each island, and yet there are facilities for hospital work in all the centres. The only medical school in the dominion, that of Otago, is in Dunedin. This was established about 1876, when a chair of combined anatomy and physiology was set up, with Dr. Millen Coughtrey as the first occupant. It is interesting to note that D. J. Cunningham, afterwards famous as the professor of anatomy in Edinburgh University, was an unsuccessful applicant. He was then a final-year student.

The history of the Otago Medical School, like the development of the embryo, epitomizes to some extent the evolution of medical schools in general. At first only the fundamental sciences, with anatomy and physiology, were taught, and those who worked for the establishment of the school had great difficulty in keeping the project alive. Only two years of the proper medical curriculum could be provided, and the home universities would not recognize the training till the school was more fully established and equipped with teachers and students in attendance, while, on the other hand, it was difficult to induce students to commence study in the expectation that the school would be recognized.

In 1877 Dr. J. H. Scott was appointed professor of anatomy and physiology in succession to Dr. Coughtrey, who had resigned, and for nearly forty years, till his death in 1914, Dr. Scott was the ruling spirit of the school. In little more than a year after his arrival some distinct progress could be noted. The University of Edinburgh, from which Scott had come, recognized a sufficient number of classes to cover two years' work in Otago, and recognition by other British schools followed soon afterwards. In 1883 the University of New Zealand was able to recognize the Otago Medical School as a school capable of giving a complete medical curriculum, and the granting of degrees in medicine naturally followed.

From then onwards the existence of the school has never been in serious danger, although progress was retarded by the financial depression of the years between 1880 and 1890. During this period, and even up to the end of the nineteenth century, owing to the depredations of rabbits

and to the fall in the price of wool, the rentals of the lands set aside by the early pioneers for university education fell to a very low figure. Since then, with the development of the frozen-meat trade and the rise of the dairying industry, and other causes of increased prosperity of the country, the Medical School has been financed more and more by the Government, and is now generally recognized as the National Medical School.

Recent Developments.

From time to time extensions of the original medical buildings have been made. Dr. Scott, in his earlier years, had little more than a small dissecting room, museum, and a cellar for subjects. Extensions took place from time to time, including a new physiology department (under a separate professor) in 1905, extensions to anatomy and physiology in 1914, and a complete new medical block on a site facing the hospital in 1916. These additions, as well as the provision of new chairs and lectureships, have been made possible largely by the generosity of the public of Otago aided by Government subsidies.

At present there is in course of erection, on a site adjoining the block built in 1916, a new block to house the departments of anatomy and physiology, with some provision also for medicine and surgery. The funds for this extension have been promised by the Government, thanks largely to the persevering efforts of the present Dean of Faculty (Sir H. Lindo Ferguson), who succeeded Professor Scott as dean in 1914, and under whose able guidance the school has made remarkable progress in every direction during the last twelve years.

As contrasted with the three professors and the few hospital surgeons and physicians of fifty years ago, the teaching staff now consists of twelve professors, twenty-five lecturers and senior assistants, as well as a number of junior assistants and demonstrators.

There are whole-time professors in anatomy and physiology, and graduates who visit the United Kingdom to continue their studies certainly find themselves at no disadvantage in their training in these subjects. The chair of pathology and that of bacteriology and public health are also whole-time appointments, and their professors are respectively chief pathologist and chief bacteriologist to Dunedin Hospital, where the main clinical instruction is given, so that liaison between the wards and the laboratories is easily maintained.

Public health, as indicated by its inclusion in the title of the professor of bacteriology, receives unusually close study in the undergraduate course, and full recognition is given therein to the importance of preventive medicine, which has, of course, unusual scope in a country still in process of settlement, a point which is very strongly emphasized in all teaching.

Clinical Teaching.

Within the last few years half-time professors of medicine, clinical medicine, and surgery have been appointed, who are by statute members of the staff of the Dunedin Hospital, so that systematic and clinical instruction can be very closely associated and an unusually large amount of time devoted to the latter. In addition, the members of the clinical staff of the hospital who do not hold university chairs are also under an obligation to teach, and classes are detailed to attend them so that the important item of numerically small clinical groups of students can be maintained.

In addition, under a recent arrangement, and through the generosity of the hospital staffs concerned, students may take a part or the whole of their final year's instruction in the hospital of one of the other "centres" of the dominion. In this way a large amount of clinical experience can be gained, and use is made of all that is available, which, though necessarily less than that obtainable in great cities, permits of full instruction in all ordinary hospital practice.

At Dunedin the pathological and bacteriological departments are excellent, the x-ray apparatus is adequate and well served, and a new department is in course of construction. An electro-cardiograph will be established in

the new buildings. Research is in progress on goitre and other subjects of particular interest to New Zealand.

The Congresses of 1896 and 1927.

An Intercolonial Medical Congress was held in Dunedin in 1896, and is still remembered in Australia by some of its participants. Should any of these revisit Dunedin for the Australasian Congress in 1927 they will find that for the University of Otago Medical School the past generation has been one of progress.

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual meeting of the London and Counties Medical Protection Society, Limited, was held on June 9th, under the chairmanship of the president of the society, Sir JOHN ROSE BRADFORD, P.R.C.P.

The annual report, the adoption of which was moved by the PRESIDENT, stated that the number of applications from members for advice and assistance reached 801 during the year, as compared with 785 in 1924, and 662 in 1923. Satisfactory results were generally obtained without litigation; where litigation had occurred it had been almost wholly successful. The council continued to make provision, by special insurance for an unlimited amount, to defray damages awarded against members, together with costs allowed to the other side, in actions which the society undertook for members and in which a successful result was not achieved. The society bore the whole cost of defending or conducting cases, and it was only in respect of damages and costs which might be awarded against members in unsuccessful cases that this special provision had to be made. There had been a substantial increase in membership during the year, but the council observed with regret that there were still very many practitioners who neglected to avail themselves of the protection afforded at so small a cost. Members were particularly requested to insist upon their partners and assistants becoming members also. The solicitors to the society (Messrs. Le Brasseur and Oakley), in their report, stated that the feature of the year was the importance and weight of certain cases which arose under the Insurance Acts. Members had been supported in a number of appeals and inquiries, and in only one did a member fail to win his appeal. The solicitors remarked, however, that out of three cases in which the society, defending a member on appeal, succeeded in establishing certain technical objections to the procedure of either the Local Insurance Committee or its Medical Service Subcommittee, in only one did the Minister allow any costs to be paid in favour of the member, whereas experience showed that should a member lose an appeal costs were invariably awarded against him.

Sir JOHN ROSE BRADFORD said that there were two things which had often been alluded to before from that chair, and which no doubt would have to be alluded to year after year. One was to impress on all members involved in a dispute of any kind not to take any action on their own account before communicating with the society. Numerous difficulties encountered would be avoided if members would place such matters in the society's hands from the earliest possible moment without taking legal action of any kind themselves. The second thing was to impress upon practitioners in cases of injury—not necessarily obscure injury—the importance of having an x-ray examination made, or, if the patient or his friends refused, of obtaining a statement in writing to that effect. The society was in a very satisfactory financial position. In 1924 it had a deficit on its year's working owing to the quite exceptional expenditure incurred in connexion with one case; but in 1925 the financial position reverted almost to what it was before that large expenditure was undertaken. The total surplus funds of the society for 1925 were £38,319, and for 1923 they were £39,621; there was therefore very little difference, and when it was considered that a sum of £7,000 was expended in that one case he thought it would be admitted that the society had come through very satisfactorily.

On the motion of Dr. C. M. FEGEN, Sir John Rose Bradford was re-elected to the presidency unanimously and with acclamation. Dr. Fegen himself was re-elected

treasurer, and the vice-presidents and members of council retiring by rotation were all re-elected. One new member comes on to the council in the person of Sir William Hale-White. Votes of thanks were accorded to various officers, including the solicitors of the society; with them were coupled the names of the standing counsel, Mr. Neilson, K.C., and Mr. T. Carthen.

TENURE OF PART-TIME MEDICAL OFFICERS OF HEALTH.

SANITARY OFFICERS ORDER, 1926.

THE Sanitary Officers Order, 1926, dated May 27th, which revokes the Sanitary Officers Order, 1922, but continues some of its provisions, relates to the qualifications, duties, and tenure of office of medical officers of health and sanitary inspectors in England and Wales. The Order, which is made by the Minister of Health, does not apply to Scotland. The requirements prescribed may conveniently be noted in the above-mentioned sequence with respect to the two classes of officers named, taking medical officers first.

The medical officer of health of a district or combination of districts for the purpose of the Public Health (London) Act, 1891, or the Public Health Act, 1875, must, under the new Order, as under the Order of 1922, possess a diploma in sanitary science or have had three years' previous experience of the duties of a medical officer of health. This requirement covers all medical officers of health in England and Wales excepting medical officers of counties, who are appointed under the Housing, Town Planning, etc., Act, 1909, by reference to the Local Government Act, 1888. By Article 21 of the Order the Minister of Health reserves the right to dispense with the stipulated qualifications if a small district, for example, should prove unable to obtain a duly qualified officer.

The duties of a medical officer of health, as prescribed in the Order, are to render all services duly laid upon him by statute, order, regulation, by-law, or other instrument; to forward weekly returns of infectious disease to the Minister of Health and duplicates to adjacent medical officers; to submit an annual report to his local authority and copies to the Minister; to send to the Minister one copy of any special report which he may present to his local authority, and to report forthwith to the Minister any case of plague, cholera, or small-pox, or any serious outbreak of disease. Metropolitan medical officers are freed from the weekly returns of infectious disease, and county medical officers from both the weekly and emergency returns.

As regards the tenure of office of medical officers of health, it will be recalled that this question has been much under discussion. The freedom of action of a medical officer who held his appointment at the pleasure of his electors was checked by the insecurity of his tenure. If he did his duty without fear or favour, he might, wittingly or unwittingly, traverse the interests of influential members of his local authority and find himself dismissed from office. Such a position from the outset was clearly indefensible, but distrust of the expert has such deep roots in the English mind that reforms came slowly and were granted with apparent reluctance. Gradually, however, though not without effort, security of tenure has been won for certain medical officers. The new Order seeks to extend it, in a modified form, to certain others. It lays down that a part-time medical officer of a district must be appointed in the first place for a limited term ending on March 31st next ensuing, after which date he will continue to hold office from year to year without further appointment, subject to the right of the local authority to determine the appointment on March 31st in any year by not less than three months' previous notice. This arrangement would appear to offer to the part-time medical officer some kind of defence against the hasty indignation of an unrighteous local authority. So long as the post is on a part-time basis, appointment for a limited term appears to be obligatory; but the local authority may at any time, subject to the concurrence of the Minister, turn a part-time into a whole-time appointment, when the security attaching to a whole-time appointment would presumably accrue to the officer.

The Order provides in the above terms for part-time district medical officers only. It does not concern itself with county, metropolitan, or whole-time district medical officers, who, in general, already enjoy, under statute, a notably higher security. A county medical officer, for example, is appointed without limit of time and is removable by the county council with the consent of the Minister of Health, but not otherwise. A metropolitan medical officer is also appointed without limit of time, and is removable either by or with the consent of the Minister. A whole-time district medical officer is similarly appointed and secured by the Public Health (Officers) Act, 1921, subject to the proviso that a portion of his salary is charged to the Exchequer contribution account. A whole-time medical officer of a county borough is only safeguarded if a portion of his salary is paid out of moneys voted by Parliament before the borough attained county status. Compared with these securities, the tenure of the part-time officer, though strengthened by the Order, is still, comparatively speaking, precarious. It should be added that even high security of tenure in the foregoing instances does not amount to an *ad vitam aut culpam* holding. The Minister presumably might determine the charge of a blameless officer on the ground that his post had become superfluous. But it does imply protection against capricious dismissal, the assumption being that both the Minister and the local authority are not likely to be capricious at the same time. It is therefore a valuable safeguard for all practical purposes.

In the case of sanitary inspectors, the Order requires their qualification to be either a certificate of the Royal Sanitary Institute and Sanitary Inspectors Examination Board, or a certificate of the late Sanitary Inspectors Examination Board, or a certificate issued before January 1st, 1899, by the Sanitary Institute, or, outside London, a certificate of the Royal Sanitary Institute issued before January 1st, 1926. The Order also prescribes the duties of sanitary inspectors in some detail and makes certain provisions for their tenure of office.

THE INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.

MEETING AT PISTANY, CZECHO-SLOVAKIA.

The annual meeting of the International Society of Medical Hydrology, presided over by Dr. GUSTAVE MONOD of Vichy, was held at Pistany, Czecho-Slovakia, last April.

Etiology and Treatment of Chronic Rheumatism.

A discussion on this subject was opened by a paper read by Sir WILLIAM WILCOX. After pointing out that chronic rheumatism is not a local disease, but a local manifestation of a general pathological condition, Sir William said that many years' study of toxicology and clinical medicine had led him to the view that the cause of the disease must be looked for in a poison acting on the body cells. The cardinal principle in toxicology was to search for the focus of production of the toxins, and then to eradicate the cause as far as possible. Chronic rheumatism included (a) forms of arthritis, such as rheumatoid arthritis, arthritis deformans, osteo-arthritis, and chronic villous arthritis; (b) forms of fibrositis—panniculitis, inflammations of fasciae (as in lumbago and myalgia), inflammations of tendons and ligaments (as in stiff neck, Dupuytren's contractures, etc.), inflammations of tendon sheaths, tenosynovitis, bursitis, Heberden's nodes, fibrous nodules in subcutaneous tissues, perineuritis and neuritis (as in sciatica and brachial neuritis). Such factors as sex, age, race, family history, mental strain, debility, trauma, physical strain, exposure to cold and wet, and living in damp houses could only be regarded as subsidiary pre-disposing causes. In the great majority of cases "infection" must be regarded as the primary cause. Sir William Willcox held that errors of metabolism in the liver, intestine, or kidney could not occur without some cause of external origin. To regard "faulty metabolism" as an important cause of chronic rheumatism was erroneous. The true explanation of the association of chronic rheumatism with defective function of the organs was that the faulty metabolism was due to an extraneous cause—namely,

the toxæmia of the infection. Most careful search, said Sir William, was required to discover the focus of infection; and when no focus was found it was probable that the investigation had not been sufficiently complete. The author reminded his audience that at the discussion on rheumatoid arthritis at Bath last year there was a consensus of opinion that the origin of this disease was infective. Arguments in favour of the infective origin were: (1) that

as may give rise to arthritis and from chronic rheumatism—for example, gonococcal, bacillary dysenteric, pneumococcal, typhoidal, streptococcal (as in septicæmia and tonsillitis); (2) that progressive rheumatoid arthritis may follow parturition; (3) that in the great majority at all events of early cases of chronic rheumatism a definite infective origin can be found. In 100 consecutive cases of arthritis and fibrositis under his care, Sir William had traced dental sepsis in 72, intestinal in 13, a tonsillar source in 10, and gonococcal origin in 5. But a very much larger number of cases would be necessary in order to obtain an accurate idea of the true infective origin of chronic rheumatism. Sir William showed x-ray photographs to illustrate various types of focal infection from septic teeth. In tonsillar infections the author laid stress on the tendency of the joint symptoms to improve temporarily, with subsequent recurrence. In these cases also there was a great tendency to effusion into the joints. Infection of the nasal accessory sinuses must be looked for; and it should be remembered that in antral disease radiograms and transillumination were often misleading, and that puncture and bacteriological examination of washings were the only certain tests. Sir William thought that when the mouth or naso-pharynx was affected it could not be long before the intestinal glands became affected, and might carry on the infective process even when the primary focus had been eradicated. In elderly people the intestinal glands might be the primary focus. In 90 per cent. of his cases a definite infection had been found in colon washings, generally of the *Streptococcus viridans* type. Further foci of infection might be found in diverticulitis, the urethra, and the pelvic organs of women.

Sir William Willcox then discussed the association of arthritis or chronic rheumatism with gout, anaemia, hepatic disorders, gastric or duodenal ulcer, appendicitis, cholecystitis, and some skin affections. Tuberculosis he did not regard as an important etiological factor. But "constitution" or "diathesis" seemed to him an important matter. An inherited tendency existed in some families to fibrositis and joint trouble. Arthritis and endocrine disorders were both due, commonly, to infection; and there was strong evidence that diabetes was caused by a chronic toxæmia.

Sir William urged that treatment of chronic rheumatism should aim at the removal, as far as possible, of the infective cause. He did not wish to belittle the immense importance of hydrotherapeutic measures and climatic treatment. In fact, he was an ardent believer in hydrological methods. But treatment should be begun with a "clean slate"; otherwise the improvement from hydrotherapeutic measures would be only temporary, and recurrence was inevitable. He was glad that this was being recognized at spas. In conclusion, Sir William enumerated the therapeutic measures which he had found of most value, and expressed the opinion that vaccine therapy should never be used until the focus of infection had been removed as far as possible.

In the discussion which followed Sir William Willcox's paper, Drs. Schmidt and Reichart described the use of hyperthermal mud baths at the Pro Patria Hospital. Dr. Schmidt showed the importance of minimal elevations of temperature in rheumatic subjects, and Dr. Reichart demonstrated the technique of heart cooling in thermal treatment, by which daily applications of heat could be borne without fatigue. Dr. Mougeot regarded latent infection in the colon, hepatic insufficiency, and endocrine disorders as important factors in causing rheumatism. Dr. van Breemen described the results of the treatment of rheumatic disorders during the last twenty years at the clinic for physical treatment at Amsterdam. Dr. Kahlmeter spoke of the excellent results from physical treatment in

the institutions in Sweden. Dr. Alison Glover drew attention to the serious nature of the problem in England, and to the occupational and climatic factors in causation.

The meeting was attended by some seventy persons of thirteen nationalities, amongst whom were representatives of the Ministry of Health and of the Swedish Board of Pensions. The members of the society and their friends were guests of the Czecho-Slovakian Government. In the course of the proceedings representatives of Germany were admitted to the society, an international committee on chronic rheumatism was appointed, and national committees were formed for Great Britain, Holland, Sweden, Germany, and Austria. The British committee was stated to be putting forward proposals for the treatment of chronic rheumatism by physical methods at spas and at out-patient clinics in large centres of population. The subjects discussed at the meeting included the use of baths and waters in the treatment of disorders of the liver, glandular insufficiency, and hypertonia. A full report of the meeting will be published in the summer number of the *Archives of Medical Hydrology*.

Nova et Vetera.

SEVENTEENTH CENTURY UROLOGY.

UROLOGY of one kind or another was very much to the fore during the half-century following the restoration of Charles II.

Diuresis was advocated as a cure for many different conditions, and the methods of producing it were equally varied. Dr. Archer, "one of His majestie's physitians," used to sell "Tobacco, prepared for prevention and cure of most diseases, working by Urine and Spitting, being pleasant and safe, approved to purify the Blood and fortify the Vitals, curing Colds, Catarrhs, pains in the limbs, Gout, Dropsy, Scurvy, etc., being two sorts, one at Two shillings per ounce, the other at One shilling." It was to be had "with printed Directions and sealed up to prevent Counterfeits at his house in Winchester Street, the sign of the Golden Ball near Broadstreet, and not elsewhere."

The Great, Famous and most Excellent Nephritick Powder had originally been brought from Germany by an Eminent Merchant. It was "prepared from the Flower, Seed and Leaf of an Herb growing near the Spaw in Germany," perhaps John Taylor's

"mungrill Spaw,
Whose waters (cleare as Chrystall, sweet as Hony),
Cured all diseases (except want of Mony),
Relieved the Palsey, Cramp, or Apoplexie,
Scab, Scurfe, or Scald, or Dropsie, if it vex yee."

The powder had "all the virtues of the said Spaw waters," and "this excellent virtue in addition" that it carried off "all Cold and Crude Humours, which either they or any other Purging Waters" left behind. "It provoked Urine, dissolved and brought away Heat and Gravel, gave Ease in the Gout, Cured the Strangury, and Purged Wind to Admiration. It was made exactly as you would make Coffee, and Sweetened with a little Sugar, and Drank Morning and Evening, 2 or 3 Dishes at the Time." It was guaranteed to "Purge you gently, not hindering your Business," and could be had "in Twelve-penny Papers with the inventor's Cifer."

Wright's Diuretic, or cleansing, Tincture "Urinarily discharged all the Relicks of the Lues Alamode, or Venereal infection, and chased its Cocomitants, such as the mucous, sanious matter, which, lodg'd in the Reins or Spermatick Parts, caused a sharpness in the Urine or too frequently provoked it." The "Relick" was stated to be "discoverable by the subsequent Symptoms, viz., by a Debility or Weakness of the Back, and a foetid, nauseous and averting Smell of the Urine, with purulent matter residing at the Bottom or flying in it with a variety of Figures." Further, the Tincture effectually carried off "all Relicks of the Venereal Disease after ill managed Cures, not only cleansing the urinary Passages of all Sand, Gravel, Films or Membranous Pellicles, etc., but

after a singular Efficacy invigorating the Reins, restoring them and all their Genital Parts to their Original Tone and Use, though the mischief and decay be of the longest date with an Equal Success in each Sex." The Tincture was obtainable "at ten shillings the bottle of Doctor Wright at his House, the Golden Head, in Bell-Savage Yard on Ludgate Hill."

"The Specifick Virtues of the Opagrycal Essence" were so surprising that they "totally eradicated and expelled all Impurities and Relicts lying in the Kidneys or Urinary Passages and attended with sharp pain, etc., in making water." "Any Person, under such Disasters," might "without any other Advice, Trouble or Confinement, with the greatest Ease, Safety and Secrecy, cure him or herself (its operation being by Urine only) of all such secret Maladies although of long standing." One bottle was usually enough to "perfect the cure" and would be "delivered to any messenger." It kept good in all climates and might be taken in the hottest or the coldest weather. "Thirty drops taken presently after injury was suspected by either sex immediately expelled the Malignity, and infallibly prevented the Consequence thereof." It was to be had of "none but the Author, at the Queen's Head over against Katherine-street in the Strand at half a guinea the bottle."

Mr. Spooner, at "the Golden Half Moon in Lemon Street, Whyte Chappel," supplied an excellent electuary at 3s. a pot. This quickly cured "the Diabetis, in those that could not hold their water, to a Miracle." It also "wonderfully comforted and strengthened the weakened parts so that the Incontinence of Urine would not return. It was never known to fail."

On the other hand, Dr. Rogers of Fleet Street wished to "satisfy all Persons that the Powder," which he retailed in 5s. packets, "did very lately give immediate relief to a Nobleman of above 80 years of age that had Suppression of Urine for 4 or 5 days and was in extream Torment. Upon taking the Powder he had present Ease and grew perfectly well in a few Days."

Tipping's pleasant Liquor, which dissolved "Stone in the Bladder or Kidnies, bringing it away visibly and giving Ease in the Cholick," could be had "at the further End of Red Lyon Court in Fleet Street, leading to New Street, the first door on the Left Hand up the Steps."

Another "Infallible Cure for the Stone and Gravel, whether in the Reins or Bladder" could be obtained at "Jacob's Coffee House, against the Angel and Crown, Tavern in Threadneedle Street, behind the Royal Exchange, at 3s. 6d. a bottle, with directions." This was a "Chymical Liquor" which

"in the most racking cases gave instant ease, and perfectly freed the Patient from all pain in the back, and this pain so much like the Cholick, dilated the Ureters, made them slippery, so that the small stones and gravel might pass from the Reins, to be voided visibly with the Urine, without Pain. It cleansed the Kidneys, Bladder and all the Urinary Passages from slimy calcalous matter, certainly took off all Heat, pains, and Stoppage of Urine, and absolutely broke and dissolved all large Stones (possible to be dissolved). It also assuredly prevented the Stone in those that were troubled only with Gravel. Indeed for all Disorders of the Reins and Bladder it could not be paralleled."

It seems unfortunate that Sir Thomas Adams, ex-Lord Mayor of London and President of St. Thomas's Hospital, did not try the magic liquor. His biographer states that

"the latter Years of his Life were Years of Pain to him, by reason of that Disease of the Stone in the Bladder, whereof at last he died: a Stone so weighty, that it exceeded 25 Ounces, so grievous that a little before his Death it made him roar, but yet not murmur, GOD graciously supporting him under the Weight, and Sustaining him under the Pain of it; and indeed the Providence of GOD was singularly remarkable, in that having a Stone of so vast a Bigness in his Bladder, his Pain was comparatively so little and his Life so long, for had there not been as it were a Way paved, or rather a Channel cut through the Stone for his Water to pass, the Stoppage of it must of necessity have very much added to his Smart, and lessened his Days."

He died in 1668 at the age of 81, his death "being occasioned by a fall stepping out of his coach, which forced the stone down and stopped the Urinal passages and killed him." The calculus was presented to Cambridge University.

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British Medical Journal.

SATURDAY, JUNE 19TH, 1926.

BICENTENARY OF THE EDINBURGH MEDICAL FACULTY.

THE two hundredth anniversary of the founding of a Medical Faculty in connexion with the Town's College at Edinburgh was fittingly celebrated last week. The ceremony was a commemoration of the whole university as well as of its medical department, because the institution of medical and other faculties had conferred on the local college two centuries ago the status of a general university. Many important events in medical science and practice have happened during those two hundred years, and not a few of these have happened at Edinburgh. It was pointed out by Sir George Newman in his address at the graduation ceremony that Edinburgh had drawn the inspiration of its teaching from Leyden, where most of the men who founded the Medical Faculty had sat at the feet of Boerhaave about the year 1718. An important fact to recall, however, in this connexion is that the teacher in medicine of Boerhaave himself was that Archibald Pitcairn who went from Edinburgh to Leyden as professor of medicine in 1692, and to whom the founding of the College of Physicians in Edinburgh was largely due. The central event of last week's celebration was the opening of the new surgery department, and especially its research section, by the Secretary for Scotland, Sir John Gilmour, M.P., as is reported more at length at page 1054. The article there printed, together with that which appeared a fortnight ago (p. 959), will, with their illustrations, give a general idea of the plan and purpose of this new department, which all will recognize to be a most important addition to the splendid facilities possessed by the Medical School in Edinburgh.

Sir John Gilmour referred to the fact that the building was in part the gift of America, and that it was a helpful and inspiring thought to realize that on the great main issues of life the two peoples felt they could work hand in hand. In this connexion it may be remembered that the United States owes a debt to the early Faculty of Medicine at Edinburgh, for to Edinburgh in the middle of the eighteenth century came most of the young men of the American colonies who aspired to return home and practise medicine. John Morgan, who was appointed by the American Congress Director-General and Physician in Chief of the American Army in 1775, was an Edinburgh graduate, as was also his successor at Washington's side, William Shippen, junior. Benjamin Rush, another pioneer of American medicine, graduated at Edinburgh in 1768, and took a prominent place in the origin of the United States as one of the signatories of the Declaration of Independence. All these three men had sat at the feet of William Cullen in Edinburgh.

In thinking of the contributions which the Edinburgh Medical School has made to medicine the mind naturally turns specially to the middle of the nineteenth century, the epoch when James Y. Simpson, about the year 1847, was labouring to introduce the practice of anaesthesia in this country against a considerable amount of opposition. About the same time Goodsir advocated the importance of the cell as the controlling centre of nutrition—a doctrine for which Virchow

recorded his indebtedness by dedicating to him his *Cellular Pathologie*. To the same period belongs the discovery of leucocythaemia by John Hughes Bennett, which led to a closer investigation of the diseases to which the blood is liable. To this period also belongs the publication of *Mind and Brain*, by Thomas Laycock (1859), in which the doctrine of unconscious cerebration, that has so greatly developed in recent years, was first adumbrated. Greater, perhaps, than all these in its practical effects was the slightly later development by Lister, during his Edinburgh period from 1869 to 1877, of the principles of antiseptic surgery which had seen the light at Glasgow in the year 1865.

At the opening ceremony Professor Wilkie observed that the past two centuries had seen some remarkable changes and advances in medicine, but none more remarkable than that which had taken place in surgery during the past fifty years; the dread with which the word "operation" was whispered some sixty years ago contrasted strongly with the attitude of the public to-day towards the art of surgery. From the new research department valuable contributions to the development of this art would, it was anticipated, proceed, and a pleasing note was struck when he said it was hoped that members both of the University staff and of the extramural staff would without distinction combine in the attack upon the wall of ignorance. It is true that discoveries are usually not completed either in the place they began or by the man who initiated them—indeed, the practice of antiseptic surgery is a striking illustration of this fact; but there are good grounds to expect that such a department as that opened by the Secretary for Scotland at Edinburgh last week, where research is quietly and systematically fostered without demanding a periodic publication of results, will be of ultimate general benefit to medical and surgical science.

Sir George Newman, in reviewing what had seemed to be the design of the forefathers of the Edinburgh Medical School in regard to medical education, laid down four clear principles which appear to be equally applicable in the future. These were the integration of the several sciences which contribute to medicine; the application of the experimental method, which appears to be the particular feature of this new department; a clear recognition of the important part which medicine can play in social evolution; and finally, and perhaps most important of all, sound clinical study. There is no fear at the present day that research will not receive due encouragement. There is, perhaps, a fear that the study of the individual patient at the bedside may temporarily not receive all the attention that is essential to progress.

THE TECHNIQUE OF RADIUM THERAPY.

RATHER more than a year ago the Committee of the Radium Institute, London, issued a volume entitled *A Clinical Index of Radium Therapy*, and a detailed review was published in our columns (April 4th, 1925, p. 670). The volume, as we remarked at the time, was of the nature of a textbook. It was written by the medical superintendent, Mr. A. E. Hayward Pinch, F.R.C.S., and his assistants, Dr. Philip Gosse and Dr. Oskar Teichman, with the assistance of Dr. R. Douglas Reid (house-surgeon), and to it Dr. J. C. Mottram, director of the pathological laboratory, and Mr. W. L. S. Alton, F.I.C., director of the chemico-physical laboratory, contributed chapters. The first part was concerned with the physics of radium, its

disintegration products and the rays emitted, with the use of applicators, with the local and general reaction, and with the fundamental principles of radium therapy. This was followed by a series of chapters discussing the applications of the rays to diseased conditions. The value of the information given was highly appreciated, as is evidenced by the fact that close on three thousand copies were circulated. The Committee has now published another volume, entitled *A Manual of Technique in Radium Therapy*,¹ which is of the nature of an appendix to the first. It is prepared by the same officers of the institution, with the addition of Dr. Roy Ward, and is copiously illustrated with photographs of the apparatus and accessories, of the building and its equipment, and by radiographic plates prepared by Drs. Coldwell and Allechin.

When radium was first introduced into therapeutics the treatment was conducted almost entirely by external radiation by flat-surface applicators, tube apparatus being only employed for insertion into existing cavities or canals. At the present time much more work is being done with tubes than with flat applicators, and a special "surgery of access" has developed. To meet this change a large and completely equipped theatre, with communicating anaesthetizing and sterilizing rooms, has been constructed on the first floor, and a smaller theatre on the second. During 1925, 327 operations were performed to provide access to various regions, including the nose, mouth, pharynx, larynx, oesophagus, stomach, rectum, breast, bladder, and uterus. The new volume describes in detail the methods used in this surgery of access. As the methods employed at the Radium Institute are the result of long and wide experience, a study of the volume will be of great value to surgeons who may be called upon to undertake these preparatory operations. The use of radon (radium emanation) possesses special advantages in many cases; as a gas it is capable of condensation, and apparatus so charged emits a centrifugal radio-activity of intense degree. The preparation and mode of insertion of these tubes is described and illustrated. As they are small they can be buried in and effectively radiate growths which could not otherwise be treated satisfactorily. The importance of bringing the general health of all patients to as high a standard as possible before radium treatment is commenced is emphasized. Among the preparatory operations which may have to be undertaken are extraction of teeth and removal of diseased bone; tracheotomy, both to enable a prolonged intralaryngeal exposure to be given and as a precautionary measure when treating growths in the inferior pharyngeal, laryngeal, or post-cricoid regions. Gastrostomy may be necessary in carcinoma of the oesophagus; by it the oesophageal spasm is abolished, regurgitation lessened, and the patient's nutrition improved. Again, when there is a growth in the sigmoid flexure or rectum, colostomy may be advisable before radium treatment is commenced; it permits daily irrigation of the lower segment of the bowel with a non-irritating antiseptic solution. In long-standing carcinoma of the bladder with chronic purulent cystitis and intermittent or persistent haematuria, cystotomy is often indicated as a preliminary procedure, especially in male patients; it permits constant and effective irrigation of the bladder and removes offensive and irritating detritus; the growth can also be more accurately radiated. The operation is indicated also

before treating carcinoma of the prostate with radium. The existence of a cystotomy opening makes it possible to insert small radium tubes into the growth from its bladder aspect as well as by the perineal route.

The book ends with some notes on complications and sequelae, and contains much valuable practical advice. It is pointed out that the term "radium burn" is often applied loosely and incorrectly to the simple vesication and ulceration which follow upon unscreened radium exposure; they are, in fact, an essential part of the reaction necessary for correct treatment. The term should be reserved for the few instances in which the exposure and dose have been prolonged and excessive. The ulceration so produced is extreme and attended by severe and persistent pain; repair is always slow and frequently imperfect. Hints are given on the best treatment of such conditions, and Mr. Pinch and his colleagues by producing these two books, and the Committee of the Radium Institute by its liberality in circulating them, have rendered a real service to the profession.

POOR LAW REFORM.

AMONG the matters advanced a step at the meeting of the Council of the Association last week was the action to be taken by the Association consequent on the Government's tentative proposals for the abolition of the Poor Law guardians and the transference of their functions to the councils of counties and county boroughs. The Council endorsed the main idea of these proposals as being in harmony with two principles which the Association has long maintained—namely, that the Poor Law medical services should be entirely separated from other aspects of Poor Law relief, and that the administration of these services, with all other health services, should be unified centrally and locally. The Council also approved such comments as had been made by its special committee on certain details of the proposals.

The reply of the Ministry of Health to these comments was satisfactory, except, unfortunately, with regard to two of them which the Association regards as of very great importance. In the Association's suggestions for the reform of the administration of local health services it is stated to be essential that the local government authority should be advised on all health matters, including those transferred from Poor Law administration or from Insurance Committees, by a statutory health committee on which there should be a minority representation of the medical profession and of other bodies experienced in health matters, the majority of the committee consisting of members of the authority. This arrangement would be similar to that now existing as regards educational matters. The Ministry of Health in its reply states that it is an "essential element in the scheme that resort to co-option by the responsible local authorities should be voluntary on their part, and should not be made compulsory." It is impossible for the Association to remain satisfied with this.

The second point is that the Council has objected to the proposal that county councils should be given a general supervising power over and responsibility for the administration of health services in the hands of all borough and urban district councils within the county. The Association has not the same objection in the case of rural district areas, though even there it would prefer that the health powers of the rural council should be relinquished in favour of the county and not merely supervised by the latter. It is

¹ The Committee of the Institute has authorized the free distribution of the book to members of the medical profession. Copies can be obtained post free on application to the Secretary, Mr. Thomas A. Garner, F.C.I.S., Radium House, 16, Riding House Street, London, W.1.

noteworthy that this objection has been unanimously endorsed by the Association of Municipal Corporations, which has decided to organize opposition thereto. It is not to be expected that populous and important towns, with long experience of the effective management of sanitary and health services, will, merely because they are not county boroughs, consent willingly to have placed over them as a superior authority county councils which are in every case less experienced and in many cases less zealous and efficient than they are. In such cases this would be a retrograde step in health administration. The only question in this regard that ought really to be open to discussion is the population limit which should entitle a town to have full health powers itself or at least to be free from the county supervision. There is, of course, room for differences of opinion upon this point. Many experienced administrators would place the population limit lower, but there is certainly a very strong case for exception being made of those boroughs or urban districts with a population of 75,000 or more; this is the figure of population the Royal Commission on Local Government has already reported as that "which should entitle a town council to propose the constitution of a county borough."

It is evident that on these two points pressure will have to be brought to bear on the Ministry of Health to modify its proposals, and it is not too early for the Association, through its central authorities, its Divisions, and its individual members, to exercise its influence in this direction in the interests of good health administration.

SOLVING THE CRIPPLE PROBLEM.

FROM time to time during the last few years we have drawn attention to the problems connected with the treatment of cripples, and have recorded the work doing and done in the efforts to grapple with them.¹ We have now before us two publications on this subject, the one being the lately issued report of the Central Committee for the Care of Cripples for the years 1924 and 1925,² and the other a report by the Hampshire county medical officer, Dr. R. A. Lyster, to the Elementary Education Subcommittee, which is very largely concerned with the care of orthopaedic cases.³ The Central Committee for the Care of Cripples took its origin from an article by Sir Robert Jones and Mr. G. R. Girdlestone published in the *BRITISH MEDICAL JOURNAL* of October 11th, 1919. Since its formation the committee has worked hard to develop the scheme for the whole of England, and is now extending its work to Wales, Scotland, and Ireland. The Central Committee is now able to record great progress since the issue of the last report (for 1922 and 1923), but makes it clear that much yet remains to be done. "Prevention," it says, "is still incomplete, treatment often still too late, so we still find many cripples too severely handicapped to enter industry without special training." This question of special training has long been under consideration. As the result of discussions held at the Wingfield Hospital, Oxford, to which we referred on December 12th, 1925, a scheme was approved by the Ministry of Labour and started experimentally at the Wingfield Hospital and in Hertfordshire with the intention of bringing together representatives of all the interests concerned. Much can be done in this way to help towards a solution of this difficult problem. The training of orthopaedic nurses for the staffing of ortho-

paedic hospitals and after-care centres was referred to a committee of the British Orthopaedic Association, which has made recommendations, of which the most important is one which lays it down that every orthopaedic nurse should have a full training as well as special orthopaedic teaching. The impression made by the report of the Central Committee is hopeful. General practitioners and specialists seem everywhere to be working well together, and the activities of the Central Committee seem to have aroused none of the jealousies which are apt to arise when attempts are made to co-ordinate so many separate if cognate forces. The one most serious obstacle to progress is the lack of money. The Government, with the pressing need for economy and reduction of expenditure ever in mind, finds itself unable to sanction any fresh expenditure until its necessity is clearly proved. The future in this direction is not bright. Dr. Lyster in his report refers to a former report by him in which he quoted a letter from the Board of Education on the advisability of making local arrangements for the cure and after-care of cripples, and of linking up certain voluntary institutions in the north of the county with those already supported by local authorities in the south and west. Hitherto it appears that the North Hampshire Orthopaedic Clinics, which are staffed by the Voluntary Aid Detachments of the Red Cross, and each of which is run by its own committee, have very efficiently provided for the needs of certain areas, but unfortunately they have got into debt, and a grant of £300 a year from the county funds is recommended to cover the deficit and to help in the formation of three new centres. Lord Mayor Treloar's Hospital at Alton has hitherto helped to provide treatment for cases from the north of the county, but now asks the county council to provide a capital sum of £2,000 for twelve beds, and to pay at the rate of £78 a year for each occupied bed. The borough of Portsmouth has subscribed £10,000 for the provision of fifty beds to be set aside for its cripples, and has agreed to pay the same annual rate, but the Board of Education will not approve of any capital payment to the hospital. We gather that Portsmouth obtained the £10,000 from voluntary sources, and Dr. Lyster thinks that it should be possible to raise one-fifth of that sum from such sources in the rest of the county and so overcome the present difficulty. An arrangement has been come to for the treatment of cripples living in Bournemouth and its immediate neighbourhood at the Royal Victoria and West Hants Hospital at Boscombe. It thus appears that, provided the money is forthcoming for the provision of twelve more beds at Alton, the needs of the county are in a fair way to satisfaction, and one more blank space in the orthopaedic chart of Great Britain is filled in.

PROFESSOR LEIPER.

AT the annual dinner of the West London Medico-Chirurgical Society on June 11th the gold medal of the society was presented to Professor R. T. Leiper, M.D., D.Sc., F.R.S., of the London School of Hygiene and Tropical Medicine. This medal, founded by Dr. Phineas Abraham in 1910, is given triennially for distinguished services to medical science and heroism in the performance of medical duties. The award to Professor Leiper was for contributions to medical helminthology, especially to preventive medicine. Preventive medicine is a branch too often taken for granted, and the services of those who labour in its interests only slightly recognized. The man who can produce a spectacular cure is much more in the public eye—lay as well as professional; while he who makes possible the prevention of epidemics has too frequently to consider the performance of his duty as his sole reward. The action of the West London Medico-Chirurgical Society

¹ *BRITISH MEDICAL JOURNAL*, March 22nd, 1924, p. 536; December 12th, 1925, p. 1133; January 2nd, 1926, p. 34.

² Report of the Central Committee for the Care of Cripples for the years 1924 and 1925. Carnegie House, 117, Piccadilly, W.1.

³ Hampshire County Council, Public Health Department.

is accordingly all the more welcome. Professor Leiper follows a number of other distinguished recipients of this medal—Dr. Neisser, Sir Arthur Keith, Dr. T. R. Elliott, and Sir Clifford Allbutt. His own contributions to science may be numbered among the greatest discoveries in medical zoology made during the past decade. His work on the life-histories of the guinea-worm and the African eye-worm is well known; but his elucidation of the difficult problems of the Egyptian bilharzia worms was not only one of the most valuable contributions made to medical science during the war, but was a masterpiece of inductive reasoning and carefully planned and executed work. He has enabled not only the Egyptians, but the British army in Egypt, to prevent, simply yet effectively, infection with the blood flukes, and to avoid the serious consequences which inevitably follow such an infection. In his brief reply Professor Leiper paid a warm tribute to Sir Patrick Manson—a fellow Scot. From the time when he joined the London School of Tropical Medicine in 1905, and for nearly twenty years afterwards, Professor Leiper said he had owed much to Sir Patrick for his advice, encouragement, and, above all, for the opportunities for research afforded him. Manson made opportunities while others waited for them to occur. His influence on tropical medicine has been profound, while his example and precept have made preventive tropical medicine one of the greatest forces in the medical world. The task Manson set is not yet completed—it had scarcely been commenced at his death; but if the spirit of Manson continues in those ancillary sciences which serve medicine even greater triumphs would be accomplished. We may agree with Professor Leiper that the ancillary medical sciences have deserved well of their mistress. By honouring Professor Leiper the West London Medico-Chirurgical Society has honoured them, and, through them, itself.

ILLUMINATION PROBLEMS.

THE Department of Scientific and Industrial Research has recently appointed a research committee on illuminating engineering. The members include Sir J. Herbert Parsons, F.R.C.S., F.R.S., and two representatives of the Medical Research Council (Mr. D. R. Wilson and Dr. H. Hartridge). The other members represent the National Physical Laboratory, the Office of Works, the Illuminating Engineering Society, the electrical and gas industries, and architecture. The work to which the committee has set itself concerns some fundamental problems in illumination. The nature of these problems was described in a paper read before the Illuminating Engineering Society on June 1st by Mr. J. W. T. Walsh, the representative of the National Physical Laboratory on the committee. The first involved a thorough investigation of the problems of glare, and the committee was working in close touch with the committee on the physiology of vision recently appointed by the Medical Research Council. One of the most urgent aspects of this matter concerned street lighting. Knowledge of the variables which entered into the problem was extremely limited; it was not possible to say, for instance, whether glare was reduced or increased by halving the intensity of a source and at the same time halving its distance from the object aimed at. The second fundamental problem, undertaken at the suggestion of the Home Office, concerned the relation between the degree of illumination and ease and accuracy in the performance of fine work. Here the committee was working in association with the Fatigue Research Board of the Medical Research Council, and printing was chosen as a convenient process for study, and the active co-operation of the Joint Industrial Council of the printing trade secured. A complete account of this work, with recommendations, would, Mr. Walsh said, shortly be available. The third fundamental investigation

concerned the effect of windows on the natural lighting of rooms, a subject long neglected by most illuminating engineers. An extended series of investigations had been put in hand on the effect of the size and height of windows, the transmission value of different types of commercial glass, and the character of interior decoration. In addition to these fundamental researches the committee is tackling certain small special problems. One of these relates to the efficiency of an enamelled iron reflector widely used for direct lighting in industrial and other premises; another concerns the design of picture galleries so as to obviate reflections in the picture glass of objects in the gallery. We understand that part of the new wing of the Tate Gallery will afford opportunities for an interesting experiment in overcoming this drawback to the pleasure of picture exhibitions. Another problem is the effect of colour and distribution on the degree of illumination required for comfortable work. Other questions are the effect of a flickering illumination on ease of working, and the brightness of illumination fittings. The earlier reports from the committee will be concerned with these relatively minor investigations, but the fundamental researches are proceeding, though solutions of them are not to be expected within a short time.

ASEPTIC RESECTION OF THE COLON.

ALTHOUGH the small bowel readily lends itself to plastic surgery, and every kind of excision, exclusion, or anastomosis can nearly always be performed with the practical certainty of success, the same procedures in the large bowel are followed by infection, faecal fistula, or death in an uncomfortably high proportion of the cases. This is due to a combination of three factors—the thin wall, the poor blood supply, and the high bacterial content of the colon, particularly in those very cases that demand surgical intervention. Although there is as yet no agreement as to which of these three difficulties is the most important, the last has certainly exercised a considerable influence in limiting the enterprise of the surgeon, for the fear of contaminating the operative field is ever present in his mind. It is natural, therefore, that the development of a technique in which this possibility is reduced to a minimum should have claimed the close attention of all engaged in abdominal surgery, and several most ingenious methods of effecting axial union of the colon have been evolved in which the mucous lining of the bowel is never exposed throughout the operation, with the result that extravasation of bowel contents cannot occur. Some of these procedures are already of historical interest only. Others are still in the experimental stage. A few have established themselves as of practical use; and the Sub-section of Proctology of the Royal Society of Medicine chose wisely when the value of closed methods in resection of the colon was selected for discussion at its annual meeting held on June 9th, and invited Professor Fraser of Edinburgh and Mr. Pringle of Dublin to give an account of their work in this direction. Professor Fraser commenced by describing the guillotine method that he had applied in a series of experiments on dogs, with uniformly successful results, and showed a number of interesting photographs illustrating the firm, smooth union that had resulted. He had only put the method into practice in the human subject on fourteen occasions, and he felt that this number was too small to permit of any generalization; but he was convinced that the method did simplify the operation of end-to-end anastomosis, and did enable it to be performed quickly and easily, even in those difficult cases where the bowel is fixed or unduly short. Time would show whether any material reduction in the incidence of infection might be expected. Mr. Pringle followed with a description of his clamp and forceps method, and claimed

for it, not only the merits of quickness and simplicity, but a high degree of security against escape of bowel contents and consequent infection. He felt that his experience had been such as to justify a claim that his own or some similar method of closed operation should definitely take the place of the ordinary open method. The two opening papers evoked an interesting and stimulating discussion, and many criticisms were brought forward, chiefly, however, on theoretical grounds, for it did not appear that the other members of the subsection had yet put the method of closed resection to any extensive trial. Mr. Lockhart-Mummery gave utterance to a pretty general misgiving when he pointed out that an essential part of the technique of both methods was reliance upon the use of a crushing clamp for haemostatic purposes, and expressed the fear that the danger of haemorrhage from the divided bowel had not been sufficiently safeguarded. The President (Mr. Grey Turner) also reminded the meeting that there had been many deaths from haemorrhage when crushing alone, without the additional security of a ligature, had been relied upon for dealing with the stump of the appendix. Other speakers referred to the danger of diaphragm or shelf formation at the site of the anastomosis—a danger which would appear more likely with the guillotine method of Fraser than with the rather more simple technique of Pringle. Professor Fraser, answered the criticisms by referring to the experiments on dogs, and explaining that in fifty operations there had been no case of haemorrhage and none of shelf formation of sufficient degree to give rise to symptoms. He had had one example in the human subject and had been obliged to operate again, but in this instance the difficulty was known to have been due to the employment of a third layer of sutures, whereas in all the other cases only two had been used. The discussion amply justified itself, for it proved the existence of a very general desire to improve the results of large bowel anastomosis, and it clearly showed that at least two methods had emerged from the experimental stage to take their place in ordinary everyday surgery.

THE LISTER INSTITUTE OF PREVENTIVE MEDICINE.

THE annual general meeting of the Lister Institute of Preventive Medicine was held last week at the institute. The report of the governing body stated that the total expenditure for 1925 was over £36,500, a decrease of nearly £1,000 on that for 1924. The sale of vaccines, serums, etc., reckoning the value of the stock in hand, had yielded over £31,000. The total income of the institute was nearly £51,000, and the balance, being excess over expenditure, was over £14,000. The main part of the report is concerned with the research work done in the various departments of the institute. Professor Ledingham, F.R.S., the head of the department of bacteriology, has continued his researches in variola, vaccinia, and avian molluscum during the year. Certain anomalous reactions to small-pox virus have been observed in rabbits, and it is believed that their further investigation may throw valuable light on the irregularities met with in converting small-pox to the vaccinal form—a transformation which involves increased virulence of the original virus for the rabbit and a diminished virulence for man. Dr. Arkwright has continued his observations on the variation of bacteria *in vitro*, with regard especially to *B. paratyphosus* A. He has obtained a number of variants, and his observations, when complete, may prove to have an important bearing on pathogenesis in acute infections in animals and man, and also in chronic disease and the carrier state. Dr. Schütze has been investigating the relative potency of three recognized types of plague vaccine: (1) Haffkine's prophylactic, (2) an agar-grown heat-killed vaccine, and (3) the serum-agar prepared at the Lister Institute. It was found that of guinea-pigs immunized with the first two, 14 and 22 per cent.

respectively were protected against a lethal dose of *B. pestis* subsequently administered, whereas 44 per cent. of those immunized with the Lister Institute vaccine were protected. In rats, however, all the vaccines afforded protection to some 90 per cent. The experiments conducted by Dr. R. G. White to obtain fresh evidence as to the effect of pasteurization of milk on tubercle bacilli showed that naturally infected milk from cows with tuberculous udders or milk to which cultural tubercle bacilli or emulsions of tuberculous glands were added was rendered incapable of producing tuberculous infection in guinea-pigs after it had been exposed to a temperature of 62.5° C. for thirty minutes. Among the investigations pursued in the department of biochemistry were those of Professor Harden, director of the department, in association with other workers in it, on vitamins. One of the subjects that are being investigated by Professor Harden is the nature of the substance contained in yeast and many vegetable extracts, which has a powerful stimulating effect on growth, and is considered by many to belong to the class of vitamins. Using lemon juice as the source of this material it was found possible to concentrate it very considerably and to separate it from the antiscorbutic vitamin. Fat-soluble vitamins have been studied in the department of experimental pathology. The provision of a steady supply of young rats with a constant endowment of vitamin reserves is an essential preliminary to satisfactory work, but has proved difficult to attain. Miss Henderson Smith, who supervises the breeding of rats for nutritional work, found that although the diet was maintained constant throughout the year great variation in the animals' subsequent resistance to deficiency diets occurred. The disturbing factor has been tracked to the seasonal variations in the vitamin content of the fresh milk, which was an important constituent of the diet of the breeding stock. Constancy has now been obtained by employing the same preparation of dried milk throughout the year; it is now included in the diet of mothers during the last stage of pregnancy, and in that of mother and young from the time of birth until needed for experiment. A great deal of other work on vitamins is being carried on in the institute, especially on the fat-soluble vitamins, by various workers, including Miss Harriette Chick, Miss Roscoe, and Miss Ethel M. Luce. In the department for the study and preparation of antitoxic serums the preparation of scarlet fever antitoxin has been continued, although it appears that the type of scarlet fever in England at the present is so mild that it is difficult to be certain of the effect of the antitoxin upon the course of the disease. It is thought, however, that its administration may eventually prove to be the best method of treatment. The National Collection of Type Cultures has been maintained and extended, and over 4,000 cultures were distributed during the year.

MUNICIPAL CONSULTING OBSTETRICIANS.

THE public health authority of the borough of Hampstead is introducing an experiment in maternity and child welfare treatment which seems to be free from the objections that can be raised to the schemes for an improved maternity service put forward by Professor Munro Kerr and Professor Louise McIlroy (see BRITISH MEDICAL JOURNAL, June 12th, p. 999, where references are given). It appears that a special medical subcommittee of the Hampstead Borough Council, appointed on the advice of Dr. F. E. Scrase, the medical officer of health, was impressed by the number of stillbirths and early infant deaths in the borough which were attributed to difficulties of labour, principally malpresentation and undue prolongation. The subcommittee consisted of three medical councillors, Drs. Boyd, George, and MacFadden, with the chairman of the Maternity and Child Welfare Committee,

Councillor Mrs. Fisher. The case of every infant dying under 2 years of age, and also of every stillbirth notified during the year 1924, was investigated by the subcommittee. Information on infant deaths was obtained partly by the attendance of health visitors at the meetings of the subcommittee, partly by a special inquiry form for ascertaining the particulars of each case. In order to discover the causes of stillbirth a circular letter was addressed to all doctors and midwives from whom notifications were received during the year. In every case a friendly answer was received, and in the course of the answers two or three useful suggestions were made. Thus one practitioner stated that "the commonest cause of stillbirth was difficult labour, including malpresentation, which should be preventable by ante-natal measurements, though contraction was extraordinarily difficult to detect." Another suggested that "it should be a condition of the employment of midwives that, in all cases attended by them alone, the mother should be seen by a medical practitioner, or the medical officer of an institution, at least once, not less than a month prior to the term." The subcommittee came to the conclusion that some of the stillbirths and early deaths might have been avoided if specialist help had been available to the general practitioner, and made a recommendation to this effect. The borough council has appointed five obstetricians of recognized consulting status, whose services will be at the disposal of the general practitioners of Hampstead in cases of difficulty or abnormality. The terms and conditions of this service are: (1) that the patient must be a Hampstead citizen; (2) that the medical practitioner must immediately inform the medical officer of health that he has called in the services of one of the obstetricians, giving the name and address of the patient, the date of call, the reason, and the result; (3) that the borough council will be responsible to the consulting obstetrician for a fee of 5 guineas for each case. This is a fixed fee to cover the whole of the consulting obstetrician's attendance on the case. The council reserves the right to recover a portion or the whole of the fee from the patient should it deem it equitable to do so, as the object is to render skilled assistance available to the practitioner only when the patient cannot afford a consultant's fee. The medical officer of health has sent a circular letter to all Hampstead practitioners drawing their attention to the scheme, and expressing the hope that they will avail themselves of it when necessary, as its continuance will depend on the use it proves to be to the general practitioner. The scheme seems well worth a trial, as it will at least help to show how far mortality connected with childbirth can be reduced by specially qualified assistance. The question whether a consultant is necessary in a particular case is left, as it should be, to the general practitioner. Difficulties, of course, may arise in carrying out the scheme. For example, if the practitioner and the consultant should happen to differ in opinion, the position of the consultant who is receiving his fee from the borough council may be one of some difficulty. Again, the timid practitioner may perhaps be inclined to avail himself too readily of the facilities offered, to the detriment not only of his own sense of responsibility but also of the public purse. But these are minor difficulties which can be avoided with tact and self-restraint. There can be little doubt that there are many cases in which the possibility of obtaining skilled assistance without financial worry will be of great value both to the practitioner and to the patient.

MEDICAL AUSTRALASIANS IN LONDON.

The Australian and New Zealand Medical Association in England exists to assist medical visitors from the Commonwealth and from the dominions with information as to the way they may best utilize the time they can give to post-graduate work in Great Britain. The two honorary

secretaries, Mr. E. T. C. Milligan, F.R.C.S., who has, we believe, the honour of being the founder of the association (1922), and Mr. Bedford Russell, F.R.C.S., have gathered much information which cannot fail to be most useful to members or intending members of the profession newly arrived from overseas. The association is open to all medical graduates or undergraduates born in Australia or New Zealand who are resident in or visiting England. The fee is one payment of 5s., and the address of the honorary secretaries is 86, Harley Street, W.1. Two general meetings, each preceded by a dinner, are held in the year; the summer dinner took place on June 11th in London under the chairmanship of Mr. Joseph Cuning, M.B.Melb. and F.R.C.S.Eng., who is a permanent resident in England, for he is senior surgeon to the Royal Free Hospital. After dinner a few short speeches were made; the first was by Dr. Arthur E. Mills, professor of medicine in the University of Sydney, one of the guests of the evening. He congratulated the association on the work it was doing, but expressed the hope that it would not rest satisfied with its present achievements, remarkable as they were. Facilities for post-graduate study in London were, he thought, inadequate, and the position in this respect was not one of which the British people should be proud. An association of 300 members, however, could impress its desires upon the authorities. He understood that there had been a movement for the establishment of a post-graduate medical school, and this, he thought, would be a great step in the right direction; he did not recommend young men from the dominions to go in for examinations to obtain higher diplomas. He concluded by proposing a toast to the association. The chairman, in acknowledging it, agreed that facilities for post-graduate study in London were inadequate, but did not wholly sympathize with Professor Mills's objection to seeking to obtain the Fellowship of the College of Surgeons. The toast of "The Guests" was proposed by Dr. L. E. Barnett, C.M.G., Emeritus Professor of Surgery in the University of Otago, who said that his claim to speak was conferred by the fact that he had been chosen to be President of the Australasian Medical Congress of the British Medical Association to be held in Dunedin, New Zealand, next February. It was the task of everyone to keep up the dignity and high status of the medical profession and to maintain the idea of community of service and research for the benefit of humanity. The help obtained from the medical journals was incalculable, and he therefore had pleasure in coupling with the toast the names of the Editors of the *British Medical Journal* and the *Lancet*. Sir Dawson Williams, in reply, concurred in the opinion which had been expressed, that the organization for post-graduate work in London was unsatisfactory. Mr. Milligan and his co-secretary could do much to help those who applied to them, and those who came with suitable introductions could no doubt get what they wanted; but there were others not so fortunate. He suggested that the association whose guests they were might approach the departmental committee now sitting under the chairmanship of the Minister of Health and place their needs before it. Sir Squire Sprigge said that there were few serious problems in the world to-day that had not a medical aspect. It was the medical men themselves who were responsible for the high standard of the medical journals, for he found that every member of the profession was always ready to respond to an inquiry, and express for the guidance of the editor his opinion in respect to any subject with which he was specially acquainted. Mr. F. F. Muecke (M.B. Adelaide and F.R.C.S.Eng.) said that he and his colleagues at the London Hospital were always ready to give all the assistance in their power to Australians and New Zealanders visiting London for post-graduate work. They could hold clinical assistantships, and he had never been without one, two, or three Australians.

ROYAL SOCIETY CONVERSAZIONE.

THE conversazione of the Royal Society, which had been postponed owing to the general strike, took place on the evening of June 16th, with the President, Sir Ernest Rutherford, O.M., as host. The library and three other rooms were devoted, as usual, to exhibits, the greater number of them illustrating phenomena in physics. An apparatus for the investigation of very soft x rays was shown by Professor O. W. Richardson, F.R.S. The x-ray tube was of transparent silica and extremely highly exhausted, and the emission of the very soft radiation—far softer than anything used in medicine—was demonstrated by the photo-electric effect it was found to produce from an enclosed copper plate. Among several exhibits of interest to naturalists was one by Dr. Heslop Harrison and Dr. F. C. Garrett illustrating the induction and subsequent inheritance of melanism in moths. It has recently been found that in manufacturing districts many lepidoptera have become melanic, and it has been suspected that the relation between industrialization and melanism must be one of cause and effect. In the experiments of these investigators larvae have been reared from typical moths from non-melanic areas, and have been fed with food collected in a melanic district, or with food artificially impregnated with salts like manganese sulphate, known to be present on foliage in manufacturing areas. After several generations melanic moths have appeared, and the dark pigmentation thus induced has been found to be inherited as a Mendelian recessive. The investigators hold the result to be of importance as proving that the germ plasma can be affected by environmental influences. Following on the work which was described recently in these columns (May 22nd, p. 876) on the cultivation *in vitro* of the undifferentiated limb-buds of fowl embryos, Dr. T. S. P. Strangeways and Dr. H. B. Fell of Cambridge exhibited a series of microscope specimens illustrating the development *in vitro* of the isolated eye of the embryonic fowl. Embryos of something under three days' incubation were used. One eye was dissected out and planted into a medium composed of fowl plasma and embryonic tissue extract, while the other was fixed as a control. It was found that the eye under cultivation grew and differentiated in a surprisingly normal way. The specimens exhibited showed the growth of the lens, the formation of pigment, the differentiation of the iris, and the development of the reticular ganglion cells, and the rods and cones layer of the retina. These were all very wonderful results, and bore out the remark in our article on the subject that further research would doubtless be stimulated by these highly successful experiments in tissue culture. The Natural History Museum sent examples of the first species of submarine insect—a two-winged fly from Samoa—which spends its whole life in the sea. All the other sea-breeding insects known have air-breathing adults. Dr. G. H. Rodman had a large exhibit of photomicrographs—the work of years—illustrating the various forms of hairs occurring on the leaves of plants. Among the plants were several, such as *Primula obconica*, known to be capable of producing lesions in some persons. The mechanism of the armoury of insectivorous plants has been studied by Dr. Rodman in the same way. On the physiological side Mr. A. C. Downing showed a number of thermopiles for measuring the heat produced by muscle and nerve on stimulation. Many exhibits were concerned with meteorology and with radiotelegraphy. Of the historical exhibits the most interesting was an early model of the microscope of the Leeuwenhoek type, shown by Mr. George H. Gabb. It was constructed by Butterfield of Paris, and dated from about 1680. It was made of silver, the three lenses being mounted in silver cells and held in position by friction in a collar at the back of the plate. It is extraordinary, in

view of the primitive character of this instrument compared with the modern microscope, that with its aid Anton van Leeuwenhoek should have been able to carry out his classical work, and to have shown himself in some respects a pioneer in microbiology. Another exhibit, going much further back into antiquity, was a reconstruction, on the basis of recently discovered manuscripts, of the actual pattern of the stomachion or locus of Archimedes, the pastime of the Greeks and Romans twenty centuries ago.

THE SOCIETY OF APOTHECARIES.

At the dinner of the Society of Apothecaries to the Lord Mayor and the Sheriffs of London, in the Hall of the Society on June 15th, a large number of guests were present, including His Excellency the Italian Ambassador, the Marchese della Torretta; Sir John Rose Bradford, President of the Royal College of Physicians of London; Sir Frank Dicksee, President of the Royal Academy; the Director-General of the Medical Department of the Navy, Surgeon Rear-Admiral Sir Joseph Chambers; and Sir StClair Thomson, President of the Royal Society of Medicine. The Master of the Society, Dr. Vincent Dickinson, proposed the health of the Italian Ambassador and of the Lord Mayor; Colonel Sir William Pryke, the Lord Mayor, replied. The Senior Warden, Dr. Alfred Hepburn, proposed the toast of "The Guests," and gave an interesting account of the historic connexions of the site of the Society's hall and its neighbourhood. Sir Frank Dicksee, in reply, contrasted the peaceful traditions of City dinners with the turmoil, overthrow of authority, and unrest in the outer world. Dr. Gordon Brown, Senior Past Master, proposed the health of the present Master, to which Dr. Vincent Dickinson replied.

MEDICAL RESEARCH IN MALAYA.

In the annual report for 1924, by Dr. A. T. Stanton, on the work of the Institute for Medical Research of the Federated Malay States, with which is combined the reports of the Malaria Bureau and the Chemical Laboratory, a preliminary note is given of investigations undertaken with a view to testing MacGregor's hypothesis that the degree of alkalinity or acidity in mosquito breeding waters is a main factor in determining the species of larvae found in them. It appears likely that, though the larvae of Malayan anophelines are unaffected by small variations of acidity and alkalinity in the water of stagnant pools, yet there is some evidence that definite limits of such variations exist which certain species do not usually pass in nature. The emphasis laid previously by Sir Malcolm Watson and others upon the importance of subtle chemical differences in breeding waters appears, therefore, to be justified. It is believed that this observation will be of assistance in future malarial surveys. Correlation of the various lines of research in the prevention and treatment of malaria was carried on actively during the year in spite of a depleted staff. The larvicidal powers of fishes and aquatic insects were studied, and an attempt made to determine whether the nature of the plant life in pools affords indications of the presence of particular species of larvae. A new department of the institute was opened in August, 1924, for the prophylactic treatment of rabies, and arrangements made to issue the vaccine to Government hospitals if an epidemic should occur. A special study was made also of cases of fever of obscure origin, including a form of typhus distinguishable by its low infectivity and the absence of evidence that it is carried by lice. The chemical laboratory dealt with over 7,000 samples during the year, various public water supplies were visited, and thirty toxicological analyses performed.

BICENTENARY CELEBRATIONS AT EDINBURGH UNIVERSITY.

BANQUET IN THE UNIVERSITY LIBRARY.

THE celebrations to commemorate the two hundredth anniversary of the founding of a Faculty of Medicine in the Town's College at Edinburgh in 1726 were held on June 10th and 11th. The central ceremony was the opening of the reconstituted surgical department.

The proceedings began with a dinner in the hall of the library of the University; and among the 180 persons present were 39 representatives from other universities and medical schools in Britain, on the Continent, and on the far side of the Atlantic, as well as most of the teachers in the Medical Faculty of Edinburgh University. The toast of "The Guests" was proposed by the chairman, Sir Alfred Ewing, Principal of the University. Although the University was, he said, technically the host of the evening, there were associated with it two great historic bodies—the Royal College of Physicians of Edinburgh and the Royal College of Surgeons of Edinburgh. Both were more venerable than the Faculty of Medicine. The surgeons and barbers dated from 1505, and the Royal College of Physicians won its charter after some opposition in 1681. From these two bodies the first professors had come to form, just two hundred years ago, the Faculty of Medicine of the University of Edinburgh. The Corporation of Edinburgh also should be mentioned, for the University had begun its existence as the Town's College under the patronage of the corporation, and it had remained the Town's College for nearly three hundred years. With regard to the ten distinguished men upon whom the University was to confer its honorary degree next day, the Principal tendered to the foreign visitors some apology, for on the present occasion it had been decided to give honorary degrees only to the sons of Edinburgh. Referring to the foreign guests, he said that the stream of medical culture had come from Leyden to Edinburgh. Next to Leyden, however, Edinburgh owed a debt to Paris, which had been a centre of light for all the world. His own studies had run entirely in physics in its application to engineering, and while great blessings had been conferred on mankind by engineering it had at same time made the world more restless, less contented, and the individuals perhaps less masters of their inner selves; in the case of medicine, however, there had been no corresponding disadvantage. Professor van der Hoeve, dean of the Faculty of Medicine at the University of Leyden, in responding, brought the congratulations of his university, and expressed the hope that Edinburgh would flourish and prosper in the years to come. He referred particularly to the intimate relations which had existed in the past between

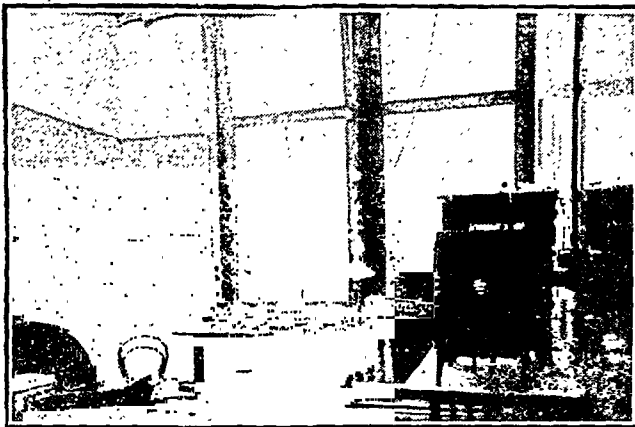
Scotland and Holland, where no fewer than 1,400 Scotsmen had studied under the celebrated Boerhaave at Leyden University. Dr. D. R. Vaudesal conveyed the good wishes of the Faculty of Medicine in the University of Paris to the Faculty at Edinburgh. Replies were also made by Professor Sir H. D. Rolleston, K.C.B., of the University of Cambridge, and by Dr. Andrew Balfour, C.B., C.M.G., director of the London School of Hygiene and Tropical Medicine. Professor Sir Archibald E. Garrod, K.C.M.G., submitted the toast of "The Edinburgh School of Medi-

cine." It had, he said, been the first really organized medical school in this island, and his own medical school of Oxford University had been, at its commencement, largely composed of men borrowed, taken, or acquired from Edinburgh. The students of to-day, as compared with those before the war, had a different outlook; they were brought up in association with much wider sympathies, with an interest in outside things such as politics and economics, and with a greater interest in their fellow men. Replies to this toast were made by Professor Lorrain Smith, dean of the Faculty of Medicine, who said that there was great national need for a reform in the medical service; by Professor Robertson, President of the Royal College of Physicians of Edinburgh, who said that although the Edinburgh medical school was divided into two bodies, the University and the extramural school, the heart of the whole medical school, from which both sides drew their life blood and their inspiration, was the Royal Infirmary; for its foundation the then President of the Royal College of Physicians had started to collect money exactly two hundred years ago, and it had been built twelve years later. Dr. Logan Turner, President of the Royal College of Surgeons of Edinburgh, who also responded, referred to some of the important steps taken by Fellows of this College in the development of the Edinburgh medical school. The toast of "The Chairman" was proposed by Sir John Rose Bradford, President of the Royal College of Physicians of London, and duly acknowledged.

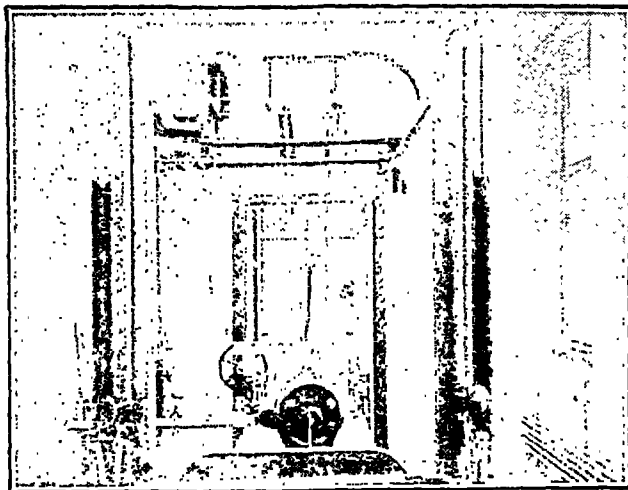
HONORARY GRADUATION
CEREMONY.

The graduation ceremony was held on Friday, June 11th, at 10.30 a.m.,

in the M'Ewan Hall, and was attended by the delegates representing universities and medical schools and by a large number of the public. The University conferred the honorary degree of Doctor of Laws on ten eminent medical graduates of this school. Vice-Chancellor and Principal Sir Alfred Ewing presided, and was supported by Lord Provost Sir William Sleigh and the Sheriff of the Lothians. Sir Alfred Ewing said that the University welcomed the delegates, who had come from many famous



Research Department: Research Workers' Room.



Research Department: X-Ray Room and Theatre A beyond.

schools of medicine not only in Britain but on the continent of Europe, in America, and in the dominions beyond the seas, with messages of goodwill. They were doubly proud of the fact that not a few of these were sons of Edinburgh. He felt that the great company of distinguished guests had come to do honour to the spirits of the past whose presence they seemed to feel among them, and he would like to assume that they had also come under the impulse of a living interest in order to give their encouragement to the great task of maintaining a tradition for the future. Of any institution it must be true that to review a glorious past was to apply to the present a heart-searching test. From such a gathering as the present there was bound to spring fresh hope, stronger courage, and confirmed resolution. Congratulatory addresses were presented by delegates from the Universities of Leyden, Copenhagen, Oslo, Paris, Montreal, Toronto, Pennsylvania, Oxford, Cambridge, Ireland (National), Wales, St. Andrews, Aberdeen, London, Birmingham, Bristol, and Leeds; from the Royal College of Surgeons, London, Charing Cross Hospital and St. Bartholomew's Hospital Medical Schools, and the Caroline Medico-Chirurgical Institute, Stockholm. The Dean of the Faculty of Law, Professor James Mackintosh, K.C., LL.D.,

then introduced individually ten distinguished graduates in medicine of the University, whom he proposed for the honorary degree of Doctor of Laws. He said that the University offered them collective and most cordial welcome. They had all been reared in the Edinburgh Faculty of Medicine, choice fruits of that goodly tree whose planting two hundred years ago was commemorated that day. In their several spheres of activity they had nobly sustained the credit of their old school, and their Alma Mater on this happy anniversary was proud of the tale of their achievements. The ten honorary graduates, of each of whom the Dean gave a short biographical sketch, were: Andrew Balfour, C.B., C.M.G., M.D., Director of the London School of Hygiene and Tropical Medicine; Robert Howden, M.A., M.B., C.M., D.Sc., Professor of Anatomy, University of Durham; William Tasker Adam Jolly, M.B., Ch.B., D.Sc., Professor of Physiology and Dean of the Faculty of Medicine, University of Capetown (in absentia); Sir George Newman, K.C.B., M.D., F.R.C.P., Ministry of Health; Alexander Primrose, C.B., M.B., C.M., Professor of Clinical Medicine, and Dean of the Faculty of Medicine, University of Toronto; Sir John Robertson, C.M.G., O.B.E., M.D., Professor of Public Health, University of Birmingham; Ralph Stockman, M.D., Professor of Materia Medica and Therapeutics, University of Glasgow; Arthur Logan Turner, M.D., President of the Royal College of Surgeons of Edinburgh; Sir Norman Walker, M.D., F.R.C.P.Ed., Treasurer of the Royal College of Physicians of Edinburgh; and James Thomas Wilson, M.B., C.M., F.R.S., Professor of Anatomy, University of Cambridge.

ADDRESS BY SIR GEORGE NEWMAN.

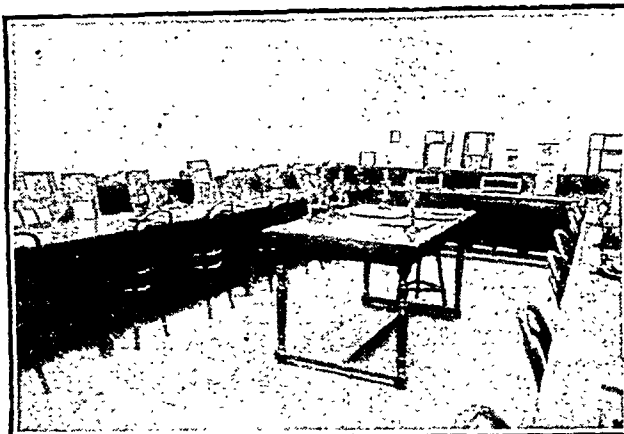
Immediately after the graduation ceremony an address was delivered by Sir George Newman, Chief Medical Officer, Ministry of Health, who spoke of some of the facts connected with the early foundation of the Medical Faculty at Edinburgh. At the outset he described the early school of medicine in Salerno, which had been for two hundred years the centre of Greek inspiration to Europe. From this primitive medical school the medical spirit of the Italian universities had been derived. By the thirteenth century Bologna and Padua, though established for the study of law, possessed medical faculties, and these two medical schools had been the famous prototypes of Leyden and of Edinburgh. The revival of the

Hippocratic tradition had come to Western Europe in the seventeenth century by the life and labour of three men—Harvey, Sydenham, and Boerhaave. In a single generation the reputation of Leyden as a medical school had spread throughout Europe and wholly supplanted that of Padua. Boerhaave's classroom had been crowded with men from all nations, of whom 20 or 30 per cent. came from Great Britain. His clinic had been the great battleground in Europe between book learning and practical training, and from the small hospital in Leyden

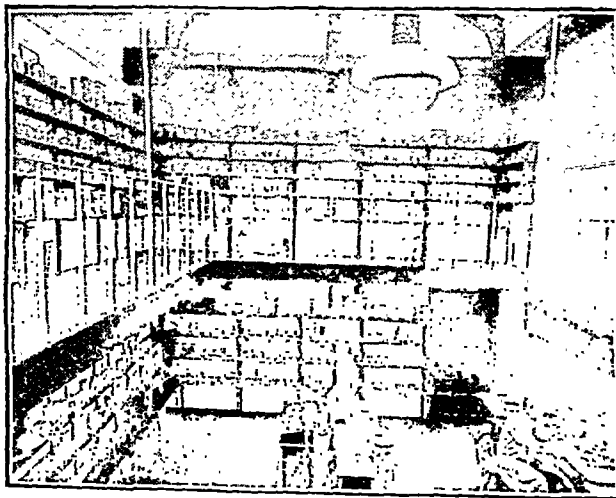
had gone forth a new method of medical education. In the autumn of 1718 there had sat in Boerhaave's classroom eight or ten young men from Edinburgh. Among them was Alexander Monro, a medical student of 21, who was destined to carry the traditions of Leyden to Edinburgh; and by his side sat John Rutherford, of the same age, afterwards the grandfather of Sir Walter Scott. In 1718 Leyden was a place of splendid vision, a hive of industry, a centre of life and growth, and the University of Edinburgh was not. The whole atmosphere of Leyden was

vital, the spirit adventurous. At Leyden in that day there was a living prophet, and it was men and not methods that made a great university. Leyden had also bestowed upon the young men from Edinburgh an apprehension of the science of medicine, and they had also brought from Leyden a method of clinical education. One institution at Leyden was quite new to these Edinburgh men—the old convent infirmary which Burton called the University Hospital. There twice a week a bedside clinic was held, and it was interesting to find from Rutherford's manuscript notes that when he introduced clinical teaching at Edinburgh he followed the

exact model which he had learned at Leyden from Boerhaave in 1718-19. This had become one of the characteristic features of the Edinburgh medical school and had been copied all over the world. The early days of the medical history of Edinburgh had been fully recorded by the distinguished President of the Royal College of Surgeons. Lord Cockburn had said that "Great causes create great men, but great men elevate great causes." This interaction had done much for Edinburgh in



Teaching Department: Students' Demonstration Room.



Teaching Department: Surgical Museum.

the eighteenth and nineteenth centuries. From all over Great Britain, and from remote parts of the earth, men had come to be nurtured in this cosmopolitan centre and had attained to a sense of citizenship in the world. Some of the remarkable discoveries of the eighteenth and nineteenth centuries had been made within the walls of this medical school—Goodsir's cell theory, Gregory on morphine, Hughes Bennett on leucoeythaemia, Laycock on hysteria, Sir J. Y. Simpson on anaesthetics, and Lister on antiseptic surgery. These discoveries did not begin, nor were they completed, in Edinburgh, but all of them were there substantially advanced, and of all of them it might be said that they entered into the history of mankind. The design of their forefathers had been that the future of medical education as interpreted in Edinburgh would depend upon (1) integration of the several sciences which were structural in medicine, particularly in biology; (2) the application of the experimental method to all inductive study; (3) a clear recognition of the prerogative part which medicine might play in social evolution; and (4) sound clinical study. The present generation had been witnesses of a golden age of medical sciences, yet it was the medical art which endured. The effective practice of this art depended, and would always depend, upon the clinical skill, wisdom, and experience of the individual practitioner.

SERVICE AT ST. GILES'S CATHEDRAL.

A commemoration service was held at noon on June 11th in St. Giles's Cathedral, to which the Medical Faculty and Senatus of the University proceeded immediately after the graduation ceremony. The Very Rev. Professor W. P. Paterson, D.D., dean of the Faculty of Divinity, preached the sermon, taking as his text the words, "Their line is gone out through all the earth, and their words to the end of the world." Touching on the outstanding features in the history of the Medical Faculty, which furnished matter for gratitude, he said that the first and most obvious fact was that the medical school of Edinburgh had made a notable contribution to the advancement of Britain and of other lands. During the past two centuries the Medical Faculty had equipped and sent forth 16,000 graduates, of whom half had been drawn from Scotland and the other half from other nationalities. If Scotland had the distinction of having made a considerable contribution to the enlightenment and well-being of humanity, it was chiefly because it had realized, almost more than any other nation, how much it had to learn from the races of mankind. A fact brought into relief by these celebrations was the importance of the organic connexion of the medical school with a great seat of learning in other departments. A third outstanding feature of the history of the University medical school had been its permeation by the spirit of Scottish religion. The preacher thought that a collapse of faith could only be an exceptional and transitory phenomenon among those whose subject of study was the marvels of creation and the wonders of man's estate, and whose work was cast in the mould of self-sacrificing and beneficent labour for the good of man.

OPENING OF NEW SURGERY DEPARTMENT.

In the M'Ewan Hall on the afternoon of June 11th, at 3.30, Sir John Gilmour, Secretary for Scotland, formally opened the new surgery department of the University. The buildings were fully described in the *BRITISH MEDICAL JOURNAL* for June 5th, 1926 (p. 959). The large party which assembled in the M'Ewan Hall had an opportunity of inspecting the buildings either before or after the ceremony. Principal Sir Alfred Ewing, who presided, said that on the occurrence of a recent vacancy in the professorship of surgery they had been able, thanks largely to the Rockefeller Foundation of New York, to make the appointment on altered conditions, which secured a much larger proportion of the professor's time for carrying out the work of teaching and research. Professor D. P. D. Wilkie had been appointed to the chair, and his qualifications had included zeal, skill, and knowledge, with also an enthusiasm which at once inspired him to demand from the University an expenditure in aid of surgery which had not been con-

templated at the time of his appointment. He had persuaded the University to fit up what was virtually a new department of surgery, with a laboratory on a scale and with a character and quality of equipment which he believed was not rivalled in the world, and certainly not in Great Britain.

The Secretary for Scotland said that this happy event in the history of the development of a great school such as that of Edinburgh coincided with the celebration of a long period of useful service to the community. The great names which came readily to their minds at the present time were names which carried with them a tradition of which the profession must be proud. In more recent years many of them had come into personal contact with Professor John Chiene and Professor Alexis Thomson. He himself would ever remember the personality of Professor Alexis Thomson, who seemed to radiate even from his very minor actions a feeling of strength and confidence and of power. The future was in the hands of the students of to-day, and the responsibility lay with them to apply the knowledge which was given to them and to take the opportunity of using to the fullest the new buildings and their equipment. It was said that the profession of medicine knew no boundaries, and it was certain that many difficult and perplexing problems which faced governments and politicians could be solved or mitigated by it. Hand in hand with teachers of religion in eastern parts of the world the power of medicine and surgery had been a pioneer. It had often been the means of gaining the confidence of the people with whom they were dealing, and he would say to young men and young women of to-day who had the British desire to go into the outer world, and the spice of adventure in their natures, that he could conceive no profession which carried with it greater opportunities of service to humanity as a whole. America, through the Rockefeller Institute, had, in the present instance, lent aid in that direction. When they recollected that two hundred years ago the United States did not exist, and that in the interval there had been great changes in the historical development of the two peoples, it was a helpful and inspiring thought to realize that there yet remained, on the great main issues of life, a feeling that they ought to and could work hand in hand.

Professor Wilkie, in moving a vote of thanks to Sir John Gilmour, said that after the arduous and anxious and strenuous time through which the Government had lately passed, it was perhaps a pleasant change to the Secretary for Scotland to open a department in which the workers had no fixed hours, had most uncertain emoluments, and to whom the advancement of science formed a sufficient stimulus for hard work and renewed endeavour. He found that the difficulty in this department was not to exact so many hours a day from the research workers, but rather to provide keys of the department so that the workers might gain access to continue their researches during the watches of the night. The past two centuries of medicine in Edinburgh had seen remarkable changes and advances, but perhaps the most remarkable of all had taken place in surgery, and these for the most part in the past fifty years. At present many patients entered the surgical wards, desiring and often demanding operative treatment—sometimes, he regretted to say, without having consulted their own medical man. If they contrasted this with the dread, almost amounting to horror, with which the word "operation" was whispered not more than sixty years ago, the great change that had taken place in the attitude of the public towards the art of surgery would be realized. The cause of this was to be found chiefly in the application by Lister of the knowledge gained in the experimental laboratory by Pasteur. In the department which Sir John Gilmour had just opened it was hoped to combine members both of the university staff and of the extramural staff without distinction. The laboratory was to be a laboratory of the Edinburgh School of Surgery and Medicine, for medical research knew no walls but one, and that was the wall of ignorance. If they were to make any breach in that wall it could only be by combined and co-operative effort.

EVENING ENTERTAINMENTS.

In the evening of Friday, June 11th, a commemorative dinner was held in the Hall of the Royal College of Physicians. Professor G. M. Robertson, President of the College, presided. The toast of "The Town" was proposed by the President, and acknowledged by the Right Hon. the Lord Provost. "The Faculty of Medicine" was proposed by Professor Tait McKenzie of Pennsylvania University, and replied to by the Dean of the Faculty of Medicine; and the "President of the College" was proposed by the Principal of the University and suitably acknowledged. Later in the evening a civic reception was held by the Lord Provost, magistrates, and town council at Inverleith House, Royal Botanic Garden. Representatives of public bodies, as well as of the University Faculties and of the medical profession, were present, and the company included over a thousand ladies and gentlemen. The guests were favoured with a pleasant summer evening, and enjoyed the magnificent vista of the city and the rich foliage of the gardens, which at this time of the year show their best appearance.

England and Wales.

THE COMING-OF-AGE OF THE UNIVERSITY OF SHEFFIELD.

We have already announced that the coming-of-age of the University of Sheffield will be celebrated on Thursday and Friday, July 1st and 2nd. We may now give some further particulars. On Thursday morning, at 10.30, the Chancellor, the Marquess of Crewe, K.G., will receive delegates from other universities, from public bodies, and learned and scientific societies, and will receive congratulatory addresses from the delegates. Afterwards he will unveil the university war memorial and lay the foundation stone of the gymnasium. A luncheon to Princess Mary, Viscountess Lascelles, and honorary graduands and delegates will be given in the Cutlers' Hall (by permission of the Master Cutler, Mr. T. R. Ellin). Afterwards a congregation will be held in the Victoria Hall, where an address will be presented to Princess Mary, and the following honorary degrees will be conferred:

Doctor of Laws.

Princess Mary, Viscountess Lascelles.
The Earl of Derby.
Lord Hewart of Bury (Lord Chief Justice of England).
Sir Joseph Austen Chamberlain, K.G. (Secretary of State for Foreign Affairs).
The Right Hon. Sir Samuel Roberts, Bt.
Sir Percy Richard Jackson.
Mr. Harry Parker Marsh.
Miss Emily Penrose.

Doctor of Letters.

The Bishop of Sheffield.
The Right Hon. Sir Charles Eliot, G.C.M.G., at one time Vice-Chancellor of the University of Sheffield.
The Very Rev. Sir George Adam Smith.
Sir Hugh Percy Allen.
Professor A. W. Pollard, C.B.

Doctor of Science.

Professor Percy Faraday Frankland, F.R.S.

Doctor of Engineering.

Engineer Vice-Admiral Sir R. B. Dixon, K.C.B.

Later in the afternoon a reception will be given by the Lord Mayor and Lady Mayoress of Sheffield, and the University dinner will take place in the Cutlers' Hall in the evening. On Friday morning the new engineering and metallurgical research laboratories of the University will be opened and the laboratories and workshops of the applied science department of the University inspected. The afternoon will be spent at the university playing fields, Norton, where the foundation stone will be laid of the pavilion, the cost of which is to be defrayed from a bequest of Sir Albert Hobson (late Pro-Chancellor of the University) as a memorial to him and his two sons, both killed in the great war. There will be a cricket match (Liverpool University v. Sheffield University) and a tennis tournament. In the afternoon the Chancellor will give a reception at the University Buildings, Western Bank.

ROYAL DEVON AND EXETER HOSPITAL.

During the year 1925 a new radiological department was opened at the Royal Devon and Exeter Hospital. The old

department, instituted very early in the history of electrical treatment, under the supervision of the late Dr. J. Delpratt Harris, had become insufficient for the work. The completion of the new "Victory" wing of the hospital allowed a complete double ward, with convenient annexes for deep treatment and other work requiring a dark room, to be allotted to the new department, on which the hospital has spent nearly £3,000, while the Devon and Exeter Cancer Fund has materially assisted in the acquisition of further up-to-date plant. This fund was due to a letter from Mr. Russell Coombe, F.R.C.S., to the local press. A meeting was called conjointly by Lord Fortescue (Lord Lieutenant of Devon) and the Mayor of Exeter (Mr. P. F. Rowsell), and under the chairmanship of the latter £11,000 was raised in about eighteen months. Of this sum, £5,000 was voted to the Royal Devon and Exeter Hospital for immediate needs, and among the equipment purchased with this contribution were a Gaiffe constant current apparatus for deep treatment, a spare (coil) apparatus for deep treatment, and 140 mg. of radium element. A further amount of radium has been promised in the near future. The constant current apparatus for deep treatment is the first of its kind erected in this country. It has this advantage in that there is no risk in the matter of dosage should the control be delegated to a partially skilled operator. Some three years ago an experimental outfit was obtained for the more modern treatment by the ultra-violet rays. The use of this method soon became so frequent that a powerful mercurial ultra-violet lamp was purchased, which is now in almost constant use during the day, especially for the treatment of surgical tuberculosis of children. Dr. Miller Muir, the radiologist to the hospital, was largely responsible for the design of the new department. In 1925 the new massage department was completed. The total number of in-patients and out-patients dealt with in the hospital during the year was 10,168, an increase of 395 on the previous year, and a record for the hospital. The average cost of each occupied bed decreased from £109 2s. 1d. to £105 18s. 5d. Further improvements contemplated include the establishment of a surgical maternity ward, the construction of a new dispensary department, and the provision of separation wards in the basement. The ordinary income of the hospital during the year under review was £23,798, an increase of £852 over the previous year. Payments by patients now form a considerable part of the revenue, and increased substantially during 1925. There is still, however, a long waiting list, and the present income does not permit the maintenance of more than 200 beds.

THE EARLY TREATMENT OF CONGENITAL SYPHILIS.

Mr. E. B. Turner, F.R.C.S., who presided over a conference of the British Social Hygiene Council in connexion with the Nation's Health Exhibition at Leicester, on "What further steps can be taken to prevent congenital syphilis," urged that the Wassermann test should be applied to expectant mothers as a matter of routine, and suggested that treatment might be given at ordinary maternity homes and not necessarily at V.D. clinics. Dr. Norman Cruickshank emphasized the importance of the subject in connexion with infant mortality. Some 10 per cent. of the hospital class of patient showed evidence of having been infected with syphilis, and though there was less venereal disease now than a few years ago it was too early to say whether this improvement would be permanent. The most effective method of prevention was early diagnosis, and to make an early blood test should be a routine in all institutions engaged in obstetrical work; such a test might be made compulsory in connexion with the National Insurance Act, and special benefit given to those expectant mothers who accepted ante-natal supervision. Mr. John Adams said that a negative test did not necessarily mean that a patient was cured, and thought it should be negative for at least a year before marriage. When syphilis was untreated 50 per cent. of children were born dead, 75 per cent. of the remainder died within a week of birth, and most of the rest died within the first year. Every woman who had had syphilis should be specially treated for each successive pregnancy. A child born syphilitic should receive treatment at the earliest

possible moment, say within half an hour after birth. Syphilis was much less prevalent than it was four years ago and was steadily getting less and less, but he urged that the towns should establish special clinics for the treatment of ante-natal and post-natal syphilis. Dr. David Lees believed that the country had it in its power absolutely to eradicate congenital syphilis, and raised the issue as to why gross lesions were still met with. There was a need to educate the profession in the policy of preventive medicine, and every children's and maternity hospital should have on its staff someone specially skilled in the diagnosis and treatment of the disease. He thought it better for cases to be treated in such institutions than in V.D. clinics. In Edinburgh it had been found perfectly possible to give treatment in the general hospitals. There should be no stigma attaching to the disease and there was no difficulty in getting patients to accept the blood tests, if they were not regarded as outsiders.

CONFERENCE OF THE BRITISH HOSPITALS ASSOCIATION.

The sixteenth annual meeting and conference of the British Hospitals Association will be held at Portsmouth, on June 24th and 25th, under the presidency of Sir Arthur Stanley. On the first morning, after the delegates have been welcomed by the Mayor of Portsmouth, a discussion on pension schemes for officers and nurses will be opened by Dr. H. L. Eason, C.B., C.M.G. In the afternoon Sir John Paget, Bt., K.C., will read a paper on street accidents and compensation cases, and a discussion will follow. On the second day, after a business meeting in the morning, a paper will be read by Dr. S. C. Dyke on the pathological service of the general hospital, and in the afternoon arrangements have been made for visits to Portsmouth Hospital, the Royal Naval Hospital, Haslar, the dockyard, and other centres of interest. The objects of the British Hospitals Association are to facilitate the consideration of details of hospital management, to afford opportunities for discussion of points of special interest or difficulty, and generally to facilitate the acquiring of knowledge of hospital administration. The association now includes in its membership most of the chief hospitals in the country, and is recognized by Government departments as representative of the voluntary hospitals. Trustees of hospitals, members of committees, or executive and professional chief officers are eligible as members of the association. Members pay an annual subscription of one guinea.

WELSH WAR MEMORIAL HOSPITAL.

Prince Henry, accompanied by Lord Kenyon (Lord Lieutenant of Denbighshire), opened the new War Memorial Hospital at Wrexham on Wednesday, June 9th. Members of the honorary and resident staffs were presented to the Prince, including Mr. J. Oswell Bury, president of the hospital; Mr. R. W. Egerton, chairman of the board; Mr. Richard Williams, senior consulting surgeon; Miss M. A. Turner, matron; and Mr. Leslie Spencer, secretary of the new hospital. The Bishop of Bangor presided at the opening ceremony, supported by the Archbishop of Wales. The building, which will serve a population of more than 100,000, has cost rather more than £100,000. The hospital has been opened free from debt, in consequence partly of a donation of £35,000 by the William and John Jones trustees, and partly of contributions, amounting to £26,000, from the employees and miners of East Denbighshire.

Scotland.

THE LORD HIGH COMMISSIONER'S VISITS TO HOSPITALS.

THE Lord High Commissioner to the Church of Scotland General Assembly, accompanied by Lady Elgin, paid the usual round of visits to hospitals and similar institutions in Edinburgh during the past week. On June 2nd a visit was paid to the Royal Infirmary of Edinburgh, where they were received by the Lord Provost and other managers. They visited in particular Wards 9 and 32, and spent some time talking to the patients, inquiring

sympathetically into their condition and admiring the appearance of the wards. They subsequently distributed the prizes gained by the nurses in the examinations. On June 3rd a visit was paid to the Royal Hospital for Sick Children, to the Children's Shelter, and to the training home of the Queen Victoria's Jubilee Institute for Nurses (Scottish Branch). Here it was stated that at the present time there were 700 Queen's Nurses in Scotland, and that during 1925 these nurses had paid over one and a half million visits to some 96,000 cases. On June 5th a party of about 150 disabled soldiers from the Ministry of Pensions Hospital at Craigleith were the guests of the Lord High Commissioner and Lady Elgin at a garden-party, held within the grounds of Holyrood Palace, and after tea the party were shown over the historic rooms in the palace. On the same day a visit was paid to Chalmers Hospital and to Newington House, the Scottish National Institution for Blinded Soldiers and Sailors. Here the workshop was specially inspected, where a number of men were engaged in mat-making, boot-making, and similar work. On June 8th the Lord High Commissioner and Lady Elgin visited the Deaconess Hospital. Lord Sands, chairman of the board of management, summarized the functions which the hospital discharged, which, he said, provided a useful supplement to the beds available in larger institutions for the sick in a densely populated industrial district of Edinburgh. In the course of the past year over 700 patients had been accommodated, and more than 5,000 persons had received treatment at the out-patient department. A distinguishing feature of the hospital was that it afforded a school of training to women who proposed to devote themselves to the service of the Church in nursing the sick poor both in Scotland and in foreign lands. Lord Elgin inspected the apparatus which had been installed since the previous year for the application of ultra-violet rays, especially in dealing with rickets and similar ailments in children. Lady Elgin afterwards distributed prizes to the nurses who had won them in examinations. On the same day Lady Elgin paid a visit to the Elsie Inglis Memorial Maternity Hospital, which is not yet completed, but has opened 45 beds for patients. A fine view of the neighbouring hills in the King's Park from the verandah, on to which the wards open, and which is utilized in the treatment of patients, was greatly admired, as well as the rows of babies receiving a sunbath in the open-air shelter provided for this purpose. On June 9th Lady Elgin visited the Edinburgh Royal Maternity and Simpson Memorial Hospital. In particular the ante-natal department, which was described in the BRITISH MEDICAL JOURNAL of March 20th, and was opened last April as a memorial to the late Dr. J. W. Ballantyne, occupied attention. It was pointed out by Dr. Nasmyth, chairman of directors, that this hospital has the distinction of being the first hospital in the world to have an ante-natal department, which is now recognized as one of the most important features of maternity welfare work.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

The syllabus of the Post-Graduate Medical Association in Glasgow for the summer session from June till October, 1926, has just been issued. The teaching facilities are in three forms—a general medical and surgical course, a certain number of special clinical courses, and clinical assistantships. The general medical and surgical course will run during the last two weeks of August and the first two weeks of September, and is a whole-time course, for which an inclusive fee will be charged. It is specially designed to include subjects of interest to the general practitioner. The forenoons will be occupied with general medicine, surgical diagnosis, and minor surgery in the Victoria and Western Infirmarys. In the afternoon special subjects will be dealt with in some of the special hospitals of the city or in the special departments of these two general hospitals. Two special subjects, such as gynaecology, radiology, skin diseases, venereal diseases, etc., will be treated each afternoon. On the Saturday afternoons, tuberculosis and infectious fevers are to be demonstrated at Ruchill Fever Hospital. Special classes in diseases of the eye, clinical obstetrics, clinical gynaecology, and

diseases of the ear, nose, and throat have been arranged to suit the requirements of general practitioners who wish to devote special attention to particular branches of hospital work. Clinical assistantships are available in various general and special departments; they are limited in number and have been designed to make provision for graduates who desire opportunities for the detailed study of some specialty. The graduates work under the direct supervision of the physician or surgeon in charge of the department and carry out various detailed investigations. Graduates desiring to act in this way must enrol for a period of three months, and in general the whole forenoon is occupied by the work required. In most cases a fee of five guineas is charged. Graduates intending to join the general medical and surgical course should apply to the secretary, Glasgow Post-Graduate Medical Association, the University, Glasgow, from whom further information and a copy of the syllabus may be obtained.

VENEREAL DISEASE.

The annual meeting of the Scottish Committee of the British Social Hygiene Council (formerly the National Council for Combating Venereal Diseases) was held on June 2nd in the City Chambers, Edinburgh. Councillor S. G. Fraser (Dundee) who presided, said that the Scottish Committee had been able to focus the attention of public health authorities and social organizations on the need for extending propaganda work. Within the last few years no fewer than 128 exhibitions of films depicting the dangers of venereal disease had been given at different places to audiences totalling about 92,000 people. In future the Council's activities would be directed also to the need for providing additional recreational facilities in populous centres. Such facilities were in many places inadequate, and their existence did much to counteract the chances of evil. Recognizing also how much evil arose from bad housing, the Council was giving attention to the great need for speeding up housing reform. Mrs. C. Neville Rolfe, O.B.E., general secretary of the Council, gave an account of the progress that had been made in the last six years. Since the Government scheme for treatment had started, over 670,000 persons had visited the treatment centres. During the last five years there had been a steady fall in the number of new cases, which was encouraging. There was reason to think that the position was satisfactory so far as men were concerned, but it was believed that women who needed treatment were not receiving it; the Council desired to give particular attention to the prevention of congenital disease in children.

DOCTOR AS HEADMASTER.

The governors of Loretto School, near Edinburgh, have appointed Dr. James R. C. Greenlees to be headmaster in succession to the late Mr. A. R. Smith. Dr. Greenlees is an old pupil of Loretto who subsequently graduated at Cambridge, taking the degrees of M.B., B.Ch. in 1906. After graduation he practised medicine in Glasgow, where he was attached for seven years to the Western Infirmary, and was on the staff of the Royal Hospital for Sick Children from 1908 to 1922. He joined the R.A.M.C. in August, 1914, served in France till the close of the war, and was awarded the D.S.O. and the Cross of the Legion of Honour. Since 1912 he has been a governor of Loretto School.

Ireland.

DR. TAYLOR OF TANDRAGEE, COUNTY ARMAIGH.

It was with much sympathy that the profession in the North of Ireland noticed that Dr. James Taylor had found it necessary, on grounds of health, to retire from the posts of medical officer of the Tandragee Dispensary District and of medical officer of health for the urban and rural districts. Dr. Taylor, who is the son and grandson of medical men, qualified in 1874, and shortly afterwards settled in Tandragee. His energy and perseverance in dealing with the numerous health problems of the district were soon

felt. Sanitary matters had been neglected; the water supply was bad; outbreaks of typhoid fever and of other zymotics were too frequent. Many and serious were the wars that Dr. Taylor had to wage in his endeavours to improve matters, often unaided, and with insufficient backing from the authorities of the time. He has now the satisfaction of leaving things incomparably better than he found them. As an example: in his first year in the district sixteen deaths were registered from puerperal fever, but during the last twenty years only one; and all zymotic affections, except influenza and pneumonia, have likewise much diminished. Dr. Taylor has for many years drawn attention to the large number of cases of goitre in the district. The profession will join his many friends in county Armagh in wishing Dr. Taylor many years in which to enjoy his well earned rest after fifty years of hard work.

COOMBE LYING-IN HOSPITAL.

The annual report of the Coombe Lying-in Hospital of Dublin for 1925 gives full details of the 934 cases attended during the year. The maternal deaths numbered 8 (0.85 per cent.). The morbidity rate was 4.5 per cent. (42 cases). This was a large reduction on the morbidity returns of the previous year. In 24 of these patients no vaginal examinations were made, there was no laceration of the perineum, and no operative intervention necessary. The question is raised whether the cause of puerperal sepsis is to be sought in the lowered bactericidal properties of the patients' serum before the onset of labour. A bacteriological examination before labour in 25 cases showed the presence of Döderlein's bacilli, streptococci, B. coli, and vaginal bacilli. Yet in none of these patients was there any rise of temperature during the puerperium. As examination of the vaginal organisms before parturition throws very little light on puerperal sepsis, investigation of the blood before labour is now being undertaken. Among the 934 patients the large number of 16 cases of placenta praevia occurred, 3 being in primiparae; in 1 there was the unusual complication of twins. The treatment adopted was usually Braxton Hicks's method of version, Caesarean section being limited to patients with a child alive at or near full term, and with a central placenta, the mother being an elderly primipara, uninfected and anxious for a living child. In 27 cases of external accidental haemorrhage all the patients had albuminuria in catheter specimens. Two cases of severe post-partum haemorrhage were attended; both patients recovered. In the one case of concealed accidental haemorrhage the patient died. It has been found in the Coombe Hospital that the administration of pituitrin in these cases is better than Caesarean section. Doses of 1/2 c.cm. of pituitrin are given every half-hour until 3 c.cm. have been injected. Eclampsia occurred in 11 women, of whom 4 were multiparae. The treatment was stomach and bowel lavage, the administration of 4 oz. of magnesium sulphate through the stomach tube, the withdrawal of 12 oz. of blood from the median basilic vein without regard to blood pressure or the condition of the pulse, and the injection of 1/2 grain of morphine, repeated if the fits continued. Threatened eclampsia was treated by absolute rest, starvation for one to three days, free purgation, and the administration of large quantities of water. For the induction of labour the method usually adopted was the administration of castor oil, 10-grain doses of quinine, and 1/2-c.cm. doses of pituitrin every half-hour, up to 3 c.cm. Similar treatment was tried in the 4 cases of uterine inertia, but without much effect. Among the 934 patients forceps were applied in 57 cases. Forty-nine abortions were treated; only 5 occurred in first pregnancies. One woman "had the large number of twenty-five pregnancies to her credit." The report expresses dissatisfaction with the ordinary textbook classification of the cause of abortion. It is considered probable that many abortions are caused by bad hygienic conditions; in some cases in the later months a breakdown in maternal metabolism is suggested. In the experience of the Coombe Hospital staff, syphilis does not account for more than 2 per cent. of these cases. The report concludes with a summary of the gynaecological work done in the hospital during the year, and with extracts from a paper on blood pressure in pregnancy by Dr. D. L. Hemmingway.

Correspondence.

THE SPAHLINGER TREATMENT.

SIR,—Though Dr. C. E. Jenkins denies that he has impugned the good faith of the Science Committee he does not withdraw his assertion that the report issued by the committee, professedly in support of the proposed trial of the Spahlinger treatment, is "drawn up with the object of discrediting the whole matter." Indeed, he emphasizes this accusation when he writes (*BRITISH MEDICAL JOURNAL*, June 12th, p. 1012) that the committee is "hostile," evidently meaning by this term that at heart the committee is opposed to the proposal which it pretends to support. He quotes no sentence or phrase to justify this conclusion but relies upon what he calls the "tone" of the report and "the attitude of mind displayed by the committee." It is upon these vague and intangible existences that he rests his charge that the real object of the committee is subtly to discredit what it professes openly to favour. And yet he protests, "I have not impugned the good faith of the Science Committee." I must, of course, allow him the virtue of sincerity. But when I have done so, how can I escape the alternative conclusion that in a debate between "good faith" and "bad faith" his capacity for judgement is sadly to seek?

Dr. Jenkins provides yet another illustration of the practice of assertion without proof. "Nobody," he writes, "could read that article [the committee's report] without forming the opinion that the committee is hostile." He will be surprised, therefore, to hear, other evidences apart, that one of the most ardent advocates of the Spahlinger treatment has already expressed a cordial and unqualified appreciation of the report and of the attitude adopted by the committee. Dr. Jenkins ought to know that a universal negative is a perilous proposition to attempt, and perhaps some day he may learn that to accuse a committee of feigning to advocate a cause which in reality it desires to discredit, is, at least among plain folk, a charge of insincerity and of bad faith.—I am, etc.,

London, W.1, June 12th.

C. O. HAWTHORNE.

COLOUR-BLINDNESS.

SIR,—In a review of Dr. Julia Bell's book on colour-blindness, in the *BRITISH MEDICAL JOURNAL* of May 29th (p. 910), it is stated that "Perhaps the most forcible argument against the Edridge-Green theory is afforded by cases of unilateral colour-blindness, since in them the affected eye can be tested against the normal one." This refers to my recent statements that red and violet are the two colours seen by the dichromic. Now one of the greatest pitfalls of those who disagree with authority in any subject is that they cannot help being influenced by the statements of previous writers. In the first edition of my book on colour-blindness, based on the examination of 116 cases, I stated that yellow and blue were the colours seen by the dichromic, and in the second edition I repeated this statement; but when my cases amounted to several thousands I found that this was not the case, and stated in my Hunterian Lectures on colour-blindness and in the *Physiology of Vision* that the two colours seen by the dichromic were red and violet. Even if the two colours seen by the dichromic were proved to be yellow and blue in some cases, this would not be an argument against my theory because my first book was written on this assumption. Space will not permit a more detailed explanation.

The subjects of vision and colour vision are permeated with misstatements, and as there is no appeal board for science there is no opportunity of establishing the simplest fact. Future generations will probably comment on the circumstance that it took me twenty-five years to establish that the wool test is defective, though even in the most favourable conditions and with five test colours 50 per cent. of the dangerously colour-blind escape detection by it, and of those rejected over 50 per cent. are found to be practically normal-sighted. Now let any theorist explain this on any of the older theories; it cannot be explained by the reduction of one constituent in a tri-

chromatic theory, because unequals being taken from equals the remainder is unequal. Yellow appears to be a sensation which is developed at a later date than red, green, and violet, hence the trichromic form of colour-blindness. Cases of this type see three definite colours in the spectrum—red, green, and violet, seeing yellow as red-green. A man who can see yellow (a tetrachromic) is not dangerous unless he have some accompanying defect of light perception. These cases have been classed as partially red-blind or partially green-blind on the assumption that they do not agree with the normal white equation; but 90 per cent. of the colour-blind agree with the normal, either at the normal point or when the comparison white light is increased or diminished in luminosity. The white equation is the amount of red, green, and violet light which, when mixed together, will match a given white light.

The subjects of vision and colour vision, on account of the numerous misstatements, need complete revision. It would be a great help if those societies under whose province they come had a series of discussions and demonstrations.—I am, etc.,

London, N.W.2, June 2nd.

F. W. EDRIDGE-GREEN.

SIR,—In comment on the notice (May 29th, p. 910) of the essay on colour-blindness by Dr. Julia Bell, I should like to say that my experience with regard to dichromics coincides with that of Dr. Edridge-Green in that the two ends of the spectrum are best seen as colours—that is to say, that some grade of red and some sort of purple give colour sensation when the colours intermediate in the spectrum are judged mainly by their relative luminosity.

It is quite true that a yellow, especially a pale yellow, is usually spotted as such by a dichromic; but this, I think, is largely on account of its luminosity, by which I mean that it is what we call a "light" colour—that is, one which reflects a large proportion of the total light which it receives. That this is the case can be tested by slightly obscuring a yellow light by dimming its illumination or interposing a neutral tinted screen, when it is likely to be called indifferently red and green on successive exposures, while its essential yellowness is quite obvious to the normal eye. Blue also, even when containing some amount of red rays, as the blue glass in Dr. Edridge-Green's lantern purposely does, is by them always confused with green.—I am, etc.,

London, W.1, June 7th.

WM. SALISBURY SHARPE.

FUNCTIONAL ALBUMINURIA IN ATHLETES.

SIR,—The albuminuria of exercise is of interest in respect of its cause and of its possible relation to disease. Although described as "functional," it is by no means certain that it always disappears, leaving the kidney normal. Its occurrence would not be known were it not looked for; and it may more often than we think precede, introduce, or occasion such a state as chronic parenchymatous nephritis—a disease remarkable for its insidious onset, and which, uncommon as it is, yet shows a predilection for young men.

My interest in the albuminuria of exercise arose from the knowledge that albuminuria is common in pregnant women—occurring especially in the well built and strong. Imputed by some as being but the reflection of the incidence of albuminuria in the populace, the especial influence of the pregnant state in respect of it is shown by its relation with the pre-eclamptic toxæmia, which also selects the best type of pregnant woman—the young and the strong. That activity is concerned with its rise is shown by the effect of rest; and, contrariwise, by the effect of labour, during which albuminuria is especially common, occurring even in women whose urine up to term had been albumin-free.

Collier's work shows that the albuminuria of athletes is not due to a toxæmia—the rise of waste (fatigue) products in the blood. Thus, in racing rowing men it is universal; but in men engaged in walking contests, even of prolonged periods (twenty-two hours) during which more than a hundred miles were covered, albuminuria is absent (Collier).¹ Collier attributes the albuminuria of racing rowing men to acute passive congestion of the kidneys,

¹ *BRITISH MEDICAL JOURNAL*, June 5th, 1925, p. 956.

the result of temporary overdilatation of the right side of the heart. But is it not likely that the heart would be dilated at the end of a twenty-two hours' walk? Many years ago I saw on the *post-mortem* table a considerably enlarged heart in which valvular disease was absent; renal disease, if present, was secondary to the cardiac condition. The state of the heart was attributed to the forced marches during the Boer war.

In the albuminuria of athletes, I submit, the state of the heart must be discounted. I agree with Dr. Abrahams "that the albuminuria . . . occurring in oarsmen is not due to the exercise *qua* exercise, but depends upon mechanical factors which are easily invoked in the case of rowing and obviously absent in running."² The two forms of movement must affect the kidney differently. In the one the abdominal muscles are rhythmically much more contracted than in the other; thus, in the one the kidneys are more compressed than in the other. Of the forty men, forming Collier's five crews, all had albumin, many had casts, and one besides had spermatozoa (Collier). The presence of the last suggests that a considerable compression of the vesiculae seminales, and thus of the kidney, was in operation. This idea is supported by the common occurrence of albuminuria during labour, when the abdominal walls and thoracic diaphragm greatly contract, and obviously compress, not only the uterus, but the other abdominal viscera.

That the functional activity of the kidney is impaired by great compressions of the abdominal visceral mass is indicated by other issues. Thus, in a strongly muscular man, with phlegmonous appendicitis, much albumin in the urine was found. After operation the albuminuria rapidly disappeared. Similarly, in a case of perforated gastric ulcer, the urine, the day after operation, not only contained albumin, but casts were numerous; it rapidly became normal with the recovery of the patient—that is, with cessation of the abdominal rigidity and of the vomiting. Similarly, in acute intestinal obstruction, the kidney functionally is impaired. This is imputed to toxæmia, but the toxæmic state varies with the vomiting, its persistence, and its violence; when it ceases normality is rapidly regained. So also in pregnancy: persistent vomiting occasions renal (as also hepatic) changes; by stopping the vomiting we cure the patient.

In my submission there is no essential difference between the effect on the kidney of great compression produced by rowing (but it must be a racing rowing—Collier) and that incidental to violent and persistent vomiting. The kidney in both is rhythmically greatly compressed, and in both it tends to become damaged. Whether the kidney is active or not is of importance. If a diuresis is present and great muscular movement, in which the abdomen is greatly compressed, occurs, as either by rowing with all one's strength, or by straining with all one's might to extrude a babe, a functional derangement is more easily produced. Indeed, it seems that chronic parenchymatous nephritis may possibly have its rise explained in this way. —I am, etc.,

Rugby, June 8th.

R. H. PARAMORE, F.R.C.S. Eng.

Sir,—I am very gratified that my letter on the subject of albuminuria after exercise should have elicited some observations from such authorities as Dr. Collier and Dr. Lempriere. But the variations of their experiences from my own are in no way surprising when the circumstances of our investigations are contrasted. My subjects were all seasoned athletes of Amateur Championship and Olympic class, whose ages ranged for the most part between 23 and 27, with a small number in the thirties, and three individuals in the early forties—men in whom one would expect the vasomotor system to have become stabilized. On the other hand, the majority of Dr. Collier's and Dr. Lempriere's subjects must have been under 21. Dr. Lempriere's were, in fact, all schoolboys. Most of Dr. Collier's, both as regards track athletes and oarsmen, were, I presume, very little older. Dr. Collier supplies in his letter (of May 27th) an interesting confirmation of my own experience. He examined the urines of a large number of men after completing twenty-two

hours of track walking—one of the most exacting athletic feats that can be undertaken. Yet in not a single specimen did he find albumin. The men engaged in this race were several years older and more experienced than the Varsity athletes, oarsmen or runners. It is clear, of course, from Dr. Collier's and Dr. Lempriere's authoritative pronouncements that any form of exercise may induce transient albuminuria in adolescents, whether on account of passive congestion or some other vascular occurrence in a comparatively labile system. The frequency of the phenomenon in young subjects—practically invariable, one gathers, in the case of schoolboys, and with a very high incidence in the case of young men—and the infrequency among older subjects supports the suggestion in Dr. Wilson's letter which provoked this correspondence, that the albuminuria of exercise is akin to physiological or adolescent albuminuria. It is not difficult to find men of mature years still active competitors on the track to co-operate in physiological investigations; it is not so easy to find veteran oarsmen. Dr. Collier will, I am sure, recall the famous Leander Olympic eight of 1908, and it is possible that among his investigations some of the older members of that crew were included.—I am, etc.,

London, W., June 7th.

ADOLPHE ABRAHAMIS.

METHOD OF TREATING ASTHMA BY RADIATION.

Sir,—Dr. S. Gilbert Scott's paper on the x-ray treatment of asthma (June 5th, p. 939) appeals to me greatly, as, though I am more interested in surgery than medicine, I believe that asthma is one of the conditions that should respond to radiation. In fact, I have used the gamma rays of radium in a tentative way for a case of asthma. Dr. Scott, though he does not say so in so many words, has, by his own showing at the least, temporarily cured a number of patients of asthma, some of them for two and a half years. This is surely a very gratifying advance in the treatment of this condition.

I should like to think that my advocacy of this form of treatment is based on clinical observations rather than theoretical grounds. From my experience with radium in the treatment of malignant and non-malignant conditions I am convinced, to put it briefly, that radiation has a marked influence in (1) relieving spasm and irritative conditions of nerve endings; (2) increasing the local resistance to bacterial infection; (3) promoting the absorption of pathological fibrous tissue, often the result of infection; (4) improving the nutrition, blood supply, and vascular tone in diseased areas; and (5) that it has a general salutary effect on tissues that, for one reason or another, are not behaving normally. I am also convinced that the usefulness of this powerful physical agent, which is capable of reaching and effecting every cell in the body, is not sufficiently recognized in the treatment of non-malignant conditions.

Dr. Scott's dosage appeals to me, for my limited experience in the radium treatment of pulmonary tuberculosis with comparatively small doses of gamma rays has also demonstrated the relief of distressing breathing, the temporary increased expectoration followed by the local improvement. I am afraid of bronchitis when I have intensely radiated a cancer of the oesophagus by a radium tube in the gullet and a cross-fire of radium in the front and back of the chest, and have personal knowledge of a case of bronchitis which proved fatal soon after a dose of high-voltage x rays for cancer of the oesophagus.

Whether radiating the chest and splenic area instead of the whole trunk would produce as good results I am not in a position to say, but it is evident that, where others have failed, Dr. Scott has worked on the right lines in the x-ray treatment of asthma.—I am, etc.,

Dublin, June 8th.

WALTER C. STEVENSON.

GANGRENE OF THE NEWBORN.

Sir,—I am prompted by the recent note of Dr. W. R. Grove (April 24th, p. 738), and by the letter of Dr. J. Inglis Cameron (May 29th, p. 921), to record a case that has just occurred.

At the request of the attending midwife I visited a female child aged 7 days. Just below the right breast a red indurated area about a handbreadth in extent was observed. It was not a

² BRITISH MEDICAL JOURNAL, May 8th and 15th, 1926, p. 846.

breast abscess, nor was there any occlusion of ducts with retention of milk. Expectant treatment was the only possible line to adopt. Next day the induration and redness had increased and there were a few patches of purple discoloration. By the following day (tenth day of child's life) there was evidence of crepitation in the inflammatory area. Later that day a portion about two inches in diameter sloughed away and a frothy appearance was observed around the margins of the sloughing chest wall. The intercostal muscles and ribs were exposed. There was some haemorrhage but practically no pus. The sloughing continued until the lower part of the chest wall towards the sternum was involved. The child died on the twelfth day, five days after the onset.

The case was obviously one of gas gangrene, but its origin is obscure. There were no abrasions observable, the cord had healed cleanly, and the mother had a perfectly easy labour. The ordinary breast abscess of infants can be ruled out. I was attending several other cases in this nurse's practice at the time, but none showed any similar signs.—I am, etc.,

H. R. FREDERICK, M.B., Ch.B. Edin.

Aberavon, Port Talbot, Glam., May 30th.

Sir,—The following case occurred about eighteen months ago.

I was called to see a female infant aged 5 days because its legs had "gone black." I found definite gangrene of both legs, with a line of demarcation on the right just below the knee-joint, and on the left side just above the ankle. The infant was premature (about seven and a half months), but beyond this I was unable to find any lesion. There was no evidence of any umbilical sepsis, but the infant was very feeble. The parents stated that the child was all right when born, that only two days later did they notice anything the matter with its legs. The child died twenty-four hours after I had seen her. The parents refused to give consent for a *post-mortem* examination.—I am, etc.,

Newport, Mon, May 30th.

F. W. ROBERTSON.

DYSENTERY IN MESOPOTAMIA.

Sir,—Professor Ledingham, in his letter (*BRITISH MEDICAL JOURNAL*, June 5th, p. 967), makes a strong point when he says, "*Epidemic dysentery* in Iraq, as elsewhere, was bacillary." He draws attention to the fact that the section of the Army Report in question deals with at least one epidemic of dysentery, for the admission rate for this disease in a particular column of troops rose tenfold. Here, then, is very strong presumptive evidence on epidemiological grounds that the bacillary agent was still playing the prominent part that one would expect.

The figures given for Egypt, where 35 out of 64 cases, or roughly 55 per cent., are stated to have been amoebic, are hardly more convincing than those for Iraq. Here the fact that the complete total of 64 cases is accounted for in one or other group would indicate that the diagnosis was not a laboratory one in every case.

The importance of the matter needs no stressing, for the *Report of the Health of the Army for the Year 1923* stands as an official record bearing the stamp of authority and carrying weight that does not attach to the publications of private individuals. It is to be hoped that an explanation will be forthcoming of figures that are so completely at variance with the known facts concerning the epidemiology and bacteriology of dysenteric disease.—I am, etc.,

Llandudno, June 10th.

KNOWLES BONEY.

PREVENTIVE MEDICINE AS APPLIED TO OBSTETRICS.

Sir,—Every reader will be interested in the conception of the proper functions of the general practitioner given by the professor of midwifery at Glasgow in your issue of June 12th (p. 977). He is to confine himself exclusively to the study and practice of pure medicine. Gynaecologists, and other specialists, will relieve him of the rest of his work. Who is to decide where pure medicine ends and any kind of specialism begins, or conversely, we are not told. The logical conclusion is the replacement of existing general practitioners by men who know nothing of medicine or surgery outside their own speciality.

These attempts to divide medicine, surgery, and mid-

wifery into watertight compartments are unworkable. They do no good to the community, and they retard the real progress of medical knowledge. The system is, of course, attractive. It is so much easier to learn all that is worth knowing about one limited subject than it is to acquire a sound working knowledge of a good many; but who can doubt which system develops the best judgment or the broadest view? Surely, it is absurd to say that any man who has acquired any kind of knowledge and experience is not to make use of it when opportunity offers.

What seems to be needed in medicine is, not more concentration, but more diffusion of knowledge. The future of the profession probably lies, as Sir James Mackenzie always maintained, with the general practitioner.—I am, etc.,

London, E.12, June 13th.

A. CAMPBELL STARK.

SEPTIC SORE THROAT COMPLICATED BY ERYTHEMA NODOSUM.

Sir,—Under the above heading (*BRITISH MEDICAL JOURNAL*, May 29th, p. 902) Dr. Eleanor Shephard reports a series of thirteen cases of tonsillitis in five of which an eruption of erythema nodosum appeared, and asks if any light can be thrown on the diagnosis.

I have been interested lately in a series of cases of meningococcus septicaemia in which erythema nodosum was a striking clinical feature. So impressed have I been by my own experience and by that of other observers that a case of obscure pyrexia with erythema nodosum would at once suggest the possibility of meningococcal infection.

A report on my cases is about to appear in the *Journal of the Royal Army Medical Corps*.—I am, etc.,

J. C. KENNEDY,

London, S.W.1, June 6th.

Colonel, R.A.M.C.

The Services.

NAVAL VOLUNTEER DECORATION.

The Royal Naval Volunteer Reserve Officers' Decoration has been awarded to Surgeon Commander F. J. S. Heaney, M.D., F.R.C.S.

DEATHS IN THE SERVICES.

Major-General Richard Henry Stewart Sawyer, C.B., C.M.G., Army Medical Service (ret.), died in Dublin on April 23rd, aged 68. He was born in that city on October 9th, 1857, and educated at Trinity College, Dublin, where he graduated as M.B. and Ch.B. in 1879, and also took the University diploma in State medicine in 1882, as well as the L.R.C.S.I. in 1880 and the F.R.C.S.I. in 1887. Entering the army as surgeon on February 5th, 1881, he attained the rank of colonel on August 3rd, 1910, and was promoted to Surgeon-General in the long promotion list of March 1st, 1915, after the first winter of the war. He retired on December 26th, 1917. He served in the Nile campaign of 1893, when he was present at the battle of Khartoum, receiving the medal and the Egyptian medal with a clasp; in South Africa from 1899 to 1902, taking part in operations in the Orange Free State, including the actions at Paardeberg, Poplar Grove, and Driefontein, and in the Transvaal, including the action at Eland's River, was mentioned in dispatches in the *London Gazette* of February 8th, 1901, receiving the Queen's medal with four clasps and the King's medal with two clasps; and in the recent great war of 1914-18, when he was five times mentioned in dispatches, in the *London Gazette* of October 19th, 1914, February 17th, 1915, June 15th, 1916, May 29th, 1917, and December 24th, 1917, and received the C.M.G. in 1915, and the C.B. in 1918, also Grand Officer of the Military Order of Avis, Portugal, in 1919. He married Flora Murray, youngest daughter of the late Malcolm MacGregor, S.S.C., of Edinburgh.

Lieut.-Colonel Lewis Allen Irving, O.B.E., R.A.M.C. (ret.), died in London on May 18th, aged 76. He was born on January 28th, 1850, the youngest son of the late Major-General Alexander Irving, R.A., and was educated at the school of the Irish College of Surgeons in Dublin, taking the L.R.C.S.I. and L.K.Q.C.P. in 1870, and also later the M.R.C.P.I. and the D.P.H. of Victoria University in 1892. Entering the army as assistant surgeon on April 1st, 1871, he attained the rank of brigade surgeon lieutenant-colonel on December 16th, 1894, and retired on April 6th, 1898. After his retirement he was employed for some years on recruiting duty in London. He served for considerable periods in India and South Africa, but apparently had not the good fortune to see any active service. He was personal surgeon to Lord Reay when Governor of Bombay, and afterwards was in command of the Military Lunatic Asylum at Netley. During the recent war he worked on the relief of Belgian refugees, for which he received the O.B.E. in June, 1918, and also the Belgian Order of Leopold. He was twice married, and leaves three daughters. His second wife, Ethel Southey, a grand-niece of the Poet Laureate, died in 1910.

Obituary.

SIR FREDERICK MOTT, K.B.E., M.D., F.R.C.P.,
F.R.S., LL.D.,

Director of Medical Studies, Maudsley Hospital, London.

THE deeply regretted death of Sir Frederick Mott, which was briefly reported in the last issue of the JOURNAL, has removed one of the most illustrious members of the profession. The value and importance of his contributions to psychiatry can scarcely be overestimated, and he has very definitely made additions to our knowledge of one of the most obscure and difficult branches of medicine.

Frederick Walker Mott was the son of Henry Mott, and was born at Brighton on October 23rd, 1853. Before entering as a medical student at University College Hospital he was for a time a pupil at the Royal Sussex County Hospital, Brighton, along with several young men who afterwards attained distinction in various departments of medicine. His career as a student was not remarkable for prize getting, his mind, perhaps, not being of the type which took in facts easily to turn them out at competitive examinations. He, however, passed all his examinations punctually, and took the degree of M.B. in the University of London with first-class honours, winning the University scholarship and the gold medal in forensic medicine; this was in 1881, and at the same time he took the B.S. degree. Before this he had been ophthalmic assistant at University College Hospital. He took the M.D. in 1886, and in the same year became a Member of the Royal College of Physicians. He was elected to the Fellowship in 1892. He became F.R.S. in 1896.

After graduating Mott worked for a couple of years in Professor Schafer's laboratory at University College, his attention being specially directed to the effect of various sections of cord and the connexions of the cells of Clarke's column. In 1883 he was appointed assistant professor of physiology at Liverpool, but in the following year became lecturer in that subject at Charing Cross Hospital Medical School; in 1888 he was appointed medical registrar to Charing Cross Hospital, and in 1891 was elected assistant physician; in 1900 he exchanged the lectureship in physiology for that in pathology. Seven years later he became lecturer in medicine. When his long connexion with the active staff terminated he was appointed consulting physician.

In 1895 Mott was appointed pathologist to the London County Council Asylums and director of the Pathological Laboratory which had been established at Claybury Asylum for the purpose of research in mental diseases. On his appointment he insisted on retaining his position as physician to Charing Cross Hospital. He was alive to the intimate relation that exists between psychiatry and general medicine, and realized that by keeping in touch with a large general hospital his field of investigation would be much wider than by confining it to the clinical material of a mental hospital. How great his interests in medicine were is shown from the fact that he was examiner, not only in mental diseases to the Conjoint Board and London University, but in physiology, pathology, and general medicine to various universities and the Royal Colleges. Mott soon began to exert a great influence upon British psychiatry. He was an indefatigable worker, and his contributions to medical literature would fill many volumes. Many of his papers are to be found in the *Archives of Neurology and Psychiatry*, which he edited. His work was many-sided, and the various directions in which he furthered the progress of psychiatry may be conveniently summarized under three headings—research, early treatment, psychiatric education.

Research.

In his early days Mott was profoundly influenced by the teachings of the late Dr. Henry Maudsley. He always regarded him as a great pioneer in the study of mental diseases, and was never tired of quoting from Maudsley's Goulstonian Lecture on "Body and mind," delivered over fifty years ago, the passage in which he said: "The time has come when the immediate business which lies before every one who would advance our knowledge of mind.

unquestionably is a searching scrutiny of the bodily conditions of its manifestations in health or disease." How fruitful this doctrine has been is evidenced by the work of Mott, who spent the greater part of his life in putting it into practice.

Mott soon gained an international reputation. His name will, for example, always be associated with his classical researches into the relation between syphilis and general paralysis. At the time when many investigators were opposed to the view that general paralysis was a syphilitic affection Mott was firmly convinced of the invariability of the association. One of the strongest arguments he brought forward in favour of his view was based upon his important researches in regard to the juvenile form of general paralysis. In all his cases he found evidence of congenital lues and its physical signs in nearly every patient, and he was unable to exclude syphilis in any instance. The introduction of the Wassermann reaction, and the discovery by Noguchi and Moore of the *Spirochaeta pallida* in the brain, furnished later the evidence which had hitherto been lacking, and, as Bolton, one of his former pupils, pointed out in his work on *The Brain in Health and Disease*, Mott went still further, and found living spirochaetes in film preparations of the second frontal convolution four days after death. It is interesting to note that when he was first appointed pathologist to the London County Asylums syphilis as a cause of general paralysis was not mentioned in the asylum reports. His unrivalled experience of the disastrous effects of syphilis in the community led him to take an active and influential part in the campaign directed towards its prevention. He often urged the view that prevention and early treatment of syphilis would not only effect a rapid decline of general paralysis, but that the number of cases of organic brain disease, dementia, and mental deficiency would likewise diminish.

Mott made a number of important investigations into the problem of heredity and mental disorder. They were based upon exhaustive inquiries into the family history of psychotic patients. He made these investigations the subject of his Huxley Lecture, and also of his address at the opening of the Phipps Institute. His combined experience of hospital and asylum cases enabled him also to make additions to our knowledge of the relationship of alcohol and insanity. His contributions to neurology were numerous and varied. His Croonian Lectures were devoted to the neurone doctrine; his Oliver-Sharpey Lectures to the cerebro-spinal fluid; his Lettsomian Lectures to the effects of high explosives on the nervous system; his Bowman Lecture to the visual cortex; and he wrote a number of articles on neurological subjects for many standard works on medicine. He was the author of one volume of the reports of the Commission on Sleeping Sickness.

His work on the pathology of dementia praecox is perhaps his most important contribution to psychiatry. His researches on this obscure disorder led him to the view that it was the expression of a failure of vital energy of the cells of the whole body, manifested especially in the closely interrelated systems—the sexual and the cerebral—affecting particularly that part of the brain which constitutes the highest psycho-physiological level, the last to come phylogenetically and ontogenetically and the first to go. The correlation between the morphological, micro-chemical, and chemical changes which Mott discovered in cases of dementia praecox and the clinical manifestations of this disorder is very remarkable, the physical regressive changes in the sexual glands being such as might be anticipated in view of the regressive mental phenomena which characterize the disease.

The laborious researches upon which his conclusions were based were reported by him in a long and fully illustrated paper published in our columns in November and December, 1919. As we pointed out in a leading article at the time, this paper covered much ground, including as it did observations on general paralysis and other forms of mental disorder. But attention was directed particularly to the distinctive findings in respect to dementia praecox. Our article concluded with the observation that it was only when the psycho-physical organization is looked at as a whole, as Mott in his paper had looked at it, that the biological significance and purpose of psychoses becomes clear. As

the result of Mott's pathological research, we said, much light had been shed on the mental reactions included under the term "dementia praecox." Mott made the same researches and the conclusions to which they led him the subject both of his Morrison Lectures in Edinburgh and his Maudsley Lecture to the Medico-Psychological Association. In 1910 he gave the Huxley Lecture at Charing Cross Hospital Medical School, choosing for his subject the hereditary aspects of nervous and mental diseases. It was copiously illustrated by interesting pedigrees worked out in diagram form, and was published in our columns on October 8th, 1910 (p. 1013). Later on, in his Harveian Oration last year,¹ he correlated his researches on dementia praecox with his views on heredity in relation to mental disease. Finally, we publish this week a report of a Chadwick Lecture he delivered to the University of Liverpool early this year on heredity in relation to mental disease and mental deficiency.

Though Mott devoted his life to pathological research he was an extremely practical man, and his researches always had a practical aim. He remained throughout his career a true physician, the aim of his work being to cure, relieve, or prevent disease. His outlook was essentially hopeful, and he eagerly investigated any avenue which suggested therapeutic possibilities. This aspect of his character is exemplified by his fondness for quoting in his papers the following extract from the writings of Francis Bacon:

"A work therefore is wanting upon the cures of reputed incurable diseases, that physicians of eminence and resolution may be encouraged and excited to pursue this matter, so far as the nature of things will permit, since to pronounce disease incurable is to establish negligence and carelessness as it were, by a law, and screen ignorance from reproach."

Mott's practical interest in the welfare of asylum patients was strikingly manifested by his beneficial work in relation to "asylum" dysentery. This disorder was prevalent in most asylums and was responsible for a number of deaths. It had been thought by some that dysentery in the insane was essentially a trophic lesion of the intestine, that the ulceration of the mucous membrane of the colon was due primarily to death of the tissue consequent upon a degeneration of the nerve supply to the part, with a secondary infection by pyogenic microbes. Mott and Durham presented a report to the London County Council on "colitis" in 1900, in which it was stated that there did not appear to be any proofs of such an etiology, and in an article published three years later Mott observed that probably nothing did so much to retard the prevention of the disease as the theory that it was due to a hypothetical nerve lesion, and therefore not preventable. He, on the contrary, took the view that asylum dysentery was an infectious disease which could be prevented if suitable precautions were taken, such as isolation and close attention to disinfection. The striking reduction in both the incidence and mortality of the disease since his recommendations have been acted upon in asylums is a great tribute to the value of his work. Although it may be regarded as a side issue, the whole story is a good illustration of the shrewdness and practical ability which formed, as it were, the background of his highly skilled and specialized work in psychiatry. The Stewart Prize of the British Medical Association, founded to afford an opportunity of recognizing work regarding the origin, spread, and prevention of epidemic disease, was awarded to Mott by the British Medical Association in 1903 for what he had accomplished in connexion with the prevention of asylum dysentery.

Mott received many other honours for his scientific achievements, and was appointed to various lectureships in addition to those already mentioned. He was elected a F.R.S.; was awarded the Fothergill gold medal of the Medical Society of London and the Moxon gold medal of the Royal College of Physicians; he was Fullerian Professor at the Royal Institute; and corresponding member of many foreign learned societies. Many of his most important articles were published in the *BRITISH MEDICAL JOURNAL*, and when some book struck him as being of special consequence he would offer to write a review. In his quiet way he was a good friend of the Association.

He was secretary of the Section of Pathology and Bacteriology in 1893 (Aberdeen); vice-president of the Section of Pathology, 1898 (Edinburgh); president of the same Section, 1905 (Leicester); and president of the Section of Neurology and Psychiatry, 1914 (Aberdeen). He received the honorary degree of LL.D. at Edinburgh, and was made K.B.E. in 1919.

Early Treatment: Education in Psychiatry.

These two aspects of Mott's work, in which he exercised a paramount influence and did so much to further the progress of psychiatry, are so closely interrelated that they may be conveniently considered together. With Mott as director, the Claybury Laboratory soon began to attract a number of enthusiastic workers from this country and abroad. Many well known psychiatrists and neuropathologists began their careers under his guidance, and he stimulated research in mental disorders in a way that had hitherto been impossible. Many of the medical officers became interested in clinical psychiatry as a result of his visits to the various asylums; no systematic instruction had hitherto been given, and the medical staff of these institutions had to gain a knowledge of psychiatry as best they could and without much encouragement to do so. In the preface to the third volume of the *Archives of Neurology* (1907) Mott made a strong plea for the development of a psychiatric institution on lines similar to that at Munich. His ideal was a fully equipped and well organized psychiatric clinic, under the control of a university, in which early and curable cases could be treated without certification. He suggested also that if suitable post-graduate training in psychiatry were established the universities and licensing bodies might be induced to establish a diploma in psychological medicine. As far as London is concerned, his wishes have been realized, and that this is so is largely due to his incessant efforts since this article was published. Psychiatry owes him an immense debt of gratitude for throwing all his weight and influence into the furtherance of these projects. Shortly after this article was published Maudsley offered £30,000 to the London County Council if it would build a hospital in London for the study and treatment of mental disorders in their early and curable stages. It was not until 1912, however, that the present site of the Maudsley Hospital was purchased and the plans were drawn. The hospital was only partially completed when the war broke out. King's College Hospital, which is on an adjoining site, formed the 4th London General Territorial Hospital, upon the staff of which Mott served in the rank first of major, afterwards as brevet lieutenant-colonel, as neurological specialist. The Maudsley Hospital was opened for neurological cases early in 1916 as a part of the 4th London General Hospital. The laboratory at Claybury was dismantled and the equipment transferred to the more convenient laboratory at the Maudsley.

The Maudsley Hospital soon became widely known, and successive groups of American officers were sent there for training in the treatment of the war neuroses. Many of these have spoken with gratitude of Mott's training, and also of his personal kindness, for he was extremely hospitable, welcomed them to this country, and entertained them in his house in London. Several distinguished foreigners who were driven from their country were also enabled by grants from the Medical Research Council to work in the laboratory. In 1919 the hospital was transferred to the Ministry of Pensions, and Mott, under the auspices of the London County Council, started a course of instruction for graduates, especially for asylum medical officers, to enable them to pass the D.P.M. of the University of Cambridge, which had been established just before the war. Mott was shortly afterwards gratified by seeing his wishes fulfilled by the establishment of a D.P.M. by several other universities and by the Royal Colleges—an innovation for which he was himself largely responsible. Thus were started courses of lectures at the Maudsley which opened up a new vista for the medical officers in mental hospitals. The value of these lectures has been very great. Both in London and the provinces there are now a large number of keen and well equipped medical officers who are in a position to take quite a different attitude towards their

¹ *BRITISH MEDICAL JOURNAL*, 1925, ii, p. 727.

work than was possible in former days, and who are psychiatrists in the full sense of the term.

It might be supposed that when Mott resigned his position in the service of the London County Council in 1923 he would have relaxed his energies. This was not the case, however, and he threw himself unsparingly and with undiminished zeal into other activities. He continued to lecture at the Maudsley Hospital, and was director of medical studies there at the time of his death. He undertook a great task at Birmingham, where his services were eagerly welcomed both by the university and the city council. It speaks volumes for his driving power and influence that he was able to accomplish so much in so brief a time. He accepted the position of lecturer on

investigation of the causes of certain types of mental disease the existence of which imposed a heavy burden on the community and caused widespread social and family distress. To his investigations Sir Frederick Mott had brought patient care and the indefinable quality of genius. He had succeeded where others had failed in elucidating the physical basis of such maladies as general paralysis of the insane and dementia praecox. He established the connexion between moral imbecility and organic disease of the brain, and had done highly important work on the micro-organisms which produced sleeping sickness. For his work in connexion with general paralysis of the insane Sir Frederick Mott deserved to rank among the great benefactors of humanity. Birmingham owed him special

thanks in that he was honorary director of the Research Board on Mental Diseases established by the joint action of the city and the university. His kindness of heart won him the friendship of all sorts and conditions of men and women.

MEMORIAL SERVICE. *Address by Professor Starling.*

A memorial service for Sir Frederick Mott was held at the church of St. Martin-in-the-Fields, Charing Cross, at noon on Wednesday, when Professor E. H. Starling delivered an address.

Professor Starling said that they mourned a great leader, but at the same time rejoiced in the work he had accomplished for science and for mankind. His achievements had not only placed him in the foremost ranks of neurologists, but had made all humanity his debtor. Mott was one of the select few who received early their call to service in the temple of science, and he responded to the call in an eager and self-sacrificing spirit. He took up research as the serious business of his life as soon as he had completed his medical studies in 1881, and he became associated

at once with a small band of workers who were actively engaged in elucidating by the experimental method the functions of the brain. His interest in the localization of cerebral functions continued throughout his life, and he was particularly interested in vision. He was one of the first to appreciate the great part played in the evolution of the human brain and the intellectual powers of man by the development of vision with two eyes and the correlation between vision and the movement of the hands. When the London County Council established at Claybury the laboratory for its mental hospitals, Mott was the one man in England fitted by training, temperament, and past achievement for the post of pathological director, and he entered joyfully upon its duties. It enabled him to devote his whole time to an investigation of the causes of insanity. The bulk of the work he did, together with that of the young men working under his inspiration, was recorded in the eight volumes of the *Archives of Neurology*, which appeared under his editorship. His research at Claybury, and later at the Maudsley Hospital, laid foundations on which other workers might build. Perhaps his most notable



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SIR FREDERICK MOTT, K.B.E.

Mott's interests were numerous and varied. He was especially attracted to music, and was associated with societies interested in its cultivation. He was the author of an excellent little book, *Brain and Voice in Speech and Song*. He was kind, hospitable, and very human. He was in no sense remote from real life; he was a part of the busy world around him, and entered with equal zest into his researches, his recreations, and his social life. He had the simplicity and lack of affectation of the really great man, and no one could have been more friendly or accessible to the younger members of the asylum medical service than he was. Those who served under him regarded him with great affection, and the expressions of regret and tributes of admiration which he received upon his retirement from those who were, and had been, associated with him during his long service with the London County Council abundantly demonstrated the esteem and affection in which he was held. Sir Frederick is survived by Lady Mott and four daughters. To all of these our sincere sympathy is extended.

The cremation took place at Perry Barr Crematorium, Birmingham, on June 11th. In the course of a short address the Bishop of Birmingham said that Sir Frederick Mott was one of the great men of science who gave distinction to our era. He had devoted his life to the

achievement was the definite discovery that general paralysis of the insane was due to infection, part of a general disease, and therefore preventable, and possibly, on further investigation, curable. Another discovery of his was that asylum dysentery was not a necessary condition of asylum life, but was due to the absence of precaution against infection. The outbreak of war brought to Mott the further problem of shell shock, on which he did some masterly work. Since the war his attention had been occupied largely with dementia praecox. Among his other activities mention might be made of his analysis of the part played by alcohol in the causation of insanity, his examination of the influence of the internal secretions on the development of mental functions, his advocacy of mental hospitals for the treatment of early cases of disordered mind, his interest in eugenics, and his notable contributions to the physiology of speech and song. "I have said nothing," Professor Starling concluded, "of the man himself. His personality is too fresh in our minds to need me to recall him to you. But his scientific achievements would have been impossible had it not been for certain inherent qualities. Single-hearted in his search after knowledge and his devotion to science, he was free from prejudice and from that type of vanity which makes a man adhere to a view simply because he has been previously associated with it. There was no man freer from envy, or fuller of generous admiration for the work of others. Though we regret his loss, we must not sorrow overmuch that he should have laid down his task while still in the plenitude of his powers and with his mental vision undimmed, and when the main objects which he set himself to carry out were in full course of accomplishment."

Among those present in the very large congregation, in addition to Lady Mott and her daughters, were Sir John Rose Bradford, President, and Dr. Sidney Phillips, Treasurer, of the Royal College of Physicians; Dr. H. H. Dale, representing the Royal Society; Professor W. E. Dixon, F.R.S., representing the British Medical Association; Sir Dawson Williams, representing the *BRITISH MEDICAL JOURNAL*; Sir Herbert Waterhouse, Charing Cross Hospital; Dr. J. H. Sequeira, representing the Society for the Prevention of Venereal Disease; Dr. R. Worth, general secretary, Medico-Psychological Association; Sir Frederick Willis, chairman of the Board of Control; Dr. C. Hubert Bond, Sir Maurice Craig, Sir W. Arbuthnot Lane, Sir Bryan Donkin, Sir James Crichton-Browne, Sir W. Hale-White, Sir D'Arcy Power; Dr. Herbert Spencer, University College Hospital; Dr. F. N. Kay Menzies, chief medical officer, London County Council; and many other representatives of medical societies and public bodies with which Sir Frederick Mott was associated. Members, present and past, of the London County Council—the past members including the Right Hon. John Burns—and officers of the mental hospitals and public health departments of the Council also attended.

SIR HENRY MORRIS, Bt., F.R.C.S.,

Consulting Surgeon, Middlesex Hospital; ex-President, Royal College of Surgeons of England.

We regret to announce the death of Sir Henry Morris, Bt., which occurred on June 14th at his home in London, in the 83rd year of his age, after an illness of three weeks' duration.

Sir Henry Morris was the son of Mr. William Morris, surgeon, of Petworth. He was educated at Epsom College, being one of the first boys admitted to that institution, and subsequently at University College and Guy's Hospital. He graduated B.A. of the University of London in 1863, M.B. in 1867, and M.A. in 1870. In 1866 he was admitted

M.R.C.S., and became a Fellow of the Royal College of Surgeons in 1873. He served as assistant medical officer and house-surgeon at Guy's Hospital, and afterwards for a short time as resident medical officer of the dispensary in Stanhope Street, Strand. He commenced his association with Middlesex Hospital in January, 1870, when he was appointed surgical registrar. He was appointed assistant surgeon in August, 1871, and surgeon to the cancer out-patient department. He was appointed surgeon in 1879, and he remained in charge of the cancer out-patient department until 1889. He resigned from the surgical staff at the end of 1905, and was appointed consulting surgeon to the hospital. In the medical school he held the appointments of lecturer in practical surgery from 1871 to 1882, lecturer in anatomy from 1872 to 1881, and lecturer in surgery from 1881 to 1896. When he resigned from the active staff he was appointed emeritus lecturer in surgery in the medical school. Sir Henry Morris had a great belief in the maintenance of a "complete" medical school, and used his influence and eloquence to avert the closing of the preliminary and intermediate departments of the medical school. By a gift of £1,000 he started an endowment fund, in the hope that the school finances would be put on such a footing that, should any concentration scheme be carried through in the future, Middlesex might not be compelled to join through necessity, though the school might possibly elect to go in, because of the advantages offered. In his speech at a farewell dinner, given to him by his old pupils on February 20th, 1906, Sir Henry Morris, referring to the Endowment Fund, said:

"It is only by means of such a fund that the Middlesex Hospital Medical School—which, be it remembered, has as many students as some of the richly endowed provincial Universities such, for instance, as Birmingham—can be maintained. And I would add that it is only by such a Fund that the Medical School can be delivered from the net of the Medical Schools Amalgamation Scheme of the University of London."

For many years no substantial advance was made in the endowment fund which Sir Henry Morris so generously inaugurated, but since the war great efforts have been made to secure substantial endowment for the school, and



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[J. Russell and Sons, London.

SIR HENRY MORRIS, Bt., F.R.C.S.

the funds invested for medical education and research at the Middlesex Hospital Medical School now amount to about £130,000.

Sir Henry Morris was the editor of a well known *System of Anatomy* and the author of a book on the *Anatomy of the Joints of Man*, and of an article on injuries to the lower extremities in Holmes's *Surgery*. He had always given special attention to the surgical diseases of the urinary organs, and was the author of a book on *Surgical Diseases of Kidneys and Ureter*, which reached its second edition in 1901. Another book from his pen was on the injuries and diseases of the genital and urinary organs. His Hunterian Lectures before the Royal College of Surgeons, which were devoted to the surgery of the kidney, were published in the first volume of the *BRITISH MEDICAL JOURNAL* for 1898. The operation for nephro-lithotomy, or the removal of a calculus from an undilated kidney, was performed for the first time by Sir Henry Morris at the Middlesex Hospital. The diagnosis was made by Dr. Sidney Coupland; the case was reported to the Clinical Society on October 22nd, 1880, and is recorded in the society's *Transactions*, vol. 14. The stone is preserved in the museum of the Middlesex Hospital, as well as a very large collection of urinary calculi which had been removed by Sir Henry Morris by operation.

Sir Henry Morris was a member of the council of the Royal College of Surgeons of England from 1893 to 1914, and represented the College on the General Medical Council from 1904 to 1917. From 1907 to 1917 he was treasurer of the General Medical Council. Sir Henry was President of the Royal College of Surgeons from 1906 to 1908. He gave the Bradshaw Lecture in 1903, choosing cancer and its origin as his subject. He gave also the Hunterian Oration, on John Hunter as a philosopher, in 1909. For six years he was chairman of the Court of Examiners of the Royal College of Surgeons. He was also examiner in surgery at the University of London, and in anatomy at Durham University. He was president of the Royal Society of Medicine from 1910 to 1912.

Apart from his surgical achievements, Sir Henry will be most remembered for his work in connexion with Epsom College, in which he took a lifelong interest. For many years he was treasurer to that institution, and guided its finances in a most-capable manner. The present position of the school is largely due to the energy, the sustained interest, and the business capacity of Sir Henry Morris, and those who sat with him on the council know the enormous amount of time he spent in the interests of the school. In his later years Sir Henry, as was natural in one who had long been surgeon to the cancer wards of the Middlesex Hospital, took a great interest in the activities of bodies formed to direct public attention to cancer. He was treasurer and vice-president of the Imperial Cancer Research Fund, which was started in his house.

Sir Henry Morris's connexion with the British Medical Association was chiefly before the reorganization. In 1877 he was secretary of the Section of Surgery when the Association held its annual meeting in Manchester; in 1889 he was vice-president of the Section of Surgery when the meeting took place at Leeds; in 1895 he was president of the Section of Anatomy and Histology at the annual meeting in London. He was a member of the council of the Metropolitan Counties Branch in 1888. The honour of a baronetcy was conferred upon him in 1909; he leaves no heir.

Sir Henry was a man of imposing presence, with very firm convictions and considerable ability in inducing others to accept them. As a speaker he was fluent, and often impressive.

Dr. JOHN HEDLEY CROCKER, who died suddenly in Brighton on May 17th, at the age of 67, received his medical education at Charing Cross Hospital and Owen's College, Manchester; he obtained the diplomas L.S.A. in 1883, and M.R.C.S., L.R.C.P. in 1884. After holding the posts of assistant demonstrator in anatomy, house-surgeon, and house-physician at Charing Cross Hospital, he graduated M.B., Ch.B. Vict. in 1892, proceeding M.D. in 1894, in which year he obtained the D.P.H. and started practice at Eccles, Lancashire. Soon afterwards he was

appointed medical officer of health for the borough of Eccles and the port of Manchester. In 1900 he was appointed medical officer of health for Richmond, Surrey, and held the post until 1919, when he retired to live in Brighton. He held the rank of captain in the Sanitary Service, R.A.M.C.(T.F.), and published several articles on public health. He was a member of the British Medical Association. A colleague writes: Dr. Crocker's retirement simply meant for him change of occupation, not cessation. He was soon elected chairman of the Patcham Parish Council, and similar honours came to him unsought. He was a most popular man; his kind heart and his smile, which always gave confidence, made him friends wherever he went.

Dr. R. G. BELL of Sunderland, who died on June 4th in his 66th year, was educated at Glasgow University, where he won the Lorimer Scholarship in anatomy, botany, and chemistry. He graduated M.B., C.M. in 1890, and M.D. with commendation in 1898. In 1904 he took the diploma of F.R.C.S.Ed. At one time he took a prominent part in societies connected with the university, and was chairman of the Joint Committee of Conservative and Liberal Unionists, which supported the election of Mr. (now Lord) Balfour for the Rectorship in 1889. For a time he held the appointments of demonstrator and assistant lecturer at the university; but in 1891 he entered private practice in Sunderland, subsequently becoming assistant surgeon to the Throat, Ear, and Nose Hospital, Rye Hill, Newcastle, surgeon to the Sunderland Northside Hospital, to the Monkwearmouth and Southwick Hospital, and to the Sunderland Maternity Home, and Admiralty surgeon and agent for Sunderland. For a long period Dr. Bell was a member of the Sunderland Town Council, and in 1917 became an alderman of the borough. He took a great interest in educational and health matters, especially in technical education. He was a member of a committee which persuaded the council to use the "whisky money," awarded to local authorities under the Local Taxation and Customs Excise Act of 1890, for technical education purposes. This led to the establishment of a technical college in Sunderland. At the time of his death he was chairman of the Higher Education Subcommittee and the representative of the authority on the council of the Durham Colleges in the University of Durham. He had been a borough magistrate since 1901. He was an active member of the Sunderland Division of the British Medical Association, and its chairman in 1920. He had been a member of the council of the North of England Branch, and was vice-president of the Section of Oto-rhino-laryngology at the Newcastle meeting of the Association in 1921. Dr. Bell leaves a widow, but no family.

Universities and Colleges.

UNIVERSITY OF LONDON.

ESSAYS for the Paul Reithinger Prize, awarded for the best essay embodying the result of some research work on a medical subject carried out by the candidate, must reach the University by October 1st. Regulations for the award of the prize can be obtained on application to the Academic Registrar.

UNIVERSITY OF BIRMINGHAM.

THE following appointments are announced: *Lecturer in Diseases of the Ear, Nose, and Throat*, E. Musgrave Woodman, M.S., F.R.C.S.; *Lecturer in Orthopaedic Surgery*, Naughton Dunn, M.A., M.B., Ch.B.; *Honorary Assistant Curator (Surgery Section)*, W. Stirk Adams, M.B., Ch.B., F.R.C.S.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examination indicated:

FINAL M.B., Ch.B., PART I (including Forensic Medicine and Toxicology).—E. C. Bernard, J. M. Camps-Campins, A. J. McD. Grimston, T. M. White. PART I (only).—D. E. C. Andrew, H. E. C. Bentley. PART II: S. P. Taylor (with honours in Pathology), B. E. Sot Bodman, Muriel E. Dr Vincent. Group I (C).—Hayhurst. Group I (only).—J. S. Rogers. and distinction ination): J. F. O. Harvey, A. A. B. Cecily France.

UNIVERSITY OF GLASGOW.

THE University Court has appointed Dr. David Shannon to the Royal Samaritan Lectureship in Gynaecology, which has been founded through a gift of £5,000 from an anonymous donor.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council meeting was held on June 10th, when the President, Sir John Bland-Sutton, was in the chair.

Diplomas of Fellowship were granted to the following twenty-nine candidates:

C. H. Thomas (Manch. an Camb. an Guy's), *C (St. Mary's), F. W. M. Pratt (St. George's), D. A. Davies (St. Thomas's), F. Louis (Univ. Coll.), C. A. Lupton (Camb. and St. Thomas's), R. Brooke (Guy's), H. C. Edwards (King's College), G. G. Penman (C.R. and St. Thomas's), D. H. Brown (Camb. and St. George's), F. L. (Guy's), R. P. S. D. P. Marks (Cam), K. H. Hadley (Guy's), A. L. McGregor (Edinburgh), J. D. McLaggan (Aberdeen and St. Bart's), D. S. Middleton (Edinburgh), D. W. G. Murray (Toronto and Lond.), H. J. Taggart (Belfast and Lond.).

* Under the Medical Act, 1876.

Diplomas of Membership were granted to two candidates who have now complied with the regulations.

Mr. L. B. Rawling was reappointed a member of the Court of Examiners. Mr. Fagge, Mr. Rawling, Mr. Glogg, and Mr. Legg were re-elected members of the Board of Examiners in dental surgery for the year ending June 30th, 1927.

Sir Cuthbert Wallace and Professor Bulloch were elected to conduct the examination in pathology which candidates for the diplomas of M.R.C.S. and L.R.C.P. will be required to pass under the new regulations. A physician and pathologist will also be appointed by the Royal College of Physicians.

The following were elected examiners for the Fellowship for the ensuing year:—*Anatomy*: William Wright, Frederick Gymer Parsons, Wilfrid Edward Le Gros Clark, Cecil Pembrey Grey Wakeley. *Physiology*: David Henriques de Souza, Ffrangcon Roberts, John Beresford Leathes, Herbert Eldon Roaf.

B. Mining
S. William
St. Oscar
L. Arthur
L. Eardley
L. Whitehouse, Clifford White. *Diploma in Public Health*: Part I, Richard Tanner Hewlett; Part II, Francis Joseph Stevens. *Diploma in Tropical Medicine and Hygiene*: Pathology and Tropical Hygiene, William Porter MacArthur; Tropical Medicine and Surgery, Philip Henry Manson-Bahr. *Diploma in Ophthalmic Medicine and Surgery*: Part I, Charles Bernard Goulden, Herbert Willoughby Lyle; Part II, Malcolm Langton Hepburn. *Diploma in Psychological Medicine*: Frederick Lucien Golla. *Diploma in Laryngology and Otolaryngology*: Part I, Herbert Tilley, Arthur Henry Cheate; Part II, Sydney Richard Scott.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

An extraordinary meeting of the College was held on June 8th, when the President, Dr. G. M. Robertson, was in the chair.

The case of William Lloyd, a licentiate of the College, registered as of 53, Brook Street, Grosvenor Square, London, W.1, came up for determination. It was resolved that he be censured for having acted in an unbecoming and unprofessional manner.

Final arrangements were made for holding a dinner to celebrate the bicentenary of the Faculty of Medicine of Edinburgh University.

The College voted a donation of 100 guineas to the Scottish National Memorial to Queen Alexandra, and a sum of 100 guineas to the extension fund of the Incorporated Edinburgh Dental Hospital and School.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow held on June 7th, Sir Hector Clare Cameron, C.B.E., M.D., LL.D., and Dr. George Stevenson Middleton, LL.D., were admitted as honorary Fellows of the Faculty.

The following were admitted after examination as Fellows of the Faculty: J. M. Damany, G. B. Fleming, M.B.E., T. Jackson, R. A. Lennie, J. K. Reunie, C. Rudd, W. S. Syme, jun., J. N. Tennent.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

THE following have been admitted to the Membership of the College: G. Bewley, R. W. Nesbitt, F. J. O'Meara, K. R. Patil, H. M. Tulohekar.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following officers have been elected for the ensuing year: President, Andrew Fullerton, F.R.C.S.I.; Vice-President, Thomas E. Gordon, F.R.C.S.I.; Secretary, Sir F. Conway Dwyer, F.R.C.S.I.

The newly elected President has served for many years as an examiner in surgery, as a member of Council, and for the past two years as Vice-President. Mr. Fullerton is surgeon to the Royal Victoria Hospital, Belfast, and to the Belfast Hospital for Sick Children, and is Professor of Surgery, Queen's University, Belfast. He served during the war for over three and a half years as consulting surgeon to the British Expeditionary Force in France, with the rank of colonel. He was thrice mentioned in dispatches, and was awarded the C.B. and the C.M.G. He is an honorary Fellow of the American College of Surgeons.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week considered the Finance Bill, the Estimate for the Mines Department, and the Scottish Estimates. It approved the clauses in the Finance Bill which abolish the system of assessing profits under Schedule D on the income on an average of three years, and substitute, with certain reservations, assessment on the full amount of the income of the year preceding the year of assessment. During the discussion on the Mines Department Estimates the Prime Minister announced that the Government proposed to introduce a bill authorizing an optional return to the eight hours' working day in coal-mines, and another bill increasing the provision for the miners' welfare fund, and taking other steps towards the reorganization of the mining industry.

The Parliamentary Medical Committee, at its meeting on June 9th, passed a resolution welcoming the appointment of a layman as a member of the General Medical Council. It also resolved, on the motion of Dr. Drummond Shiels, that revision of the definition in the Mental Deficiency Act was urgently needed, and should be obtained as early as possible. Dr. Tredgold, chairman of the Medical Committee, Central Association for Mental Welfare, addressed the Committee on the need for redefining mental deficiency and on the distinctions between different types of deficiency.

The Parliamentary Medical Committee agreed that the Society of Members of the Royal College of Surgeons had made out a prima-facie case for representation on the Council of the College, and that this matter should be considered with the application of the Council for a supplemental charter. Subsequently Dr. Fremantle informed the Earl of Balfour, Lord President of the Council, that this was the view of the Parliamentary Medical Committee.

Medical Branches of the Fighting Services.

On June 15th Dr. Fremantle asked the Prime Minister if the Government had arrived at any decision as to the recruiting of medical officers for the Navy, Army, and Air Force. Mr. Baldwin replied as follows: Yes, sir. The Government has considered the report of the committee appointed last autumn to consider questions relating to pay and other matters affecting recruitment of officers and nurses to the medical branches of the fighting services, and has decided to give effect to its recommendations as from July 1st next. Lieut.-Commander Kenworthy: Is the Government contemplating amalgamation of the three medical services? Mr. Baldwin: No, not that I am aware of. Dr. Fremantle: When shall we get details of this decision? Mr. Baldwin: The necessary orders, I understand, are to be published forthwith.

Midwives and Maternity Homes.

The Midwives and Maternity Homes Bill was considered on the report stage in the House of Lords on June 15th.

Part I of the bill amends the Midwives Acts, 1902 and 1918. Clause I provides that if any person, being either a male person or a woman not certified under the bill, attends a woman in childbirth otherwise than under the direction and personal supervision of a duly qualified medical practitioner, that person shall, unless he or she satisfies the court that the attention was given in sudden or urgent necessity, be liable on summary conviction to a fine not exceeding £10. During the committee stage of the bill, last week, the clause was amended by the addition of the following proviso: "Provided that the provisions of this subsection shall not apply in the case of a person who, while undergoing training with a view to becoming a duly qualified medical practitioner or a certified midwife, attends a woman in childbirth as part of a course in practical instruction in midwifery."

The Marquess of Salisbury (Lord Privy Seal) now moved to amend this proviso, so as to make it read, "a course in practical instruction in midwifery recognized by the General Medical Council or by the Central Midwives Board." In this, he said, the Government accepted a suggestion of Viscount Knutsford made during the discussion in committee. The amendment was agreed to.

Clause 11 of Part 3, which is the interpretation clause, enacts that a local supervising authority may grant exemption from the operation of Part 2 of the Act, which provides for the registration of maternity homes, of any hospital or other premises for the conduct of which a duly qualified medical practitioner resident therein is responsible, or any hospital or institution not carried on for profit and not mainly used as a maternity home. It also provides that any person aggrieved by the refusal of a local supervising authority to grant exemption under Part 2 in respect of any hospital, premises, or institution, or by the withdrawal of any such exemption previously granted by the authority, may appeal to the Minister of Health, who shall give such directions as he thinks proper, and that the authority shall comply with any directions so given.

On the motion of Lord Muir Mackenzie it was decided to transfer the provisions from Part 3 to Part 2 of the bill.

This concluded the report stage of the bill.

Registration of Nursing Homes.

On June 8th further evidence was given before the Select Committee of the House of Commons on the registration of nursing homes. Miss Ethel Phillips said that she was a fully qualified nurse, and had been proprietress of a nursing home in Doncaster for fifteen years. She was in favour of registration in order to ensure that trained persons were in charge. She thought that in many homes it was necessary to employ assistant nurses who had been trained in cottage hospitals. To staff a home entirely with fully trained nurses would mean an increase of at least a guinea a week in the fees paid by the patient. Miss Phillips was of opinion that inspection of homes should be done by male doctors, who, she considered, could be relied on to see if anything was wrong, even in the kitchen, and would say exactly what they thought. She believed that doctors, if they had any complaints, would make them; and that patients would know at once if the nursing was bad. In reply to questions, Miss Phillips reiterated her conviction that no one but a trained nurse should be allowed to establish a nursing home; she would not agree that an unqualified proprietress might take charge of the business side, with a trained sister in charge of the nursing.

Dr. Marguerite A. C. Douglas-Drummond (assistant medical officer of health, Manchester) was of opinion that all nursing homes and maternity homes should be registered. In Manchester maternity homes run by doctors were exempt from inspection, and she thought the same rule should apply to nursing homes run by doctors, provided the doctor notified the authority of the names and qualifications of his nursing staff. She instanced cases in which registration as maternity homes had been refused, or the proprietresses prosecuted, and yet the women continued to take medical and surgical cases. She considered that women inspectors were better than men; they were more expert in noticing dirt. Before registration was granted to a maternity home the witness went with the sanitary inspector and decided whether the premises and the woman were suitable. Cross-examined by Dr. Davies, the witness did not agree that it was necessary, though it might be desirable, that homes for chronic or border-line cases run by a doctor should be inspected. The chief abuses in nursing homes in Manchester were dirty houses, inefficient staffs, lack of money for repairs, bad or scanty food, linen, and bedding, and the fact that the husband of the proprietress sometimes assisted in the work of the home.

A further sitting of the Select Committee took place on June 10th, when Sir William Hart, town clerk of Sheffield, gave evidence on behalf of the Law Committee of the Association of Municipal Corporations. That association, he said, had no objection to registration of nursing homes, but had not asked for it. The authority should be the local authority and not the county council. The Municipal Corporations Association did not approve of co-opting outsiders on to committees for registration. Nor did it think that nursing homes run by medical men should be exempt from inspection; but would not object to an appeal to the Ministry of Health by a duly qualified practitioner responsible for the management of the home. In reply to Sir Joseph Nall, the witness said that one or two of the nursing homes in Sheffield were practically annexes of doctors' surgeries. There was no inspection of maternity homes in Sheffield. In reply to Dr. Davies, Sir William thought there was little risk of details about patients being canvassed if inspection were carried out by officials of the smaller boroughs. Medical officers of health were a very competent body of men, and he thought that in most cases the inspector would not need a woman to help him. Personally, Sir William saw no objection to universal inspection if the evidence heard by the Committee showed it to be desirable.

Dr. R. A. Lyster (medical officer of health for Hampshire) represented the County Councils Association. He thought that the buildings of, and the amount of nursing in, some nursing homes were thoroughly unsatisfactory. When medical practitioners took two or three patients into their own homes they should be exempt from registration and inspection, as such homes were, in his experience, very well run. He thought the medical officer of health should be the inspector, and that power of entry and inspection should be confined to qualified medical men; but a medical inspector might have a trained nurse with him if he desired. The witness was inclined to exempt from inspection all homes with a resident medical man, until Dr. Davies mentioned that there had been evidence of gross abuses in such cases. Dr. Lyster then withdrew the suggestion, as he did not think that the best medical men would object to inspection. He would keep inspection to the county and county borough medical officer of health, as local jealousies were strong in smaller authorities. A date should be fixed after which all new nurses in homes should be qualified, present employees and proprietresses being allowed to continue in their positions. In his district, Dr. Lyster said, there was at present a serious deficiency of homes with moderate prices. Sir Joseph Nall asked why the witness's association had never reported to the Ministry of Health the defects of nursing homes. The reply was that it was no part of the statutory duty of members of the association. While saying nothing in favour of the continuance of the small nursing home with practically no qualified staff, Dr. Lyster thought it would be a calamity if the present number of nursing homes were reduced. The Chairman asked if it would not be more economical to extend the accommodation in voluntary hospitals to meet the deficiency. Dr. Lyster replied that he had made use of voluntary hospitals in Hampshire in maternity and venereal disease schemes; but the economy had not been noteworthy.

Miss Barber (registrar of the College of Nursing) said that from particulars she had obtained from 135 nursing homes she found that 105 of these took maternity as well as medical and surgical cases. She thought that registration of maternity homes should be extended to cover all nursing homes; and that maternity cases

should not be excluded from surgical or general homes. She did not think medical men were fit persons to inspect nursing homes. She had no use for local authorities as inspecting bodies. Inspection should be done by the Ministry of Health through a body of nurses under a chief nurse. The witness quoted several abuses in nursing homes to show that medical men had no knowledge of what went on and were not competent to inspect.

Foot-and-Mouth Disease.

To prevent the introduction of foot-and-mouth disease the Minister of Agriculture has arranged for the issue of licences to individual importers of bristles from the Continent, subject to certain conditions. He does not propose to prohibit the landing of brushes.

On June 14th Mr. Guinness (Minister of Agriculture) informed Sir A. Hunter-Weston that the Superintendent Veterinary Inspector of the Ministry had visited the Carlisle bacon factory, where, in the examination of pig carcasses newly arrived from Rotterdam, he discovered definite lesions of foot-and-mouth disease in some of the carcasses. Subsequent examination of other portions of the cargo, which had been distributed to other bacon factories, revealed further infected carcasses.

Smoke Abatement Bill.—In the House of Commons, on June 9th, the Smoke Abatement Bill was read a second time without debate. It has already passed through the Lords.

Puerperal Septicæmia.—Answering Mr. Pethick Lawrence, on June 9th, Sir Kingsley Wood said the attention of the Minister of Health had been called to the death from septicæmia following childbirth upon which the Kingston coroner made comments; an inquiry was being made by one of the medical officers of the department. Mr. Pethick Lawrence asked whether the inquiry would survey the whole means of prevention of this disease; and other members recalled that five similar deaths had occurred at Kingston, but Sir Kingsley Wood said the Ministry of Health was confining itself, for the moment at any rate, to inquiry into this particular case.

Pensions Medical Officers.—Replying to Mr. Robert Young, Major Tryon (Minister of Pensions) said that on June 10th there were 338 medical officers in the regular employment of the Ministry, of whom 252 were employed in a full-time and 86 in a part-time capacity. Of the full-time officers 50 were permanent civil servants, and the remainder were serving under contracts of temporary service varying from one month to three years. The total cost of these officers for the financial year ended March 31st, 1926, was £261,185, and the estimated cost for the current financial year was £222,240. In addition to the medical staff in regular employment, it was still necessary to have frequent recourse to the assistance of private medical practitioners who acted as examining medical officers (formerly described as medical referees), members of medical boards, supervisors of clinics, visiting surgeons, anaesthetists, etc., and were paid fees varying from £5 5s. to 5s. according to the nature of the services rendered. The total number now employed was 1,752, and the fees paid during the financial year ended March 31st amounted to £230,446.

Relief under the Maternity and Child Welfare Scheme.—Mr. Barker, on June 10th, asked Mr. Chamberlain whether the Welsh Board of Health was advising that no relief under the maternity and child welfare scheme be given to relieve distress arising out of the dispute in the mining industry. The Minister replied that it was no part of the maternity and child welfare scheme to relieve distress. Milk could only be supplied under that scheme to mothers and young children who were certified to need it on medical grounds. The policy of the Welsh Board of Health in this matter was adopted on his instructions. If a maternity and child welfare authority spent more money on milk because of the mining dispute the additional expenditure must be found out of the rates.

Appointment of a Medical Officer of Health.—Mr. Chamberlain told Mr. Robert Young that he was in communication with the Golborne District Council, Lancashire, regarding its appointment of a medical officer of health. The choice of the Council had been submitted for his approval. Mr. Young alleged that although the Council advertised for a medical officer of health possessing the D.P.H., the person appointed did not possess it, and that candidates having it were passed over.

Certifying Factory Surgeons.—On June 14th the Home Secretary told Mr. Hore-Belisha that the appointments of certifying factory surgeons were made by the Chief Inspector of Factories, under Section 122 of the Factory and Workshop Act, 1901. Vacancies as they occurred were advertised in the *London Gazette* and communicated to the medical press, and applicants were required to give particulars of their experience and of any other appointments they might hold. The applications were carefully scrutinized, and, in the case of important districts, arrangements were made for the candidates to be interviewed by one of the medical inspectors. Where there was more than one candidate the advice of the senior medical inspector was taken. The chief inspector was satisfied that under this procedure the best men available were secured, and he had received no complaints.

Treatment of Flour with Chemicals.—On June 14th Sir K. Wood told Mr. Harland that the departmental committee which had been investigating the question of the treatment of flour with chemical substances had not yet reported, and until the report was received it was not desirable to introduce legislation on the subject. The Minister of Health had no knowledge of grain being treated with chlorine gas or other chemicals either before or after importation.

Poison Gas.—Sir L. Worthington-Evans informed Captain W. W. Benn, on June 14th, that experiments with animals were essential in order to obtain the necessary data for ensuring adequate defence against poison gas and for evolving efficient methods of treating gas casualties. The Government did not feel that the Washington Conference Treaty, 1922, and the Geneva Protocol, 1925, against the use of poison gas in warfare justified it omitting to take all possible precautionary measures to protect the Forces of the Crown and the inhabitants of the country against gas attacks in war. For this reason the experiments must continue.

Notes in Brief.

On June 9th, in committee on the Finance Bill, Mr. Hannon moved that vehicles belonging to charitable societies or institutions, when used solely for the purposes of those bodies, should be exempted from the motor taxes. Colonel Ashley (Minister of Transport) said a concession had been given by the Finance Act, 1920, in the case of ambulances. The amendment was rejected.

On June 14th Earl Winterton informed Sir R. Luce that the Secretary of State for India hoped very shortly to receive the Government of India's final proposals with regard to the future of the Indian Medical Service.

The Government of India has directed the attention of the provincial governments to the recommendation of the International Labour Conference of October, 1923, favouring the appointment of women for certain classes of factory inspection work.

On March 31st, 1925, the latest date for which complete returns are available, there were 148 spare places in day schools for the deaf and 251 in residential schools in England and Wales.

The Reading University Bill was read a second time in the House of Commons on June 14th.

On June 15th Mr. Groves presented a bill to amend the law relating to compulsory vaccination, and Mr. Mackinder a bill to amend the Rag Flock Act, 1911. Both were read a first time.

THE TESTING OF THERAPEUTIC SUBSTANCES.

THE laboratories established by the Pharmaceutical Society to fulfil the conditions regarding the control of therapeutic substances the purity or potency of which cannot be adequately tested by chemical means, as laid down in the Therapeutic Substances Act, 1925, were opened by the Minister of Health on June 16th.

Mr. P. F. ROWSELL, who has recently vacated the chair of the society, said that work of this kind had only become necessary during the last twenty-five years, but the field seemed to be rapidly widening. Dr. J. H. BURN, formerly a member of the staff of the Department of Biochemistry and Pharmacology of the Medical Research Council's Institute at Hampstead, who has been appointed director, said that the success that had attended the use of thyroid extract, pituitary extract, and insulin, were examples of what might be expected to happen. Already pharmaceutical chemists and pharmacologists had an extensive field to investigate in co-operation.

Mr. CHAMBERLAIN, in declaring the laboratories open, said that as knowledge increased new weapons for the unceasing warfare against disease were being forged and an army of investigators—doctors, pharmacists, chemists, engineers, and architects, as well as nurses—was working together in the interests of health. To the Pharmaceutical Society, which might be regarded as a training college, it was a source of pride that throughout its career it was constantly raising its standard. It was now entering on a new branch of activity, which promised to be of great value both to the medical profession who prescribed, and the manufacturers who produced, these new remedies. By post-graduate courses it was enabling members of the pharmaceutical profession to lift themselves above ordinary commercial considerations.

Afterwards the large company inspected the laboratories under the guidance of Dr. Burn. It will be remembered that under the Act a general committee was set up consisting of the Minister of Health, the Secretary for Scotland, and the Minister for Home Affairs for Northern Ireland. This committee has the assistance of an advisory committee consisting of eight members—one each being appointed by the Minister of Health, the Scottish Board of Health, the Home Minister for Northern Ireland, the Medical Research Council, the General Medical Council, the British Medical Association, the Council of the Pharmaceutical Society of Great Britain, and the Council of the Institute of Chemistry. On this committee the British Medical Association is represented by Dr. C. O. Hawthorne. The committee will make regulations as to the standard of strength, quality, and purity of the therapeutic substances

to which the Act applies; as to the tests for determining the standard; and as to fixing units of standardization; it will also have authority to add to the schedule therapeutic substances the purity or potency of which cannot be adequately tested by chemical means.

The laboratories have been set up in the premises of the Pharmaceutical Society at Bloomsbury Square.

Medical News.

PROFESSOR HUGH CABOT (professor of surgery in the University of Michigan) has recently for a fortnight taken charge of the teaching of surgery in Sir Holburt Waring's clinic at St. Bartholomew's Hospital and Medical College. On June 9th Professor Cabot was admitted at a meeting of the council an honorary perpetual student of St. Bartholomew's Medical College—an honour conferred only once before, when Professor Harvey Cushing had charge of the teaching of surgery in Professor Gask's clinic at St. Bartholomew's in 1922.

As announced in our advertisement columns, the Association of Surgeons of Great Britain and Ireland invites applications for a surgical scholarship of £350 a year. The scholarship, which is tenable in the first instance for one year, is to enable the holder to pursue a definite line of research or to study surgery in specified clinics at home or abroad. Full details can be obtained on application to Mr. C. H. S. Frankau, Honorary Secretary, 51, Wimpole Street, London, W.1.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that on June 24th, at 2.30 p.m., Mr. H. Tyrrell Gray will give a special clinical demonstration in surgery at the Hospital for Sick Children, Great Ormond Street, and on June 25th, at 12.45 p.m., Mr. Goulton will give a clinical demonstration in ophthalmology at the Royal London Ophthalmic Hospital. Both are open to the medical profession without fee. At the North-East London Post-Graduate College (Prince of Wales's General Hospital), Tottenham, there will be a course in medicine, surgery, and the specialties, lasting from July 19th to 31st, and occupying all day. From July 5th to 17th the National Hospital for Diseases of the Heart will give an all-day course in cardiology, and between the same dates there will be a course in dermatology at the Hospital for Diseases of the Skin, Blackfriars. On July 19th, at 5 p.m., a course consisting of lectures and clinical demonstrations upon selected cases will begin at the West End Hospital for Diseases of the Skin, and terminate on August 14th. A series of demonstrations on the treatment of diseases of the eye will take place at the Royal Eye Hospital from July 12th to 24th, at 3 p.m. Copies of all syllabuses and of the general course programme may be had on application to the Secretary of the Fellowship of Medicine, who will also supply copies of the *Post-Graduate Medical Journal*.

THE Tuberculosis Society will meet on Saturday, June 26th, at 3.30 p.m., at the Queen's Hospital, Sidcup. A visit to the ultra-violet ray department of the hospital will be followed by a lantern demonstration of radiograms. The commandant has kindly invited members to tea at the close of the meeting. If members intending to be present will notify the secretary, Dr. F. J. C. Blackmore, as early as possible, Colonel Colvin will endeavour to arrange transport for them from the station to the hospital.

THE chairman of the General Board of the National Physical Laboratory (the president of the Royal Society) will hold a reception within the grounds of the Laboratory on Tuesday, June 22nd, at 3 p.m.

THE annual meeting of the Research Defence Society, founded by Mr. Stephen Paget, whose death we have recently had to lament, will take place at the house of the Medical Society of London (11, Chandos Street, Cavendish Square, W.) on Friday next. Lord Lamington will take the chair at 3 p.m., and an address will be given by Dr. J. A. Murray, F.R.S., Director of the Imperial Cancer Research Fund, on the experimental attack on cancer.

At the annual meeting of the Brussels Medical Graduates' Association, held on June 9th, it was unanimously decided to change its name to the Brussels University Medical Graduates' Association. Dr. Fielden Briggs was elected president and Drs. Arthur Haydon and A. D. Woolf honorary secretaries. The annual dinner will take place in October.

THE KING has directed Dr. Joseph Anthony Ferriere to be appointed a nominated member of the Council of Government of the Colony of Mauritius.

WE are asked by the Honorary Secretary of the British Spa Federation to state that the coal shortage has not so far interfered with the service given by British spas.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

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The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9861, 9862, 9863, and 9864** (internal exchange, four lines).

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EDITOR of the **BRITISH MEDICAL JOURNAL**, *Aitology Westcent, London.*

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

PHENOLAIN IN OPHTHALMOLOGY.

IN consequence of the memorandum published under this heading in the **BRITISH MEDICAL JOURNAL** of May 22nd (p. 865), Mr. ARNOLD FERGUSON has received a number of inquiries, and he asks us to publish the following information, which may be of use to those who have not read Nesfield's *Ophthalmic Surgery*:

Any wholesale druggist should be able to procure the drug. The composition is supplied with it. I feel sure that the quantity injected places the cocaine in the solution subconjunctival. Any cocaine in the lower conjunctiva is washed away by the water. If need may, one sitting at fortnightly or monthly intervals, according to circumstances. I have used it for months on the same subject. The solution keeps well.

INCOME TAX.

"D. J. G. J." having succeeded to a practice, has applied under Rule 11 (Cases I and II, Schedule D) to have his assessment reduced to the profits of the actual year; in making the reduction the local inspector of taxes has refused a claim to include the cost of replacing a car on the ground that such an expense should be regarded as capital outlay in a commencing business.

Rule 11 does not specify the basis on which the revised assessment is to be computed, but it was held in *Inland Revenue v. Fairie, 1878, Sc. L.R., 189*, that the effect of the rule is to introduce the provisions of the common law, leaving the assessment to be made upon the actual profits of the year. We know of no legal ground on which it can be claimed that expenses should be regarded differently according to whether they are incurred early or late after the acquisition of a practice. If the expense would be allowable in the third or sixth year (and apparently that is admitted by the inspector), we consider that it cannot be refused for the first year. Further, Rule 11 applies not only to the year when succession to a practice takes place, but also to each year for which the predecessor's profits enter into the average—for example, if the change took place at January 1st, 1925, Rule 11 can be invoked up to 1927-28 inclusive, since the 1924 profits enter into the three years' average for that year. Would the inspector be prepared to maintain his claim to exclude such expenses in computing the 1927 profits?

LETTERS, NOTES, ETC.

THE SMOKE EVIL.

DR. A. VERNON DAVIES, M.P., writes: There is a slight error in your "Medical Notes in Parliament" (June 12th, p. 1018). What I said was (1) that I had been in communication with the health authorities at Chicago, who had given me every information about the numerous methods in use there for dealing with the smoke evil; (2) that an apparatus designed by an eminent English engineer had been tested by me at a cotton mill in Lancashire; the apparatus practically eliminated the "black

smoke," but as the fuel consumption was increased by about 13 per cent. it was not an economic proposition, and the apparatus was removed.

MENTAL IRRITABILITY AND BREAKDOWN IN THE TROPICS.

DR. FRANK BRYAN (Ipswich) writes as to the cause of mental breakdown of Europeans in the tropics: May I suggest that it is largely because the white man tries to insist on natives adopting the same "time sense" as the Westerner. The diagnosis and end-result of this is shown by Kipling most aptly and most truly in his lines:

Now it is not good for the Christian's health to hustle the Aryan brown.
For the Christian riles, and the Aryan smiles and he weareth the Christian down;
And the end of the fight is a tombstone white with the name of the late deceased,
And the epitaph drear: "A Fool lies here who tried to hustle the East."

DR. L. J. GREEN (South Tottenham) writes: In your interesting leader upon mental irritability and breakdown in the tropics (*JOURNAL*, May 29th, p. 939) stress is laid upon the avoidance of overeating as a prophylactic measure. May I point out the importance of an equally careful avoidance of the reverse—namely, under-eating—in hot weather? There is a strong tendency among many people, especially those who accept their ideas from physical culturists and vegetarians, to keep a special watch upon their diets in summer, so as to reduce materially the quantity consumed in general, and the proteins in particular, while at the same time they swallow, considering it wisdom, undue quantities of fruit and salads. This restriction of diet below the normal requirements, when maintained for some weeks, leads to lassitude and weakness, not to mention digestive disturbances.

POSTURE IN HEALTH AND DISEASE.

DR. H. V. CANTOR (Jersey, Channel Islands) writes: I cannot agree with Mr. Alexander's criticism (May 29th, p. 928) of your article of April 17th (p. 690). I have prescribed the exercises to two patients recently recovered from serious illnesses, and one other, and in addition have carried them out regularly myself. In every case the exercises have not only given a feeling of well-being for the time immediately following, but have rapidly improved both the posture and the general health. This seems to be an instance where practical experience is of more value than condemnatory criticism based on mere theory.

SEPTIC SORE THROAT COMPLICATED BY ERYTHEMA NODOSUM.

DR. FRANK BODMAN (Bristol) writes: I read with interest Dr. Eleanor Shephard's memorandum in the issue of May 29th (p. 932) reporting a series of cases of ulcerative tonsillitis. I have under my care at present an epileptic, whom I am treating with luminal. The patient is suffering from enlarged tonsils, and from time to time develops acute tonsillitis. (Operation has been refused by the parents.) I notice that during each of these attacks the patient develops a papular rash, which I have ascribed to the luminal. I do not know whether luminal is employed at Lingfield Colony, but it has occurred to me that, the metabolism of the patient having been disturbed by the acute infection, an attempt is made to eliminate the luminal in other directions.

TESTS FOR DRUNKENNESS.

"ANOTHER EX-NAVAL SURGEON" writes elaborating the statement made during the discussion by the Marylebone Division last February—that in the navy it was the officer of the watch who decided the question of drunkenness by applying the test whether the man was, or was not, fit for duty. *King's Regulations and Admiralty Instructions*, he thinks, lays it down that the officer is to be guided in his decision by "whether or not, in his opinion, the man is fit to be entrusted with his duty." The fact that the man has been doing his duty makes no difference to the decision, which is final if the man is regarded as unfit to be entrusted with his duty. Our correspondent wishes to see a similar system applied to motor drivers. The police surgeon should be given the responsible duty of saying whether or not a man is fit to be entrusted with a car. He should see the accused very shortly after he has been arrested, and his decision should be final.

EXCRETION OF ALCOHOL BY THE URINE.

THE publication in our issue of March 13th of the paper by Drs. Southgate and Carter on excretion of alcohol in urine as a guide to alcoholic intoxication (p. 463), and of the report of a discussion on this subject at the Medico-Legal Society (p. 482), has prompted Dr. J. BAKER SMITH to send some personal observations: I have (he writes) taken alcohol at night and found in the morning small quantities of alcohol in the urine; another time I have found none. I have examined the urine of an old man living on beer alone at the time. In his urine there was no alcohol, but there was an increase of the oxidizables acting as alcohol to my simple test. This test was given for lactic acid several years ago in the **BRITISH MEDICAL JOURNAL**, and it is a very simple and rapid (five minutes) quantitative test for alcohol—1 c.cm. of a 1 per cent. dilution of alcohol can be estimated by it. All ordinary constituents of urine are in fair rapport with the specific gravity of the urine: so are the oxidizables examined by my test. The normal heat degrees given by urine, say specific gravity 1020, are 2°—average of 300 examinations gave a little less than 2° F. If there should be 5 per 1,000 of alcohol there would be 2° higher than normal. A chart made of observations per minute will distinguish

alcohol from sugar. My carbohydrate test was described in the *Scalpel*, 1898-1900. I will for convenience describe it again. The essentials are: 4 c.cm. of saturated solution of potassium permanganate, 1 c.cm. acid sulph. dil., a long stoppered half-ounce phial, and a short stem thermometer going easily into the phial. The temperature of the oxidizer is first taken and recorded, 1 c.cm. of urine of the same temperature is added, the phial is briskly shaken a few seconds by the rim, the thermometer introduced and left *in situ*. The maximum for alcohol is obtained about the third minute. One measured droplet of spirits (gin, whisky, brandy) can be easily estimated quantitatively.

ULTRA-VIOLET RAYS IN TUBERCULOSIS.

Dr. H. RENDELL (St. John's, Newfoundland) writes: In the report in your issue of April 3rd (p. 629) of the joint meeting of the Tuberculosis Society and the Tuberculosis Institution I was interested to note the following words by Dr. Crockett with reference to ultra-violet rays—"the rays are intensified from reflection from snow and sea." Those of us who have to work where there is much snow and ice have learned to guard against the sometimes serious effects of the glare of bright sun on ice—otherwise night blindness is very likely to result. Is it not probable this is produced by the ultra-violet rays, and does this not convey a note of warning to patients and mechanicians? For centuries the Eskimos have worn most ingenious goggles, made of wood with very narrow slits in front; these enable them to see well and yet shade the eyes from direct or reflected rays.

LETHARGIC ENCEPHALITIS: PARKINSONISM: AORTIC REGURGITATION.

Dr. L. F. BECCLE (Merthyr Tydfil) writes:—The following case might be of some interest: A youth, aged 19, seen on April 30th, gave a typical history of an attack of encephalitis lethargica some eighteen months previously. He had been healthy up to the time of this illness, and, in fact, was a very keen and promising boxer. I found that he was suffering from post-encephalitic Parkinsonism. He also had a typical aortic regurgitant murmur and enlargement of the left side of the heart. He gave no history of rheumatic fever or, in fact, of any illness with which this valvular defect could be associated. Is it possible that the encephalitic virus attacked the aortic valve, or did the latter condition arise insidiously from some unknown cause?

COMMON SENSE IN RELATION TO DOUBTFUL TUBERCULOSIS.

Dr. F. G. BUSHNELL (Plymouth) writes:—The issues raised in the *BRITISH MEDICAL JOURNAL* of May 8th and 15th (p. 846) on sending doubtful cases of tuberculosis to sanatoriums appear to be: (1) Against such a course: The risk of infection in sanatoriums in which open or potentially infective cases cohabit with non-tuberculous patients—that is, in which there is no "observation section"; and the grave social disadvantages that follow the labelling of a non-tuberculous person "tuberculous" which follow notification and treatment in a sanatorium. (2) For such a course: The assumed certainty of absolute control of infection during such intimate and prolonged sanatorium life; and the advantages of the open-air sanatorium *per se* for non-tuberculous cases, even without an "observation section." As one who has spent all his life working in the clinical, bacteriological, and administrative aspects of tuberculosis respectively, and especially as an ex-tuberculosis officer of fourteen years' experience, I share with many of my former colleagues the belief that the national public health resources should be applied to the common-sense separation—and control under medical supervision—of the active and potentially infective tuberculous population from the susceptible public, whether it be at the cradle, the home, the workshop, or the sanatorium. In brief, we rely largely on an antituberculosis ring of preventive measures. As long as we allow the seed to be sown broadcast, so long will the weeds spring up. The vast amount of research and statistics of tuberculosis officers of "contact" cases (shown so dramatically and tragically in tuberculous meningitis in infants and young children) in this country, and of Continental observers, especially Grancher, Léon Bernard, and Debré, establish this as a truth. In no way do they minimize the importance, however, of all measures which render the soil unsuitable, of which perhaps good housing is one of the greatest.

LATE SEQUELS OF WAR GASSING.

The medical service of the United States Veterans' Bureau is making a special study of the residual effects of war gassing by investigating the present or recent condition of over 70,000 ex-service men with hospital records of injury due to this cause. In view of the uncertainty as to the permanence of the injury so caused, the present inquiry is of considerable importance, and Dr. Crossman, medical director of the bureau, invites communications from readers of the *BRITISH MEDICAL JOURNAL*, so that the information at the disposal of the bureau may be as complete as possible. The inquiry is not concerned with the better known and more immediate effects of war gases, but information in answer to the following questions is desired: (1) Does any war gassing received in action result in disability which is relatively lasting and permanent? (2) Does it cause lasting anatomical (pathological) changes, with or without disturbance of function (symptoms and disability)? (3) What organs or systems may thus be permanently affected or disturbed? (4) What symptomatology may exist in these circumstances? (5) If war gassing does produce relatively permanent effects, may a similar condition or conditions be produced by other agencies (diseases such as influenza, tuberculosis, effort syndrome, etc.)?

Two reprints of any articles on this subject are also desired. Correspondence should be addressed to Dr. E. O. Crossman, United States Veterans' Bureau, Washington.

MEDICAL LEGISLATORS.

THE Congress of the United States is made up of 96 Senators and 435 members of the House of Representatives. The *Journal of the American Medical Association* stated some time ago that there is only one member of the medical profession in the Senate, and only five in the House of Representatives, which also contains three dentists. About two-thirds of the Congressmen are lawyers or have had legal training. The remainder are mostly business men, farmers, and publishers, with a sprinkling of educators and engineers. Our contemporary has recently published some information about the legislators of South America. In Uruguay, which has 19 Senators and 125 Representatives, five medical men were at the last election elected to the Senate and twenty-five to the House of Representatives. In this country there are two medical members in the House of Lords and fourteen in the House of Commons.

MILTON IN THE MAKING.

For those (and there are many) fond of sauntering down literary by-paths the book, *Some Newly Discovered Stanzas written by John Milton on Frankfort in 1623*, Ovid's *Metamorphoses*,* on which Mr. . . . evidently expended much loving . . . considerable interest. This Milton-Ovid script, he says, was written circa 1623; discovered, 1921; first printed in *Notes and Queries*, 1922-23; and is now revised and reprinted in one volume, with many additional notes. In number the verses here printed are almost exactly equal to all the English verse hitherto known to exist in Milton's handwriting; they are closely related to his favourite classic, and replete with evidence which confirms and illustrates the accepted traditions of his early literary development. Mr. Candy claims that the evidence of identification "is adequate in amount and both cumulative and corroborative in character." After perusal the reader is left in agreement with these conclusions. The stanzas, in what is claimed to be Milton's handwriting (and care is taken by many comparisons to prove this), amount in all to 166, and the lines are grouped in the decasyllabic couplet used by Milton in his "Paraphrase of Psalm 114," "Vacation Exercise," "Hodson Verses," "At a Solemn Musick," and occasionally in "Comus." Eight leaves of the small octavo volume (printed at Frankfurt in 1563) on which the script is written are lost, and it is estimated that seven stanzas have thus disappeared. This volume bore the title "Johan. Posthii Germersheim Tetrasticha in Ovidii Metamor. Lib. XV quibus accesserunt Vergilii solis figurae elegantiss., & jam primum in lucem editae," and it is in description of the illustrations therein that the stanzas were written. Above each engraving is printed a quatrain in Latin, and, below, a similar quatrain in German summarizing the scene. The verse of each folio is blank and unnumbered; it was on these that the scribe had written a stanza of English verse interpreting the succeeding plate. The English verse is not a translation of either of the foreign quatrains or of Ovid's text, but the composition is original, though the subject is prescribed by the corresponding plate. If the scribe was indeed Milton, and if the stanzas were written circa 1623, it follows that the poet was then about 15 years of age, the age when he wrote the paraphrases of Psalms cxiv and cxvi which incur the disdain of Sir A. Quiller-Couch; but after reading Chapter VI of Mr. Candy's book ("the complete text with annotations") there seems little doubt of his having a good case, and of his having made it out well. For its interest from the point of view of folk-medicine we may quote stanza III ("The Tranell of Alcmena"):

"Seven nights and dayes Alcmena sore opprest
With bearing pains, to Jove her prayers adrest

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MEDICAL GOLFING SOCIETY.

THE Medical Golfing Society held its twenty-ninth annual summer meeting at Wentworth (by kind permission) on June 10th. The course was in excellent order. The results were as follows: *Lancet Challenge Cup* (scratch).—H. D. Gillies, 1 down. *The Milsom Rees Challenge Cup* (scratch in Class II).—A. H. Gosse, F. A. Juler. *Class I*.—D. S. Gordon and A. Gallett tied at 1 down. *Class II*.—A. Scott Gillett and F. A. Juler tied at 2 down. *Foursomes*.—These were won by T. P. Kolesar and W. R. Bristow.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 50, 51, 52, 53, 56, and 57 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 227.

* In Milton on Engraved and reprinted in one Candy, B.A., B.Sc. Lond. 1 + 192: 8 plates. 7s. 6d.

not.)

A Lecture ON ENCEPHALITIS LETHARGICA IN ENGLAND.*

BY

ARTHUR SALUSBURY MACNALT, M.A., M.D. OXON.,
M.R.C.P.

ENCEPHALITIS LETHARGICA, or epidemic encephalitis, which may be classed under the head of general infectious diseases, is distinguished by certain manifestations originating in the central nervous system. One of the most characteristic of these manifestations is due to a lesion in or about the nuclei of the third pair of cranial nerves. The progressive lethargy and stupor which are often present caused von Economo¹ to give the descriptive term "lethargica" to the disease. The name "sleepy sickness," which, for the same reason, is sometimes popularly used, is to be deprecated, as it is apt to lead to confusion with the sleeping sickness of African countries—an entirely different malady due to a trypanosome.

HISTORY OF THE DISEASE.

1. Past Appearances of Encephalitis Lethargica.

Crookshank² has pointed out that scattered through the medical literature of the last four or five centuries are many records of cases and epidemics that may possibly correspond to the various types of encephalitis lethargica now recognized. Some of these outbreaks are ascribed to food poisoning; others are associated with catarrhal epidemics which were probably influenzal. For practical purposes the disease is a new phenomenon.

2. Appearance of Encephalitis Lethargica in England.

Encephalitis lethargica was first recognized in this country in 1918, when an outbreak simulating food poisoning occurred in the spring of that year. A notable feature of the outbreak was its wide and sparse distribution. From careful investigation instituted by the Local Government Board, with the collaboration of the Medical Research Council, the malady was recognized as a distinct clinical entity and later found to be identical with that described in the previous year by von Economo and von Wiesner in Austria. The clinical characters of the disease and the features which distinguish it from such closely allied conditions as acute poliomyelitis and polio-encephalitis are described in detail in the two official reports on the subject which have been published by the central health authority.[†]

PATHOLOGY AND ETIOLOGY.

The pathological histology of the disease consists in the main of a perivascular cellular infiltration of lymphocytes with occasional plasma cells in scattered areas of the central nervous system. For this no visible parasitic cause (for example, bacteria, protozoa) can be found. The distribution throughout the central nervous system is uneven. The sites of election are the region of the nuclei of the third nerve and the basal ganglia, but other areas may be attacked.

The cerebro-spinal fluid shows a slight increase in the total protein content and an increase in the number of cells (lymphocytes with occasional plasma cells) per cubic millimetre.

Various observers (McIntosh,³ Levaditi,⁴ Doerr,⁵ etc.), by inoculating a virus obtained from human cases, have provoked in rabbits and monkeys brain lesions indis-

tinguishable from those characteristic of encephalitis lethargica. Levaditi,⁴ Perdrau,⁶ and others find that a virus obtainable from the vesicles of herpes febrilis (not herpes zoster) used in the same way produces the same results. Much further experimental work is needed, and is being actively conducted in this country and abroad.

In the Milroy Lectures for 1925⁷ I have considered certain possible explanations, not necessarily incompatible, that may be advanced on the subject of an apparently increased, and rapidly increasing, susceptibility of the central nervous system to attacks of epidemic nervous diseases, including encephalitis lethargica.

CHIEF CLINICAL FEATURES.

The disease attacks all ages, with a preference for the early and middle periods of life, and both sexes nearly equally.

From the clinical point of view three types are distinguished: (1) general disturbance of the functions of the central nervous system but without localization; (2) various localizations in the central nervous system; (3) mild or so-called abortive cases.

After a period of incubation, the duration of which cannot at present be specified, a prodromal period ensues; this includes the first seven days, but may extend to two or three weeks, during which lethargic somnolence, headache, double vision, general lassitude, and occasionally vomiting and diarrhoea, may occur. Soreness or dryness of the throat may also be present. The acute symptoms which follow include a febrile temperature (101° to 102° F. = 38.3° to 38.8° C.), marked asthenia, stupor (alternating often with nocturnal delirium), difficulties in speech, and spasmodic twitchings of the face and limbs. Skin eruptions are occasionally noted. There is no characteristic rash; an erythema is most often seen, but the eruption may be petechial, papular, morbilliform, or scarlatiniform. The rashes when present appear early in the disease and during the pyrexial period. They are transient, fading in twenty-four hours as a rule. In the type of the disease with localizations in the central nervous system paralysis of accommodation with diplopia is very frequent and occurs early. There may be ophthalmoplegia, external or internal, with ptosis. The muscles innervated by the facial nerve may also be paralysed as well as the muscles of the tongue, pharynx, etc., rarely those of the limbs. The paralysis is progressive in character. Sensory troubles are the exception. There is often urinary or faecal incontinence and sometimes retention of urine. Death appears due to paralysis of the respiratory nervous centres. It is preceded by an increase in delirium and stupor merging into coma. It occurs most frequently before the end of the third week.

The severest cases lie in bed like a log or resemble a waxen image in the lack of expression and of mobility. The immobility may be accompanied by catalepsy. Various degrees of stupor have been noted. The condition may be one of deep coma, with open eyes, total lack of facial expression, and inability to be roused. More commonly the condition is not so grave, but the patients are in a profound sleep, from which they can be aroused to answer questions or to partake of food. When undisturbed they quickly lapse again into stupor. Certain patients resent being roused and display intense irritability or utter moaning cries when touched. The duration of the stupor is very variable. It may last for only two or three days, or more often may persist for two to five or even eight weeks. Periods of remission may occur in the course of the malady. The onset of coma, although grave, does not always imply a fatal issue. Many patients display extreme emotion and are "childish" in demeanour.

It may be mentioned that the clinical type of case seen during the present period of prevalence (1924-25) appears, on the whole, to be less severe than the above description, which is based on the study of cases seen in preceding years. In many instances the prodromal period appears to exceed the usual seven days. The onset is often ascribed to "influenza," and a fortnight or more elapses before the definite signs of encephalitis are manifest. Patients do not remain for lengthy periods in profound stupor or

* Delivered under the Chadwick Trust, at the Royal Society of Medicine on December 8th, 1925.

† (1) Report of an Inquiry into an Obscure Disease, Encephalitis Lethargica: Reports to the Local Government Board on Public Health and Medical Subjects, N.S., No. 121, London, 1918. (2) Ministry of Health Report on Encephalitis Lethargica: Reports on Public Health and Medical Subjects, No. 11, London, 1922.

coma, and some have made an unusually rapid recovery; catalepsy is rare.

While the prominent symptoms in a material proportion of cases remain those of lethargy and ocular paralyses, many are chiefly characterized by myoclonic movements and sometimes by fibrillary twitchings of the abdominal muscles. Affections of the cortex of the brain are more frequently seen than in previous outbreaks; these are characterized by epileptiform convulsions and are sometimes associated with maniacal outbursts or insomnia.

EPIDEMIOLOGY.

1. Incidence.

Encephalitis lethargica was made compulsorily notifiable in England and Wales on January 1st, 1919, and from that date fairly complete records of all recognized cases are available. The number of cases of encephalitis lethargica notified in 1924 was 5,039. This number exceeds the sum of all the notification tables for the preceding five years, as may be seen from the following table.

England and Wales: Notifications and Deaths from Encephalitis Lethargica since this Disease became Generally Notifiable.

Year.	Notified Cases.			Deaths.		
1919	541	...	...	264
1920	890	...	...	471
1921	1,470	...	...	724
1922	454	...	...	337
1923	1,025	...	...	530
1924	5,039	...	...	1,419

There was an unusual prevalence also in Scotland and Ireland in 1924.

2. Incidence in Urban and Rural Communities.

Encephalitis lethargica has been reported chiefly from urban districts. In 1924 the rural districts only contributed 12.8 per cent. of the total number of cases, while the county boroughs alone were responsible for 46.6 per cent. Large cities and industrial centres have been particularly affected, probably on account of the enhanced opportunities for the spread of personal infection, although possibly the better facilities for medical diagnosis possessed by large towns may also be a contributing factor. In 1918 I found a restricted topographical distribution of cases of encephalitis lethargica in certain districts, notably in the county borough of Stoke-on-Trent. The same tendency for examples of the disease to clump in certain areas of a town or city was noted in 1924 in Sheffield, Bristol, and elsewhere, probably associated with density of population and increased opportunities for case-to-case infection. Parsons has found in Bristol and elsewhere that this topographical grouping in towns tends to be the same in different epidemic years—a circumstance which suggests the presence of endemic foci of the disease.

3. Mortality.

In 1918, in the first outbreak in this country, out of 168 cases of the disease 37 died—a case mortality of 22 per cent. Variant case mortality rates are quoted by Parsons, ranging from 53 per cent. (McClure) to 15.7 per cent. (Bramwell). The notification figures (England and Wales) for 1919-23 gave a case mortality rate of 54 per cent. In view of the failure to notify cases of epidemic nervous disease generally, and through failure to recognize mild non-fatal types of encephalitis lethargica, these figures cannot be taken as a true estimate of the number of deaths that occur among persons attacked by encephalitis lethargica. No definite opinion can be expressed at present as to the case mortality, except that it is probably under 50 per cent.

4. Age and Sex.

All ages may be attacked, from the newborn babe to the octogenarian. A woman of 84 has died from the disease. The main incidence of the disease begins to be apparent in those approaching adult life; 25 per cent. of a series of British cases occurred in persons between the ages of 10 and 20 years. The incidence appears to be fairly evenly distributed over the years 20 to 40, but the tendency to

acquire encephalitis lethargica declines with advancing age. The records of the Ministry of Health show that the sexes are equally affected. Of 1,273 cases, 634 were males and 639 females. This proportion is evenly maintained at different age periods.

5. Seasonal Prevalence.

The first outbreak occurred during the first quarter of 1918. James early called attention to the difference between the seasonal incidence of the disease and that of poliomyelitis. Since then the increase in the number of cases in the colder months of the year has been annually noted in this country, the rest of Europe, and in North America. The increase in the incidence of encephalitis lethargica usually begins towards the end of December and continues during the first quarter of the new year. The second quarter also shows many cases, but by the end of May the epidemic has waned and many fewer cases, as a rule, are notified in the third and fourth quarters of the year.

6. Predisposing Causes.

Careful inquiries have been made by the Ministry of Health into possible predisposing causes, but little of value has resulted from the quest. The influence of pregnancy is regarded as of importance by some writers. Jorge,¹ in reviewing a series of 18 pregnant cases, found that the mortality rate was 72 per cent. On the other hand, the Ministry's figures show that the mortality rate in respect of all the cases of encephalitis lethargica which were associated with a pregnancy, past or present, is 44 per cent.; this percentage also represents the general case mortality among all women between the ages of 20 and 40 who contracted the disease during 1919 and 1920. Social conditions appear to exert no influence upon the disease. As regards occupation, from a study of 1,070 patients, Parsons found that 734 followed indoor occupations, 133 engaged in outdoor occupations, while 203 patients belonged to an indeterminate group. He concludes that the disease chiefly attacks those who spend the greater part of the day indoors in pursuit of their avocations. Overwork is often assigned as a predisposing cause. The specific infectious diseases and diseases generally do not appear to dispose to the disease beyond the circumstance that any antecedent or associated disease may lower the patient's resisting powers to infection.

EVIDENCE FOR REGARDING ENCEPHALITIS LETHARGICA AS AN EPIDEMIC DISEASE.

The epidemiological evidence already available in regard to cerebro-spinal fever and acute poliomyelitis greatly facilitates an understanding of the behaviour of encephalitis lethargica. No evidence has been elicited that the virus of this disease is conveyed through intermediate agencies, such as water, soil, food, clothing, biting insects and flies, etc. The chief facts relating to the spread of encephalitis lethargica by personal contagion are as follows:

- (1) The restricted topographical distribution of cases to which allusion has been previously made.
- (2) The cases reported by Harris, Kononowa, Novaes and Sousa, and others, of infection *in utero* or placental transmission.
- (3) The examples of multiple cases in families and localized outbreaks in small communities.
- (4) Examples of case-to-case infection, where infection from a common source was apparently excluded.

Dr. Parsons and I have put on record in official reports several examples of multiple cases of encephalitis lethargica in families, and Netter² has reported a number of similar instances in France.

An interesting example is that communicated by Van Boeckel³ at Ruddervoorde, in West Flanders, in 1919, where the disease attacked four families who were closely interrelated. Of 26 persons, 17 were attacked, and 4 of these died. Kling and Liljenquist⁴ of Stockholm found, in February, 1921, that encephalitis lethargica was prevalent in certain villages in Lapland, the morbidity rate varying from 7.1 to 45 per cent. In some families several members contracted the disease simultaneously,

and in two houses almost all the inhabitants were affected, side by side with the severe and typical cases were catarrhal and febrile cases, cases with slight affection of the ocular movements, and a few cases of obstinate hiccup.

In the Annual Report of the Chief Medical Officer of the Ministry of Health for 1919-20¹² I recorded an institutional outbreak of encephalitis lethargica in a home for girls at Derby: 12 persons were attacked out of 22 inmates, and there were 5 deaths. John and Stockbrand¹³ have reported a similar outbreak in an asylum at Mulheim in the summer of 1922. Here 28 cases with 13 deaths occurred in twenty days, 6 being in nurses and 2 in doctors. Dysphagia and ophthalmoplegia were frequent symptoms.

It is known that mild and ambulant cases of illness exist in association with declared cases of encephalitis lethargica; several instances of the kind were encountered in 1924 in Liverpool, Sheffield, and elsewhere; through their medium the conveyance of infection from one person to another seems to be more than probable. I would suggest that the presence of these "carriers" in encephalitis lethargica indicates that the disease is in accord with cerebro-spinal fever and poliomyelitis as one in which the pathogenic agent is more frequently present in the human organism than the clinical evidence would imply. The work of Eastwood, F. Griffith, and Scott¹⁴ has already established this conception as true for cerebro-spinal fever. Encephalitis lethargica appears to be equally infective and liable to manifestation in epidemic form.

THE QUESTION OF REINFECTION.

It is impossible at present to say whether the disease may occur more than once in the same individual. Netter,¹⁵ G. E. Price,¹⁶ and Buzzard¹⁷ have recorded cases in which patients have apparently recovered and eventually have succumbed to encephalitis lethargica. On the other hand, the frequent occurrence of sequelae, mental changes, symptomatic paralysis agitans, and the like, may be due to persistence of the virus of the disease, which, like the virus of syphilis, may be capable of lurking quiescent in the body for long periods and of returning to activity from time to time.

ROUTE OF INFECTION.

Like cerebro-spinal fever and acute poliomyelitis, it seems a fair assumption that the virus of encephalitis lethargica first infects the upper respiratory passages, where it may either lurk and give rise to the carrier phase in the person affected or may pass on to attack the brain. There is no definite catarrhal stage associated with its early manifestations, but sore throat is a frequent concomitant. There is reason to believe, in view of the frequency of initial conjunctivitis, that the virus may enter the brain through the eyes; infection by the gastro-intestinal route is also a possibility.

EPIDEMIC HICCUP.

Sir John Robertson, medical officer of health for Birmingham, from his experience in the Birmingham epidemic of 1924 is strongly of opinion that epidemic hiccup may be a symptom of encephalitis of a mild type. The disease has been seen in definite association, for instance, in the same household with encephalitis lethargica; an attack of hiccup may precede or accompany the nervous symptoms of the major disease, and there is good reason, in view of the cumulative evidence, for regarding epidemic hiccup as a mild or frustrated form of encephalitis lethargica.

CHRONIC ENCEPHALITIS LETHARGICA OR SEQUELAE OF THE ACUTE FORM.

The sequelae are both of neurological and medico-legal importance. They may appear (1) in the course of the original acute malady and persist after partial or complete disappearance of all other symptoms, or (2) after the original acute attack has apparently terminated or possibly has passed unrecognized. Such effects are declared after a variable latent period ranging from some weeks to over two years. No definite opinion, therefore, can be expressed

until after some years as to whether an attack of acute encephalitis, however mild in appearance, may or may not result in serious sequelae. The more important of these after-effects are:

1. *Mental Symptoms.*—In all probability these are dependent upon lesions of the cortex of the brain. Irritability, maniacal outbursts, hebetude, complete change in moral character and self-control, lying and theft, may appear for the first time in the conduct of the victim of encephalitis lethargica, as well as grosser mental defects (including even homicidal attacks) which result in the patient's transference to a mental institution. These symptoms are of all grades of severity and may be associated with nervous lesions. They are usually seen in children or in the young adult.

2. *The Parkinsonian Syndrome.*—This condition closely resembles and may be identical with paralysis agitans as seen in the elderly or middle-aged adult. Fewer cases of disease are more pathetic than juvenile examples of this condition, and alike in children and adults it must be regarded as one of the gravest sequelae.

3. *Excito-motor Sequelae.*—Myoclonus: sudden, shock-like muscular spasms of limbs, sometimes also of diaphragm and larynx. Halting and slowed movements (bradykinesia).

4. *Other Sequelae.*—Of these, increased tone of muscles, paralysis, various sensory symptoms, and curious respiratory spasms (polypnoea, periods of apnoea, Cheyne-Stokes respiration) may be mentioned.

It is as yet unknown whether these manifestations are true after-effects or if they are indicative of persistence of the original infection. It is impossible also, at present, to say what proportion of surviving cases of encephalitis lethargica exhibit after-effects, whether mental or physical. Investigations are now being made on this question. It appears to be probable that mental after-effects, especially in children, occur in a large proportion of the surviving cases. Of the seven survivors of the Derby outbreak, two subsequently developed mental symptoms.

PREVENTION AND TREATMENT.

As advised in the memorandum of the Ministry of Health, the medical officer of health faced with an outbreak of encephalitis lethargica in his district should pursue the following lines of action:

- (a) Full determination of the associated conditions and any facts which may throw light on the epidemiology of the disease.
- (b) Search for mild and abortive cases.
- (c) Aiding in any practicable pathological investigation and in obtaining material for the purpose.
- (d) Aiding in securing the treatment of the disease in hospital or otherwise.
- (e) Enjoining the precautions required in the case of a disease apparently capable of transmission from person to person, especially through mild and abortive cases capable of carrying infection; and
- (f) "Following up" and recording the after-history of patients; in particular, as to any mental after-effects which may be observed. In this connexion inquiry should also be made into the previous history of children who begin to exhibit changes in behaviour or unusual accentuation of undesirable qualities; these symptoms not infrequently point to an overlooked attack of epidemic encephalitis at an earlier date.

In view of the severity of the disease and the importance of good nursing, it is important to secure hospital treatment as far as possible. The isolation hospitals of local authorities should be available for this purpose; at the same time a number of cases may have to be treated in their own homes; for these public nursing facilities, possessed by or arranged with the authority, should be available. The other occupants of a house in which a case of encephalitis lethargica has occurred or is being treated may be assured that owing to variations in individual susceptibility the disease is one of low infectivity, and that slight risk, as a rule, is run by association with the patient. It is desirable that such association should be limited to the necessities of proper care and nursing, and the patient should be well isolated in a separate room. School children in the affected household may be kept from school for three weeks after the isolation of the patient as a precautionary measure. There is

no necessity to place restriction on the movements of other occupants provided they are frequently examined and remain well. Those in contact with the case may be advised to use antiseptic nasal sprays, douches, and throat gargles. Any persons in the infected household who suffer from sore throat or other symptoms suggestive of an abortive attack should be medically treated and isolated until they have recovered. The sick-room should be thoroughly cleansed and disinfected at the end of the illness.

Although there is no specific treatment, much may be done to sustain and tide the patient over the acute period of attack. Confinement to bed, the services of a trained nurse, and treatment as an infectious disorder are primary essentials. In many cases transient or permanent relief with diminution of stupor follows on the withdrawal of cerebro-spinal fluid by lumbar puncture. It is seldom advisable to administer hypnotics, morphine, or other preparation of opium; urotropine, if prescribed, should be administered in small doses with caution and with suitable tests as a guide. Hall advises belladonna in the treatment of chronic forms of the disease.

CONCLUSION.

To encephalitis lethargica we may apply the words of Harvey: "Nature is nowhere accustomed more openly to display her secret mysteries than in cases where she shows traces of her workings apart from the beaten path; nor is there any better way to advance the proper practice of medicine than to give our minds to the discovery of the usual law of nature, by the careful investigation of cases of rarer forms of disease."

The study of encephalitis lethargica has made many problems in neurology and physiology plain; but the existence of this tragical disease in our midst is a heavy price to pay for the acquisition of new learning. Sir Thomas Browne wrote: "Some will allow no diseases to be new, others think that many old ones are ceased; and that such which are esteemed new will have but their time." But even if this last is true of encephalitis lethargica, it behoves us all to endeavour to shorten the time of visitation. You will have gathered from what has been said how serious is the disease and how deplorable and frequent are its after-manifestations.

Further study of the malady will add to our knowledge and will furnish us with fresh weapons for attack and defence. In this crusade the team work of the epidemiologist, the physician, and the pathologist is all-important.

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THE ABSORPTION OF MERCURIALS FROM OINTMENTS APPLIED TO THE SKIN.

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In two previous papers by one of us¹ an attempt was made to determine the relative values of the different substances used as bases for ointments, both as regards protection and absorption, and it was found that lard and hydrous wool-fat were absorbed more readily than the paraffin bases. We have no information as to whether the drugs combined with these bases to form ointments are absorbed *pari passu* with the base, or whether the bases readily part from the drugs so that the latter may be absorbed either more quickly or more slowly than the base; neither do we know whether a drug dissolved in the base behaves differently from one which is merely mechanically mixed with it. It seemed desirable, therefore, to attempt to determine these points by the method described in the previous papers, but work on these lines was interrupted for some years by the war, and has only recently been completed and the following results obtained with respect to certain mercurial ointments.

The mercurial ointments were selected for study for two reasons: first, because the absorption of mercury through the skin is of importance in regard to its clinical use—in some cases desirable, in others to be avoided; and secondly, because mercury and its compounds can be quantitatively estimated with great accuracy. It was found, however, that the accurate determination of mercury and its compounds when combined with fats or paraffins of various composition presented special problems in analysis and required special methods; these methods were first worked out and the results have already been published by one of us.²

The method employed was to make an accurate determination of the mercury in a sample of ointment; a carefully weighed quantity of this was then rubbed into a definite area of skin, about 20 square inches, for a definite time. The unabsorbed ointment was then scraped off the rubbing finger and the surface of the skin by a dulled Gillette safety razor blade fixed in a convenient handle, and again weighed. To avoid the necessity of wiping the instrument the scraper was weighed with the ointment both before and after rubbing. The amount of mercury in the unabsorbed ointment was then determined. The loss of weight represents the amount of ointment absorbed together with that lost by manipulation, and as the latter is fairly constant in dealing with preparations of similar consistence the results afford a relative indication of the respective amounts absorbed. From a comparison of the analysis of the ointment before rubbing with the analysis of the unabsorbed ointment it is easy to calculate the amount of mercury, or mercurial salt, absorbed as well as the amount of base.

It was found, after doing a number of preliminary experiments, that absorption was not so good when the skin was cold—as, for example, in the morning in cold weather. In order, therefore, to reduce the number of variable factors as much as possible the experiments were always carried out in the afternoon, and the skin area was well washed with hot soapy water and thoroughly dried immediately before rubbing. It was also found that the variable thickness and texture of the skin in different parts of the body and in different persons affected the amount absorbed, and the experiments from which any conclusions were drawn were all carried out on the same

person and on the flexor surface of the forearm from the wrist upwards, a surface free from hair and convenient to use. In order to verify the results obtained a number of the more important experiments were repeated independently after twelve months' interval, with substantially the same results. Over 130 experiments were done in all.

The following tables summarize the results obtained by this method, an average experiment being given in each case; for the sake of uniformity the amount of mercury or mercurial salt absorbed has been calculated as the weight in grams which would be absorbed from 100 grams of the original ointment. In the case of the mercury ointments this is estimated as metallic mercury, in the case of the oxide and oleate as mercuric oxide, in the case of calomel as HgCl_2 , in the case of ammoniated mercury HgNH_2Cl , and in the case of the salicylate as metallic mercury.

METALLIC MERCURY.

All ointments used were nominally of B.P. strength 30 per cent. The amount of mercury absorbed was found to vary with the size of the globules of mercury examined microscopically; the absorption from one sample of hand-made ointment with large globules was practically negligible, so all ointments were examined microscopically before they were used for experiment, and rejected unless the mercury was in a fine state of division and equally diffused through the fatty base.

Lard Base.—A comparison of experiments in which the duration of the rubbing was varied shows that at first the lard is absorbed more rapidly than the mercury, but on continued rubbing the mercury is absorbed more rapidly than the base. Thus the proportion of mercury in the unabsorbed ointment rises about 2 per cent. after a short rubbing, but only 0.88 per cent. after prolonged rubbing. The total absorption of the ointment with a lard base reached 22 per cent. in some cases; the average was 15.98 per cent.

Soft Paraffin Base.—The proportion of mercury in the unabsorbed ointment rose about 1.4 per cent., and then remained constant, showing that in the first instance the

Two Minutes' Rubbing.

Mercurial.	Base.	Melting Point of Base.	Total Loss.	Mercury in Original Ointment.	Mercury in Unabsorbed Ointment.	Mercury Absorbed from 100 grams of Original Ointment.
		Cent.	%	%	%	Grams.
Metallic mercury*	Benzoated lard	41°	15.5	31.20	33.2	3.15
Metallic mercury	Soft paraffin	40°	12.8	28.93	30.48	2.35
"	Hydrous wool-fat	44°	20.0	30.34	35.3	2.10
Mercuric oxide	Benzoated lard	41°	8.50	8.85	9.24	0.40
"	Benzoated lard	41°	8.46	18.96	19.65	1.52
"	Benzoated lard	41°	9.74	30.85	31.47	2.45
"	Soft paraffin	47°	7.76	9.45	9.72	0.49
"	Hydrous wool-fat	44°	18.18	9.19	10.72	0.42
Mercuric oleate†	Oleic acid	15°	10.13	17.41	17.3	1.85
Calomel	Benzoated lard	41°	9.2	20.5	22.0	0.5
"	Soft paraffin	45°	8.15	20.5	21.85	0.4
"	Hydrous wool-fat 60% Soft paraffin 20%	44° 45°	27.6	20.0	23.2	0.8
Ammoniated mercury	Benzoated lard	41°	11.0	5.5	5.8	0.4
"	Benzoated lard	41°	14.6	11.5	11.7	1.5
"	Soft paraffin	47°	8.5	4.6	4.9	0.1
"	Ung. paraff. (B.P.)		8.6	10.1	10.3	0.7
"	Hydrous wool-fat 40% Soft paraffin 50% (U.S.P. formula)		15.7	11.5	15.1	0.5
Mercuric salicylate	Benzoated lard	41°	10.9	10.0	10.5	0.6

* Ung. hydrarg. B.P.

† B.P.; nominal 20 per cent.

Ten Minutes' Rubbing.

Mercurial.	Base.	Melting Point of Base.	Total Loss.	Mercury in Original Ointment.	Mercury in Unabsorbed Ointment.	Mercury Absorbed from 100 grams of Original Ointment.
		Cent.	%	%	%	Grams.
Metallic mercury*	Benzoated lard	41°	18.9	31.2	32.6	4.76
Metallic mercury	Soft paraffin	40°	12.26	28.93	30.13	2.49
"	Hydrous wool-fat	44°	28.19	30.34	38.42	2.75
"	Hydrous wool-fat + lard and olive oil		19.74	32.37	35.82	3.62
Mercuric oxide	Benzoated lard	41°	14.03	8.85	8.84	1.25
"	Benzoated lard	41°	11.34	18.96	18.99	2.12
"	Benzoated lard	41°	14.94	30.85	30.92	4.55
"	Benzoated lard	41°	16.54	37.14	37.95	5.77
"	Soft paraffin	47°	12.08	9.45	9.85	0.78
"	Hydrous wool-fat	44°	31.24	9.19	11.65	1.18
Mercuric oleate†	Oleic acid	15°	11.23	17.41	15.93	2.33
Mercuric oleate with 50% benzoated lard	Benzoated lard		9.77	8.18	7.74	1.2
Calomel	Benzoated lard	41°	13.5	20.5	22.5	1.0
"	Soft paraffin	45°	6.5	20.5	21.1	0.8
"	Soft paraffin 20% Hydrous wool-fat 60%		22.5	20.0	25.1	0.5
Ammoniated mercury	Benzoated lard	41°	14.5	5.5	5.7	0.6
"	Benzoated lard	41°	11.5	11.5	11.6	1.3
"	Soft paraffin	47°	8.1	4.6	4.6	0.4
"	Ung. paraff. (B.P. 1893)		8.1	10.1	10.2	0.7
"	Hydrous wool-fat 40% Soft paraffin 50% (U.S.P. formula)		15.3	11.5	12.5	0.9
Mercuric salicylate	Benzoated lard	41°	11.6	10.0	10.2	1.0

* Ung. hydrarg. B.P.

† B.P.; nominal 20 per cent.

paraffin is absorbed more rapidly than the mercury, but on continued rubbing they are absorbed at the same rate. It was found that the total absorption of paraffin ointments never rose above 12 to 13 per cent., the average being about 8 per cent. As the percentage of mercury in the unabsorbed ointment does not fall on continued rubbing it appears impossible for a high absorption of mercury to be obtained by using a paraffin base.

Hydrous Wool-fat.—Here the proportion of mercury in the unabsorbed ointment rises about 5 per cent. after two minutes' rubbing, and continues rising up to 8 per cent. after ten minutes' rubbing, showing that the wool-fat is absorbed much more rapidly than the mercury; this may partly be due to the water present. The highest absorption of mercury in the case of hydrous wool-fat was 2.75 after a very large total absorption of 28 per cent. This compares with an absorption of 6 of mercury with a total absorption of 22 per cent. in the case of the lard ointment, and the highest absorption of mercury from a paraffin ointment of 2.55 after a total absorption of 13 per cent. Hydrous wool-fat, therefore, appears to have no advantage over paraffin as a base for mercurial ointment, as the wool-fat is absorbed and the mercury left behind. Lard appears to be the best base, as it is the only one in which, after the preliminary high absorption of the base, the mercury tends to pass in more rapidly than the base. As hydrous wool-fat gives a high total absorption, while lard appears to act better in carrying the mercury through the skin, experimental bases containing a mixture of the two were tried. The percentage of mercury in the unabsorbed ointment continued to rise, showing that these bases were absorbed more rapidly than the mercury, and that the larger total absorption obtained by the addition of hydrous wool-fat has no advantage over the lower total absorption of the lard alone.

MERCURIC OXIDE.

Ointments were made containing yellow mercuric oxide:

- (a) 10 per cent. in soft paraffin.
- (b) 10 per cent. in 10 per cent. soft paraffin and 80 per cent. hydrous wool-fat.
- (c) 10 per cent. in benzoated lard.
- (d) 20 per cent. in benzoated lard.
- (e) 30 per cent. in benzoated lard.
- (f) 40 per cent. in benzoated lard.

With the lard base there is, after a short rubbing, a slight rise in the percentage of mercury in the unabsorbed ointment, but not so marked as in the case of the mercurial ointment, and with longer rubbing this falls to the original percentage and remains constant, showing that the mercury and the base are absorbed at the same rate; the highest amount with the 10 per cent. ointment was 1.25 of mercury. The amount of mercury absorbed increased with the strength of the ointment; the 20 per cent. ointment gave approximately twice as much mercury absorbed as the 10 per cent., and the 30 per cent. three times as much with the same base. The 40 per cent. gave rather more than the 30 per cent., but not in proportion; this appears to be about the limit for maximum absorption.

With the paraffin base the percentage of mercury in the unabsorbed ointment remained fairly constant and almost the same as in the original ointment, so that the mercury and the base are absorbed practically at the same rate. The highest absorption from the 10 per cent. ointment with the paraffin base was 0.89.

With the hydrous wool-fat base, as in the case of mercury ointment, the percentage of mercury in the unabsorbed ointment continues to rise with prolonged rubbing, showing that the base is absorbed more quickly than the mercury, which is left on the surface of the skin. The highest absorption obtained from the 10 per cent. ointment in hydrous wool-fat was 1.18.

A comparison of the results obtained from the 30 per cent. mercuric oxide with those from mercury ointment of equal strength shows that the mercuric oxide is absorbed more rapidly than the metallic mercury in proportion to the total absorption.

MERCURIC OLEATE.

The B.P. preparation nominally contains 20 per cent. of mercuric oxide combined with oleic acid; a sample prepared according to the B.P. directions was found to contain 17.41 per cent. of mercuric oxide, and formed a sticky and adhesive product not easy to rub into the skin. The percentage of mercury in the unabsorbed oleate showed no change, so that the mercury and the base were absorbed at the same rate, probably without any decomposition of the oleate. The total absorption did not rise very high, and as the rubbing of it was not very satisfactory an ointment was prepared which contained 50 per cent. of the mercuric oleate and 50 per cent. of benzoated lard; the percentage of mercury in this was found to be 3.18. After ten minutes' rubbing the percentage of mercury in the unabsorbed ointment was reduced, showing that the oleate was absorbed more rapidly than the lard. On the whole it was found that mercury was absorbed more rapidly from the oleate than from mercuric oxide or metallic mercury ointments of equal strength.

CALOMEL.

The B.P. ointment of 20 per cent. mercurous chloride in benzoated lard was used and compared with 20 per cent. of the mercurous chloride in soft paraffin and 20 per cent. in a mixture of 20 per cent. soft paraffin and 60 per cent. of hydrous wool-fat. In the case of the lard base the proportion of calomel in the unabsorbed ointment rose about 2 per cent. and then remained constant, so that the calomel appeared to be absorbed less readily than any of the mercurials previously considered. The highest figure obtained was 1.2, which is low for a 20 per cent. ointment. With a paraffin base the highest figure obtained was 0.8, and the same figure with the paraffin and hydrous wool-fat base. In the latter case the proportion of calomel in the unabsorbed ointment rose from 20 per cent. in the original ointment to 25.8 per cent., showing the rapid absorption of the hydrous wool-fat, leaving the calomel behind. In

the case of the paraffin base the rise in the percentage of calomel in the unabsorbed ointment was much less (under 1 per cent.) and remained constant.

The results obtained were not in accord with the experiments on rabbits of Schamberg, Kolmer, and Raizios,³ who state that calomel ointments are as well absorbed through the skin in rabbits as the ordinary blue ointment, if not better.

AMMONIATED MERCURY.

The following ointments were prepared and estimated as to content of mercuric ammonium chloride:

- Ammoniated mercury 5% in benzoated lard (B.P. 1914).
- Ammoniated mercury 10% in benzoated lard.
- Ammoniated mercury 5% in soft paraffin.
- Ammoniated mercury 10% in paraffin ointment (B.P. 1898).
- Ammoniated mercury 10% in 40% hydrous wool-fat and 50% soft paraffin (U.S.P. formula).

The amount of absorption with the 10 per cent. ointments was about twice as great as with the 5 per cent. ointments. With the lard and paraffin bases the percentage of mercurial in the unabsorbed ointment showed little change; the base and the mercury were absorbed at practically the same rate—there was no initial rise as in the case of metallic mercury and calomel; ammoniated mercury, therefore, showed a rate of absorption similar to mercuric oxide. With the hydrous wool-fat base the proportion of mercury in the unabsorbed ointment was raised by 1 to 2 per cent., showing that the hydrous wool-fat had been absorbed more quickly than the mercury; this effect was also noted in the fact that the mercury was more easily extracted from the unabsorbed ointment owing to the smaller amount of hydrous wool-fat left in it. The maximum of absorption with the hydrous wool-fat base was 1.

MERCURIC SALICYLATE.

It was thought desirable to compare some organic salt of mercury with the inorganic preparations, and for this purpose the salicylate was chosen, because it is a stable compound, insoluble in water, forms a fine amorphous powder, and is official in the U.S.P.

A 20 per cent. ointment was prepared with benzoated lard, and the results were very similar to those obtained with the yellow oxide and the ammoniated mercury ointments of the same strength. There was a slight rise in the percentage of mercury in the unabsorbed ointment, and the maximum absorbed was 1.5.

MECHANISM OF ABSORPTION.

While we are ignorant as to the exact mode in which absorption through the skin occurs, whether through the epidermis, the sebaceous glands, or the sweat glands, a study of the experiments already carried out does afford some facts which have a bearing upon this problem.

It is evident that the absorption of the medicament depends upon the following factors when the same area of skin is used for the experiments: (a) nature of the base; (b) nature of the medicament; (c) strength of the medicament.

As regards absorption of the base itself the results are entirely in agreement with those previously published by one of us in the papers already referred to—namely, that hydrous wool-fat is absorbed most rapidly, provided the proper amount of water is present, which is rarely the case unless the ointment is freshly made; lard is absorbed almost as well—15 per cent. as compared with 20 per cent.—and soft paraffin considerably less, the time of rubbing being the same in each case. These differences may partly depend upon physical characters. In connexion with this factor the appearance on rubbing is important; on the skin lard becomes liquid and scrapes off still in a liquid condition; soft paraffin only becomes semi-liquid, and scrapes off stiff at about its original consistence; hydrous wool-fat is quite firm when scraped off the skin. The melting point of soft paraffin is not so much higher than that of lard as to account for this difference: possibly a difference in viscosity may be a factor. That the liquid character of the lard is not the only factor in the absorption is shown by the high absorption of the hydrous wool-fat which remains firm on the skin.

The chemical character of the base may be an important factor; lard and wool-fat are both esters and both absorb well, the absorption increasing on continued rubbing, so that probably part at least of the absorption takes place through the sebaceous glands. Possibly the difference between them in the absorption of medicament may be due to the glyceryl esters of the lard, which may assist the secretions of the glands to form oleates or other easily absorbed compounds; the oleate, as shown above, is itself easily absorbed. The cholesteryl esters of the wool-fat may not form similar compounds. It has been generally assumed that the wool-fat would be the better base for absorbent ointments because it approximates more nearly to the natural fats of the skin; though this may be an important factor in the absorption of the wool-fat itself, it evidently does not aid the absorption of the mercurial medicament.

Paraffin composed of hydrocarbons and comparatively inert chemically is not likely to form compounds with the sebaceous secretions; it has not much power of penetrating the skin, and possibly that which is absorbed may be taken up by the epidermal layers; the fact that absorption does not increase with increased rubbing seems to point to this possibility.

One factor undoubtedly influencing the amount of absorption by the skin is the temperature; it was always found that rubbings done in very cold weather gave less absorption than usual. This may be partly due to the increased vascularity of the skin at the higher temperature, and partly to the higher temperature making the ointment softer and more easily rubbed into the skin. That the latter is not the only explanation is shown by the fact that rubbings taken on an exceptionally hot day in July, 1923, gave figures slightly below the average—namely, 10 per cent. for a lard and 5.5 per cent. for a paraffin base. Possibly the moist condition of the skin from perspiration on that day had an adverse influence on absorption.

An attempt was made to compare the amount of absorption through the skin of the palm, which contains no sebaceous glands but many sweat glands, with the amount absorbed through an equal area on the arm. The rubbings were carried out on the palm and the arm on the same day, and the same mercurial ointment with a lard base was used. The total absorption through the palm was 4.3 per cent., and through the arm 7.3 per cent.; the amount of mercury absorbed in the palm was 0.8, and through the arm 1.8; the lessened absorption through the palm may be due either to the greater thickness of the epidermis or to the absence of sebaceous glands, or more probably to both of these factors.

CONCLUSIONS.

1. Under the conditions of these experiments it was found that when rubbed into the skin all mercurials were absorbed to some extent from all the bases tested.
2. That in all cases the greatest absorption took place from the lard basis, and that the amount of absorption with the lard basis increases more with a prolonged rubbing than with other bases.
3. That hydrous wool-fat was absorbed to a greater extent than lard, but that the mercurial was not absorbed with it, so that the absorption of mercury was actually less than from a lard ointment of equal strength.
4. That the absorption from a paraffin base was always less than from a lard base.
5. That the amount of mercurial absorbed was proportional to the amount of mercurial in the ointment, at any rate up to 30 per cent. of the mercurial.
6. Of the different mercurials examined the mercuric oxide was the most readily absorbed, either as an ointment or in the form of the official oleate. This, however, is not suitable for use when the general absorption of mercury is desired, as ointments containing over 10 per cent. of the oxide cause considerable irritation of the skin.
7. Ammoniated mercury and mercury salicylate were absorbed almost as well as the oxide. Calomel was absorbed to a less extent than any of the other mercurials examined.

8. Metallic mercury was absorbed rather less than the oxide, but can be used in stronger concentration without causing undue irritation of the skin. The official mercurial ointment with a lard base seems to be the best preparation for ensuring the general absorption of mercury. The inunction of 4 grams (about 1 drachm) for two minutes gave, on an average, an absorption into the body not exceeding 0.12 gram (about 1.84 grains) of mercury, and after ten minutes' inunction an absorption not exceeding 0.17 gram (about 2.61 grains).

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THE TREATMENT OF POST-ENCEPHALITIC PARKINSONISM BY NICOTINE.

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THE use of tobacco in various modes, internally as well as externally, for the purpose of relaxing muscular action in diverse forms of disease, was in vogue some sixty years ago.¹ In view of this and our present knowledge of the action of nicotine on the preganglionic cells and that of the sympathetic on muscular tone, I decided to try it in the treatment of a series of cases of post-encephalitic Parkinsonism. Although it did not lead to any permanent cure of the disease, it had an undoubted beneficial effect, which, although only temporary, was sufficiently encouraging to merit further consideration and trial.

Parkinsonism, a very frequent sequel of encephalitis lethargica, is recognizable by the typically expressionless face, the staring look, the monotonous voice, the stiff and shuffling gait, the short steps by which the patient moves, holding the arms motionless by his side. Other common symptoms are sialorrhoea and a rise of the pulse rate.¹ The retraction of the eyelids (which gives rise to the peculiar stare), the sialorrhoea, and the rise of the pulse rate all point to sympathetic stimulation, and it is reasonable to suppose that the increase of muscular tone may be produced in a like manner.

Hunter has remarked how the rigidity exhibited in post-encephalitic Parkinsonism conforms in all its characters with that due to an excess of plastic tone. It is diffuse, the selective incidence of the muscles is absent, and the resistance to passive movements is the same throughout all the range of movement. Moreover, there is a tendency to fixation of the limbs in any posture passively imposed on them, and poverty and slowness of voluntary movement.² In some very interesting experiments on birds he observed that the removal of the corpus striatum gave rise to diffuse muscular rigidity of the wing remarkably similar to the Parkinsonian rigidity in man. He concluded that the corpus striatum in man, with the cortex intact, might possibly control through the intermediation of subpallidal nuclei, as the substantia nigra, the sympathetic prespinal reflex arc subserving the plastic tone.³

Many observers have described, in cases of encephalitis lethargica of the Parkinsonian type, profound degenerative changes in the cells of the substantia nigra in the mid-brain and calcareous arterial degeneration of the anterior part of the globus pallidus of the lenticular nucleus, sometimes accompanied by thrombosis of the affected vessel.⁴

Lesions of these higher centres may possibly interfere with the normal control of the prespinal reflex arc, an increase of plastic tone thus resulting in the same manner as a lesion of the upper motor tracts leads to an increase of contractile tone which is subserved by the somatic reflex arc. Nicotine, inasmuch as it paralyzes the preganglionic

sympathetic cells; may block the sympathetic prespinal arc at (A) and in this way reduce the plastic tone (Fig. 1).

The theory that tonus may be divided into "plastic" and "contractile" elements has received new support from the work of Hunter and Royle. According to this theory there would be two kinds of fibres in the striated muscle

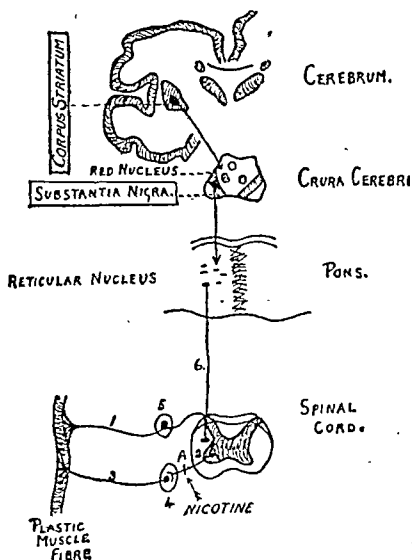


FIG. 1.—The corpus striatum and the substantia nigra, the centres chiefly involved in post-encephalitic Parkinsonism. The arrow marks the site where nicotine blocks the prespinal sympathetic reflex arc. 1, Afferent sensory nerve. 2, Preganglionic sympathetic cell. 3, Efferent sympathetic cell. 4, Sympathetic ganglion. 5, Posterior root ganglion. 6, Ponto-spinal tract. 1-6, Prespinal sympathetic reflex arc.

of vertebrates distinguished by contrasted morphological and physiological properties: large fibres innervated by medullated (or somatic) nerves, and slender fibres innervated by non-medullated (or sympathetic) nerves. The fibres receiving somatic nerve endings are responsible for the contractile tone, whilst the other set of fibres innervated by the sympathetic system exhibit plastic tone. The latter are comparable to the fixing muscles of invertebrates and take part in fixing the length of the muscles exhibiting contractile tone.⁴

The cases of post-encephalitic Parkinsonism which may be expected to benefit from treatment by nicotine are those where voluntary muscular control is intact but movement is hampered by excessive plastic tone. By depressing and subsequently paralysing the sympathetic nerves with the drug, we attempt to eliminate the plastic tone and free the limbs from spasticity.

Nicotine was administered by hypodermic injections, the pure alkaloid being used. Signs of intolerance, such as nausea and vomiting, fainting, and tachypnoea, were carefully watched for, and for this reason the patients were kept in bed throughout the whole course of treatment.

The pulse rate, respiratory rate, and the blood pressure were recorded immediately before and after the nicotine injections. The estimations were carried out at half-minute intervals for three minutes and at minute intervals for a further seven minutes. The commonest type of response was characterized by an initial fall in the pulse rate, followed by a rise, with a return to normal within seven to ten minutes (Fig. 2). This was found in 60 per cent. of cases. In 30 per cent. there was no initial slowing of the pulse. The rise of the pulse rate was in many cases well marked, with an average increase of 20 beats a minute and with a maximum of 40. The rise usually took place one and a half minutes after the injection and reached a maximum height in two to three minutes. The initial slowing of the pulse seldom lasted more than two minutes. The blood pressure in 40 per cent. of cases showed a gradual rise of both the systolic and diastolic pressures, followed by a return to normal within ten minutes, but in 25 per cent. there was no response, and in the remainder it was quite irregular. The respirations in half the cases

showed an initial quickening, followed by a slowing of the rate; in the remainder the response varied, the secondary fall being often absent.

Following nicotine injections other phenomena were noted, such as flushing of the face, profuse sweating, tremors, thirst, nausea, vomiting, and tachypnoea. In two cases a fit occurred a few minutes after the nicotine injections. In one case the fit followed an injection of 1/10 grain, and was characterized by twitchings of the mouth, tonic spasms of the arms and legs, and incontinence of faeces and urine; it lasted a few minutes. In the second case the patient tolerated three doses, each of 1/10 grain, but after the fourth suddenly had a fit, with tetanic spasms of the hands, cyanosis, and profuse sweating, and was unable to speak for two minutes. Vomiting followed the fit.

With the help of the pulse, respirations, and blood pressure charts it was possible to check the action of the nicotine and to measure the degree of tolerance of each patient to the drug. An initial dose of 1/30 grain was given thrice daily at the beginning of the treatment and continued for a few days. If at the end of this period the pulse chart did not show any appreciable change the dose was increased. Such a procedure was adopted every time the dose was increased until the full dose was reached. This varied between 1/10 and 1/5 grain thrice a day, and was always followed by a well marked rise of the pulse rate of at least 12 to 20 beats a minute. The patient was afterwards kept on the full dose for two to three weeks or until symptoms of intolerance set in. In many cases, however, it was found that nausea and vomiting promptly disappeared after the dose had been repeated a few times, and that the treatment could be continued.

A series of 13 cases of post-encephalitic Parkinsonism have been treated in this way with nicotine. Every case presented the typical signs and symptoms of Parkinsonism, which in most cases were of several months' standing.

All the cases had a history of an attack of "flu" or of a pyrexial disease with the typical accompaniments, such as diplopia, headache, and vomiting which revealed that the illness had been an attack of encephalitis lethargica. The attack either marked the beginning of their present state, into which they had gradually crept, or was definitely separated from it by a latent interval of nine to twelve months or even longer. In one case there was a definite history of head injury preceding the onset of Parkinsonism.

Of the 13 cases, 9 showed an improvement after nicotine treatment, whilst 4 were unaffected. Of the latter, one proved later on to be a case of true Parkinson's disease. The improvement in some cases was really striking. The patients volunteered the statement that they were feeling better because "their joints felt looser" or because "their limbs were freer."

A man, aged 30, a 'cello player, in February, 1921, had an attack of encephalitis with diplopia and delirium, followed by drowsiness of three months' duration. For the last four years he had been complaining of neuralgic pains in the legs, of

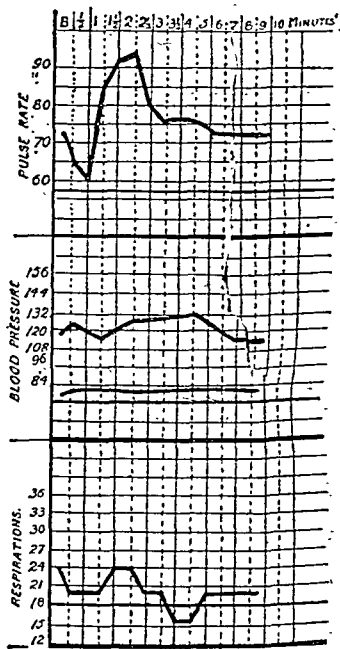


FIG. 2.—Charts of the pulse rate, blood pressure (systolic and diastolic), and respirations taken immediately before and after an injection of 1/5 grain of nicotine. The pulse chart shows an initial slowing followed by a rise, the rate returning to normal within ten minutes.

periods of sleeplessness, and of impairment of memory. In April, 1925, he developed a tremor and stiffness of the fingers of the left hand, which seriously interfered with his playing. He underwent a fortnight's course of nicotine treatment, the dose being gradually increased from 1/30 grain to 1/10 grain thrice daily. A further increase to 1/5 grain thrice daily was tried, but had to be stopped because it caused vomiting. The patient was discharged much improved; although the mask-like expression was still present the movements of the limbs were much freer and the gait steadier. The patient thought that he would be able to play the 'cello again, and, when seen a month later, stated that he had resumed his work and that he was feeling much better.

A youth, aged 17, had an acute attack of encephalitis lethargica in April, 1924, with diplopia, squint, headache, and delirium, followed by lethargy. He recovered completely and felt quite well until February, 1925, when all the movements commenced to be slow and required a great effort on the patient's part. When I saw him in May, 1925, he was an obvious case of Parkinsonism, with the typical facies, rigidity of the limbs, and marked retro-pulsion; he would commence to sway backwards, and in order not to fall would start walking backwards, and continue to do so until arrested by a wall or by falling. He underwent nicotine treatment for three weeks, with increasing doses up to 1/10 grain thrice daily. At the end of this course of treatment he had greatly improved; the back-stepping gait had disappeared, and he walked briskly, swinging his arms alongside of him. The expression in his face had also returned, and he could smile normally.

The tone of the muscles was repeatedly examined before and after the nicotine injections, and more especially the capacity of the limb (brought by a passive movement into a new posture), when released, to remain in that new posture. Such a property Sherrington has termed "plasticity" of the musculature, and was measured by him by means of the "shortening and lengthening reaction." Thus, if the leg be flexed at the knee, so lengthening the extensor muscles of the thigh, this position is retained ("lengthening reaction"); if the knee be now extended, so shortening the extensor muscles, the new position is again maintained ("shortening reaction").

The "shortening and lengthening reaction" was found in many cases to be definitely diminished after the nicotine injections, and in some it disappeared entirely after the course of treatment.

A man, aged 39, in January, 1924, had a dizzy attack whilst at work, followed by diplopia and drowsiness. He recovered completely from his illness, and was quite well for seven months. Six weeks before his admission to the hospital he gave up his work because of his inability to use his tools or to wheel a barrow. He presented a typical Parkinsonian syndrome, with mask-like face, marked stiffness of the muscles of the neck, and loss of lateral rotation of the head when looking sideways. "Shortening and lengthening reaction" of the upper limbs was well marked, and sialorrhoea was present. He received nicotine treatment for three weeks, the dose ranging between 1/30 and 1/10 grain thrice daily. At the end of the three weeks the stiffness of the neck muscles had disappeared, and likewise the "shortening and lengthening reaction" of the upper limbs. The sialorrhoea was, however, unaltered.

Nicotine had no effect on either the tremors or the sialorrhoea. The persistency of the tremors in some cases masked the improvement of the patient's stiffness, so that no real relief was obtained, and the patients would complain of not feeling better because the tremors had not improved. In one case the phenomenon known under the name of "kinesia paradoxa" was observed. A girl, aged 15, who had been undergoing treatment for a fortnight, was seen one day to run up the stairs as if her fetters had suddenly fallen off, but shortly afterwards relapsed into her Parkinsonian state. Some cases showed a marked improvement one week, only to fall back worse than ever the next. Any improvement of this kind was ascribed to the sudden variations and to the spontaneous recoveries so commonly seen in this disease, and not to any therapeutic effect of nicotine.

In observing the patient's progress allowances were made for improvements which might have been caused by suggestion; leading questions were therefore purposely avoided, and objective findings, such as a definite diminution of tone, a return of facial expression, or an improvement of the gait, were taken to be of more importance than subjective ones. All the patients were seen again six months later. The cases which had benefited by nicotine treatment had all relapsed into their previous state, and a case which had not responded to it had died. In one case the improvement lasted a month, after which the patient felt as bad as ever. In another the relapse occurred after only a week, and was ascribed to a sudden bereavement in the family.

In concluding, I may say that treatment by nicotine failed to give any permanent cures, although the immediate results were indisputable. The treatment should therefore be repeated at frequent intervals, say, of two to three months. Nicotine had an undoubted action in reducing muscular rigidity, and this was ascribed to the paralysing effect of the drug on the prèspinal reflex arc subserving plastic tone, thus throwing new light on the dual nature of muscular tone and adducing fresh evidence that one element of muscular tone is under the control of the sympathetic nervous system.

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AN EXPLANATION

OR

THE TWO FORMS OF BILIRUBIN DEMONSTRATED BY THE VAN DEN BERGH REACTION.

BY

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To Ehrlich is due the discovery of the fact that bilirubin in acid-alcoholic solution couples with diazotized sulphanilic acid to form a dyestuff, azobilirubin. Van den Bergh has applied this reaction to the detection of bilirubin in blood serum, and hence to the clinical study of jaundice. He made the important observation that the bilirubin in the serum of patients suffering from obstructive jaundice reacts at once with the diazotized sulphanilic acid to give a deep red colour, while the bilirubin in serum from patients with haemolytic jaundice gives the reaction slowly or not at all in untreated serum, but gives a fairly prompt response after treatment of the serum with alcohol and removal of the protein which is thereby precipitated. The colour obtained in the latter case is purple. With some serums an intermediate type of result is obtained—namely, the prompt development of a red colour which later becomes purple.

To interpret these results van den Bergh assumed that two forms of bilirubin exist—the one reacting directly with the sulphanilic acid reagent, and present typically in cases of obstructive jaundice, and the other reacting to an appreciable extent only in the presence of alcohol and after precipitation of protein, and present typically in cases of haemolytic jaundice. Intermediate types of result he assumed to be due to the presence of both forms.

On this assumption of two forms of bilirubin largely rests the modern theory of jaundice as described, for example, by McNee.¹ The actual difference between the two forms of bilirubin which is responsible for their different behaviour has not yet been clearly demonstrated. It is considered by some that the presence of protein is responsible for the different behaviour of the two forms, the bilirubin of haemolytic jaundice being thought to be in combination with protein; while in obstructive jaundice it is in combination with an alkali. Others have attributed the different properties of the two forms to physical differences between them. It seems to us to be of considerable importance to ascertain if possible the actual mechanism underlying these different reactions, since such a knowledge must necessarily help in explaining the production of bile pigment in the body and the production of jaundice. It is with this object in view that the work about to be described has been undertaken.

It appears to us that the most important fact bearing on the problem is that bilirubin is an acid, having, according to the formula suggested by H. Fischer, two carboxyl groups. It is therefore capable of forming salts which

will differ in certain properties from the free acid. This fact is already well recognized, and it is well known that bilirubin is frequently present in gall stones, principally in the form of the calcium salt, while it is generally believed that in animal fluids the pigment is present in combination with an alkali, the particular alkali not being specified.

The view we wish to put forward, together with certain experimental evidence in support, is that while the bilirubin-giving the prompt direct van den Bergh reaction is an alkali salt, which we believe is probably the ammonium salt, the form which is responsible for the indirect reaction (that is, in presence of alcohol and after precipitation of protein) is the free acid. We propose first to discuss the experimental evidence in support of this view, and then to discuss its implications.

The experimental evidence may be divided into two parts—namely: (1) Comparison of the properties of free bilirubin and its salts. (2) Experiments on body fluids (bile and blood serum) containing bile pigment.

1. Comparison of the Properties of Free Bilirubin and its Salts.

For this purpose a quantity of free bilirubin was isolated from heavily pigmented gall stones.

The first important differences between the free acid and the alkali salts are those of solubility. Free bilirubin is easily soluble in chloroform, somewhat less soluble in alcohol, and insoluble in water; while the alkali salts are insoluble in chloroform and in alcohol, and readily soluble in water. They are moderately soluble, however, in alcohol of the strength used in the indirect van den Bergh reaction in which 2 c.cm. of 95 per cent. alcohol is added to 1 c.cm. of blood serum (that is, approximately 60 per cent. alcohol). The next important differences are in behaviour towards the van den Bergh reagent. In aqueous suspension free bilirubin only shows a colour development after standing in contact with the reagent for about twenty-four hours. The colour is of the purplish hue associated with the indirect reaction. When the free bilirubin is in solution in 60 per cent. alcohol (forming a "true" solution) colour development occurs readily, the colour again being purple. On the other hand, the aqueous solutions of the alkali salts of bilirubin react very promptly with the van den Bergh reagent, giving a deep ruby colour. In the case of aqueous suspensions of free bilirubin it is reasonable to assume that, with decreasing size of particles and increasing uniformity, the very long interval required before colour development occurs will be progressively shortened, the shortest interval occurring when the bilirubin is in colloidal suspension, though this is not likely to approach the rapidity with which the reaction would occur if the bilirubin could be obtained in true solution. As will be shown below, free bilirubin is in a colloidal state when present in blood serum, this accounting for the "delayed direct" and "biphasic" results on certain serums.

From a consideration of these chemical properties it will be seen, therefore, that with free bilirubin and its alkali salts all the results of the van den Bergh reaction can be very closely imitated.

2. Experiments on Body Fluids containing Bile Pigment.

(a) The pigment of fresh bile, and of the serums of obstructive jaundice, passes readily through a parchment membrane when subjected to dialysis, whereas the pigment of the serums of haemolytic jaundice does not pass through such a membrane unless alcohol is added. These differences in diffusibility have already been noted by Hoover and Blankenhorn² with respect to colloidion membranes, and confirmed by others. Brulé, Garban, and Weissman³ correlated these differences with the promptness of the diazo-reaction. These results show that the pigment of bile and obstructive serums is in true solution, and we have found the same to be true of the alkali salts of bilirubin, while the pigment of haemolytic serums is in colloidal suspension.

(b) Both bile and obstructive serums, which normally give the prompt direct reaction, can be made to give the indirect reaction only, if acidified with hydrochloric acid

(which liberates the free bilirubin from its salts) before adding the van den Bergh reagent. The addition of hydrochloric acid to bile and obstructive serums also renders the pigment, originally insoluble in chloroform, soluble and extractable in that medium, thus having the properties of the free acid, while the reverse is brought about by the addition of ammonia to haemolytic serums.

The evidence in favour of the salt being that of ammonium and not one of the metals rests upon the following facts:

1. By using a technique similar to that of Nash and Benedict⁴ for the determination of ammonia in blood, the presence of ammonia can be demonstrated in bile, and in greater quantity than is found in blood.

2. The sodium and potassium salts of bilirubin being combinations of strong bases with a weak acid are dissociated in water to a very considerable degree, and the solutions have a markedly alkaline reaction. In attempting to convert an indirect van den Bergh reaction to a direct reaction by the addition of a caustic alkali unsatisfactory results are obtained unless the alkalinity is of a degree which cannot be conceived of as ever being present in the body fluids concerned.

3. If bile or an obstructive serum is heated, it fails to give the direct reaction, the pigment having been rendered insoluble in water, and soluble in chloroform, by the heating process. The same is found to be true of solutions of the ammonium salt of bilirubin, heating evidently resulting in the decomposition of the ammonium salt by loss of ammonia and consequent production of the insoluble bilirubin. This change does not occur when the metallic salts of bilirubin are similarly treated.

It will be seen, therefore, that all the experiments attempted completely confirm the view we have put forward as to the chemical nature of the two forms of bilirubin. Further support of this view, in so far as it postulates a form of bilirubin in bile which must be in true solution, is to be found in the work of Graham on cholecystography. He showed that any dyestuff which is eliminated in the bile with any degree of rapidity must be a crystalloid. Rowntree in his work on liver function tests depending on excretion of dyes into the gall bladder reaches the same conclusion. It would appear from these findings that the liver cells are only capable of allowing to pass into the bile, with any appreciable facility, such bodies as are in true solution in the blood stream.

There remains to be considered the relation of the view put forward to the modern theory of jaundice. According to the view now very generally held bilirubin of the "haemolytic" form is produced by the cells of the reticulo-endothelial system, in the liver and elsewhere. In its passage through the liver cells to the bile capillaries it becomes converted to the "obstructive" form in which it is found in the bile. Applying our views to this theory it follows that the bilirubin produced by the cells of the reticulo-endothelial system is in the form of free bilirubin, and the site of formation of the ammonium salt is in the liver cells.

The probability of this site of formation of the ammonium salt is supported by various considerations. In the first place a condition of alkalinity is required. That such a condition may be found in the liver cells is suggested by work on other subjects; thus Wells,⁵ discussing certain aspects of sugar metabolism, says: "It might be assumed that all sugars upon entering certain phases of the cells (phases especially well represented in liver cells) meet conditions which are equivalent to those met in weakly alkaline solutions. . . . That is, especially in the liver there may be the equivalent of dilute alkali for all sugars."

Apart from these speculations, many observers are agreed that the pigment of bile, of whose origin in the liver there is no doubt, is in the form of "bilirubin-alkali."

In the second place there must be a source of ammonia. This is probably to be found as a result of the functions of deamination of amino-acids and formation of urea carried on by the liver cells. Though the actual mechanism of the production of urea from amino-acids is still a matter of speculation it is probable that ammonia is the immediate, if short-lived, precursor of urea. The presence of

bilirubin at the site of production of ammonia, though the latter may exist as such for only a very short time, is sufficient to explain the formation of the bilirubin ammonium salt. The liver cells are, in fact, the most probable site of formation of the ammonium salt.

Our views, therefore, as to the chemical nature of the two forms of bilirubin do not in any way conflict with the modern theory of jaundice, but on the other hand appear to lend it some support.

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DOUBLE VAGINA AND SINGLE UTERUS.

BY

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In the *JOURNAL* of March 13th (p. 476) Dr. Macgown of Kong-Kong reports a remarkable and interesting case of double uterus with double vagina, in which, occasion for Caesarean section having arisen, he was given the opportunity of verifying his previous clinical observations as to the degree of duplication of the uterus.

In the rare lapses on the part of Nature from her usual wonderful precision the departure from normal in failure to effect fusion of the Müllerian ducts increases as the failure extends from the level of the Fallopian tubes downwards. Thus uterus didelphys (or uterus septus) with double vagina, as met with by Dr. Macgown, is an exceedingly rare condition. A reversal in the order of fusion by which double vagina is associated with complete coalescence in the body of the uterus and the uterine cavity is probably the rarest of all such abnormalities. In the limited field of research at my immediate disposal I find no such case recorded, but that a few cases similar to the one I now wish to describe can be cited I do not doubt.

A woman, aged 23, married seven years, nulliparous and desirous of children, consulted me solely in respect of the infertility of her marriage. She was of good physique and health, menstruation had been regular, and she was aware of no sexual incapacity or anatomical defect.

On digital examination the ostium vaginae and the vagina itself appeared normal, and the cervix uteri was fully developed and centrally situated, but, as it seemed, a thin membrane covered the whole of the vaginal cervix, intervening between it and the examining finger. On preparing to insert a vaginal speculum I noticed (almost by chance, I think) to the left of the ostium vaginae, and tucked away against the left labium, what at first sight looked like a second meatus urinarius. The meatus urethrae proper was in its natural position anteriorly. On drawing the labium further aside there was displayed an intact left hymen having a natural opening no larger than would easily admit a No. 10 catheter. The next day, under a general anaesthetic, I broke down this left hymen and discovered a completely separate left vagina with a normal cervix and cervical canal beyond it. This was, of course, the cervix I had previously felt through the septum from the right vagina. Right up in the fornix of the right vagina was a rudimentary bud-like right central depression but no patent cervical canal, and it appeared to spring from the side of the left (main) cervix at the level of the internal os. The body of the uterus, as far as I could determine its outline bimanually, was neither bicornuate nor unicornate. The vaginal septum was thick and fleshy below, thin and membranous above, and it extended the whole length of the vagina right up to the angle formed by the rudimentary right cervix. Either vagina admitted a 1½-inch Fergusson's speculum easily, the septum being deflected to the opposite side. The two blades of a bivalve speculum, being passed, one into each vagina, displayed the septum and its attachments perfectly.

Evidently the menstrual flow had always been through the left vagina, and probably the virginal condition of the right hymen had been similar to that of the left. Had the left hymen given way instead of the right on the patient's marriage, I could see no reason to doubt that impregnation would have occurred, or to suppose that the vaginal septum would have opposed any resistance in parturition, and so have been destroyed. I think it even has been unnoticed in the ordinary course of obstetric attendance. However that may have been, in deference to the patient's paramount desire to have children, and to give her the patient's chance of its fulfilment, I decided to throw the two vaginae into one by division or excision of the septum. Accordingly the septum was divided by scissors from below upwards, and the cut edges of the lower thick parts were sewn over by a few loops of

continuous suture. The flaps retracted and shrivelled, and when I next saw the patient, eight months later, little more than an anterior and a posterior raphe remained. She was then already five months pregnant. Gestation was perfectly normal throughout and went to its full term, and in due course I delivered her of a well developed male child after a rather easy labour. She subsequently, as I was informed, bore another (female) child—again without difficulty.

Apart from the fact that neither before nor during pregnancy could I detect a separate right uterine body, or any vestige thereof (although therein I may have been mistaken), my reasons for believing that only the vagina was double are: (1) that there was no history of haematometra or other pelvic crisis arising from puberty, and (2) that the vaginal septum, while thick and fleshy below, thinned almost to the vanishing point at the fornix. Against such view may be urged the existence of a rudimentary right cervix. But this appeared to be integumentary rather than substantial in structure, and, that being so, would it not morphologically belong to the vagina rather than to the uterus?

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TUBERCULIN LINIMENT.

THE value of tuberculin in the treatment of tuberculosis is enhanced if one realizes the conditions under which the best results are likely to be obtained. Some two years ago, as the result of an analysis of 86 cases treated with tuberculin, I formed a working theory as to the class of case in which it was likely to prove beneficial. The details were published in the *JOURNAL*.¹ I have had no reason to alter the conclusions to which I then came, which were:

1. That fibrosis is an important factor in tuberculin therapy, and that, other things being equal, the less fibrosis there be the more satisfactory will be the results with tuberculin.
2. That hypersensitiveness is no contraindication to tuberculin therapy.
3. That in subsensitive cases much improvement cannot be expected except in asthma.

By far the best results, in my experience, are obtained in hypersensitive cases and in asthma. The difficulty is that if hypersensitive subjects be treated with hypodermic injections of tuberculin the general reactions may be unduly severe, and in the asthmatics an attack of asthma may be precipitated. For these reasons one is apt to be deterred from giving tuberculin in the very cases in which it is such a powerful agent for good. Fortunately, there are other ways of exhibiting tuberculin besides the hypodermic method.

Sir Robert Philip has advocated² the administration of tuberculin as an ointment. I use this method frequently with satisfactory results. It has, however, the disadvantage that the dosage cannot be accurately regulated. Dr. James Crockett³ speaks favourably of tuberculin liniment. I have given this method an extensive trial and have found it valuable. A description of the procedure adopted may therefore be of interest.

The patient is first tested as to sensitiveness to tuberculin by the von Pirquet method modified by Ellis. This consists in performing a cutaneous test with dilutions of "old tuberculin." Those cases which react to 1 in 500 dilution are classified as hypersensitive, those to 1 in 100 as sensitive, and those to 1 in 10 as subsensitive. A skiagram of the lungs is taken and the extent of fibrosis, if present, is noted. The test is essential and the x-ray report most desirable, for, as indicated above, a knowledge of the degree of sensitiveness to tuberculin and the amount of fibrosis is the keynote to successful tuberculin therapy and to prognosis.

The patients take their own temperatures four times a day and their weight is recorded weekly. They attend hospital once or twice a week for treatment, which is conducted as follows: 0.01 c.cm. of T.A.F. ("tuberculin albumose frei") is diluted with a suitable quantity (say 0.5 c.cm.) of compound camphor liniment. This the patient rubs into the back of his upper arm. If there be no local reaction to this the dose is doubled at the next sitting, and doubling is continued at each subsequent sitting till

¹ *BRITISH MEDICAL JOURNAL*, June 14th, 1924.

² *Ibid.*, March 24th, 1923.

³ *Edinburgh Medical Journal*, March, 1924.

a local reaction is obtained or till 0.1 c.cm. of tuberculin is reached. After this the dose is increased with more caution. The treatment is continued till 1 c.cm. of tuberculin is reached.

I have under consideration 36 cases treated on these lines. All were afebrile, and in no case were tubercle bacilli found in the sputum.

Result of Treatment.

5 were hypersensitives (reacted to 1 in 500)	All much improved.
10 were sensitives (reacted to 1 in 100) ...	All improved.
4 were subsensitives (reacted to 1 in 10) ...	None much improved.
16 were cases of asthma ...	All much improved.

It is interesting to note that all the cases of asthma reacted to either 1 in 10 or 1 in 100, not one to 1 in 500 tuberculin. I have never yet found a tuberculous asthmatic who was hypersensitive to tuberculin.

I use the word "improved" advisedly. By it I mean the symptoms cleared up and there was a gain in weight. The more I see of tuberculosis the less I like to use optimistic expressions, such as "cured" or "disease arrested."

I do not consider that this form of treatment will displace other methods of tuberculin therapy. Some cases seem to do better on injections, but the absence of general reactions and the simplicity of the technique are much in its favour.

F. E. GUNTER, D.S.O., M.D.,
Lieut.-Colonel, R.A.M.C. (ret.).

London, E.C.2.

ANAPHYLAXIS FOLLOWING ADMINISTRATION OF SERUM.

I WAS much interested by the note in the *Epitome* of the *JOURNAL* of June 5th (para. 559) of a paper by C. A. Stewart in the *Journal of the American Medical Association* on anaphylaxis following serum injection in children who had previously received diphtheria toxin-antitoxin. I have recently had such a case myself, and although, as I believe, they are practically never really dangerous, these reactions are sufficiently alarming to make it desirable, in general practice at any rate, to take every precaution against their occurrence.

A boy, aged 8, was inoculated in December, 1925, with combined scarlet fever and diphtheria prophylactic, and at that time had not any reaction of exceptional degree. At the beginning of May last he had fairly severe tonsillitis, accompanied by carditis, as evidenced by dilatation and a definitely harsh mitral systolic murmur. An almost pure culture of haemolytic streptococci was grown from a throat swab, and early tonsillectomy was decided on. With the idea of diminishing the toxæmia, 10 c.cm. of scarlatinal antitoxin was given by intramuscular injection. In about an hour a pretty severe "immediate reaction" had begun—generalized urticaria with intense itching, oedema of the lips and tongue, rising pulse rate and temperature, and slight dyspnoea. The symptoms gradually subsided in about thirty-six hours, and all seemed well. On the fourth day, however, they recurred, and were if anything more severe than before. Adrenaline and pituitrin were given by intramuscular injection and apparently hastened the subsidence of the symptoms. On the eighth day there was a third and final attack similar to the other two. The subsequent progress was good, and the boy has apparently made a complete recovery.

Two interesting points seem to me to arise. First, was the attack one of acute rheumatism, and, if so, had the antistreptococcal treatment, prophylactic and therapeutic, anything to do with the rapid recovery? Or, secondly, was it, as it were, an abortive scarlet fever, in which, owing to prophylactic injection of scarlatinal toxin, there was sufficient antitoxin in the blood to prevent the appearance of the toxic erythematous rash? These, however, are speculative considerations; the practical points are those made by Stewart—namely, that serum reactions are at least not unlikely to occur in children who have had toxin-antitoxin inoculation, and that it is most desirable that some non-serum or even non-protein (if possible) method of antidiphtherial inoculation, such as Larson's, should be made available.

The sister of my patient, aged 5—also previously inoculated—who was, I am afraid, imperfectly isolated, subsequently developed a similar tonsillitis. Serum was not employed in her case.

Abderden.

E. R. C. WALKER, M.B., Ch.B.Ed.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF LARYNGOLOGY.

THE summer meeting of this Section was held on June 3rd and 4th, with the President, Dr. W. H. KELSON, in the chair.

Nasal Sinusitis as a Cause of Toxaemia.

Sir WILLIAM WILLCOX opened a discussion on nasal sinusitis as a cause of toxæmia. He said that there was strong evidence that the lead given by British medicine in the realization of the great etiological importance of focal sepsis was being appreciated and followed in other countries. A point of the greatest importance was that just as dental sepsis was often latent and could only be demonstrated by radiological methods, so in nasal sinusitis the existence of the focus of infection was quite latent in a large number of cases and gave rise to no local symptoms. It was easy to overlook nasal sinusitis in a case of chronic disease such as arthritis or diabetes unless special search was made. Where no focus of infection was found, as a rule the explanation was that the investigation had not been sufficiently complete. In a considerable number of cases under his care where the disease had been obviously due to a chronic toxæmia a latent nasal sinus infection had been discovered. He was most strongly of opinion that in every case of this kind a systematic expert examination of the nasal sinuses was essential. It had to be remembered that often a nasal sinusitis was coexistent with another focus of infection, and the presence of dental sepsis, for example, should not preclude a systematic examination of the nasal sinuses. It was also necessary to remember that a clear serous effusion or an oedematous mucous membrane would exhibit some opacity to x rays but little to the light rays; in a number of cases of latent sinusitis under his care there had been a discrepancy between the radiographic opinion and expert opinion based on transillumination. The diagnosis of the presence of pus in an antrum could not be made with absolute certainty by radiographic examination alone, and rhinoscopic examination accompanied by puncture of the suspected sinus appeared to be the only certain method of diagnosis. Examination of the washings with a sterile saline solution would reveal the presence of pus or bacterial infection. Transillumination was a method of investigation which, with a little practice, could be performed by every practitioner, and in cases of toxæmia of obscure origin it was desirable that it should be carried out as a routine procedure. Sir William Willcox gave the details of a number of cases arising from nasal sinusitis, including cases of acute and chronic toxæmia, pernicious anaemia, adenitis resembling lymphadenoma, arthritis, diabetes, and toxic neuritis.

The paper was discussed by Sir STCLAIR THOMSON, Mr. HERBERT TILLEY, Dr. P. WATSON-WILLIAMS, Dr. W. S. SYME, and Sir JAMES DUNDAS-GRANT, all of whom agreed that the only certain method of diagnosing antral disease was to puncture the antrum.

The Path of Infection in a Case of Leptomeningitis.

Dr. A. LOGAN TURNER read a joint paper by himself and Dr. F. E. REYNOLDS, illustrated by a series of excellent photomicrographs, on the path of infection in a fatal case of leptomeningitis following operation on the ethmoidal air cells. There was no break of the cribriform plate; and it was clearly demonstrated that the infection had spread up to the meninges along the perineural lymphatic spaces of branches of the olfactory nerve.

The Lymphatics in Laryngeal Disease.

Dr. JOHNSON HORNE gave an epidiascopic demonstration of the role of the lymphatics in laryngeal disease and the role of the larynx in lymphatic disease. He said that the factor determining the involvement of the adjacent lymphatic glands was whether the disease in the larynx was primary or secondary. If primary the glands became involved, if secondary the glands were not affected. In carcinoma of the larynx a gland sooner or later became palpable. That

"sooner" or "later" was governed by the disease being extrinsic or intrinsic, and if intrinsic by the disease originating in the part covered with columnar epithelium or in the part covered with squamous epithelium; whereas in syphilis and tuberculosis—taken as types of secondary disease—no matter how destructive the disease in the larynx the glands were not involved. Tuberculosis of the larynx was always secondary to chronic phthisis. In tuberculosis of the larynx secondary infection of the adjacent cervical glands never occurred. That "always" and that "never" sounded dogmatic, but it was justified by his pathological and clinical researches. A case in which the cervical glands became infected by the larynx some years after the disease in the lung had been cured was an exception which proved the rule he had laid down. It was noteworthy that a very small percentage of the subjects of tuberculous necks suffered from chronic phthisis. Therefore such subjects escaped laryngeal tuberculosis. Passing to the role of the larynx in lymphatic disease, Dr. Jobson Horne demonstrated a fold in the larynx passing downwards and forwards between the cartilages of Santorini and Wrisberg, to end at the posterior vocal process. That he described as the vulnerable spot in systemic infection through the larynx. Larynges were shown with ulceration or breach of surface or old scarring at that spot, removed post mortem from cases of Hodgkin's disease. The results of investigations led to the conclusion that in not a few cases Hodgkin's disease was tuberculosis, and that some cases of "sarcoma" should be placed amongst the granulomata.

Cases and Specimens.

A number of interesting cases and specimens were exhibited by Mr. H. BELL TAWSE, Mr. J. A. GIBB, Dr. D. R. PATERSON, Mr. HAROLD BARWELL, Mr. LAWSON WHALE, and Dr. DOUGLAS GUTHRIE. Mr. ALEX. TWEEDIE showed a combined tongue depressor and post-nasal mirror.

THE DISEASES OF MERCHANT SEAMEN IN 1924.

At a meeting of the Epidemiological Section of the Royal Society of Medicine, held on May 28th, Dr. E. W. GOODALL in the chair, Fleet Surgeon W. E. HOME read a paper on the diseases of merchant seamen in 1924.

Fleet Surgeon HOME said that the number of merchant seamen in 1924 had been stated to be 234,101, more men than were in the army, but of their health conditions there was no annual report. Probably 90 per cent. were employed continuously throughout the year—namely, 150,000 British seamen, 11,000 foreigners, and 50,000 lascars. Deaths occurring on board, or while the men were enrolled as belonging to ships, were stated in the annual return of the Board of Trade, but not any deaths during leave after the ships were paid off, or when the men were unemployed. In 1924, in the case of British seamen, there were 433 (2.89 per 1,000) deaths from accidents, 26 deaths due to alcohol, and 361 (1.88 per 1,000) from disease. Deaths from pneumonia in British seamen numbered 46, in lascars 49, though the total number of lascars employed was only one-third of the British, and the deaths from pulmonary tuberculosis numbered respectively 21 and 43. In twenty years all the death rates had improved, except those of lascars from pneumonia and tuberculosis. The lascar accommodation retained the same small statutory cubic space, 72 cubic feet, while the British seaman, for whom the cubic space had been increased by two-thirds, had had his pneumonia death rate reduced by 20 per cent., and the tuberculosis rate by 30 per cent. The Board of Trade received reports of the deaths of seamen, and published the annual statement of them, but without medical comment. By law, a ship must be provided with "proper accommodation" for the crew, and it was for the Board of Trade, as the competent authority, to determine what accommodation was "proper." It could not do this without the assistance of expert advice. Much had been done as a result of the representations of the port sanitary authorities and their experienced medical officers of health, but progress was deplorably slow. Dr. W. Collingridge, late medical officer to the Port of London,

had made certain recommendations in 1894, all of them admittedly reasonable, but even now, thirty years later, some of these recommendations had not been adopted. The Royal Sanitary Institute had asked that the care of seamen should be transferred to the Ministry of Health, and Fleet Surgeon HOME hoped that this change would be effected in the near future.

Dr. ARNOLD CHAPLIN said that he refrained from expressing an opinion on the statistics presented, but suggested that "crew days" gave a better foundation for calculation of death rates than mere numbers; this was the method he had used. It was unprofitable to compare the death rates of Europeans and lascars in ships, because lascars had so high a tuberculosis mortality in their own homes. They had far less at sea, and he felt confident that to increase the cubic space would not materially reduce their death rate from this disease. It was easy to enforce inoculation in a disciplined service; impossible in the merchant marine.

Dr. W. M. WILLOUGHBY said that increased space for crews would not abolish phthisis. Instead of blaming the Board of Trade for so slowly adopting Dr. Collingridge's suggested reforms, Fleet Surgeon HOME should have praised it for having brought them into being.

Dr. P. N. RANDALL, as a former sea-going physician, thought that Fleet Surgeon HOME had steered his way with skill through the tangle of the statistics as they were presented.

Sir W. J. SIMPSON said it must be clear to all that the charge of the statistics about the deaths of seamen and the care of their health should be in the hands of the Ministry of Health.

Dr. T. CANNWATH said it was difficult to form any opinion on the significance of the death rates presented when the ages of the population concerned were not considered.

The CHAIRMAN observed that even in a fever hospital, where the risks were clearly calculable and could be demonstrated, it was difficult to get all the advisable protective inoculations performed. He thought the frequent newspaper stories of wireless consultations at sea on sailors sick in ships with no doctor must have impressed everyone with the large number of sailors there were in hardship, without doctors travelling in their ships.

Fleet Surgeon HOME, in reply, said that the ordinary cubic space for lascars was 72 cubic feet, and their tuberculosis death rate 1.2, but he had once visited a P. and O. liner with Dr. Arnold Chaplin, who had stated the death rate of lascars in the employment of that company was 0.47, one-third of the ordinary rate. The lascars in that ship had 140 cubic feet each. They also had skilled care, but no one could doubt that the extra cubic space had something to do with the lowering of the death rate by 60 per cent. He knew that all the causes of death were not medically certified, but hoped that the errors from year to year were similar, since otherwise the statistics would be valueless. He had in a recent paper discussed the death rates of merchant seamen in relation to their ages, in an endeavour to obtain a standard death rate for seamen, and the point had not been overlooked in the preparation of his present paper. There was no scheme for teaching hygiene to merchant seamen, but officers now had to pass an examination in first aid. He was saddened by the want of supervision over seamen's health.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A MEETING of the Medico-Chirurgical Society of Edinburgh was held in the Hall of the British Medical Association, 6, Drumsheugh Gardens, on June 2nd, Mr. ALEXANDER MILES, F.R.C.S., in the chair.

Two specimens of the intramural diverticula from the small intestine were shown by Mr. J. W. SUTHERS. Dr. W. T. RITCHIE then read a communication on paroxysmal tachycardia, illustrated by tracings, based on a study of fourteen of his patients and on cases recorded in recent literature on the subject. Of the fourteen cases one was auricular, one nodal, eight ventricular, and four of undetermined origin. The longest paroxysm occurred in a case of ventricular origin in a man, aged 29, who had

been subject to paroxysms for fourteen years. A final paroxysm at a rate of 237 to 240 was terminated by death on the ninth day. The longest paroxysm on record, said Dr. Ritchie, was one of fifteen months' duration in a man aged 22. Paroxysms usually ended spontaneously. No method was known whereby paroxysms of nodal or ventricular origin could be arrested. Attempts to arrest auricular paroxysmal tachycardia met with more success, and such methods as deep breathing, holding the breath, drinking cold water, straining with closed glottis, or firm compression of the abdomen succeeded in some cases. All these measures, if successful, probably acted, like ocular compression, by reflex vagal stimulation. Direct compression of the right or left vagus in the neck was undoubtedly the most effective means of arresting auricular paroxysmal tachycardia. In diagnosis paroxysmal auricular fibrillation could readily be excluded. It was not so easy to exclude auricular flutter. If vagal compression caused transient slowing of the ventricles, and if this effect passed off rapidly after the vagal compression had been relaxed, the case was one of auricular flutter. If vagal compression caused the ventricular rate to fall suddenly to normal—for example, from 160-180 to 80—and the latter rate was maintained after withdrawal of pressure from the vagus, the attack was undoubtedly one of auricular paroxysmal tachycardia. Electro-cardiographic examination was, however, the most reliable means of establishing the diagnosis. The prognosis depended on the degree of integrity of the cardiac muscle and valves, rather than on the rate and duration of the tachycardia. The risk attending the administration of digitalis and strophanthus appeared to be greatest in paroxysmal tachycardia of ventricular origin. Quinine and quinidine were probably of little therapeutic value in arresting paroxysms.

In the discussion which followed Dr. LAMBIE said that he had tried pilocarpine, both hypodermically and orally, with success in the treatment of paroxysmal tachycardia of auricular origin. Dr. RAE GILCHRIST emphasized the danger of the use of the digitalis group, especially in the cases of ventricular origin.

Professor D. P. D. WILKIE read a communication entitled "Observations on the pathology of the biliary passages and their clinical bearing." He pointed out that it had come to be recognized that disease of the biliary passages might occur independently of any bacterial infection, and that even for calculus formation sepsis was not essential; also that infection might occur and even persist without leading inevitably to calculus formation. The work of Aschoff, Berg, Schmieden, and Westphal was referred to as shedding light from different angles on the primary stages of gall-bladder disease. Professor Wilkie showed lantern slides to demonstrate the minutest anatomy and physiology of the biliary system and the results produced by various experiments on animals. He then described two varieties of metabolic gall stones—the single radiate cholesterol stone and the rarer and usually multiple pure pigment stone. He said that the cholesterol in normal bile was held in colloid solution which was dependent on the presence of bile acids—not only the amount of bile acids but the relative proportion of each. Any excess of cholesterol or deficiency in quantity or quality of its solvent in the bile might lead to crystallization out of the cholesterol, and this would tend to occur where concentration of the bile occurred—in the gall bladder. In pregnancy, rapid loss of fat, and arterio-sclerosis there was an excess of cholesterol in the blood and sometimes in the bile, and in such cases cholesterol stone formation might occur. Such a stone might remain silent, but might become impacted, with afebrile attacks of colic separated by long intervals of perfect health. Certain organisms, such as typhoid and colon bacilli and certain strains of streptococci, found the gall bladder a habitat well suited to their needs. The streptococci usually produced an intramural infection, while the bile itself might be sterile or give a growth of the colon bacillus. Thus the infection might reach the gall bladder by the blood stream, as experimental evidence suggested in cases of primary cholecystitis. The portal of entry would appear to be frequently through the teeth or appendix. Disinfection by massive doses of urotropine might be possible

in some cases, but where there was an intramural infection removal of the gall bladder would appear to be essential. On the other hand, an aseptic stone might be the forerunner and exciting cause of gall-bladder infection. The stone might block the duct, and infection by way of the ducts or by the blood stream occur. A mucocele might result, or the stone might roll back and form a mixture of mucus, pus cells, bacteria, and epithelial debris which agglutinated into little masses on which cholesterol and bilirubin calcium were deposited. Primary cholecystitis was very apt to lead to calculus formation, little masses of organic matter forming the nuclei for concretions of cholesterol, pigment, and calcium. Professor Wilkie said that operations were sometimes undertaken for symptoms which had led to a diagnosis of gall stone, though neither stone nor sign of inflammation in the biliary passages was found. Experimentally it was shown that mild stimulation of the vagus caused the gall bladder to contract and the sphincter of Oddi to relax. Stronger stimulation caused spasm of both the neck of the gall bladder and the sphincter of Oddi. Stimulation of the sympathetic caused relaxation of the gall bladder. Thus a hyperkinetic stasis of the gall bladder might occur. This was found in the early stages of pregnancy, and it was found, further, that increased blood cholesterol induced it. The bile stasis of pregnancy was therefore dependent less on any gross mechanical pressure from the growing uterus than on disordered activity in the intrinsic biliary musculature. A tinge of jaundice and attacks of pain simulating biliary colic might occur when there was no stone present. Hypokinetic biliary stasis often occurred in the asthenic viscerotonic individual. The generous and intricate nerve supply accounted for various reflex phenomena in gall-bladder disease. Through the sympathetic a connexion was established with the seventh, eighth, and ninth thoracic segments of the cord, explaining the girdle pain and sense of constriction. Through the hepatic and phrenic plexuses a link was formed with the phrenic nerve, leading to arrest of diaphragmatic movement in an attack of biliary colic or acute cholecystitis and signs of congestion and oedema at the base of the right lung. The vagus and sympathetic connexions explained the gastric flatulence and distension. The slow insidious poisoning of heart muscle, of joints, and fascial planes which followed neglected cases made the gall bladder suspect when focal infection was in question. When a stone or stones had formed and were giving rise to recurring or persistent symptoms, the only satisfactory treatment was surgical. With a single cholesterol stone without secondary infection, an ideal cholecystotomy; followed by a regime designed to prevent cholesterinaemia and biliary stasis, would seem the logical treatment. Where multiple stones were found within a thin-walled functioning gall bladder, the removal of the stones with temporary drainage might be justified if the surgeon was satisfied that all stones had been removed. Where the walls of the gall bladder were thickened nothing short of cholecystectomy would give successful results. The recognition of the "stasis gall bladder" as a pathological entity must lead them to consider the removal of this organ in cases of biliary colic where at operation no stones or signs of inflammation were present.

A short discussion followed, and Professor WILKIE replied to questions.

CARCINOMA CERVICIS FOLLOWING POSTERIOR DIVISION.

A MEETING of the Section of Obstetrics of the Royal Academy of Medicine in Ireland was held in the Royal College of Physicians on May 28th, when Sir WILLIAM SMYLY, in the absence of the President, took the chair.

Dr. BETHEL SOLOMONS showed a specimen of carcinoma of the cervix following posterior division, and a uterus he had removed by Wertheim's method from a woman, aged 46, married twenty-six years, sterile. For the past year and a half the menstruation was irregular, but her general health was good. Posterior division of the cervix had been done some years previously. Dr. Solomons said he had condemned this operation in any form for many years,

but it was still largely practised. Pregnancy might result after it, but the same would occur with a properly done dilatation. In scores of cases of uncured sterility the result was a wound pouring leucorrhoea, usually accompanied by erosion; many of these patients were suffering also from backward displacement, fibroids, and especially salpingitis. The case he now showed was rare, and he brought it forward as another example of the possible ill results of the operation, for it was a well established fact that injury to the cervix was the predisposing factor in carcinoma. Dr. Lait's report was:

"The posterior lip is involved in the main mass of the tumour, which is a spheroidal cell carcinoma originating from the squamous epithelium. It shows an ulcerated surface with many vessels. Cell nests, or masses of epithelium with central keratinous degeneration, are present. The tumour deeply invades the cervical tissue, and extends into the posterior vaginal wall. One part shows a calcified patch, presumably around a buried suture in the previous operation of posterior division. The section of the anterior lip shows that it is also involved in the region of the external os, but there is not the same infiltration of tissue which is present in the previous section. The right ovary is the size of a walnut, and contains inspissated pus. The tube shows chronic salpingitis. There is no evidence of tuberculosis."

The CHAIRMAN said that this was the first case he had ever seen of carcinoma of the cervix following posterior division. He came across many cases of carcinoma of the cervix where no divisions at all had been done. He thought that in Dr. Solomons's case, however, carcinoma was very probably the result of the division of the cervix, because it was well known that tearing of the cervix and granular erosion at childbirth predisposed to carcinoma. He thought there were cases in which posterior division of the cervix was a very good operation, however, and he would always do posterior division in cases where the conical cervix was turned forwards, as when the cervix was twisted forward it was a less favourable position for impregnation than the normal position. Of all forms of treatment for sterility posterior division of the cervix was, in his experience, the most successful. Sterility, he thought, was more often the result of blocking of the cervix than of blocking of the tubes. He thought Dudley's operation a very bad one.

Dr. G. FITZGIBBON said that he formerly had done posterior division of the cervix in cases of sterility, but he had now given it up, as he thought it unnecessary if sufficient dilatation was carried out to cause a certain amount of splitting of the internal os. The cancer in Dr. Solomons's patient had extended a good deal through the cervix, but the patient had arrived at the very definite cancerous period of her life, and he thought that if posterior division of the cervix had caused cancer in this case it would have occurred earlier in her life. He had had some extremely good results following posterior division; but he had had equally good results following full dilatation of the tubes.

Dr. D. J. CANNON asked what the pre-cancerous condition of the patient in this case was, and if Dr. Solomons had ever met cases in which it had been impossible to dilate the cervix. He had seen a few such cases, and in them the only possible thing which could be done was a posterior division of the cervix.

Dr. J. S. QUIX asked if Dr. Solomons had seen many cases of carcinoma of the cervix in nulliparae. He himself had never seen one, but he knew that such cases did occur. Posterior division of the cervix was an extremely difficult operation to do properly, and he did not see what the advantage of it was over full dilatation of the tubes.

Dr. Solomons, in reply, reiterated the point that he did not draw any conclusion from this isolated case. There were rare occasions on which it was impossible to pass a sound; then the cervix must be split to find the way, but after dilatation it should be sewn up again. He had never seen cancer of the cervix in any other nullipara. The operation of posterior division of the cervix was so easy to attempt that many tried it, but it was wellnigh impossible to attain a really satisfactory result.

Dr. L. L. CASSIDY (Master of the Coombe Hospital) read the annual report of the Coombe Lying-in Hospital for 1925, and this was discussed in some detail by the CHAIRMAN, Dr. FITZGIBBON, Dr. SOLOMONS, Dr. A. H. DAVIDSON, and Dr. CANNON.

MIDDLE-EAR DEAFNESS.

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland held on May 21st, with the President, Mr. R. C. B. MAUNSELL, in the chair, Mr. W. C. STEVENSON and Mr. T. G. WILSON read a paper on the rationale of radium treatment of middle-ear deafness, and submitted a preliminary report on its effect on chronic hyperplastic otitis media.

Mr. STEVENSON said that since 1917 the army and later the pensions authorities had recognized the radium treatment of scars and gunshot injuries on the recommendation of Sir Robert Jones, who had investigated the results obtained by him by this method of acting on scar tissue at Alderhay Hospital, Liverpool. During 1925, 24 pensioners were so treated for the Ministry of Pensions. It had been proved beyond question that when the routine treatment in the massage department failed to benefit a limb crippled by scar tissue, improvement in its function resulted after radiation, especially when the adhesions or fibrous tissue softened by radium treatment were stretched by subsequent re-educational exercises. If deafness was due to fibrous tissue binding together the ossicles which transmitted the vibrations of the drum to the auditory receptive apparatus, it was reasonable to expect that improvement in hearing would result if these adhesions were softened and stretched, and dealt with on orthopaedic principles.

Mr. WILSON recorded three cases—two of chronic hyperplastic otitis media and one of oto-sclerosis. He pointed out that these conditions were fully discussed at last year's British Medical Association meeting at Bath, when the treatment was universally admitted to be most unsatisfactory. In the two former cases marked improvement was found after radiation, the hearing power for the conversational voice in each case being increased from about two feet to from ten to fifteen, and a corresponding improvement being found for the other hearing tests. Hearing in the case of oto-sclerosis was not improved, but it was important to note that tinnitus was considerably diminished.

Both authors laid stress on the importance of re-education of the cortical auditory centres, and of continued routine treatment to prevent the progress of the disease, in order that the patients should obtain the full benefit of the increased functioning power of conducting mechanism following radium treatment.

The PRESIDENT said that this was quite a new form of treatment for a very intractable ailment of the ear.

Dr. HORACE LAW thought the only difficulty about this treatment would be choosing the cases, and keeping clear of cases of oto-sclerosis. The patients treated by Mr. Wilson and Mr. Stevenson had all been very young, and in cases where the deafness was very marked, in patients who were little more than children, oto-sclerosis was more dangerous, more complete, and more likely to lead to complete deafness. He felt that Mr. Wilson should remember to try to keep otitis media and oto-sclerosis separate, and also remember that those two conditions very often overlapped, though this occurred more frequently in cases at a more mature age than those that Mr. Wilson had treated. Mr. Wilson should follow up his cases, as it was too soon yet to know how far the improvement produced was going to be permanent. If benefit could be produced in cases of deafness of this character, the patients might remain all right for a very long time provided other things did not supervene. He thought that the patients who had been treated should be given another dose of radium in a short time, and felt that they would require other treatment also, such as massage. In patients who were very deaf the thing to remember was that what was needed was for them to hear the human voice. Mr. Wilson was to be congratulated on the success of his initial dose in these cases, as it was not easy to choose a dose that would produce an effect on the injured tissues, without too much reaction. Deafness in these cases was due to two things—namely, a definite laying down and thickening of the tissues of the ear, and a thinning out of the tissues of the ear afterwards; and so radium might have a twofold action.

Mr. STEVENSON, in reply, said that the patients treated had been young, but they were not chosen cases; they were just the first that had turned up at the hospital. He

thought that if the patients had been a good deal older they would not have got such quick results from the treatment.

Mr. Wilson thought that if radium treatment of the ears was put on a secure basis the actual fact that improvement was got would help in diagnosing between otitis media and oto-sclerosis. If radium treatment should be proved valuable after a time, then the functioning power of the ears could be improved by it, and the centres of the ears improved by treatment following radium. On the whole, he had found that better results were obtained from radium treatment in cases without much atrophic change.

Reviews.

A TEXTBOOK OF PSYCHIATRY.

THE fourth edition of Craig's well known textbook entitled *Psychological Medicine*¹ has been almost entirely rewritten, and is issued under the joint authorship of Sir MAURICE CRAIG and Dr. THOMAS BEATON. It is the authors' aim to present a modern view of mental disorders from both the physiological and psychological standpoints, and an endeavour has been made throughout the book to link up psychiatry with general medicine.

It is evident that much thought and care have been expended in the preparation of the volume. The introductory chapters, in which the student is given a biological conception of mind and its disorders, create a favourable impression at the outset, and the book as a whole may be described as a solid, well balanced, and useful contribution to psychiatry. In the preliminary pages such difficult subjects as the function of consciousness, the nature of desire and purpose, the unity and individuality of the organism, the evolution of structure, and the relation of mental processes to neurological mechanisms, are very clearly and smoothly discussed. A useful chapter deals with laboratory methods of investigation in mental disorders, and it is pointed out that our definite knowledge of the intimate relationship between mental and physiological function rests on an ever-growing foundation of practical proof. It is recognized, however, that the utmost refinements of laboratory investigation have not yet indicated a physiological explanation for many mental processes, and that psychological methods of approach are essential for the understanding and treatment of mental cases. In the widest sense of the term, psychological treatment is probably the most effective means of bringing about a change for the better in the reactions of mental patients, and in no psychosis or neurosis can formal or informal psychotherapy be excluded as an element in their amelioration or cure. The authors write with considerable psychological insight and much common sense, and do not ignore the fact that the psychiatrist has to treat a personality and not merely a physical organism. An interesting and original chapter is that dealing with the nature, causation, and treatment of hysteria—a malady the manifestations of which are here aptly described as differing from all other morbid mental phenomena in depending on the compassionate impulses which arise in social relationships.

The contents of the volume are divided into sections with the following headings: biology; causation, classification, and symptomatology; the biogenetic psychoses; the psychoses of toxic origin; insanity and epilepsy; the minor mental disorders or psychoneuroses, with their allied psychoses; insanity and physical disease; and mental deficiency. Sleeplessness, malingering, treatment, case-taking, laboratory work, and the relationship of insanity with law, are the subjects considered in a miscellaneous section. We note the absence of any account of the Binet-Simon or other mental tests—an omission which might easily be remedied in a future edition.

The aims and tendencies of modern psychiatry are admirably expressed in the volume, and we can thoroughly recommend it to the student and practitioner as a sound and trustworthy textbook.

¹ *Psychological Medicine: A Manual of Mental Diseases for Practitioners and Students*. By Sir Maurice Craig, C.B.E., M.A., M.D. Cantab., F.R.C.P. Lond., and Thomas Beaton, O.B.E., M.D. Lond., M.R.C.P. Lond. Fourth edition. London: J. and A. Churchill, 1926. (Demy 8vo, Pp. xiii + 437; 25 plates. 21s. net.)

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

LABORATORY courses in physiological chemistry were modest affairs when Mr. S. W. COLE's textbook first appeared twenty odd years ago. The book has now reached a seventh edition,² and the comprehensive character and diversity of the technique in the exercises are significant of the growth of chemistry in biological and medical curricula during these years.

Mr. Cole has very definite—and very satisfactory—ideas of the functions and responsibilities of a teacher. His book is not merely one man's harvest of the technique of many. Rather is it the fruit of a long personal experience in the guidance of students in the first of British biochemical schools. We are allowed to share all the simplifications of technique, all the tricks of the trade, which have grown out of the difficulties and distresses of the teacher and his students.

The publishers are justified in their claim that the seventh edition is completely revised and enlarged. Nothing is missing that was good in previous editions, and there was little that was not good. The opening chapter, on the properties of aqueous solutions, now includes a valuable outline of the theory of electrolytic dissociation with simple instruction in electrometric methods for the determination of that mystic symbol, pH. A new chapter, largely theoretical, treats of the mechanism of biological oxidation and reduction. We do not know of any more satisfactory synopsis of the recent progress in the simplification of what has been an ill co-ordinated problem. A new method, devised by the author, for the determination of sugar has been added since it has found favour in his own classes, and a few methods of blood analysis have been introduced in deference to the growing clinical importance of chemical studies of the blood. The chapter on the blood pigments has been revised to comprehend recent views of the haemoglobin molecule.

Physiology owes much to the Cambridge school of biochemistry under Sir F. Gowland Hopkins. This book is not the least of the contributions of that school.

THE SOIL IN HEREDITARY SYPHILIS.

"THE Soil in Hereditary Syphilis" may not be the exact translation of Professor HUTINEL's *Le Terrain Hérédosyphilitique*,³ but it conveys what the author considers an important part of his exposition, that hereditary syphilis has indirect as well as direct effects, and both must be included in any complete account of the subject. The disturbances produced in the human body by the poison of syphilis are more varied and widespread than those of any other infective disease; and if this infection, which is always a blood infection, occurs in the body of the foetus, and runs its course in the infant and child where metabolism is specially active, and all tissues and organs are in the process of growth, the range and variability of its effects are inevitably greater than in the more stable body of the adult. The direct manifestations of hereditary syphilis are described by Dr. Hutinel under the two stages of septicæmia, and later localizations; but he then proceeds to deal with clinical phenomena which are indirect results of syphilis and due to interference with growth or to a disturbed action of glands of internal secretion. Thus we have chapters devoted to the dystrophies of hereditary syphilis, in which the word "dystrophy" is interpreted in a most liberal way to cover overgrowth and wasting of the whole body or of any of its parts, and on the disorders of internal secretion, and an interesting discussion of diathesis in relation to hereditary syphilis. The book concludes with chapters on the stigmata and clinical signs, and on treatment.

Professor Hutinel is a well known authority on congenital syphilis, and in another book on the dystrophies of adolescence he has already detailed his ideas as to the indirect effects of syphilis both on the glands of internal secretion and on general metabolism. This part of the subject is now included in a complete and general survey

² *Practical Physiological Chemistry*. By Sydney W. Cole, M.A. Seventh edition. Cambridge: W. Heffer and Sons, Ltd. 1926. (Demy 8vo, Pp. xii + 479; 65 figures. 16s. net.)

³ *Le Terrain Hérédosyphilitique*. Par V. Hutinel. Paris: Masson et Cie. 1926. (Med. 8vo, pp. 455. 30 fr.)

of the whole wide subject. It is written by a master of the subject, one with extensive clinical experience of the disease and familiar with the literature; the style is always clear, if sometimes rather copious and a little rhetorical. It is not meant to be a clinical textbook of the disease, but rather an essay from the standpoint of general pathology. As a general discussion of this intricate disease it is admirable in its arrangement and in its clear and thoughtful exposition.

THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE LIVER.

A NEW volume, the sixteenth, has been added this year to the series of monographs which are being edited by Professor SCHWALBE of Berlin on errors in diagnosis and treatment and their prevention.⁴ It deals with diseases of the liver, including hepato-splenic affections, and has been written by Professor EPPINGER and Dr. WALZEL of Vienna. It is in two parts—the first on the prevention of errors in diagnosis, and the second on the prevention of errors in treatment. The first part contains a general and detailed description of jaundice, followed by a consideration of the diagnostic symptoms of diseases of the liver and spleen. The authors, in introducing the subject of their monograph, point out the mistakes that arise from ascribing to one organ alone all the symptoms of the so-called affections of the liver, whereas in fact they are not all due to diseases of the parenchyma of that organ, but are more of the nature of disturbances of a whole system, and indicate a pathological condition of more than one organ. The liver, which is the largest organ of the body, occupies a central position in the process of metabolism, and exercises a continuous control over the blood stream, not only mechanically, but also chemically. Yet scarcely any changes in metabolism are brought about even in livers which may be severely damaged in an anatomical sense.

It has been customary to attribute to the liver the origin of all disorders in which jaundice is the prevailing symptom. It is this doctrine which the authors set themselves out to combat in discussing jaundice both in general terms and in detail.

They recognize three distinct classes of icterus: the mechanical, due to obstruction in the flow of bile into the intestine; the haemolytic, due primarily to an excessive escape of bile and its elimination under abnormal conditions; and the icterus due to actual disease of the parenchyma of the liver. The detailed descriptions of these three forms of jaundice include, under the heading of mechanical jaundice, an account of the various causes of obstruction to the flow of the bile, such as cholelithiasis, carcinoma, chronic pancreatitis, duodenal ulcer, and some less common causes, such as echinococcus affection of the gall bladder. A critical analysis of the means for making a differential diagnosis of these conditions is an important feature in this section of the book. Haemolytic jaundice is most commonly a symptom in other diseases, such as pernicious anaemia, malaria, and poisoning by certain drugs, and stress is laid on the importance of distinguishing these forms of icterus from congenital haemolytic jaundice, which is inherited and does not indicate any actual disease. It is more difficult, however, to distinguish between it and icterus associated with enlarged spleen and cirrhosis of the liver. The differential diagnosis depends on tests for bile acids in the urine, which are not found in the congenital type.

In dealing with the type of jaundice due to affections of the parenchyma of the liver, the authors enter into an exhaustive discussion of what is called "catarrh of the liver." They regard as essential the recognition of the fact that a catarrhal jaundice is not necessarily a catarrh of the bile duct dependent on a gastro-duodenal catarrh, but may be due to a general hepatitis, and in its most acute forms may resemble the jaundice of acute atrophy of the liver. In this section reference is made to the liver

and spleen conditions found in Banti's disease; and the authors are sceptical regarding the existence of this disease as distinct from the pathological conditions caused by malaria. They come to the conclusion, at any rate, that true Banti's disease does not occur in Austria or Germany, although possibly it may do so in countries bordering on the Mediterranean. They consider that further investigations are called for in connexion with this disease.

In the section dealing with the diagnostic symptoms of diseases of the liver, of special interest are the descriptions of associated enlargements of the liver and spleen, and of the conditions in which the dominant symptom is a tumour of the latter, and here again the authors enter into a full discussion of Banti's disease. Other subjects dealt with in this section are the symptoms of obstruction in the portal vessels, lesions of the pancreas, tumours of the gall bladder, pain in the region of the gall bladder, in addition to the various tumours and other conditions causing liver enlargement. An account of the various methods of diagnosis by laboratory investigations concludes this section of the volume.

The part dealing with errors in treatment is of special interest, and contains some important suggestions, especially with regard to the treatment of cholelithiasis, differentiating between the quiescent and painless conditions and those in which there is acute suffering. In the latter cases the physician is advised to prescribe dietetic, medical, and mechanical methods of treatment, all of which are considered in detail, as well as the indications for and against surgical operation. Reference is made to the recent use of pituitrin in removing gall stones from the bile duct on account of its action in exciting intensive peristalsis. The authors consider it well worthy of trial. The treatment of other liver affections contains nothing of special importance or interest; but in concluding this review we may say that those medical practitioners who are able to read German will find that the monograph contains much wise guidance both in diagnosis and in treatment.

HOPE'S "PUBLIC HEALTH."

THE wide experience of Professor E. W. HOPE, alike as a teacher, and, till lately, an administrative exponent of the principles and practice of hygiene, has happily found expression in his *Text-book of Public Health*. In the ninth edition,⁵ which has recently been issued, the name of Dr. C. O. STALLYBRASS is associated with his. The eighth edition, by Professor Hope alone, was published in 1915, and the progress of sanitary science since that date is reflected in the increased dimensions of its successor.

In the new edition the chapter on public health legislation is transferred to the opening pages. It is necessarily a summary, but is nevertheless readable, being compact without obscurity, though the Act referred to in line 11 of the text of page 23 can only be identified by collating the parent passage in the eighth edition. In the section on meteorology there are some flaws. The black bulb in *racuo* thermometer should not have been figured in the position of a grass minimum instrument. No reference appears to the Kew pattern barometer, the type now favoured by the Meteorological Office. No explanation of the millibar is afforded, though a pressure in millibars is quoted. The name of the physicist J. F. Daniell is as here printed. Under lighting, air, and ventilation there are informative additions on the uses of ultra-violet rays and on smoke prevention. Under food, the article on vitamins is new. So also is the account of endemic goitre and its prophylaxis by iodization. Under sanitation of buildings a figure survives from the eighth edition showing double-trapping of waste-pipes, an elaboration which modern practice is tending to abandon.

It is matter for regret that the authors have not been more communicative on town-planning, a subject on which they are so well qualified to speak, but what they have written is eminently lucid, and is aided by views of a reconstruction and the lay-out of arterial roads. The

⁴ *Die Krankheiten der Leber mit Einschluss der hepato-splenicen Affektionen*. By Professor Dr. H. Eppinger and Dozent Dr. P. Walzel. Diagnostische und therapeutische Irrtümer und deren Verhütung. Innere Medizin. Edited by Prof. Dr. J. Schwalbe. Heft 16. Leipzig: Georg Thieme, 1926. (Roy. 8vo, pp. 134; 10 figures. Paper cover, R.M.5.70; bound, R.M.7.20.)

⁵ *Text-book of Public Health*. By E. W. Hope, D.Sc., M.D., D.Sc., and C. O. Stallybrass, M.D. (State Medicine), D.P.H. Ninth edition, revised and enlarged. Edinburgh: E. and S. Livingstone, 1926. (Demy 8vo, pp. x + 340; 71 figures. 15s. net; postage 9d.)

section on vital statistics is useful, though in parts severely compressed. The chapter on general epidemiology includes material on insect vectors from the eighth edition, but is otherwise new; it deals with immunity and disease transmission in an interesting manner. The section on infectious disease is greatly expanded and new work recorded. The welfare of motherhood and infancy, the health of the school child, and occupational disease are effectively set forth. There are also articles, as in the eighth edition, on marine and military hygiene.

The book is strong on the practical side, but at the same time it keeps general principles clearly in view. It is comprehensive, and covers the field well. It will amply suffice for the medical student, and in many of its topics will meet the requirements of the candidate for a diploma. To both of these it may be cordially recommended.

"BRAIN."

IN the issue of *Brain*⁶ for April (Part 1 of vol. 49) Professors Brouwer and Zeeman of Amsterdam describe their experiments on monkeys' on the projection of the retina in the primary optic neurones, and arrive at some conclusions which are new and important. They followed by the Marchi method the degenerations produced after localized injuries to different parts of the retina: nearly all the degenerated fibres ended in the external geniculate body on one or other side, a few in the superior colliculus and none in the pulvinar of the optic thalamus. There is a definite localization in the external geniculate body of fibres from the retina: the macular fibres occupy a large area, and the authors consider it probable that these fibres also occupy a wide area of the optic radiations and calcarine cortex, and are not limited to the occipital pole. Dr. H. H. Woollard contributes a lengthy paper on the retina and lateral geniculate body in tupaia, tarsius, nycticebus, and hapale, tracing the development of the macula and geniculate body in this series of closely related animals.

Drs. Stanley Barnes and E. Weston Hurst contribute a further note on hepato-⁷ including the detailed post-mortem fourth case in the family previously described by them. In addition to changes in the basal ganglia a remarkable necrotic condition was found in the frontal lobes in this case. The Kayser-Fleischer zone of pigment in the cornea was present, and its nature is discussed fully. Dr. W. Russell Brain deals with the mechanism and clinical significance of the rotated or "cerebellar" posture of the head, and concludes that the term "cerebellar" is a misnomer, as the attitude is not assumed in pure cerebellar lesions. He considers it to be due to interference with impulses from the labyrinths concerned with the maintenance of postural tone in the neck muscles.

Professor S. E. Henschen of Stockholm contributes a very interesting article on the function of the right hemisphere of the brain in relation to the left in speech, music, and calculation. Dr. James Taylor, in an article on prognosis in disseminated sclerosis, relates a number of cases from his long experience illustrating the remarkable remissions which occur in this disease, and the great difficulties in prognosis. He lays stress on the importance of rest in the early stages.

This number contains also the report of an important discussion in the Section of Neurology of the Royal Society of Medicine on the sympathetic innervation of voluntary muscle.

NOTES ON BOOKS.

THE volume on the treatment of infectious diseases in private practice,⁷ by Professor J. RIEUX and Dr. C. ZOELLER, is a recent contribution to a series of small books edited by Dr. C. Fiessinger, and is divided into two parts. First there are

⁶ Published in London by Macmillan and Co., and in New York by the Macmillan Company. Yearly subscription in this country 24s., to be sent to Messrs. Macmillan, St. Martin's Street, London, W.C.2. Price of this part 6s. net.

⁷ *Traitement des maladies infectieuses en clientèle*. Par J. Rieux et C. Zoeller. Comment guérir? Bibliothèque des Praticiens. Paris: A. Maloine, 1926. (54 x 74, pp. ii + 248; 28 figures. 18 fr.)

four chapters on the treatment of infectious diseases in general, dealing respectively with general considerations, pathogenic medication (which includes treatment by serum and vaccines, shock therapy, and chemotherapy), symptomatic treatment, and regimen (which comprises personal hygiene, diet, and disinfection). The remainder of the volume is concerned with the treatment of special diseases, and the whole affords a clear and concise account of French practice in the management of infectious diseases. Another volume in this series is by Dr. F. NIDERGANG. It is on diseases of the mouth in private practice,⁸ and contains a concise and practical account of the medical and surgical diseases of the mouth, including the lips, gums, jaws, tongue, cheeks, palate, and pharynx. Morbid anatomy is excluded, and special attention is devoted to treatment. The arrangement of the subject-matter is good, and the description of the various morbid conditions clear and complete, so that the book may be warmly recommended both to practitioners and students familiar with the French language.

*Bergey's Manual of Determinative Bacteriology*⁹ is, as we pointed out when reviewing the first edition, a dictionary or guide-book to the classification of microbes, or (to quote its supplementary title) "a key for the identification of organisms of the class schizomycetes." Dr. BERGEY has been assisted in the compilation by a committee of the Society of American Bacteriologists, and the book may be regarded as one of the official publications of this society. There is no doubt that a service has been rendered to bacteriology by the preparation of this book, which has already brought a semblance of order to bacteriological nomenclature. A few mistakes made in the first edition have been rectified, otherwise the second edition does not differ much from the first. One change we are very pleased to notice. The staphylococcus now comes to rest amongst its kindred of the tribe micrococceae. It was never easy to understand why the American Committee on Classification and Nomenclature, in its reports of 1917 and 1920, placed the staphylococcus amongst the streptococceae. This unnatural partnership has now been dissolved.

The object of the little work on quinine in therapeutics¹⁰ by Dr. L. DESTOUCHES is to keep a *via media* between those who would regard quinine as a panacea and those who would confine its use to the treatment of malaria. The book is in four parts, preceded by a brief sketch of the history of quinine. The first part is devoted to a chemical study of the drug, the second to its physiological action, the third to its therapeutic properties, and the fourth to the administration of its salts. The reader will be well advised to bear in mind what we said (*JOURNAL*, January 23rd, 1926, p. 154) about the booming of quinine to the exclusion of the other alkaloids of cinchona, which form quite efficient substitutes.

In his essay on *Thomas Sydenham*,¹¹ the tercentenary of whose birth was recently commemorated in the *JOURNAL* (November 15th, 1924, p. 917), Dr. DAVID RIESMAN, professor of clinical medicine in the University of Pennsylvania, has given a brief but sympathetic outline of the life and achievements of the English Hippocrates. A portrait of Sydenham faces the title-page, and a bibliography of his works, with a facsimile of the first English edition, is appended.

En clientèle. (Pathologie médicale et Par F. Nidergang. Comment guérir? Paris: A. Maloine. 1926. (Cr. 8½), pp. 215;

⁹ *Bergey's Manual of Determinative Bacteriology*. By David H. Bergey, assisted by a Committee of the Society of American Bacteriologists. Second edition. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1926. (Demy 8vo, pp. xvi + 462, 25s. net.)

¹⁰ *La Quinine en Thérapeutique*. Par Dr. Louis Destouches. Paris: O. Doyn, 1926. (42 x 64, pp. 138. 5 fr.)

¹¹ *Thomas Sydenham, Clinician*. By David Riesman, M.D. New York: Paul B. Hoeber, Inc. 1926. (54 x 74, pp. 52; 1 plate. 1.50 dollars.)

PREPARATIONS AND APPLIANCES.

"Methyl-Aspirodine."

METHYL-ASPIRODINE is a new synthetic compound prepared by Mr. W. H. Martindale, Ph.D. The chemical name of the compound is methyl iodo-aspirinate, or methyl acetyl-iodo-salicylate. It contains 59.7 per cent. of iodine and the equivalent of 56.3 per cent. of aspirin. The compound is a white crystalline powder which melts at 40°C. It is insoluble in water but freely soluble in oil. The powder can be rubbed into the skin, and is rapidly absorbed. It is non-greasy, and practically odourless. Theoretical considerations make it probable that this compound will prove useful for local application by inunction for the relief of rheumatic pains. Its action may be expected to be similar to that of methyl salicylate (oil of wintergreen), and it has the great advantage of being odourless. It has a mild rubefacient action.

British Medical Journal.

SATURDAY, JUNE 26TH, 1926.

THE ASSOCIATION IN SOUTH AFRICA.

THE recent visit of the Medical Secretary to South Africa is an important event in the history of the British Medical Association. In August last year the South African Committee, the central body of the Association in South Africa, requested that such a visit should be paid, and at its meeting in October the Council acceded to the request that the Medical Secretary should proceed "on an organizing tour," and instructed him to convey to the South African Committee its best wishes "for the success of efforts to promote the solidarity of the profession in South Africa." We publish in this issue, as an appendix to the Supplementary Report of Council (SUPPLEMENT, p. 235), the account of the progress and results of his mission which Dr. Cox has presented to the Council. The interest and value of this report correspond to the importance of the occasion. Its consideration and the action to be taken thereupon will no doubt be one of the chief features of the meeting of the Representative Body at Nottingham. There, as at the Council meeting, the extraordinary tact and ability with which Dr. Cox conducted delicate negotiations, and the remarkable and gratifying success achieved, will be appreciated, acknowledged, and confirmed.

The situation with which the Association and the profession have been confronted for some years in South Africa, and with which the Medical Secretary was faced on his arrival there, was a serious one. In a country where distances and difficulties of travel and communication are very great, where races are diverse, and where political influences and opinions are strong, active, and antagonistic, the medical profession, relatively small in numbers, was ranged in two camps—the larger, more widely spread, and more generally active being the Branches of the British Medical Association, with the South African Committee as its central representative body; the smaller, strong on the Rand, calling itself the South African Medical Association, which had at its formation in 1918 based itself on the use of trade unionist methods, but which had latterly stood rather as emphasizing its independence of all associations and influences other than those which were purely South African. Outside both organizations were a number of practitioners who, from indifference or from weariness with professional divisions, remained isolated individuals. The profession, so organized or unorganized, was threatened by the Union Government with action which, if carried through, would seriously affect its interests and traditions, either as a whole or in various localities, and was handicapped in making its opinions and wishes known and respected by divided counsels, by rival deputations, and by dissipated forces. Clearly this was not a position in which the prime movement and object should be by active propaganda to endeavour to secure the absolute predominance of one or other organization, but rather one in which the wise course was to secure unity by some form of effective compromise. Fortunately, influential men at the head of both Associations were statesmanlike enough to realize this, and disinterested enough to take active steps in the right

direction. Naturally there were differences of opinion as to what was the most desirable and effective line of action.

At first sight the method of "affiliation" seemed attractive. By this method, though individual members of the British Medical Association might continue to exist in South Africa, the whole organized machinery of the Association there would cease to be, and organization of the profession within an entirely independent association would be developed, though by the use of the phrase "affiliated to the British Medical Association" it was intended to emphasize the fact that the relationship of the two Associations would be intimate and friendly. Two circumstances lent weight to this suggestion. One was that in 1923 a referendum of the whole profession in South Africa, and of the members of the British Medical Association there, had been taken, with the result that in a large vote there had been a definite majority in favour of this course. This, however, could not be taken as decisive, because no fewer than seven of the ten Branches of the British Medical Association, on a subsequent referendum as to the desirability of dissolving the Branches as a first step towards affiliation, had a majority against the proposal, and therefore could not very well be dissolved; and also because it appeared that many who voted in the majority had believed that the relationship of "affiliation" was more close than it actually is—that, indeed, it involved organic connexion, with effective membership of the older association. The second circumstance which seemed to point to the "affiliation" solution was that this had recently been adopted in respect of Canada. But the position in the two countries was very different: the opportunity for any alternative solution in Canada had passed many years ago. In that dominion there was an active Canadian Medical Association, large, powerful, effective, and without rival, whereas the surviving Branches of the British Medical Association there existed merely on paper. Dr. Cox and Sir Jenner Verrall, in their mission to Canada in 1924, had to do the best that was possible in the circumstances, and the result is a cordial working agreement between two independent associations.

That, in the circumstances described, a much more satisfactory result has been obtained in South Africa is a matter on which the Association and all concerned are to be congratulated, and for which the Medical Secretary and those who worked with him—Dr. Orenstein, Sir Spencer Lister, Dr. Max Greenberg, Dr. Francis Napier, and others—are greatly to be thanked. The solution adopted completely unifies the organization of the profession in South Africa, retains for all an integral membership of the British Medical Association, and under the name of the "Medical Association of South Africa (British Medical Association)" establishes an organization which, while practically autonomous as far as South Africa is concerned, will not only be entitled to the full support of the Association in all other parts of the Empire, but will be enabled—and expected—to carry its full weight in the affairs of the Association as a whole, and to contribute whatever it can to the furtherance of the interests and maintenance of the honour of a united profession. Thus the ideal of the British Medical Association as an Empire organization is safeguarded, each part standing on the same footing as the rest, and all mutually helpful. With this constitution and under this name the future of the Association in South Africa appears assured. Already there is an accession of membership, and there are signs of increasing vitality.

Union here, as elsewhere, brings strength, not only in professional work, but in dealing with the proposals of the Government and of local authorities.

The subsidiary parts of Dr. Cox's report are deserving of notice. To have revived the Natal Coastal Branch, which has been and should be one of the strongest Branches in South Africa, but which from various causes had fallen on evil days, was a considerable achievement. The formation of a new Branch in the Mandated Territory of South-West Africa is a very interesting event, in some respects unique. The visits to the Branches in Southern and Northern Rhodesia were evidently timely and useful. These colonies do not, of course, come within the Union of South Africa, and it is probable that Northern Rhodesia will become more and more closely associated with the group of East African Colonies and have to deal with problems similar to theirs.

It is to be remembered that a considerable proportion of the membership of the Association is overseas, and such visits as those recently undertaken by the Medical Secretary and by prominent members of the Association demonstrate, not only that the Association has the interests of such members fully in mind, but that a closer personal intercourse, whether here or in the Colonies and Dominions, is to the great advantage of almost all the Association's activities. The visit of Dr. J. A. Macdonald to South Africa in 1920-21 was greatly appreciated, and had paved the way for the results which may be expected from the subsequent visit of Dr. Cox.

THYROXINE.

WHEN the student first acquires a textbook of physiology his earliest reconnaissance is likely to be among the illustrations to the text. One of these which will surely capture his interest will be that of the contrasting photographs of a cretin before and after a course of thyroid feeding. The visual evidences, indeed, of abnormal endocrine function are often so striking that the subject of the chemical control of bodily functions by the ductless glands has long been popular in both laboratory and classroom, while it is the branch of medical science in which the lay public is to-day better instructed than in any other. So frequently does the word "hormone" come to the lips as a facile explanation of the function of a gland that we need still to be reminded that insulin, pituitrin, and other common therapeutic preparations of endocrine organs are only crude extracts of glands whose active principles have so far defied isolation in the pure state, though we may hope that the crystalline substance which Abel has this year isolated from insulin preparations is indeed the pancreatic hormone. Until recent years adrenaline was the only complete victory which the chemist could claim in this field, since the isolation and the identification of this substance were crowned by its synthesis in the laboratory.

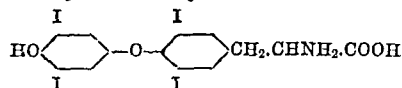
About ten years ago E. C. Kendall separated from the thyroid gland a crystalline material, containing 65 per cent. of iodine, which was shown to have the physiological effects of the whole gland, and was, indubitably, one of the hormones of this gland. A chemical structure for this compound was later advanced, and the claim made that a substance of this structure had been successfully synthesized, though no details of the method have yet been vouchsafed. The chemical constitution proposed presented

certain inherent chemical improbabilities, and biochemists, in this continent at any rate, were inclined to defer acceptance until the crucial proof of synthesis should be supported by experimental detail. Nevertheless, in the material which Kendall had isolated there became available a substance with undoubted physiological function, and it may seem strange that no other laboratory has, during the past decade, attempted to confirm or to correct the contentions of Kendall.

In two papers by Dr. C. R. Harington in the last number of the *Biochemical Journal*¹ will be found at once the explanation for the timidity of chemists to undertake this problem and the justification of their scepticism. There will be found, moreover, one of the prettiest examples of the application of the classical methods of organic chemistry to a definite biochemical problem, one of the most lucid arguments in analysis and synthesis, and one of the big contributions of the present century to biochemistry. There will be found, in brief, a method for the isolation of the thyroid hormone some twenty-five times as productive as that of Kendall, and a definition of the structure of this substance so precise as almost to command acceptance.

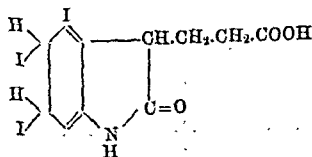
The name of Kendall will remain associated with the first successful preparation of thyroxine, but his method, which produced only 11 grams from a ton of fresh glands, must now give place to one which, by what now appear to be simple modifications, gives 270 grams from the same amount of material. Dr. Harington records that the British Drug Houses, Ltd., have co-operated with him in the large-scale application of the method, and have successfully prepared considerable quantities of the crystalline material. With so greatly improved a source of thyroxine Dr. Harington was ready to tackle the problem of its chemical constitution. He parts company with Kendall at the outset, for he asserts that the latter's analysis of his product was wrong. Much may hang upon the correctness of a single analytical figure. Whereas Harington ascribes to thyroxine the composition $C_{15}H_{11}O_4NI_2$, Kendall gave to it the formula $C_{14}H_{10}O_3NI_2$. He was led thence to the facile acceptance of very debatable evidence for the chemical nature of the molecule, and so to a mass of synthetic experiment and physiological speculation which, in the light of the present work, becomes almost impossible to appraise.

The argument of Harington's work deserves brief summary. The crystalline thyroxine was first deprived of its iodine. Analytical methods indicated that the desiodothyroxine was a phenolic amino-acid containing two benzene rings, a three carbon side chain, and an oxygen atom probably linking together the two benzene rings. "At this point," says the author, "it was decided to attempt to meet degradation by synthesis." The attempt was completely successful. Two independent methods each gave a product chemically identical with desiodothyroxine. One link only appears to be missing. The iodine atoms must be introduced into the synthetic product in such a way as to produce a substance having the physiological as well as the chemical properties of thyroxine. It is to be hoped that we shall not have long to wait for this final achievement. The structure proposed by Harington is represented by the formula



¹ Harington, C. R.: *Biochem. Journal*, 1926, 20, 293-299, 300-311.

wherein the only point of doubt is the situation of the four iodine atoms. The formula proposed by Kendall was



It has been necessary to emphasize the disparity between the views of these two workers because Kendall has built upon his conclusions theories of the function of the thyroid and other hormones which, in America at least, have found such favour as to earn for their author (who is professor of biological chemistry in the Mayo Foundation of the University of Minnesota) the Chandler Medal of Columbia University. A summary of these views will be found in the lecture delivered by him on the occasion of the bestowal of this medal.² Kendall's contention is that thyroxine acts as a catalyst of metabolic processes by virtue of its ability to behave, under defined conditions, as what we interpret to be an oxygen "activator." This may well be so, but it must be emphasized that the argument is based not upon the chemistry of thyroxine, but upon that of synthetic compounds having structures similar to that attributed by Kendall to thyroxine. The evidence involves some liberties with conventional structural organic chemistry, some unjustifiable employment of the blessed phrase "oxidation-reduction potentials," and some *ad hoc* applications beyond the immediate problem to the behaviour of adrenaline and "bios." Wide generalizations are always attractive, but only breed general scepticism when an element of doubt creeps into the premisses from which they derive. If the work of Harington is accepted it must be conceded that the physiological behaviour of the synthetic compounds of Kendall can have no relation to the function of thyroxine, and, that being so, it would seem that the whole argument surrounding this work must be recast.

The isolation of thyroxine, though a big laboratory success, does not make to medicine so immediate a contribution as have discoveries—chemically incomplete—such as that of insulin. Therapeutically there is no impediment to the oral administration of the whole gland or simple extracts of it. As a matter of economics it is cheaper to give the gland to be swallowed than to administer a pure product separated at considerable expense or synthesized at still greater cost. On the other hand, to physiology the offering is immediate and important. There is offered the opportunity for the quantitative study of the effects of the hormone such as is not permitted with gland preparations whose content in hormone has not been determined. In desiodothyroxine, again, there is a substance whose physiology demands investigation.

Boothby and Sandiford³ have recently summarized a large amount of work done upon the quantitative effects of thyroxine on basal metabolism using the commercial substance prepared by Kendall's method. A relation has been shown to exist between the amount of thyroxine in the circulation and the increase in metabolic rate such that 1 mg. raises the basal metabolic rate 2.8 per cent. In myxoedema the rate is some 40 per cent. below the normal, so that, if this is to be attributed to lack of thyroid secretion, 14 mg.

of thyroxine should restore the patient to a normal metabolic rate, and this it does. Moreover, the study of the rate of decay of the action of thyroxine indicates that this is of an order suggesting a daily loss from the circulation of 0.4 mg. Consequently the daily injection of this amount should maintain a normal rate in this condition. This conclusion also has been entirely justified by experiment. In respect of hyperfunction of the thyroid we need note only that the clinical picture of adenomatous goitre with hyperthyroidism may be produced by persistent overdosage with thyroxine. This is not so with exophthalmic goitre, again agreeing with the clinical differentiation of these two conditions. It is suggested that in the latter condition there is not only an increased secretion by the gland but also a defective synthesis, so that modified substances having special physiological effects are thrown into the circulation. Remembering the success of Plummer in reducing the metabolic rate in cases of exophthalmic goitre by massive doses of iodine, we see a direct clinical interest in studies of the physiology of desiodothyroxine.

We are glad to add our voice to the chorus of congratulation which the work of Dr. Harington has evoked. The proper guardian of knowledge is power. Medicine looks to the co-operation of physiology for the full reward of the accession of knowledge.

REORGANIZATION OF THE UNIVERSITY OF LONDON.

A BILL to carry out the recommendations of the departmental committee, of which a full account was given in our issue of May 22nd (p. 875), was introduced into the House of Lords on June 15th by the Earl of Balfour, Lord President of the Privy Council. The bill sets up a body of University of London Commissioners, and prescribes what they are to do. The members of the Commission are Mr. Justice Tomlin, M.A.Oxon.; Sir Lewis Selby-Bigge, Bt., K.C.B., M.A.Oxon., lately Secretary of the Board of Education; Sir Cyril S. Cobb, K.B.E., M.A.Oxon., late Chairman, London County Council; Sir Josiah Stamp, G.B.E., D.Sc.Lond.; Sir E. Cooper Perry, M.A., M.D. Cantab., lately Principal of the University of London; Mr. A. D. Lindsay, M.A.Oxon., Master of Balliol College, Oxford; Miss Bertha S. Phillpotts, Litt.D.Dublin., formerly Mistress of Girton College, Cambridge; and Professor T. Perry Nunn, D.Sc.Lond., Principal of the London Day Training College. The Commissioners are to make statutes for the University of London in general accordance with the recommendations of the report of the departmental committee, but subject to any modifications they may deem expedient, and to carry out this duty may make statutes also for any school of the University, or for any other college, school, or institution, in order to enable it to become a school of the University. Such statutes, however, must be made with the consent of the several governing bodies. The Commissioners must consider any representations made to them by any of these bodies, or by the Senate or Convocation, or by any fifty graduates of the University. After the Commission has expired the University is to have power to alter or supplement statutes, under certain conditions. The Commission is not to have power to alter the incorporation in the University of University College or King's College. Judged by the letters the member for the University has addressed to us, the bill will be strenuously opposed when it gets to the House of Commons. Our readers, we are sure, feel deeply indebted to Dr. Graham Little for the trouble he has been at to explain to them why he and those who think with him are so vehemently and vociferously opposed to the proposals of the departmental committee, which were designed to make the Univer-

² Kendall, E. C.: Influence of the thyroid gland on oxidation in the animal organism. Columbia University Press, New York, 1925.

³ Boothby and Sandiford: *Physiol. Reviews*, 4, 69 (1924).

sity an efficient educational institution, but we fear that he has not wholly succeeded. They perceive that he is very angry, and are almost reduced to believing that his only friends are the Duke of Bedford's trustees, who have taken back the gift of the Bloomsbury site the University contumeliously rejected. One of his arguments, if we understand him aright—and there must always be some doubt about this until he grows calmer—is that the University should be left to manage its own affairs. Upon this it seems just to make two observations. First, that the University has been managing its own affairs, with the occasional assistance of Royal Commissions, for fifty years or more, and has got them into the present muddle; and, secondly, that other universities possessing probably as many teachers and perhaps more graduates, such as Oxford and Cambridge, have on several occasions submitted to reorganization at the instance of Parliament and outside commissioners.

THE NATIONAL PHYSICAL LABORATORY.

ON June 22nd the President of the Royal Society, Sir Ernest Rutherford, entertained at the National Physical Laboratory; Teddington, a large number of guests who had been invited to meet the General Board of the laboratory, of which he is chairman. He was accompanied by Sir Richard Glazebrook, a former director, and by the director, Sir Joseph E. Petavel. The laboratory, which consists of a large number of separate buildings, covers a wide area on the outskirts of Bushy Park. In every department there are abundant evidences of activity, and a number of interesting experiments and apparatus were shown. Thus experiments in aerodynamics were in progress in wind tunnels of various dimensions, and in the wireless department it was found that problems of the constitution of the atmosphere were being attacked from an entirely different direction. In this way knowledge was being obtained about parts of the upper atmosphere beyond the reach of the direct observations employed in meteorology. In the engineering department tests of endurance and fatigue were being conducted on big-end bearings, springs, nuts, and gears. Apparatus for measuring the speed, screw thrust, revolutions, and the power required for the propulsion of a single-screw steamer were demonstrated in the William Froude National Tank. There were few exhibits of purely medical interest; but the department for testing clinical thermometers was open to inspection, and there was an exhibition of x-ray apparatus in the physics department. Amongst the latter there were Laue photographs of diamonds and single crystals showing their structure. In the metallurgy department researches were being made on the amalgams used by dentists.

PROFESSOR AUGUST KROGH.

THE colleagues of the well known Danish physiologist Professor August Krogh have made his fiftieth birthday the occasion for offering to him their felicitations and homage in the form of a volume entitled *Physiological Papers*.¹ Adding interest to the personal intimacy of this birthday present is the fact that it is probably the swansong of the old laboratory of which Professor Krogh has been the inspiration. The Rockefeller Foundation having added to its multitudinous benefactions the recognition of the eminence of this Danish school of physiology, the cramped quarters of the old laboratory are shortly to be abandoned for the spaciousness of a new and well equipped building. To this volume twenty-two fellow workers and one-time students of Professor Krogh have contributed papers touching many fields of physiological inquiry, the

majority of the contributions being in our own tongue, whilst the remainder are written either in German or French. To give a précis of the table of contents would be an unsatisfactory escape from the difficulty of reviewing a book such as this. We must be content to note only a few papers which appear to be of most direct clinical interest. In the first place, teachers of medicine will be interested in the description by a late student of Professor Krogh of an attempt to maintain in his clinical teaching in a large American hospital an interest in and use for the physiological training of the early years of the students' curriculum. Professor Hagedorn, in a continuation of his studies on the sugar of the blood, discusses the question of alimentary glycosuria; he concludes that its course is best explained by the view that the immediate storage of sugar in the liver is followed, after the completion of absorption, by a redistribution of the carbohydrate stores between liver and peripheral tissues. Certain implications in respect of the diabetic condition are indicated. Two other papers on blood chemistry bespeak the part Professor Hagedorn has taken in the direction of work in this laboratory. In a paper by L. T. Poullson is described an investigation of the antagonism between histamine and pituitrin, and it is reported that hopeful clinical tests have been made with pituitrin in cases of shock. Dr. E. Lindberg discusses the relation of the pancreas and thyroid, and finds in the records of some cases of Graves's disease treated with insulin evidence of a hitherto unrecognized function of the pancreas. A paper of pharmacological interest concerns the use of the white mouse and the frog's heart for the biological assay of digitalis substances, and another reports a continuation by Professor Widmark of his study of the physiology of alcohol. The rates of accumulation and disposal of alcohol by the body are discussed. Among the papers of general physiological interest we must be content to note only the direct influence of the work of Professor Krogh in four different papers dealing with varied aspects of the problem of respiration, and two others concerned with the factors involved in the circulation of the blood. One other contribution only will be referred to—the important essay from Professor Lindhardt on the relation of muscle structure to the mechanism of muscular activity. The plea is cogent that, in the success which has attended the chemical and physical analysis of the activity of the isolated muscle, we should not ignore the mechanical restrictions which are imposed by the intimate structure of the bundle of fibres which we call a muscle. In welcoming this tribute of a notable school to its master we would like to add our homage to theirs, and offer to him and to them our congratulations on the promise of the wider opportunity which the new laboratory will offer.

THE PHARMACOLOGICAL TESTING OF DRUGS.

A BRIEF account was given in our last issue of the opening by the Minister of Health of the new pharmacological laboratories of the Pharmaceutical Society of Great Britain in which some of the testing contemplated under the Therapeutic Substances Act can be carried out. The laboratories, which are intended for the threefold use of research work on the pharmacological testing of drugs, the training of pharmacists in the methods of pharmacological assay, and the commercial testing of drugs for manufacturers, particularly those who are unable to set up their own laboratories for testing their products, consist of four large well lighted rooms above the society's examination hall in Bloomsbury Square. The first room is at present used for the testing of digitalis, strophanthus, and squill; the second room contains, among other apparatus, that which is needed for testing the strength of pituitary extract and all the various preparations of ergot. At the moment the laboratories are prepared only to test members of the digitalis

¹ *Physiological Papers*. Dedicated to Prof. August Krogh, Ph.D., LL.D. London: W. Heinemann (Medical Books) Ltd. 1926. (74 x 74, pp. xvi + 356; illustrated. 20s. net.)

series, pituitary extract, and ergot, but the council of the society has approved the setting up of a department, which will occupy another of the rooms, for testing the vitamin content of various products. Not only are medicinal preparations, such as cod-liver oil, to be tested, but also preparations on the border-line between drugs and food, such as fruit juices and invalid foods. The approval of the Accessory Food Factors Committee of the Medical Research Council and the Lister Institute has been secured for this project, and the Accessory Food Factors Committee will take the responsibility of laying down the standards and tests to be applied. The routine testing of vitamin-containing products will be undertaken should vitamin preparations be scheduled in the future. The last of the four rooms is for the housing of animals, which are kept under conditions approved by the Home Office, by whom the laboratories have been licensed for physiological purposes. There are also additional rooms, which will be available as the work develops. Dr. J. H. Burn, the director of the laboratories, fully recognizes that a most important field of research for laboratories of this kind is the investigation of the properties and extracts of animal glands, and this it is proposed to develop as opportunities arise.

HARVEIAN SOCIETY OF LONDON.

THE annual dinner of the Harveian Society of London was held at the Connaught Rooms on June 17th. In proposing the health of the society Sir Archibald Garrod said that his first knowledge of the society arose from reading the Harveian Lectures of Dr. Cheadle, one of the finest pieces of medical writing. Until comparatively recent times no one could learn science except in medical schools; and it was still the duty of medicine to teach people to criticize in a scientific manner. He hoped clinical medicine and surgery would continue to be regarded as sciences. Although the medical man was expected to give a diagnosis at once, no sound physician, said Sir Archibald, made a diagnosis under a fortnight. The president, Mr. E. Laming Evans, in reply, referred to the successful existence of the society for ninety-five years. He then said that next autumn would see the first award of the Buckston Browne prize—a medal and the sum of £50. The prize was to be awarded biennially for the best essay on a selected subject. This year the subject was "The etiology of high blood pressure and of the respiratory phenomena associated with high blood pressure and chronic nephritis." He went on to recall the fact that when Harvey was appointed physician to Charles I one of the perquisites of his office was "a diet of three dishes of meat, a meal, with all incidents thereunto belonging." Harvey died a martyr to gout and high blood pressure! Dr. Walter Jagger proposed the health of the visitors in a humorous speech. In reply Sir Laming Worthington-Evans, M.P., explained to Dr. Jagger the origin of the name he shared with his brother, the president; made observations on the relationship of his profession to that of medicine; and said that he would have liked to offer himself as assessor for awarding the Buckston Browne prize, observation being fitting for politicians; but he feared that induction required higher qualifications. Sir John Rose Bradford recalled that Harvey had said that it was good for people to meet together at feasts. Unfortunately, owing to alteration in currency, the feast of Harvey at the Royal College of Physicians had become reduced to a bag of macaroons. Therefore the President of the College was naturally grateful for the opportunity of dining with the Harveian Society. Sir Oscar Warburg described the advantage of combining the omniscience of the administrator with the infallibility of the clinician. Sanitary science was older than Harvey, dating back perhaps to Chiron the centaur. But Chiron was an unqualified person; and Hippocrates was probably the first person allowed by

the British Medical Association of the day to practise. Sir Oscar Warburg attributed the reduction in infantile mortality and of deaths from tuberculosis to co-operation between administrators and the medical profession. But he regretted that medical men did not always give clear guidance on important subjects, such as birth control, prophylaxis in venereal disease, sunlight treatment, and so on. In conclusion the speaker deplored the loss to the London County Council, no less than to the medical profession, caused by the death of Sir Frederick Mott. Among other distinguished guests present were Sir Richard Glazebrook, Sir St. Clair Thomson, Sir Holburt Waring, Sir Frederick Butler, Sir John Lithiby, the Master of the Apothecaries' Society (Dr. Vincent Dickinson), Mr. Mortimer Woolf, the Mayor of Paddington (Mr. Snell), and the presidents of the West London Medico-Chirurgical and the Chelsea Clinical Societies (Drs. H. W. Armstead and Seymour Price).

CINEMATOGRAPHIC OBSERVATION OF HUMAN CAPILLARIES.

THE power of the capillaries to contract on mechanical, electrical, or chemical stimulation has been well established by experimental observation, and the work of Krogh and others has shown that the areas and conditions of the capillary circulation are constantly changing. But two questions remain to be settled: (1) whether or not these variations in the capillary bed are due to contractility independent of such stimuli on the part of the capillaries, or to alterations in the tonicity of the corresponding arterioles supplying these areas; and (2) whether or not, if such independent contraction of the capillaries does occur, it is (a) a peristaltic wave forward, like that of the heart ("the peripheral heart"), or (b) a local rhythmic contraction. To elucidate these problems J. Hamilton Crawford, assisted by H. Rosenberger,¹ of the Hospital of the Rockefeller Institute for Medical Research, has investigated by means of a cinematographic apparatus the conditions of the capillaries in the human nailfold of eight normal subjects and seven patients with auricular fibrillation. These two groups are discussed in two successive papers, and the cinematographic apparatus is described in another; it consists of five parts—namely, a bed for the subject and a support for the arm, a lighting system, a microscope, a stand for holding and adjusting the finger, and a camera. The photographic films thus obtained gave a magnification of 14.4, which could be enlarged by means of a projectoscope to any desired degree (350 times was that employed) so as to reduce the possibility of error. The films were taken at intervals of one-sixteenth of a second, and the diameters of the arterial and venous limbs of the capillaries were carefully measured at a constant distance from a base line, the venous limb being slightly the larger. The observations show that the capillaries are constantly changing in diameter, but no evidence was found that the changes were due to a peristaltic wave of contraction, a contractile motion like that of the heart, or a pulsatile motion conveyed from the heart. The mechanism of the changes is left uncertain. Curious gaps, probably due to an empty rather than a contracted condition of the capillaries, are occasionally seen, and possibly these are due to a momentary stoppage of the circulation caused by agglutination of the corpuscles. In the cases of auricular fibrillation the same variations, only greater in cardiac failure, were seen, but no evidence was obtained that cardiac failure provides a stimulus to capillary contraction. In well marked cardiac failure there was stasis of blood, which was relieved when the condition of the heart improved under the influence of digitalis.

¹ Crawford, J. H., and Rosenberger, H.: Studies on Human Capillaries, *Journ. Clin. Invest.*, 1926, ii, 343-349, 351-354, 365-374.

BORDER COUNTIES BRANCH.

COMMEMORATION OF THOMAS ADDISON.

A MEETING commemorative of Thomas Addison, M.D., was held by the Border Counties Branch of the British Medical Association on Saturday, June 19th, at Lanercost Priory, where Thomas Addison is buried. The President of the Branch, Mr. Norman MacLaren, F.R.C.S., of Carlisle, presided over a large company of members of the Association and their friends, who filled the Dacre Hall. Among those present were Sir William Hale-White (London), Dr. G. T. Willan (Carlisle), Professor W. E. Hume (Newcastle), Dr. J. A. Ross (Carlisle), Dr. Joseph Hunter (Dumfries), Dr. G. B. Muriel (Whitehaven); and Professor Lorrain Smith, Dr. J. R. Drever, Dr. A. Goodall, Dr. James Davidson, and Dr. John D. Comrie (Edinburgh). The party were received in the Priory by the Rev. A. P. Durrant, who gave an address of welcome and a short description of the Priory. At the close of the meeting members visited Addison's grave, which is situated in a quiet sequestered spot under an old yew tree in the Priory churchyard, surrounded by rows of tombstones erected to Addisons and Addysons of bygone times. The party also had an opportunity of visiting Banks House, the home of Addison's forefathers, the Roman wall and camp at Birdoswald, and the neighbouring castle of Naworth, the seat of the Earl of Carlisle.

President's Address.

The President of the Branch, in opening the commemorative proceedings, referred to the fact that Dr. Thomas Addison sprang from a family of yeomen in Cumberland which had resided at Banks House in the parish of Lanercost since the time of the Commonwealth. Joseph Addison, the father of the physician, had traded as a grocer at Long Benton near Newcastle-on-Tyne, married Miss Sarah Shaw, and had two sons, John and Thomas, the latter of whom they were met that day to honour. Thomas Addison had been born at Long Benton in 1795 (not 1793 as generally stated), and although designed by his father for the law had himself chosen medicine as a profession. At Newcastle Grammar School he had obtained a masterly knowledge of Latin, which he spoke and wrote fluently. He had not followed the ordinary usage of the day in being apprenticed to a surgeon-apothecary, but had gone direct to Edinburgh to commence his medical studies. Mr. MacLaren referred also to Addison's marriage in 1847 at Lanercost Church to Elizabeth Catherine, widow of Mr. H. W. Hauxwell, to his death at Brighton on June 29th, 1860, and his burial on July 5th at Lanercost Priory, which had been associated for seven and a half centuries with the names of Robert de Vallibus, the founder, with Belted Will Howard, and with other warrior knights, abbots, and yeomen of the borders, and which Addison had loved so well.

Edinburgh Studies.

Dr. John D. Comrie followed with a description of the medical school as it existed at Edinburgh in the years 1812-15, when Addison was a medical student there. He referred to the fact that Addison had been a fellow student of Richard Bright, with whom he was in later life associated as physician to Guy's Hospital and as writer of an important textbook on medicine. During his first session at the university, Addison had taken the classes of chemistry and midwifery, and had apparently studied anatomy under one of the extramural teachers who were successfully competing against *Monro Tertius* in his declining years. In his second year Addison worked with extraordinary assiduity, attending no fewer than eight classes—those of *materia medica*, practice of medicine, institutes of medicine, anatomy, botany, clinical medicine, clinical surgery, and obstetrics. In addition to this, he

had been a member of the Royal Medical Society, but he had not reached the presidential chair, as had been commonly stated in his biographies. In his final year, 1814-15, the number of classes which he attended was more reasonable, these being clinical medicine, practical anatomy, chemistry for a second time, and *materia medica* for a second time. It was interesting to notice that he had twice over attended the *materia medica* class, taught by Professor James Hume, who had been a very popular lecturer and from whom Addison had learned those principles which he later taught with great success as lecturer in *materia medica* at Guy's Hospital. Dr. Comrie described the personal characteristics of several of Addison's professors, who had apparently done much to mould his character, in particular Professor James Gregory, from whom he had learned medicine and who had attended Addison through a serious illness. Addison graduated M.D. in August, 1815, with a thesis, "*De Syphilide et Hydrargyro*."

Tribute by Sir William Hale-White.

Sir William Hale-White continued the story of Addison's life by describing the discoveries he had made at Guy's Hospital. He had entered as a perpetual physician's pupil at Guy's in 1817, held an appointment as house-surgeon to the Lock Hospital, and had been a pupil and physician at the General Dispensary, under the celebrated Dr. Bateman. What kind of a man had Addison been? the lecturer asked. The two persons best able to answer this had been Wilks, who was his pupil, and Lonsdale, his doctor friend in Cumberland. Wilks had attributed Addison's success to a personal power much superior to what Bright could ever claim, and equal to, if not greater than, that of Sir Astley Cooper. The students had worshipped him, but feared rather than loved him. He had been melancholy and liable to fits of depression and at times appeared haughty, unapproachable, and even rude, a failing which Addison realized and attributed to nervousness. Sir Samuel Wilks had given the following description of Addison's personality:



THOMAS ADDISON, M.D.

"He was dogmatic in his teaching and thus the pupils accepted as pure gospel every word which flowed from his lips. The force of his words was enhanced by his mode of delivery and by the presence of the man himself. Addison was of good height and well made, stood erect, with coat buttoned up very high, over which hung his guard and eyeglass. He wore a black stock with scarcely visible shirt collar, and this further elevated his head. He had a well proportioned good head, with dark hair and side whiskers, large bushy eyebrows, and smallish dark eyes, nose thick, as were also his lips, which enclosed his firmly knit mouth. His features were not refined, but belonged to a powerful mind, and showed no trace of any kind of sentiment. His penetrating glance seemed to look through you, and his whole demeanour was that of a leader of men, enhanced by his somewhat martial attitude."

Lonsdale had recorded that Addison loathed advertisement, indignantly refusing to write what he called "puffery," that he was musical, in politics a Tory, and he had considered that Addison would have risen to the top of any profession he had entered. Great as had been Addison's reputation among those of his own profession who knew him, he had not been successful in building up a large practice, and he had been almost unknown to the general public. He had thus been left free to teach and to make his discoveries. Now, however, his fame was world-wide, not only because he had been a great personality, a brilliant teacher, and an exceptionally successful diagnostician, but because he had made several fundamental discoveries in various departments of medicine. Sir William Hale-White mentioned seven points which had especially established Addison's reputation. It was difficult

to estimate the relative importance of these, but, taking them in the order in which Addison had published them, they had been the following. He had been the first to teach the clinical signs presented by a patient with a fatty liver. He had been the first to give an account of the symptoms and post-mortem appearances of appendicitis, and although this fact had long been forgotten the description of appendicitis given by him in *The Elements of Practical Medicine*, published in 1839, left very little to be added at the present day. He had demonstrated that pneumonia was not an inflammation of the tissue of the lung, but an inflammatory exudate into the air cells, and this process was now so completely recognized that it was difficult to realize that it had once required to be discovered. He had demonstrated that tubercles were not the sole cause of the change in the lung in phthisis, but that ordinary inflammation contributed, or, in present-day language, that phthisis was a mixed infection. He had pointed out that xanthoma, or, as he called it, vitiliginoides, of which he gave the original description, was associated with jaundice. He had discovered the existence of the severe anaemia often called pernicious anaemia, but better named Addison's anaemia, and he had given a perfect clinical description of it. He had discovered the existence of a disease due to destruction of the suprarenal capsules, which was now called Addison's disease, had given a complete clinical description of it, and had thus laid the foundation of modern endocrinology. Sir William Hale-White considered that Addison's greatest contributions to the advance of medicine had been those associated with diseases of the lungs. He had given an admirable and detailed description of the phenomena of pneumonia based upon careful pathological examinations. He had demonstrated also that the condition described by Laënnec as "carnification" was due to compression of the lung by fluid in which inflammation played no part. As regarded the pathology of phthisis, he had enunciated that "inflammation constitutes the great instrument of destruction in every form of phthisis," and he had added, "I very much question whether there ever was a single instance of tubercular disease of the lung proving fatal, in which symptoms of this pneumonic change might not have been distinctly recognized if the prevailing notions respecting tubercular infiltration had not obscured the perception of the beholder." This view, in opposition to the teaching of the great Laënnec, had afterwards been accepted by Reinhardt, Virchow, and other modern observers. It was curious that, although Addison was greatly honoured abroad, and although no man had ever been held in greater esteem at Guy's Hospital than Addison, the medical public in England paid little attention to him or to his discoveries during his lifetime. Only one medical paper, the *Medical Times and Gazette*, thought it worth while to notice the great man's death, while the Royal Society and the universities had passed him by in the honours they had to give, and he had held no court appointment. He had not been a member of the newly formed Pathological Society, and the Royal Medico-Chirurgical Society had refused to publish some of his papers, even after he had been president of it.

The meeting concluded with a vote of thanks to the lecturers who had come from London and Edinburgh for the commemoration.

THE HEALTH OF THE ARMY.

ANNUAL REPORT FOR 1924.

THE Report on the Health of the Army for 1924¹ has appeared within four months of the report for 1923. The expediting of these reports, as well as certain marked improvements in their character and arrangement (commenced in 1923), must be regarded as evidence of the earnest endeavour of the War Office to meet the frequently expressed desire for less delay in their issue. A record of the health of the Woolwich and Sandhurst cadets, and of the boys at the Technical School, Beachley, has been added to the 1924 report.

¹ Report on the Health of the Army for the Year 1924. Vol. 18. London: H.M. Stationery Office. (8vo, pp. iv + 146, with 75 statistical tables and 2 charts. Price 3s 6d. net.)

In an average strength of 10,231 officers the admission and death rates were 284.4 and 5.86 per 1,000 respectively, as compared with 286.9 and 3.93 in 1923, 298.3 and 4.48 in 1922, and 374.2 and 5.90 in 1921. Among other ranks, with an average strength of 192,283, the admission rate was 484.7 per 1,000, as compared with 484 in 1923 and 515.8 in 1922; while the death rate was 2.80, against 2.84 and 3.22 in the two previous years. In the year before the war the admission rate was 437.7 and the death rate 2.81. Although these rates do not indicate a higher degree of health in 1924 than in 1923, the ratio of invaliding from overseas fell from 8.65 per 1,000 of strength to 7.12, and of finally discharged as unfit for further service from 14.50 to 13. A much more favourable result would have been recorded but for the high incidence in the final discharge of invalids from India, which rose to 14.74 per 1,000, as compared with 8.47 in 1923. The constantly sick rate for the whole army also showed a slight decrease—from 28.54 to 27.11 per 1,000.

The chief causes of admission to hospital were malaria (13,644 cases), venereal diseases (9,193), influenza (6,654), tonsillitis (5,248), inflammation of areolar tissue (4,322), bronchitis (3,509), sandfly fever (3,005), and sprains (2,245). Influenza was widely prevalent during the year, the admission rate being 34.6, as compared with 7.6 per 1,000 in 1923. Malaria and bronchitis showed a slight increase in the admission rate, but there was decrease in the incidence of sandfly fever, venereal diseases, dysentery, and most of the other diseases. Only 14 cases of alcoholism were admitted throughout the whole army.

The highest ratios of inefficiency from sickness occurred in Iraq, West Africa, and China, and the lowest in Bermuda, Mauritius, the home commands, and Gibraltar. A marked improvement is shown in the health of the army on the Rhine, the constantly sick rate falling from 42.33 in 1923 and 64.49 in 1922 to 27.31 in 1924. This good result is attributed to a remarkable decrease in venereal diseases, the admission rate for which was only 38.4 per 1,000, as compared with 136.3 in 1923. Venereal diseases, both in the army as a whole and in individual commands, is gradually being reduced by a *cordon sanitaire* of moral and medical education, recreational and medicinal prophylaxis, notification and treatment.

In the summary of diseases and disabilities a short note on dysentery is important in view of the controversy that arose in connexion with the record of amoebic dysentery in 1923. The report for 1924 gives no information regarding the commands in which this form of dysentery occurred, but states that, of a total of 810 admissions, 707 were diagnosed as amoebic, 48 as bacillary, 54 as unclassified, and 1 as a carrier. As 669 of the cases occurred in India and 39 in Iraq, it may be assumed that the majority of the cases diagnosed as amoebic were geographically east of Suez, a fact which again corresponds with previous official returns. Doubts are, however, being thrown on the accuracy of the diagnosis, and investigations are now proceeding to determine whether, as has been suggested, bacillary dysentery is not more prevalent than the records disclose.

Enteric fevers were, as usual, more prevalent in India than in other commands, the ratio of admissions being 3.1, as compared with 2.3 in 1923; but for the whole army the ratio (1.1 per 1,000 of strength) is exactly the same as in the previous year. Several of the cases in India were traced to carriers employed in connexion with food or drink. Although over 95 per cent. of the troops in India were inoculated against enteric the report does not tell us how many of the 181 cases had been so protected. In this connexion the printer has allowed a mysterious parenthetical note—" (Para. omitted. See p. 143 of draft) "—to appear. Page 143 of the report, however, has no reference to the matter; it is a table of Iraq statistics, and the substance of the omitted paragraph must therefore be left to conjecture.

An interesting account is given of the occurrence of six cases of typhus in Malaya, although these are not shown in the statistical tables either of the whole army or of the Malaya garrison. The cases occurred among men in camp, near Kuala Lumpur, on ground over which native herdsmen, who suffer sporadically from the disease, had grazed their cattle. There was no evidence of infectivity by the agency of lice, and ticks are suggested as the vectors.

In the report on the activities of the special departments the value of the drug "von Heyden 471" in the treatment of kala-azar and Oriental sores, and the use of stovarsol in place of emetine in amoebic dysentery, are noted. The report on surgery is evidence of thoroughly up-to-date work on the part of the army surgical specialists.

In the section on hygiene many sanitary improvements are noted, including provision of child welfare centres. A new emergency ration of 1,700 calorie value, weighing 21 oz., is being tried in place of the existing ration of 2,800 calories and 38 oz.; and experiments are being conducted for better distribution of the load carried by the soldier, and for sterilizing water

by compounds of ammonia and chlorine. In the pathological department the more important researches dealt with were the production of an antidyenteric vaccine, investigating values of various serological tests for syphilis, serological work, in connexion with the food poisoning group of bacilli, and the relation of diphtheroid bacilli to skin ulceration. Recruiting is included in the work of the special departments; 57,066 candidates for enlistment were examined; 353.75 per 1,000 were rejected and 29.74 per 1,000 within six months after enlistment. In 1923 these ratios were 376.64 and 40.09 respectively. The marked decrease is attributed to better co-ordination of the medical recruiting methods. The greatest proportion of rejections were from Scotland—namely, 434.53 per 1,000, as compared with 360.89 from England and Wales and 309.99 from Northern Ireland. Diseases of the middle ear, defective vision, defects of lower extremities, loss or decay of teeth, and heart diseases were the chief causes of rejection. The remainder of the report, consisting of statistical tables, calls for no special mention, but it is to be noted that the table of tuberculosis incidence, according to age and length of service, which was open to criticism in the report for 1923, has been omitted.

THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ANNUAL REPORT OF THE CONSERVATOR.

IN his annual report for the year ending in June, 1926, the Conservator of the Museum of the Royal College of Surgeons of England refers to the changes which have occurred in the staff, to the work of the different departments of the Museum, to the research work undertaken at the College, and to the publications which have been issued and the lectures and demonstrations held in connexion with the Museum. Lists of gifts made during the year to the several collections are inserted, with comments on the specimens of special interest; and separate reports of the pathological and physiological curators, relating to their respective departments, are included in the main report. The post of pathological curator, left vacant by the lamented death of Professor S. G. Shattock, has been filled by the appointment of Mr. C. F. Beadles, who had long been connected with the Museum, assisted Professor Shattock in the formation of the great collection illustrating general pathology, and was mainly instrumental in the formation of the war collection which is at present housed in the basement of the building. With the exception of a certain number of dry specimens, the whole of the latter collection has been arranged and catalogued, and may be considered to be complete. Mr. Beadles is now engaged on the series of special pathology, and the revision and rearrangement of this collection, commenced by Professor Shattock, has made considerable progress, embracing the specimens of the cutaneous, locomotor, and nervous systems, and those of the heart and pericardium. The council of the College has been fortunate in obtaining the services of Mr. T. W. P. Lawrence, F.R.C.S., to advise in the diagnosis and description of all pathological specimens.

Among the additions to the pathological and teratological collections several are of unusual interest. One, the heart of a new-born child, shows complete obliteration of the aortic orifice, the sole communication between the left ventricle and the aorta being through a greatly enlarged anterior descending coronary artery, which at its lower end expands into a cyst communicating with the apex of the ventricular cavity. A second, almost identical, abnormality of the coronary artery is from an ox; in this case, however, the orifice of the aorta is normal. An equally remarkable specimen exhibits a general dilatation of the oesophagus of a dog, above a tight stricture due to compression in a ring formed on the one side by a right aortic arch and on the other by the normally placed pulmonary artery and ligamentum arteriosum. Among the specimens of more direct surgical interest is an uncommon form of tumour removed from the pleura, which has received the name of lipo-fibro-sarcoma or lipo-plastic sarcoma. It is characterized by the presence of extensive tracts of fat cells of the embryonic type, and when stained with Sudan forms a very striking object. Another interesting specimen has all the appearances of an ordinary ileo-caecal intussusception, but on closer examination

proves to be an invagination of the wall of the ileum, due to the presence of a submucous lipoma, and its prolapse through the valve in a form exactly resembling the bent sausage-shape of an intussusceptum. A very similar appearance, in another specimen, is produced by a large cylindrical cyst, six inches in length, of the type which is lined with intestinal mucosa and is recognized as liable to occur in the ileo-caecal region.

In the Physiological Department, among the additions to the collection are a number of specimens completing the series designed to illustrate the comparative anatomy of the ductless glands. The most interesting work in this department, however, is that of Mr. Burne, the curator, on the intimate relation of the thyroid gland to the lymphatic system. The results of his observations have been published in the *Philosophical Transactions*, and lend support to the conclusions drawn by Dr. Scott Williamson and Dr. Innes Pearce from the researches they are conducting at the College on the finer anatomy of the thyroid gland, details of which have already appeared in the *British Journal of Surgery*. The series of human osteology has had a notable addition this year in the form of a cast of the "Galilee" skull. The original specimen, which is the property of the Government of Palestine, and was sent to Sir Arthur Keith for examination and report, was excavated from a cave situated near the Sea of Galilee; it is of the Neanderthal type, and has the additional interest that it is the first example of that type found outside the limits of Europe. Another important addition is a cast of the "London" or "Lloyd's" skull, recently excavated in the City, and considered by Sir Arthur Keith to be the oldest trace of the human body yet discovered in the valley of the Thames. The Conservator has also had the opportunity of examining numerous other human remains excavated in this country, some of which have been added to the Museum, and has thus made progress in the accumulation of data bearing on the physical history of the English people. During the past year Miss Tildesley has been occupied in verifying the histories of the native Indian and Cingalese skeletons in the Museum, and more particularly in establishing the genuineness of the Vedda specimens—a point of importance, since that race is now ceasing to exist in its original purity. An interesting gift from the President, Sir John Bland-Sutton, deserves special mention. This is a fine specimen of the Mexican ligature ant (*Eciton hamatum*). The animal is used by the natives as a kind of animated Michel's clip in the suturing of wounds; it possesses two powerful mandibles with curved, sharply pointed extremities, and these, when the living animal is applied to the wound, grip its edges. The body is then cut away, leaving the head *in situ*; the prolonged contraction of the mandibular muscles effects a permanent closure of the wound.

The number of visitors to the Museum during the year was 11,168, many of them students. The new specimens will be on view in Room I from Thursday, July 1st, until Saturday, July 17th. The additions on the pathological side number as many as 140; this seems to indicate that members of the profession recognize the claim that the Museum has upon them, and their determination to maintain its position as the finest pathological museum in the world.

England and Wales.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

THE prizes were distributed at St. Thomas's Hospital Medical School by Sir John Bland-Sutton, P.R.C.S., on June 22nd. Sir Arthur Stanley, treasurer of the hospital, who presided, said that the governors were greatly indebted to the medical school and clinical staff for their successful efforts to raise the amount (£15,000) which enabled the hospital to take advantage of the equivalent sum offered as a benefaction by the Rockefeller Foundation. Sir Cuthbert Wallace, dean of the school, after presenting the other prize-winners, mentioned that, unhappily, the winner of the Bristowe and Mead medals, Mr. R. B. Alston, incurred a poisoned finger in the course of the examination,

and afterwards succumbed. His work in the two-thirds of the examination which he was able to undertake was so far ahead of his competitors that it was felt that his name should appear as the recipient of the awards.

Sir John Bland-Sutton, in his address, began by observing that the schools of medicine in London had formed a sort of archipelago with very little communication between the several islands. There had been times, indeed, when the schools were in absolute conflict; that was, happily, of the past, or what remained was the honourable antagonism of the sports ground. The insularity of London medical schools was in some measure due to the habit—in its way very meritorious—of filling up the places on a school staff by men trained in that school. This inbreeding had some serious drawbacks, but St. Thomas's had suffered least in this respect. He instanced that great physician of St. Thomas's, Richard Mead, who was educated in Holland and graduated at Padua. In 1703 he came to London, was elected to the Royal Society, and made a great name by writing a paper on a very trivial subject—namely, itch. But such was the reputation that he made for himself that St. Thomas's took possession of him. Another great transplantation to St. Thomas's of a later date was that of Sir William MacCormac, who was trained in Belfast, came to London, and eventually became President of the Royal College of Surgeons. Many would still remember his distinguished presence, subtly emphasized in his later days by the invariable company of a magnificent dog. In striking contrast was the slim figure of Professor Shattock, who was transplanted from University College. It was delightful to find in the museum at St. Thomas's, which he did so much to enhance, a conspicuous tablet to his memory. Addressing the students particularly, he said that a medal was only a piece of metal, of no use in currency, struck to commemorate some person or event, but some medals were very beautiful objects, of great intrinsic value, as well as imaginative and inspiring. The Royal Society, which had eight gold medals to present annually, at one time found that certain of the persons to whom they were awarded, being impecunious, as scientists frequently were, were selling them for their value in gold, which in one instance was as much as £50. Accordingly it had now become the custom to give the medal in silver or bronze, and to hand the balance to the recipient in cash. He had himself profited in his early days from such an arrangement, and on his prize money he had wandered in Europe, visiting Paris and Vienna; there was no better way of preventing any undue conceit in a medallist than that he should go into the wider world and so discover that there were other men as good as himself who had done work at least as excellent. Medals were milestones in the history of an institution; they were given, not for ostentation, but for remembrance and reward. They brought to mind the names of great men who laid the foundations of that which the present generation enjoyed, and which it would be the duty of those who came after to extend.

Sir George Makins proposed, and Dr. A. E. Russell, senior physician, seconded, a vote of thanks to Sir John Bland-Sutton, after which the visitors were escorted round the hospital, and enjoyed tea and music on the terrace.

THE CRIPPLE PROBLEM IN ESSEX.

On June 18th Sir Robert Jones gave an address at River Plate House, Finsbury Circus, on the cripple problem, at the invitation of the Essex County Council. Alderman H. E. Brooks presided. Sir Robert Jones said that there were 100,000 cripples in the country at the moment, and a large proportion of them were even now becoming steadily worse. Big things had to be done for them because little things were not done at an early stage. The majority of cases not caused by war fell, he said, into four or five groups: tubercle; rickets; the paralytic group, due directly to infection; congenital defects, such as club-foot; the industrial group, due to accidents. For tuberculous cripples, he said, there ought to be a national scheme. Tubercle affecting bones, glands, and joints was due to infection, and was not hereditary. Congenital tubercle was a different thing; it dated from the time the child started to live and was so rare that it need not be taken into account. Sir Robert Jones said

that 60 out of 100 cases of bone and joint tubercle were due to the bovine bacillus. To prevent infection by the human bacillus some means must be found to safeguard children from coming in contact with people in the active stages of the disease. Cases sent home from sanatoriums to die were dangerous, and in a room occupied by a tuberculous person the carpet was infected, and children playing in the room would become infected. Rickets, said Sir Robert Jones, was absolutely under control and could be prevented by proper diet, sunlight, and fresh air. The hunchback might have escaped his deformity if it had been discovered in infancy and he had been put to lie down in proper surroundings; the club-foot, if moulded into shape when discovered, could have been put right, but left for three or four years was all but incurable. In any scheme Essex adopted there should be beds for adults as well as children, and there should not be too much strictness about the age when a child ceased to be a child, so that he might be perfectly recovered when he went out. A suitable hospital would not be too expensive. Essex with its population of nearly a million would want 300 beds. In regard to after-care clinics, he said the cost of looking after children in them was about £4 a year, as compared with £130 a year in a hospital.

ORTHOPAEDIC HOSPITAL AND HOME, BRISTOL.

The forty-ninth annual meeting of the Orthopaedic Hospital and Home for Crippled Children, Redland, Bristol, was held on May 31st. The hospital is one of the oldest in England for the treatment of crippling disease. A joint subcommittee with the Bristol Crippled Children's Society has been appointed to make arrangements for amalgamation of the two bodies, with a view to building a new country open-air hospital school, and abandoning the present little hospital and home. Mr. G. R. Girdlestone, surgeon to the Wingfield Orthopaedic Hospital, Oxford, in the course of an address, called attention to the difference between orthopaedic work in the present and in the past. The difference was not so much an improvement in surgery as an improvement in the work done by committees and the public. Orthopaedic hospitals in the past did wonderful work, but their cures were rarely perfect; the patients were only patched up. Then the time came when they got hold of children a little earlier; infant welfare centres realized that if cases were sent early to an orthopaedic hospital they came back cured. When perfect co-operation was achieved, children would be sent at once from general hospitals and by private practitioners to orthopaedic hospitals. What was needed was a union and real teamwork between the hospitals. The Bristol Orthopaedic Hospital and Home was going to have an institution in still more country air, so that during treatment the children could keep in touch with nature. The quality of the present work of the home showed how well it would be done when a proper institution was available. A vote of thanks for his address was given to Mr. Girdlestone.

CENTRAL MIDWIVES BOARD.

The Central Midwives Board for England and Wales on June 3rd held a penal session followed by an ordinary meeting. The following were appointed members of the Approvals Subcommittee for the ensuing year: Dr. J. S. Fairbairn, Miss E. G. Greaves, Miss M. D. Haydon, Dr. R. A. Lyster, Miss A. A. I. Pollard, and Mr. Charles Sangster. A letter from the Ministry of Health was considered. It proposed, for reasons stated, to extend the approval of the rules in their present form for a further period—until September 30th, 1926—and expressed the hope that by that date all suggested amendments to the rules would have been settled, so that the rules, when approved, might remain in force as long as possible without further alteration. In reply the Board expressed the view that it would welcome a return to the original practice of approving the rules for a period of five years. A letter was read from the Poplar guardians stating that the chairman of the guardians and the chairman of the committee directly concerned could not understand the Board's view that the medical officer referred to in Rule E.27 must be a resident medical officer, and asking for the Board's observations on the matter. It was decided to

reply that in the view of the Board the supervision referred to in Rule E.27 could not be exercised satisfactorily by a non-resident medical officer, and that the word "resident" was implied in the words "duly appointed" in the intention of the Board. The appointment, therefore, of a non-resident medical officer, in so far as the rule in question was concerned, could not be considered "due." The report and recommendations of the Approvals Subcommittee were received and adopted. The next meeting will be held on July 15th.

Scotland.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

THE twelfth annual conference of the National Association for the Prevention of Tuberculosis will be held in the McLellan Galleries, Sauchiehall Street, Glasgow, on the first three days of July next. The conference will be formally opened by Sir Matthew W. Montgomerie, Lord Provost of Glasgow, at 10.30 a.m. on July 1st. The first subject for discussion, "Provision for the care of non-pulmonary tuberculosis," will be opened by Dr. A. S. M. MacGregor, medical officer of health for the city of Glasgow, and by Mr. James Taylor, consulting surgeon to the corporation hospitals and sanatoriums. Other speakers will be Dr. J. H. Paul of Millport and Dr. J. G. Johnstone, medical superintendent, Heatherwood Hospital, Ascot, Berks. In the afternoon Professor Sir Robert Philip and Dr. Lissant Cox, central tuberculosis officer to the Lancashire County Council, will open a discussion on "The actual place and function of the tuberculosis dispensary in the tuberculosis scheme." Other speakers will be Dr. W. B. Knobel of the London County Council, Dr. J. A. Wilson, Glasgow Public Health Department, Dr. William Brand, tuberculosis officer for Camberwell, Dr. James Crockett, medical superintendent of the Bridge of Weir Sanatoriums, and Dr. J. McCallum Lang, assistant medical officer of health, county of Lanark. On the morning of July 2nd there are four subjects for discussion: "Experimental studies in tuberculosis with reference to the origin of pulmonary tuberculosis," introduced by Professor C. H. Browning, professor of bacteriology, Glasgow University; "The age factor in the incidence of tuberculosis," by Dr. J. A. Wilson; "Some experiences in the treatment of tuberculosis by artificial sunlight," by Dr. Alexander Smith of the Robroyston Sanatorium; and "Glasgow's solution of the smoke problem," by ex-Bailie Brownhill Smith, chairman of the Committee on Health, Corporation of Glasgow. The afternoon of July 2nd and the morning of July 3rd will be devoted to visits to various institutions and to demonstrations. Thus visits have been arranged to corporation housing schemes; to hospitals, sanatoriums, and tuberculosis colonies; to the tuberculosis dispensary and light treatment centre; and to the corporation bacteriological laboratories. Demonstrations will be given by Dr. Fergus L. Henderson of radiograms of the chest, and by Drs. James Taylor, John Watson, and A. Smith of the methods of treatment of non-pulmonary tuberculosis. The Hon. Sir Arthur Stanley, chairman of council, will preside at the meetings. There will be a reception by the Lord Provost and magistrates of the city of Glasgow on the evening of July 1st; and a list of tours to places of interest will be published. The conference is open to all persons on the payment of a fee of one guinea, and each subscriber will receive a copy of the report of proceedings. Reduced fares to Glasgow will be available if normal conditions prevail. Miss Freda Strickland is secretary to the association, of which the address is 20, Hanover Square, W.1.

EDINBURGH HOSPITAL FOR SICK CHILDREN.

The annual meeting of the Royal Edinburgh Hospital for Sick Children was held on June 2nd. Sir John R. Findlay, chairman of directors, who presided, said that while in 1915 the total number of cases treated was 2,100, in 1925 it was 2,963, an increase of 863 in ten years. Speaking of the financial position, he observed that it would be satis-

factory were more received in the form of annual subscriptions and less in the form of legacies, for the actual maintenance of such an institution should be the work of the present generation. Sooner or later the public of Edinburgh would have to face the problem involved in a large extension of this hospital, which was doing most important work in the city and neighbourhood. Lord Provost Sir William L. Sleigh expressed the opinion that the care of children and the healing of their diseases ought to be the first charge on the benevolence of the community, for if the troubles with which children were affected could be eliminated or diminished a long step would have been taken in the direction of building up a Class A population. The report for the year 1925, submitted to the meeting, showed that of the 2,963 cases treated in the wards 1,642 were medical and 1,213 surgical. The number of operations performed in the surgical theatre had been 1,112. At the out-patient department the number of attendances was 25,958, and 2,063 minor surgical operations had been performed. In the medical electrical department 1,482 radiographic examinations had been made, and in the ear and throat department there had been 1,079 new cases with 659 operations. The ordinary income for the year had been £12,270, with an ordinary expenditure of £16,379, and the legacies had amounted to £10,907. The report mentions a new department for treatment by artificial sunlight. The directors had set apart a portion of the out-patient department, consisting of two rooms and a nurses' room, in which patients could receive treatment by ultra-violet rays, and although it had only been open for a short time great benefit had already been derived by the patients from this form of treatment.

INFLUENZA EPIDEMIC AT ST. KILDA.

The island of St. Kilda occupies a position in the Atlantic which, combined with the precipitous nature of its coast, renders all access during the winter months difficult or impossible. The s.s. *Hebrides* made its first call for the season on May 30th for the purpose of landing provisions. The last visit had been paid in August, 1925. The steamer reports by wireless that an influenza epidemic has been ravaging the island for some weeks and has been accompanied by five deaths, of which four took place within a week. The epidemic apparently broke out after the arrival of the mail boat in the late spring for the delivery of this year's mails.

Ireland.

BELFAST MEDICAL APPOINTMENTS.

THE Belfast board of guardians has taken another step in its progressive policy, to which has been due in the past so many advances in the care of the large number of patients under its charge. The late Dr. McLiesh had charge of the midwifery department, of a large number of patients with nervous and mild mental trouble, and of many medical cases. At the meeting of the guardians held on June 15th two medical men were appointed—one, Mr. T. S. Holmes, M.Ch., F.R.C.S. Eng., to be in charge of the maternity and gynaeccological departments; and the other, Dr. T. H. Crozier, M.D., M.R.C.P. Lond., to be physician in charge of medical cases. The profession in Northern Ireland will hasten to congratulate the board on the wisdom of this further specialization of its visiting medical staff, which relieves the medical men of an intolerable burden, and at the same time enables them to give the patients more and more skilled specialized treatment.

LOCAL AUTHORITIES BILL (IRISH FREE STATE).

In the committee stage of the Local Authorities (Officers and Employees) Bill, Mr. P. Baxter (Farmers' Party) moved an amendment to provide that, instead of recommending one candidate, the Civil Service Commission should forward to the local authorities a panel of candidates adjudged by them to have reached the standard of qualifications necessary to perform the duties of such office. Dr. Hennessy opposed the amendment as in practice it would mean that a local candidate would be appointed even

though in regard to merit he was at the bottom of the list. From personal experience he knew that it was a distinct disadvantage for a doctor or an official to have to discharge public duties in his native county. Acceptance of the amendment, he was convinced, would vitiate the whole scheme. The Minister for Local Government said that Mr. Baxter had made no serious case for his amendment. Appointments should be made either by competitive examination or by a selection board. If the former were not accepted as the proper system, he could not see what benefit would accrue from submitting the results of an examination to what was, perhaps, the worst qualified body to decide the final result—the members of a local authority. If competitive examination did not give the best results an attempt should be made to get a body as far removed from all local influence as possible. The intention of the bill was to close the door to abuses. The only effect of the amendment would be to open the half-door to those things. Mr. Baxter's amendment was defeated on a division by 52 votes to 12, and a ministerial amendment, embodying the new form in place of the original subsection, was agreed to, as were consequential amendments substituting where necessary the words "local authority" for the word "Minister."

Correspondence.

VOLUNTARY TREATMENT IN MENTAL HOSPITALS.

SIR,—I desire to bring an important medical issue, affecting the community, to the notice of the medical profession in Scotland.

In itself mental illness is always distressing, but it is made much more so if, before treatment can be obtained, a patient must be certified by doctors and registered by the sheriff as a "person of unsound mind." This additional suffering is, however, in most cases quite unnecessary. It is, for example, not inflicted on the majority of patients of the richer classes, for these regularly enter our mental hospitals not as certified but as voluntary patients. Their admission as such enables them also to avoid the slur that unhappily attaches to those who have been treated in mental hospitals, as in the eyes of the law a voluntary patient, whatever his mental condition may be, is not regarded as a "person of unsound mind." To many it may come as a revelation that two-thirds and more of those with means who undergo treatment in our mental hospitals do so as voluntary patients.

The poor are entitled to exactly the same privileges as those with means, but owing to ignorance and misunderstanding their rights have not been brought to their notice, and in consequence over 99 per cent. of rate-supported patients are certified and registered as "persons of unsound mind." Not 1 per cent. receive treatment as voluntary patients. There is something amiss when such a difference exists in the means of obtaining treatment for an illness by members of these two classes.

Among the misunderstandings is the belief that a voluntary patient costs the ratepayers more than a certified patient. In the latter case it is said the Government gives a grant-in-aid amounting to £7 9s. 6d. per annum, whereas no such relief is afforded the ratepayer in the case of a voluntary patient. This is an error. The cost to the ratepayers is exactly the same in both cases, as the Government grant is not calculated on a capitation basis but consists of a fixed sum given annually as a grant-in-aid to the parishes, irrespective of the number of patients or whether they be certified or voluntary.

Another impression commonly held is that no person of unsound mind whom it is possible to certify can be admitted as a voluntary patient. This also is an error. It has been stated by the highest legal authority on matters connected with lunacy—and his views have not been opposed officially—that if such a condition ever existed it was repealed in the Act of 1913. There is one condition and one only to be observed, and it is that the patient should desire to submit to treatment. The procedure is simplicity

itself. The patient gives to the medical superintendent the following letter:

Dear Sir,—I desire to be admitted as a voluntary patient to the (name the mental hospital). I am, etc.

In other words, a patient entering a mental hospital voluntarily has to express his wish in writing. He has also to give three days' notice of his intention to leave. A rate-supported patient desiring this form of treatment must have the approval of the officials of the parish council—namely, the medical officer and the inspector. I would appeal to every doctor in Scotland to make this provision known to the poor and to recommend every patient of his requiring treatment in a mental hospital to enter as a voluntary patient.

Only those who have seen the distress that medical certificates and sheriff's orders occasion to patients and to their relatives, and know how unnecessary they are in the majority of cases, can realize all the good that will result from following the above advice. The sick in mind and the poor will benefit, and mental hospitals will, we hope, be regarded, not as places of detention, but as hospitals for medical treatment like other hospitals. As for doctors, they will be relieved of a distasteful, a thankless, and a perilous public service.—I am, etc.,

GEORGE M. ROBERTSON.

The University of Edinburgh, June 21st.

OBSTETRICS IN GENERAL PRACTICE.

SIR,—As one with eighteen years' hard midwifery and general practice, both country and town, behind him, may I claim a line on the above subject?

Dr. Kerr leaves me with the impression that all the ill pregnant women are heir to lie at the doors of dirty and careless and ignorant general practitioners. I may say, of course, that in this he is simply echoing what has been before said by Drs. McIlroy, Bourne, and Dame Janet Campbell. Therefore, he says, "remove midwifery from the sphere of the general practitioner and hand it over to midwives and (in Glasgow) ten obstetric specialists."

At the same time, so logical is his mind on the matter, he would prolong and intensify the study of obstetrics by the medical student, and would like general practitioners every three years to take a "refresher" in midwifery. They can then go out and see the midwives and obstetric specialists doing all the midwifery!

He says that of 29,493 births (in Glasgow in 1922) only 8,288 were attended at their homes by doctors. The rest were either attended in institutions or by midwives. Now how can the general practitioner be blamed for all the sepsis? Can he give us the percentage of sepsis in these 8,288, the percentage of sepsis in the 3,025 attended in institutions, and in those attended by midwives? Will he give us his own sepsis percentage?

He compares an operation in general surgery with a midwifery delivery. They cannot be compared, because once a surgeon gets his area aseptic he can keep it so, whereas neither Dr. Kerr nor anyone else ever delivered by the natural passages on a constantly or totally aseptic field. Dr. Kerr, I am sure, is wrong in viewing pregnancy as any more a battle ground than normality is. In all nature pregnancy is a revivifier. It is so normally in women. I grant that a cracked vessel under strain may break. I had the good luck to be for two years under a general practitioner with fifty years' experience. He often impressed on me the fact that practically all his cases of albuminuria of pregnancy occurred in patients where at one time or another the kidney had been hit by scarlatina, etc. He distinguished quite sharply between those cases of simple presence of albumin due to the greater call on the excretory organ (this comes late in pregnancy and is not of great moment) and the scanty but constant albumin which came early and meant old kidney trouble relighted. He did not believe pregnancy *per se* caused albuminuria. His views appear more reasonable than Dr. Kerr's. Dr. Kerr is going to fine or bribe the women to go to his centres by docking or giving them the maternity benefit.

In eighteen years I have attended close on 2,000 cases, with almost exactly one case of puerperal sepsis in every

200 cases. All these were in Glasgow and all in good home conditions. All died.

I have delivered bad cases at the call of midwives under every possible adverse condition, and not one ever turned a hair. Dr. Kerr talks about young and inexperienced men muddling along in midwifery. Of course they do. So did Dr. Kerr. That stage soon passes.—I am, etc.,

Dennistoun, June 15th.

JAMES COOK, M.B.

HYOSCINE IN POST-ENCEPHALITIS LETHARGICA.

SIR,—The use of the term "hysterical" in the article on post-encephalitis lethargica by Drs. McCowan, Harris, and Mann (May 1st, p. 779) raises the question as to the signs and symptoms to which it is applied. Do these authors mean by "hysteria" a condition which is influenced by suggestion, or do they use the term as synonymous with functional—that is, a condition which does not appear to be dependent directly on any demonstrable lesion? Experience teaches us that although, as Dr. Ross has pointed out in his letter (May 8th and 15th, p. 845), direct psychotherapy is rarely of value in the post-encephalitic syndromes, much can be done by such indirect methods as can be applied in an institution—namely, by encouraging the patient to join in the occupations and amusements he sees going on around him, as well as by physiotherapy and drugs.

When Dr. Ross says that hysterical symptoms are not modified in an easy fashion he is making a sweeping statement which, I am sure, he would wish to qualify. One is occasionally fortunate enough to meet with functional disorders of movement which have not had time to become habits, and which react to persuasion with dramatic rapidity. The rapid result surely does not exclude hysteria, as Dr. Ross seems to imply. Again, his statement that the post-encephalitic obtains a better result by conscious attention to his movements is not always borne out by experience. It often happens that when the patient forgets his disability the rigidity is relaxed—for example, when he runs or dances. To say that no practical result is to be gained by any psychological method is, to say the least, unduly pessimistic, unless the methods of indirect psychotherapy are to be excluded as psychological treatment.

The outcome of this discussion is a striking demonstration of the dangers of insisting on too rigid a division between "physical" and "mental." The pragmatic conception of psycho-biology adopted by American psychiatry avoids both the Scylla of attempting to reduce "mind" to neurones, and the Charybdis of a psychic monism, by considering the whole individual and attending to abnormality of function at whatever level (chemical, autonomic, mid-brain, etc., or level of highest integration) it may occur without overlooking its relation to the whole personality. It is by a wide view of this kind that the general practitioner with a human, common-sense approach sometimes succeeds when the specialist who focuses his attention on one system fails. It is more than doubtful whether "physiogenists" and "psychogenists" cling closely to their creeds in practice.—I am, etc.,

WILLIAM S. DAWSON.

The Johns Hopkins Hospital,
Baltimore, Md., June 4th.

ANGINA PECTORIS.

SIR,—Dr. Wynne (June 12th, p. 1012) has forgotten not only (as he is aware) who wrote his *angina* line, but also (as he is unaware) what the writer wrote. The author is Q. Serenus Sammonicus, dated conjecturally A.D. 230. The line, very unfortunately, does not begin "Haustum an/gina ti/bi," but "Angina/ vero si/bi"; quotations from memory on disputed points of quantity are tricky things.

A friend happened to send me a few days ago an apposite anecdote: A brother don burst into H. A. J. Munro's room at Cambridge and cried, "Macaulay has died of angina pectoris!" Munro looked up, said "angina," and returned to his Lucretius.—I am, etc.,

H. W. FOWLER.

SIR,—Mr. E. E. Sikes, President and classical lecturer, St. John's College, Cambridge, writes (BRITISH MEDICAL JOURNAL, June 12th, p. 1012) of "a living wit," who remarked that many scientific words "are compounded of two languages and one false quantity." Can this be Dr. H. R. Tottenham of the same college?

In Dr. Tottenham's *The Highest Locals* (republished from *Cambridge Review*, December 4th, 1890, in "Cluvienus His Thoughts," Cambridge, E. Johnson, 1895), which he calls "a strictly confidential report," we read:

"Group W. (*Botany*).—... Candidates should remember that even the meanest plant has a right to be described by two Latin words and a false concord, if possible."

And again:

"Group A. (*Biology*).—As there was only one Hydra provided, which was eaten by Rana early in the examination, the practical part fell through, especially as some of the more self-respecting students refused to discuss Lumbicus, which for the purposes of the examination was pronounced with a short 'i.'"

—I am, etc.,

Grasse, A.-M., France, June 15th

HENRY L. P. HULBERT.

ANTIMONY IN ANCIENT EGYPTIAN MEDICINE.

SIR,—Sir StClair Thomson's communication¹ to the Royal Society of Medicine on March 17th, 1926, on "Antimonyall cups" was very informing and interesting. He dealt in an admirable way with the history of antimony in medicine, and traced it back to the time of ancient Egypt, when he quoted Herodotus as saying that "the ancient Egyptians were the healthiest of mankind, and three days in every month they used emetics and enemas." He also regarded antimony as possibly included in the preparation with which Jezebel "painted her face and tired her head" (2 Kings, ix, 30).

The use of antimony in ancient Egyptian medicine is very old; it is mentioned in various papyri, like the Hearst medical papyrus and the Ebers papyrus, both of which date about 1550 B.C. There antimony is recommended for many different conditions. As an emetic I was not able to trace it in the medical papyri, but as a local remedy it was used enormously.

The ancient Egyptian name of stibium is *mes-demt*. Antimony was used by the ancient Egyptians in:

- (1) Headache: antimony combined with other remedies, locally applied.—Ebers, 260.
- (2) Purulent conjunctivitis (?): local application to eyes.—Ebers, prescription No. 354.
- (3) Trachoma (?) (*pedest*): locally applied in combination with copper sulphate (?) (*gesfen*).—Ebers, prescription No. 355.
- (4) Proctitis: antimony enters into a suppository.—Ebers, prescription No. 155.
- (5) To cause an abscess to open by itself (?), as a local remedy.—Hearst Medical Papyrus, prescription No. 141.

—I am, etc.,

H. KAMAL, M.B., B.S., M.R.C.S.,

L.R.C.P.

Government Fever Hospital, Cairo, Egypt.

April 30th.

FOOT-AND-MOUTH DISEASE.

SIR,—I quite agree with the opinion expressed in your last issue (p. 1002) "that the pole-axe method cannot be indefinitely used to stamp out" foot-and-mouth disease; as a practical remedy it has been a failure, and can only be beneficial in isolated or early outbreaks. When the incidence of the disease has been so general as recently it is a waste of public money.

I had considerable experience with "epizootic apthae" in the early seventies, and came to the conclusion that the positive loss to the farmer was the loss of condition the animals sustained owing to the mouth ulceration preventing the animal eating, and the irritation in the foot caused constant stamping and restlessness, with the consequent loss of flesh. So soon as the mouth and feet became healthy the animals ate voraciously, and quickly recovered their condition; so much so that many farmers were of the opinion the disease in the end was beneficial. Among several thousand cases the mortality was practically nil, and I am certain the progeny of affected animals had a certain amount of immunity; my personal observations

¹ BRITISH MEDICAL JOURNAL, April 10th, 1926, p. 669.

ROCKEFELLER MEDICAL FELLOWSHIPS.

THE Medical Research Council announces that, on behalf of the Rockefeller Foundation, it has made the following awards of Medical Fellowships provided by the Foundation and tenable in the United States of America during the academic year 1926-27:

GEORGE BOURNE, M.D.Lond., M.R.C.P.; First Assistant in the Medical Unit, St. Bartholomew's Hospital, London.

HUGH WILLIAM BELL CAIRNS, M.B. Adelaide, F.R.C.S.; Assistant Surgeon, London Hospital.

MISS ROSALIE EVELYN LUCAS, M.B. Bristol; Clinical Assistant, Maudsley Hospital, London.

RONALD DOUGLAS MACKENZIE, M.B.Ed., M.R.C.P.Ed.; Lecturer in Pathology, University of Edinburgh.

CARL FREDERICK ABEL PANTIN, M.A.Camb.; Assistant Physiologist, Marine Biological Laboratory, Plymouth.

ARTHUR FREDERICK BERNARD SHAW, M.D.Dubl., F.R.C.P.I.; Lecturer in Pathology, University of Durham.

JAMES CALVERT SPENCE, M.D.Durh., M.R.C.P.; Medical Registrar and Chemical Pathologist, Royal Victoria Infirmary, Newcastle-on-Tyne.

HARRY ELLIS CHARTER WILSON, M.B.Glasg.; Assistant in Chemical Physiology, University of Glasgow.

Dr. Lucas and Mr. Pantin have been appointed on modified conditions while holding scholarships or emoluments from other sources.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week completed the Committee stage of the Finance Bill, had a second reading debate on the Government's bill for reorganizing the coal-mining industry, and discussed the Estimates for the Ministry of Agriculture. The Parliamentary Medical Committee met on June 23rd. The Select Committee on the registration of nursing homes has completed the taking of evidence. This has been almost uniformly in favour of inspection and registration, and the Committee is expected to present a unanimous report.

Births and Deaths Registration.

On June 18th the Births and Deaths Registration Bill, as amended in Grand Committee, came before the House of Commons on report. This was the last day available for private members' bills. Mr. Basil Peto moved a new clause enjoining that no death should be registered until the registrar had received a certificate signed by a medical practitioner of the fact and the cause of death, this certificate only to be given after the practitioner had viewed the body. The new clause further proposed that it should be the duty of the General Medical Council to establish a fund by equal annual contributions from all persons on the Register who were actually practising, from which such fee as they might decide should be paid to every medical practitioner for each inspection and certificate. He said the first consideration in the bill should be that the registrar should have definite proof that the person whose death he was asked to certify was, in fact, dead. Clause 7 of the bill contained a provision that the body of a stillborn infant should be inspected by a medical man. In the larger question the medical profession took the view that it was in the interests of somebody else, and not of the medical profession, that inspection of the dead should be made, and that somebody else should pay. With that view he had a certain sympathy, and he thought that in 99 cases out of 100 the doctor's final item for the inspection of a body would be paid as a matter of course. A minute contribution from each practitioner yearly would form a pool from which poorer practitioners with poor patients could draw a reasonable fee as recompense for their loss of time. Mr. Groves said he had an interview with the Registrar-General, who admitted that the percentage of deaths with medical certification was 40. They could produce proof of cases in which people who were not really dead were about to be buried. The panel doctors and infirmary and hospital doctors should view the body as part of their work. Captain Elliot pointed out that the bill had been prepared with great care, closely examined by a committee of the House, and was supported by all parties. The Government could not accept the proposed new clause, and if its promoters pressed it they would wreck the bill. Despite this warning, Mr. Herbert Williams talked the bill out, and as no more time is available for private members' business its passage this session is regarded as impossible.

General Practitioners and Public Health.

On June 17th Dr. Fremantle asked the Minister of Health if it was the policy of the Ministry to secure the replacement of general medical practitioners by specialist medical officers of health throughout the country as and when possible. Mr. Neville Chamberlain said the general policy of his department was to approve, where possible, the appointment by local authorities of whole-time medical officers. Dr. Fremantle asked what was the proportion of whole-time to part-time medical officers of health when this policy was originally adopted by the Local Government Board in 1872; and what was the proportion now. Mr. Chamberlain said a parliamentary return published in 1873 showed that for England and Wales the proportion of whole-time

appointments was about one-quarter. At present the proportion was slightly over one-third, the number of authorities having considerably increased. Dr. Fremantle asked whether this did not show that the policy of getting whole-time officers was impossible. No answer was given.

Dr. Fremantle further asked the Minister of Health if he proposed to utilize general medical practitioners for the prevention as well as cure of disease in the community in his reorganization of the public health system and his proposals for reform of the Poor Law; and what steps he was taking to improve education in the medical curriculum accordingly. Mr. Chamberlain said that, in common with his predecessors, he had always been anxious that general practitioners should take their full share in preventive medicine, but the proposals for the reform of the Poor Law would not affect the responsibilities of general practitioners in this regard. He saw no necessity at present to invite the Lord President of the Council to advise the General Medical Council to consider any further modification of the medical curriculum for this end. Dr. Fremantle asked whether the Sanitary Commission of 1869-71 suggested that Poor Law medical officers should be made the basis of the sanitary service of this country, a duty for which they were not at present fully educated, their education being almost entirely therapeutical. He asked whether it would not be an advantage that they should be fully educated. Mr. Chamberlain remarked that he was in favour of education for everybody.

Scottish Board of Health.

On the vote of £1,858,345 for the Scottish Board of Health, on June 17th, Dr. Elliot (Under Secretary for Health, Scotland) said the issue of the report of the Board of Health had been delayed by the general strike. The vital statistics of Scotland had justified the hope that the unfavourable movement of the curves during 1924 would not be continued. The general death rate, which in 1924 was 14.4, fell in 1925 to 13.4, and infantile mortality from 97 per 1,000 to 90. The death rate between 1 and 5 years had gone down from 15 to 12—equal to the rate for 1923, the lowest ever recorded in Scotland. Infantile mortality was lower than in any year except 1921 and 1923. Such a continuous fall in the mortality statistics—infant, child, and adult—showed clearly that the general physical condition of the people was maintained in spite of a long-continued industrial depression. The tuberculosis rate had fallen from 80 per 100,000 in 1924 to 76, while the non-pulmonary tuberculosis rate had fallen from 36 to 34. In both instances the death rate for each year was the lowest ever recorded in Scottish statistics, and the death rate for pulmonary tuberculosis was a record for the whole of Great Britain. The English rate was 83. It might be hoped that the campaigns for cleaner milk and better food would reduce the non-pulmonary tuberculosis rate. Though rickets was still prevalent in Scottish cities, a marked decline was recorded by all the public health authorities except at Paisley. Rickets did not show that correlation with housing which had been expected. It occurred among the better class of people as well as among the poorer. Mr. Stewart said Lord Mackenzie's committee estimated that there was a shortage of 3,600 beds—3,000 in general and 600 in maternity hospitals. No provision was made to accommodate patients suffering from certain infectious diseases. Many births took place in one-room or two-room houses, and according to medical evidence when complications ensued these rooms were unsuitable for carrying out any operation. The committee also drew attention to the fact that, while Scotland on the whole was not badly provided with sanatorium accommodation, more was required for the treatment of surgical tuberculosis in children. What was the Government doing in this direction? He also called attention to the fact that in Glasgow the people would not use well equipped Poor Law hospitals. Steps should be taken quickly to divorce these hospitals from Poor Law administration. The Mackenzie committee had condemned the Poor Law hospitals in many parts of Scotland as insufficient and out of date. Nursing was bad and proper medical attention could not be given. He hoped the Government would force parish councils, singly or in combination, to provide a higher standard of treatment. The grant of £42,000 to provide medical treatment in the Highlands and Islands was not sufficient to pay the medical officers, and there was nothing left to provide the hospitals, which were required. Mr. Strymeour asked for information about the institution for mentally defective children in Dundee and about the after-histories of persons who had left tuberculosis sanatoriums to follow their occupations. He was disappointed at the progress in dealing with mentally deficient adults. In large institutions the patients were huddled together. Mr. Sullivan said the Government was reducing by £5,000 the vote for the treatment of tuberculosis. The vote for the treatment of venereal disease had been reduced by £6,000. Captain Elliot said this was a nominal reduction due to close estimating. Sir John Gilmour (Secretary for Scotland) said that the Board of Health was closely considering the matters raised by the Mackenzie committee, and hoped in the course of time to arrange for the provision of an increased number of beds. This year it was making a grant to institutions in the Stornoway area. Sanatorium treatment had not realized all the hopes aroused, but progress was being made. Some progress was being made also with the problem of venereal disease.

A motion for reduction of the vote was withdrawn and the vote itself was left outstanding for further debate on a later day.

Income Tax on Scottish Mental Hospitals.

On June 21st, on the Committee stage of the Finance Bill, Sir E. Aytoun moved the second reading of a clause exempting the royal asylums in Scotland from income tax. He said that these asylums had been subscribed to by the public. They were not run for

profit, and the funds were administered by individuals who gave their time for no remuneration whatsoever. These asylums had, in many cases, saved the parish councils large capital expenditure in that they accepted and catered for patients sent to them by those parishes at a very low rate. In later years the administration of the asylums had treated a large number of cases from the parish councils, so that the asylums were not only doing the charitable work which they were originally intended to do, but also a public work. Any surplus their funds showed at the end of a year was devoted entirely to reducing the rates which were charged to the various patients, as well as to the maintenance of the buildings and generally to developing these very good institutions. There were also one or two smaller institutions—not royal hospitals, but district asylums—which to-day were exempt from this tax. At the present moment the district asylums were only exempt under Schedule D, and it seemed very hard that these royal asylums should not be so treated. Under a Royal Charter, in 1913, they were given the duty of looking after the patients coming forward from public authorities, and for that reason were entitled to be exempt from many of the duties on which they were now assessed. They took patients who otherwise would cost a very large sum of money, and further than that they subscribed part of what otherwise would be charged to poor patients and to necessitous mental cases who could not afford to pay. Those cases were taken by the royal asylums at a specially low rate, below the actual cost. This showed that these asylums were within the category of charitable institutions. The general running of these institutions came well within the definite word of "hospital" within the meaning of the Act. He hoped that the Chancellor of the Exchequer would give some relief to these very excellent institutions.

The Chancellor of the Exchequer declined to accept the proposal. At the present time a very wide exemption was given to charity, much wider than the Royal Commission on Income Tax recommended. This exemption cost the revenue over £10,000,000 a year. The question arose in all these matters, Where are you going to draw the line? He found great difficulty in widening the scope of the exemptions now granted to charities. In order to restrict them within bounds so as not to make very serious inroads on the revenue, certain conditions had been insisted on; they were the only bulwark which the revenue had against an altogether indefinite variety of arguments for the extension of these exemptions. The courts had laid down that in the case of a hospital or charity exemption only applied to institutions maintained to a great extent by charitable endowments or subscriptions. It was not sufficient to say that they were not working for a profit. There were several of these royal asylums in Scotland, but only two of them escaped these provisions—Montrose and Aberdeen. For the sake of meeting the difficulties of these two hospitals it would be a very serious thing to throw over the whole of the existing basis of the exemptions from income tax. The district asylums differed from these two royal asylums in that they depended, to a substantial extent, on money from charitable sources. The whole question of charitable relief, notwithstanding the somewhat adverse recommendation of the Royal Commission, might well be a subject of future reflection. There was no doubt that even trying to draw the lines where they had to be drawn—and some lines must be drawn—a number of hard cases must arise. If at any time it were possible to take a more liberal view of those borderland cases, that ought to be done, not for a variety of special institutions, but as a result of a comprehensive and general consideration of the question and of a successful attempt to lay down a more harmonious limiting of principles which would prevent the indefinite exemptions which were now the law.

[The clause was rejected.]

Registration of Nursing Homes.

At a meeting of the Select Committee on the registration of nursing homes, at the House of Commons on June 15th, Dr. Francis Underhill expressed the fear that patients in doctors' houses might resent the interference and loss of privacy involved in registration and inspection. In reply to Sir Cyril Cobb, the chairman, the witness thought that inquiry into the housing and feeding of patients, if conducted by a visitor of the standing of a county medical officer of health, would not be distasteful. He would object to some young man or a nurse as inspector, but Ministry of Health. In reply to Dr. Davies, Dr. Underhill agreed he inspected. But he would dislike an inspector entering his house and talking to his guests. He would not object to having to produce a certificate from two of his medical brethren. Dr. C. F. T. Scott said that he took occasional patients into his house. He thought registration of a doctor's home entirely unnecessary. He drew a distinction between nursing homes and inspection of patients in a doctor's house would disturb the relationship between patient and doctor. The inspector would condition. Dr. Shiels remarked that this had never been suggested. The inspection would be into structural fitness and management. Dr. Scott maintained that inspection of doctors' houses would be undesirable, futile, and costly, and would tend to grow patients. If there were inspection, it should only be done by persons high up in the profession, and not by trained nurses or health visitors. He had never seen nursing homes of the "Dorchester" type. Mr. Herbert J. Paterson, senior surgeon of the London Temperance Hospital, represented the Royal British Nurses' Association.

He said that many nursing homes were quite unsuitable for their purpose. The staircases were narrow, there was danger of fire, sanitary arrangements in many cases were inadequate or defective, the operating theatre often unsatisfactory, with open gas burners in rooms where ether was administered. The nursing staff was often partly or totally unqualified; and the nurses, being dressed in nurses' uniform, were a fraud on the public. It should be obligatory that the person in charge of the nursing arrangements should be fully qualified.

The Committee concluded the taking of evidence on June 17th, when a woman witness who had been a patient at several nursing homes said she had to pay 16 to 18 guineas a week, but to provide her own nurses. In one home one night nurse had charge of fourteen patients. Patients suffered from intimidation, and nurses seemed afraid of sending for the doctor. The Select Committee heard other evidence *in camera*, and will now prepare its report.

Sale of Venereal Disinfectants.

On June 16th Mr. Basil Peto presented a Venereal Disease Amendment Bill, 1926, to permit the sale by chemists of disinfectants for protection against venereal disease. The bill was supported by Dr. Fremantle, Dr. Haden Guest, Dr. Drummond Shiels, and Dr. T. Watts, and was read a first time. A memorandum attached set forth that the object of the bill was to give legislative effect to the recommendation contained in Clause 14 of the report of the committee appointed in 1923 by the Ministry of Health under the chairmanship of Lord Trevelchin: "We think that the law should be altered so as to permit properly qualified chemists to sell *ad hoc* disinfectants, provided such disinfectants are sold in a form approved, and with instructions for use, approved by some competent authority." Clause 1 of the bill amends Clause 2 of the Venereal Disease Act of 1917, so far as it relates to prevention of venereal disease. Clause 2 of the bill provides for the setting up of the competent authority, which is to be a committee nominated by the Royal College of Physicians and the Society of Medical Officers of Health.

In commending the bill to the House Mr. Peto quoted what the Minister of Health had said in reply to a deputation which waited upon him in July, 1923, and was introduced by the late President of the Society for the Prevention of Venereal Disease (Lord Willoughby de Broke). The Minister said:

"I have been to the best fountain I could, the Law Officers of the Crown, and I have put to them certain questions as to the exact meaning of the relevant section to the Act of 1917. We have this position, that to-day a chemist may sell *ad hoc* disinfectants for the purpose of prevention. To-day a chemist may verbally recommend to a customer such preparations for such purposes. What he may not do is to give any written or printed instructions, although he may give verbally such instructions to the customer. . . . It is clear that it would require an alteration in the law to permit the chemist to give printed or written instructions, and personally I think that if these things are to be sold, printed or written instructions should be supplied with them. It would also be necessary to pass legislation if the sale of these preparations is to be limited to such as are approved by a competent authority."

Mr. Peto said there was agreement as to the desirability of taking all steps possible for the prevention of this terrible disease. Evidence on the efficacy of preventive measures accumulated during the late war. Sir James Barrett, who was in medical charge of the Australian Forces during the war, said: "In my experience primary prophylaxis has been practically certain in its results." Sir James stated that in one camp, out of 4,400 men who reported exposure to infection, as a result of primary prophylaxis only thirteen infections resulted. Surgeon-Captain Hamilton Boyden, who was in medical charge of the Naval Gunnery School at Portsmouth during the two years from 1918 to 1920, said that 923 bottles of 1 in 1,000 solution of potassium permanganate were supplied to men who intended to incur danger of infection, and only one man was infected. During 1917 the men at the Royal Artillery Barracks at Portsmouth were carefully instructed to disinfect without delay, and out of 3,750 only five were infected during a period of nine months. There was also evidence from Colonel Harrison on what would be the effect of similar steps on the civil population. Mr. Peto held that the civilian population should have free access to reliable preventives against venereal disease. They had to consider the effect of this scourge on future generations. The best medical opinion was unanimous that a very large proportion of the cases of paralysis, malformation, mental deficiency, insanity, epilepsy, and blindness, which cost the country almost untold loss in the efficiency of the population, and a direct loss in keeping these unfortunate victims, was due directly to parental syphilis or gonorrhoea. The report of the Departmental Committee on the Causes and Prevention of Blindness, issued by the Ministry of Health in 1922, stated that of 1,855 cases of school blindness occurring in the schools for the blind of the London Education Committee in 1920 alone, 369 were due to parental gonorrhoea and 618 due to parental syphilis. The cost of the present method of dealing with this disease exclusively by curing it, instead of dealing with it before the germ penetrated from the surface, was, according to the Annual Report of the Ministry of Health for 1924-25, very great. The grants paid in one year in aid of venereal disease schemes amounted to £291,000, and the cost to local authorities of carrying out these schemes was over £358,000, making a total of £600,000.

Teaching of Anatomy.—Mr. Neville Chamberlain, replying to Mr. Whiteley, on June 21st, said the number of bodies removed to medical schools in England and Wales for the purpose of anatomical examination and operative surgery was 519 during 1924 and 581

Crown Members of the General Medical Council.—Answering Lord Sandon, on June 10th, Major Hennessy, for the Lord President of the Council, said that the dates of expiry of the terms of office of Crown nominees on the General Medical Council, other than Mr. Hilton Young, who had just been appointed, were: Sir Edward Coey Bigger, January 23rd, 1927; Sir Nestor Tirard, March 2nd, 1927; Sir W. Leslie Mackenzie, October 27th, 1927; Sir George Newman, October 8th, 1927. Lord Sandon asked whether the ensuing vacancies would then be filled by non-professional persons. Major Hennessy replied that it was not possible to say in advance what action the Lord President of the Council of the day might see fit to take.

Midwives and Maternity Homes.—In the House of Lords, on June 17th, the Midwives and Maternity Homes Bill was, on the motion of the Marquess of Salisbury, read the third time and passed.

Poor Law.—On June 21st Mr. Neville Chamberlain told Mr. Whiteley that the expenditure on institutional Poor Law relief in England and Wales was £20,430,569 during 1923-24 and £21,070,000 during 1924-25. These sums included the cost of maintenance of pauper lunatics in asylums, but excluded administrative expenses, such as clerks' salaries and office expenses. The provisional total of deaths in Poor Law institutions in England and Wales for 1924 was 65,974. The corresponding figure for 1925 would not be available for a week or so. The money payments to Poor Law medical officers, dispensers, nurses, and other officers employed in the treatment or care of the sick in England and Wales amounted to £1,500,921 during 1923-24 and £1,552,000 during 1924-25. The figures for 1925-26 were not available.

Cost of Mental Hospitals.—For the financial year 1924-25 the expenditure on the maintenance, supervision, and treatment of the insane in county and borough mental hospitals in England and Wales was £6,510,639. This does not include any expenditure in respect of loan charges, repairs, additions and alterations of buildings, or purchase or rental of land and buildings.

Maternity Benefit.—Mr. Neville Chamberlain told Sir Charles Wilson that as a result of the second valuation of approved societies the average rate of maternity benefit had been increased from 40s. to 46s., and on the average the total amount which the mother would receive would be £4 12s. He did not see his way to introduce amending regulations to extend the period of this benefit from one month to three months where a mother abstained from work to suckle her infant. This would impose a further burden on insurance funds, and the recent Royal Commission did not propose it.

Medical Examination of Seamen.—Answering several members who, on June 16th, put questions on the regulation of the New York port health authorities, requiring the crews of British ships to undergo a medical examination before going ashore, Sir Austen Chamberlain said the examination was under the American Immigration Laws and Regulations of 1925, which enabled United States immigration officers to subject alien seamen to the same medical examination as alien passengers. He did not consider that any useful purpose would be served by making representations. Dr. Watts asked whether, owing to the prevalence of small-pox in the United Kingdom, and the fact that effective vaccination was a preventive, one of the reasons for the examination was to make sure these seamen were efficiently vaccinated. The Foreign Secretary said this might be true, but he did not know.

Plague in the Punjab.—On June 21st Earl Winterton stated that the number of deaths from plague in the Punjab between March 1st and May 15th was about 54,000. No report of the steps taken by the Government in relation to the present outbreak had been received, but the Secretary for India had no doubt that recourse had been had as usual to vigorous measures of inoculation and disinfection.

Sexual Offences.—During the third reading of the Criminal Justice Bill, on June 16th, Dr. Vernon Davies asked whether, before the bill was taken in the Lords, the Government would consider the introduction of an amendment that all persons convicted of sexual offences should, after conviction, but before sentence, be medically examined. A committee had been sitting for some time with regard to such offences, and it recommended that after conviction the person accused should be remanded for medical examination. Captain Hacking (Under Secretary for Home Affairs) said he would certainly consider the suggestion. The bill was read a third time by 88 to 54.

Ministry of Defence.—In the House of Lords, on June 16th, Lord Thomson asked the Government whether it had considered the establishment of a single Ministry of Defence. He said there was already co-ordination between the fighting services in many matters, and the assumption made in the House of Commons that each department did not co-operate with the other two in regard to hospitals was not justified. Lord Thomson argued against the establishment of a single Ministry of Defence. The Earl of Balfour and Viscount Haldane concurred, and the motion was withdrawn.

Notes in Brief.

On the motion of the Minister of Health, the Smoke Abatement Bill, which has already passed through the House of Lords, was read a second time in the House of Commons on June 22nd.

On June 1st, 1925, there were 2,385 maternity and child welfare centres known to the Ministry of Health in England and Wales, and on June 1st, 1926, 2,463.

There is no objection to the use of suitable metal caps for sealing bottles containing certified milk.

In April last, of 3,350 shell-shock cases under treatment, all save 351 were being treated in hospitals or clinics owned by or under the medical control of the Ministry of Pensions.

The Minister of Health does not contemplate any immediate enlargement of the powers of local authorities responsible for administration of the existing law as to the sale of food and drugs.

A Milk and Dairies Order is shortly to be made which the Minister of Health hopes will secure further improvement in the condition of the milk supply.

Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health), on June 14th, informed Mr. Thurtle that his department had not reconsidered the question of permitting the giving of birth control information at maternity and child welfare centres.

Obituary.

THE LATE SIR FREDERICK MOTT.—Sir James Dundas-Grant writes: Among the many tributes which have been paid to the great work of Sir Frederick Mott, nothing is more sincere than that due to him for a work which was begun by him at the Maudsley Hospital for ex-soldiers. He expressed himself as follows:

"I am convinced by experience that all encouragement is due to those who undertake this work of speech, re-education, and teaching of choral and part-singing to disabled soldiers, for it will prove a material aid to their recovery and earlier return to useful occupations in civil life." (*Révue*, No. 3, February, 1919.)

Hundreds of ex-soldiers whose mental balance and joy in life has been restored by the training given by the Vocal Therapy Society owe to Sir Frederick Mott a deep debt of gratitude.

THE LATE DR. R. GORDON BELL.—Last week we published a brief obituary of Dr. R. Gordon Bell. We have since received from "C. O. H." the following tribute, which gives some account of his student career.

Bell was a Glasgow graduate, and in his day was the best known student in all the faculties of the University; no position of responsibility or honour but he was called by his fellows to fill it. Whether in the hurly-burly of a rectorial election, or the council chamber of the Union or Dialectic Society, or the social relaxation of a college bazaar, his place was ever at the front, and loyalty as to a chief was given to him in ungrudging measure.

In practice his personal force and professional thoroughness inevitably gained the confidence of patients, and he was ever alert for efficiency and for modern developments and improvements. Here again his fellows found him wise in counsel and skilful and resolute in action. By no means particularly prone to the soft answer that turneth away wrath, he never failed in goodwill, and no one doubted his sincerity and his freedom from any desire for a mere selfish or personal triumph.

Equipped as he was by nature with the qualities which make for leadership, his organizing ability, his debating power, his courage, and his enterprise might well have led to success on a more conspicuous platform, and of this he was not unaware. But he deliberately selected a comparatively modest stage for the practice of his profession and for the application of his personal qualities to the service of such causes as the promotion of the public health and the enlargement of educational opportunities and efficiency.

For facilities which might otherwise have been denied them successive generations in the northern town will owe gratitude in large measure to Gordon Bell's foresight and resolution in the cause of technical education. Here as well as in other directions he has written his name deeply on the life and welfare of his adopted town, and though this came through many keen controversies he was too generous an advocate to sow bitterness in the opposing camp, and he will be gratefully remembered as one who served well and faithfully his day and generation.

In his personal characteristics duty, courage, decision, determination, and loyalty had perhaps the leading place, and at least at one date in his life he supported a heavy and unexpected burden with a resolution that knew no dismay. He made devoted friends, and some of his juniors have grateful memories of a practical help and sympathy that appeared quietly, effectively, and at the appropriate moment. His name and his record of many virtues will not readily fade from the affections of those who shared his comradeship, or from the memory of the community to which he gave sustained and devoted service.

Dr. JOHN HOWLAND, professor of pediatrics at Johns Hopkins Hospital, Baltimore, died in London on June 20th, after a short illness. He had a severe illness at the beginning of this year, and left America for Europe in March for a prolonged holiday. He became ill again in Paris, but

was able to reach friends in London a little over a week before he died. Professor Howland will be missed by many friends in Britain who are interested in children's diseases. He was only 52 years of age.

Medical News.

IN the King's Bench Division on June 17th two appeals by the Commissioners of Inland Revenue against decisions of Special Commissioners in favour of two medical charities were heard by Mr. Justice Rowlatt. The respondent in the one case was the *Society for the Relief of Widows and Orphans of Medical Men*, and in the other the *Medical Charitable Society for the West Riding of Yorkshire*. The essential question in each case was the right to exemption of the society's funds from income tax under Section 19 of the Finance Act of 1925. Mr. Justice Rowlatt, in his judgement dismissing both appeals, with costs, said that, taken as a whole, the two societies were in his opinion institutions for charitable purposes only, and therefore exempt from tax. What had to be considered was, not the source of the income, but the purpose for which it was held.

FOUNDER'S day celebrations at Epsom College will take place on Saturday, July 24th. The cricket match began on the previous day will be resumed at 11 a.m., and at noon there will be a service in the chapel. Viscount Grey of Faldoon will distribute the prizes at 2.45 p.m., after which he will declare the new chemical block open. Tea will be served on the cricket ground at 4.15, and at 8 o'clock there will be a choral performance of *Merrie England* by the College Musical Society.

THE annual dinner of the Cambridge Graduates' Medical Club will be held at St. John's College, Cambridge, at 7.30 p.m., on Saturday, July 3rd. The president of the club, Sir Humphry Rolleston, Bt., will be in the chair.

THE St. Bartholomew's old students' dinner will be held on Friday, October 1st, in the great hall of the hospital, at 7.30 p.m., with Mr. W. T. Holmes Spicer, F.R.C.S., in the chair.

THE annual luncheon of the Irish Medical Schools' and Graduates' Association will be held at the Black Boy Hotel, Nottingham, on Wednesday, July 21st, at 1 p.m. The President-Elect of the British Medical Association, Mr. R. G. Hogarth, C.B.E., F.R.C.S., will be the guest of the association. Tickets (5s. each, exclusive of wine) may be obtained from the honorary secretary for the provinces, Dr. Falkland L. Cary, 67, Kings Road, Harrogate.

THE annual meeting of the Medical Mission Auxiliary of the Church Missionary Society will be held at the Central Hospital, Westminster, on Tuesday, June 29th. The chair will be taken by Sir Richard H. Luce, K.C.M.G., C.B., F.R.C.S., at 7.30 p.m. Tickets of admission can be obtained on application to the Loan Department, Church Missionary Society, Salisbury Square, E.C.4; a small number of reserved seats at 1s. each are available.

AT the annual meeting of the Society for the Study of Inebriety, at the Medical Society of London (11, Chandos Street, Cavendish Square, London, W.) on Tuesday, July 13th, at 4 p.m., Dr. Alfred E. A. Carver, medical director, Caldecote Hall Retreat for Inebriate Men, will open a discussion on the institutional treatment of alcohol and drug addiction.

THE annual meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health will be held at Caxton Hall, Westminster, on Tuesday, July 6th, at 5.30 p.m., when a discussion on tonsils and adenoids will be opened by Mr. George Wagh, who will give an historical survey of the subject. Dr. R. C. Clarke will follow with a paper on the etiology, and the causes of failure of operation, and Dr. Harold Waller will speak on early symptoms. After the meeting there will be a dinner at the Florence Restaurant, Rupert Street, at 7.30. Full particulars can be obtained from the honorary secretary, Dr. Margaret Emslie, 1, Upper Montague Street, W.C.1.

MR. DOYNE will give a clinical demonstration in ophthalmology for the Fellowship of Medicine on Thursday, July 1st, at 12 noon, at the Royal London Ophthalmic Hospital (Moorfields), City Road, E.C. This demonstration is open to the medical profession without fee. The Prince of Wales's General Hospital, Tottenham, will hold a vacation course occupying all day from July 19th to 31st. The course will consist of clinical and laboratory methods, demonstration of groups of selected cases, general hospital work, and clinical lectures dealing with various subjects. From July 5th to 17th an intensive course will be held at the National Hospital for Diseases of the Heart, and between the same dates there

will be an afternoon course at the Hospital for Diseases of the Skin, Blackfriars. At the West End Hospital for Nervous Diseases a four weeks' late afternoon course, comprising lectures and clinical demonstrations upon selected cases, will be given between July 19th and August 11th in the Out-patient Department, 73, Welbeck Street, W. From July 12th to 24th at the Royal Eye Hospital, St. George's Circus, S.E., there will be a series of demonstrations on eye diseases from 3 p.m. daily. During August the following courses will take place: in medicine, surgery, and the specialties, at the Queen Mary's Hospital (Stratford); diseases of the chest, at Brompton Hospital; and diseases of children, at the Queen's Hospital, Hackney. All of these courses will be all-day ones. Copies of all syllabuses and of the general course programme may be had on application to the Secretary of the Fellowship of Medicine, who will also supply copies of the *Post-Graduate Medical Journal*.

TO instruct the public in the disease-carrying propensities of certain insects, an extremely good series of wax models is now being exhibited in the Natural History section of the British Museum at South Kensington. The insects in the representative models on the subject, from 20 times to as much in the case of the plague flea. By this magnification the outward characteristics are made intelligible to the general public. The species represented include malarial, yellow fever, and other mosquitoes; the sandfly; a small West African horse-fly which conveys Calabar swelling; two kinds of tsetse fly; plague fleas; and the better known disease carriers—the house, the tick, and the house-fly. In the cases containing the models there are various accessory exhibits, such as diagrams of the organs and of sections of the insects; models and pictures of the germ it carries; and preserved specimens of the insect itself. In the house-fly case there is an unpleasant model of a tray holding the constituents of a lunch, all of which, including the glass of milk, are covered with flies. This exhibit should wake the public conscience! The models are the work of Mrs. E. D. Blackman, Miss Grace Edwards, and Mr. A. J. Engel Terzl.

EXHIBITION lawn tennis matches will take place at Sussex Lodge, Sussex Place, Regent's Park, on Monday, July 5th, from 3 to 7 p.m., in aid of the Hackney Branch of the Invalid Children's Aid Association. A large number of well known players have consented to take part in matches, including Mlle Suzanne Lenglen and Messrs. Lacoste and Borotra. Tickets, price £1 5s. each, including tea, can be obtained from Lady Fripp, 19, Portland Place, London, W.1.

THE annual oration of the London Dermatological Society was delivered on June 16th at St. John's Hospital, Leicester Square, by Sir Humphry Rolleston, Bt., K.C.B., M.D., F.R.C.P., who selected as his subject, "The relations of dermatology and general medicine." Dr. W. Griffith, president, was in the chair, and at the conclusion of the meeting a vote of thanks to the orator was, on the motion of Dr. Knowsley Sibley, seconded by Dr. MacLeod, carried with acclamation. At the annual dinner after the meeting the official guests of the society included Sir Humphry Rolleston, Dr. J. H. Stowers, Dr. J. H. Sequeira, Dr. Haldin Davis, Dr. H. W. Barber, and Dr. H. G. Adamson.

THE Earl of Balfour presided at the first annual general meeting of the British Institute of Philosophical Studies on June 18th. The institute, he said, must "counteract the natural prejudice by which a man likes his opinions couched in the most violent and uncompromising terms, written in the largest letters, put on the most prominent hoarding, and supplying a creed to which, while readily assenting himself, he desires every citizen to give his adhesion." The institute, he continued, "(1) promotes the advancement of philosophic study by teaching and research, (2) helps those interested in and perplexed by the problems of modern life to ask the right questions, and to indicate the most promising directions from which some important answers to these questions may be expected to come." Among the lectures given during the past year was one on psychology, by Professor T. H. Pear; and the subject at an evening meeting was "The idea of responsibility, legal and medical," by Sir Travers Humphreys and Dr. William Brown. The council of the institute consists of men and women of very varied interests and activities in life; among the medical members are Lord Dawson of Penn, Dr. Henry Head, and Dr. C. S. Myers, F.R.S.

THE Faculty of Medicine of the University of Paris announces a vacation course in children's diseases to be held at the Hôpital des Enfants Malades from July 26th to August 14th next. The course will be under the direction of Professor Nobécourt and Dr. Lereboullet. The fee is 250 francs, and tickets will be issued by the Faculty. A certificate will be granted at the end of the course to those who are duly registered at the secretariat of the Faculty.

THE Bishop of Chelmsford, who presided at commemoration day at the Livingstone College, Leyton, on June 9th, pointed out that the college existed to help to give all those who were sent out by missionary societies of the Church some knowledge of the management of their own health and of the health of other people. He recalled the association with the college since its beginning of Dr. C. F. Harford. An address was given by the Rev. B. T. Butcher, of the London Missionary Society, Papua, who gave illustrations of the services he had been able to render to natives as the result of his training at the Livingstone College. The treasurer, Mr. R. L. Barclay, reported the progress of the £3,000 fund which is being raised in memory of Dr. Harford. Last year 103 students entered the college, including the short course and vacation course students.

It appears that statements have lately been made in the press to the effect that the French Government proposes to impose certain restrictions which may interfere with touring in that country. The Director of the Office Français du Tourisme (56, Haymarket, London, S.W.1) informs us that any restrictions contemplated will have no influence whatever on the general comfort of tourists, and that no restrictions will be enforced with regard to the consumption of petrol. English tourists may rest assured that there will be no interference with their use of the roads in France this year.

DR. JAMES BENNETT (Warrington) and Dr. Frank Radcliffe (Oldham) have been appointed to the Commission of the Peace for the County Palatine of Lancaster.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

DR. JANIE MCBIRNIE (West Kirby) writes: A lady aged 71, suffering from chronic bronchitis and asthma, is confined to bed each winter, but in the summer is able to go about apparently well. Can any of your readers recommend a suitable winter resort?

"F. H." asks for advice in the treatment of lymphangitis of the lower lip. Streptococcus vaccine, autogenous vaccine, mixed serum, have been applied locally, and although improved the lip does not really clear up, and periodically swells anew.

INCOME TAX.

Basis of Return.

"F. T." inquires (1) whether there will be any reduction in the taxation of light cars "in view of the new tax on petrol which comes into force on January 1st, 1927," and (2) also as to the basis of his return of profits and an allowance for a motor car renewal.

* * * The taxation of petrol, to which "F. T." refers, is apparently a matter for the indefinite future; when and if it becomes operative presumably the present rates of taxation of cars will be revised. The amount of the allowance for the car renewal which has been effected is £215-£255-£150—that is, the actual out-of-pocket cost. If "F. T." carries out the proposed further replacement the same basis will apply, but the net amount expended will presumably be very much smaller. As regards

the basis of the return of profits, "F. T." is liable for 1926-27, according to the previous three years' average profits of his predecessor, but if he can show that his profits for the first year have fallen short since his succession to the practice from some specific cause, he can then claim to substitute for the average the actual profits of his first year.

Three Years' Average.

"J. N." inquires how expenses should be dealt with in calculating liability.

* * * Each year's net profit (receipts less expenses of the year) should be separately calculated, and the net results averaged. "J. N." seems to have misunderstood the inspector's computation, however. The figures quoted are apparently the amounts of net profits, but in one year £9 has been added, presumably on the ground that it represents additional capital outlay.

Car Allowances.

"T. G." asks for advice with regard to the allowances due for his car.

* * * It should be borne in mind that the "renewal" allowance has to be dealt with as an expense incurred as for the year in which the transaction takes place. We suggest that he accept (under protest) the 10 per cent. allowance for the year 1925-26—many inspectors would allow 20 per cent., we believe—and when computing the profits for the year to March 17th, 1927, claim as an "obsolescence" allowance the cost of replacement less the depreciation allowance made—that is, £125, less (say) £19=£105. With regard to the private use of the car, so much depends on the particular facts that we cannot answer such a question specifically. We can only say that to the extent to which a car is used for private purposes the allowances have to be restricted—for example, if one mile in every twenty is for private purposes then one-twentieth should be taken off all allowances, depreciation, running costs, etc. It is, of course, unfortunate that the bills for petrol, oil, etc., have not been kept—we do not know whether "T. G." has a detailed record of such expenses; if he has he should, we think, hold to it; if not he is, of course, driven back on an estimate; there is no recognized mileage scale for such costs. We may perhaps point out that there is a right of appeal from the inspector's decision to the district commissioner or, if preferred, to the special commissioners on circuit from London. If the inspector is not prepared to deal reasonably with the matter, such an appeal might be well worth while.

LETTERS, NOTES, ETC.

TREATMENT OF GOUT.

WE have received a communication from the Clayton Aniline Company calling attention to a letter by Dr. Vaughan Pendred on the treatment of gout, published in our issue of June 5th (p. 976). The manager of the pharmaceutical department of the company says that "atoguinol," to which he presumes Dr. Pendred refers under the name "aguinol," is not the Swiss equivalent of atophan (phenyleinchoninic acid), but is the allyl ester of phenyleinchoninic acid. The manager also states that atoguinol contains no quinine, and therefore cannot act as a haemolyser through that drug. Further, our correspondent observes that Dr. Pendred, while stating that his patient's gout was uninfluenced by "aguinol," does not say whether he followed an appropriate diet with increased intake of fluid.

JOHN WATKINS, F.R.C.S.

IN the year 1864 Mr. John Watkins, F.R.C.S., F.S.A., F.R.G.S., of London, was entertained to dinner at Radley's Hotel by a large party of his friends, most of whom had been his patients, and presented with his bust in marble. The bust was inscribed, "Johanni Watkins, sanatori grati sanati" ("the healed to the healer"). The question of the present home of the bust having been raised, any reader who happens to have information on the point is requested to communicate with the Medical Secretary.

EMERGENCY COOKING BLOCK.

MR. E. S. SHRAPNELL-SMITH, chairman of the Empire Motor Fuels Committee of the Imperial Motor Transport Council, suggests a simple method of improvising an emergency cooking block during the coal shortage. A piece of hearthstone, 4 in. by 3 in., is soaked for half an hour in methylated spirit and placed on a tin support. The kettle or pan is then placed on the block and a light applied. The lighted block can be extinguished by an empty tin and the block re-soaked. After drying with a duster or blotting paper the soaked block can be kept indefinitely in a closed tin.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 245.

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INDEX TO THE EPITOME FOR VOLUME I, 1926.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma; Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria, and Sugar; Eye, Ophthalmia, and Vision, etc.

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EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

1. Asthma and Foreign Proteins.

A. BESSEMAN (*Le Scalpel*, November 14th, 1925, p. 1157) reports a very chronic case of bronchitis and asthma cured finally by the simultaneous injection of a mixed autogenous vaccine, of tuberculin, and of a sensitizing substance from bed fluff, mainly of a woolly nature. He thinks that the sensitizing substance had penetrated the epithelial cells of the respiratory passages, favoured by the pre-existing acute bronchitis. He found that the patient could distinguish the tuberculin injection from the others by the feeling of relief afforded, but that this remedy by itself was inadequate. It became clear that the case was one of mixed infection on which a special form of allergic sensitization had been imposed. Intradermal inoculation defined the nature of this sensitization and indicated the appropriate treatment. Besseman adds that the desensitizing treatment must be gradual and prolonged, with very small increases in the injections and careful avoidance of reactions.

2. Peripheral Forms of Epidemic Encephalitis.

L. BÉRIEL and A. DEVIC (*Presse Méd.*, October 31st, 1925, p. 1441) describe a form of disease in which the nerves and nerve roots are exclusively attacked; they believe it to have the same etiology as epidemic encephalitis. The symptoms include polyneuritis and flaccid paraplegia with abolition of reflexes. As a general rule the paralysis spreads to the abdomen, and eventually to the upper limbs, though there are cases in which only the lower limbs are involved. The sphincters are frequently affected, and in two cases the disease spread to the cranial nerves; in one case a facial and in the other a glossopharyngeal paralysis developed. Pain was rarely severe, but in some cases necessitated morphine. Sensation is usually affected. There is never a true anaesthesia; but hyperaesthesia and paraesthesia, particularly the latter, are common. There is an excess of albumin in the cerebro-spinal fluid. The patients generally make a complete recovery in one to five or six months. In only one case, still under observation, did the paralysis persist for as long as eight months, the pelvic girdle, the buttocks, and the abdominal parietes being involved. In its early stages the condition has to be distinguished from infantile paralysis, which is more dramatic in its onset and severe in its paralysis. If the polyneuritis takes five or six days to prostrate the patient the diagnosis is clear. But there are cases in which the onset is more rapid. For treatment the authors recommend the prevention of muscular contractures, the administration of strychnine, and the application of the continuous current.

3. Non-syphilitic Aortitis.

L. NEUMAN (*Journ. Amer. Med. Assoc.*, October 31st, 1925, p. 1361) states that both acute and chronic non-syphilitic aortitis are not rare conditions. Although it is generally agreed that aortitis can be of syphilitic origin, some have denied that it can be the result of any other infection. Neuman thinks that the predisposing causes of the non-syphilitic type are the irregular lymphatic supply to the aorta, the numerous lymph nodes lying along it, and their direct connexion with the large drainage spaces of the body. Another factor, according to Westenhöfer, is man's phylogeny and his assumption of the upright position. Neuman points out that the causative agent may be toxic or bacterial, and may be brought to the site of the disease by the blood circulating in the aorta or the vasa vasorum, or very occasionally by direct continuity from an adjacent infection. This may occur in the course of any infectious disease and in any conditions where there are foci of infection. Other associated factors seem to be high pressure work and play and other excesses. He states that the symptoms vary in intensity in different cases; pain is the most constant and is usually retrosternal, but it sometimes radiates to the arm. While the pain sometimes resembles that of angina pectoris it is more often described as a sense of fullness, pressure, or tightness; it frequently interferes with respiration, and the patient complains that the heart feels as though it were turning over. The pain is more noticeable in cold weather and especially when walking; it is often relieved by stopping for a few minutes. It must be distinguished from cardiac pain. Dyspnoea is often present and may be the predominant symptom; tachycardia is common but is seldom accompanied by any irregularity. The blood pressure is never high in

uncomplicated cases. Fever is present in many cases; it is seldom high but is extremely irregular. Oedema of the extremities is rarely observed. In the 29 cases of aortitis which the author examined repeated Wassermann tests were performed to eliminate the possibility of syphilis. The prognosis in mild cases is good; none of his patients died and 90 per cent. improved considerably. Neuman recommends rest in bed for long periods, the removal of all foci of infection, and a careful regulation of the habits and exercise during convalescence. Overeating must be avoided and moderation observed in everything. He usually gave iodides in large doses over long periods, purely on empirical grounds.

4. Radial Nerve Paralysis.

H. DUFOUR and A. BLONDEL (*Bull. Soc. Méd. de Paris*, November 12th, 1925, p. 1380) report a case of typical and complete radial nerve paralysis with diminished reflexes, no trophic changes, and a negative Wassermann reaction. There were no other symptoms. The condition did not respond to treatment, and remained unchanged until six weeks later, when there occurred an acute arthritis of the shoulder on the same side, and in a few days the wrist became affected. Salicylates were given, with the result that the arthritis disappeared and the paralysis diminished gradually until at present only a slight weakness of the thenar muscles is left. It is suggested that the rheumatic diathesis may be concerned even in cases of neuritis of a single nerve, and that treatment by salicylates should therefore be tried.

5. Incipient Hypothyroidism.

W. H. HIGGINS (*Journ. Amer. Med. Assoc.*, October 3rd, 1925, p. 1015) deals with a group of cases of incipient hypothyroidism in which the metabolic rates were sufficiently near the border-line to make the diagnosis of hypothyroidism doubtful, unless other evidences were forthcoming, and records twenty-three cases where the basal metabolic readings were from -11 to -25. He describes a clinical syndrome which differs from that of true myxoedema, and comprises moderate dryness of the hair and skin, neuroses of various types, and vague pains. Obesity is relatively uncommon, and the weight is often below normal. Cases of incipient thyroid deficiency are found to occur, not uncommonly, near the menopause, and Higgins suggests that the condition is connected in some way with ovarian activity.

Surgery.

6. Diagnosis of Acute Pancreatitis.

R. R. CRANMER (*Minnesota Med.*, November, 1925, p. 675) states that during the last few years there has been a great increase in the number of reported cases of acute pancreatitis, but that a pre-operative diagnosis is rarely made, since there is no one definite pathognomonic sign or symptom. Moreover, this condition is most often seen in persons who have previously had severe abdominal disorders, and who at the time need immediate surgical intervention without waiting for a definite diagnosis. The author points out that of the five cases of acute pancreatitis which he reports one was diagnosed pre-operatively as perforating duodenal ulcer, one as stone in the common bile duct, and another as empyema of the gall bladder. He states that the onset of symptoms usually occurs soon after a heavy meal, and takes the form of a sudden acute pain and tenderness in the epigastrium, generally a little to the left of the mid-line. This is accompanied by continuous vomiting of food, bile, and mucus. The upper abdomen is slightly distended, resistance is not sharply defined, the pulse is weak, there is collapse, and sometimes cyanosis. After a few hours the epigastric swelling becomes definite, and jaundice may appear if there is obstruction of the ampulla of Vater due to gall stones, swelling of the duodenal mucosa, or other causes. The patient is usually constipated; later there is peritonitis, abdominal rigidity, marked distension of the abdomen, rapid and thready pulse, and the patient complains of intense thirst. Then follow rapidly delirium, coma, and death. If an abscess ruptures into the stomach or bowel, pancreatic detritus may appear in the vomit or stools. The urine may contain a small amount of sugar, while the blood sugar may remain normal. Acute pancreatitis has to be distinguished from perforated gastric or duodenal ulcer, perforated gall bladder, poisoning by irritants, acute intestinal obstruction, and stone in the common bile duct. There is no pathognomonic sign or

symptom of acute pancreatitis, but this possibility should always be remembered in all acute conditions of the upper abdomen in which the symptomatology does not definitely indicate one of the more common disorders of this part.

7. Partial Ligature of the Common Carotid.

H. H. KERR (*Surg., Gynecol. and Obstet.*, November, 1925, p. 565) describes an original method of incomplete occlusion of the common carotid artery in the treatment of pulsating exophthalmos; notes of three cases are given. An arterio-venous fistula between the internal carotid artery and the cavernous sinus may result from fracture of the base of the skull or direct violence; or it may arise spontaneously from the rupture of an aneurysm of the carotid, or an unruptured aneurysm of the ophthalmic artery within the orbit. The condition leads eventually to blindness of the affected eye with a bruit, which is most distressing to the patient. In order that the collateral circulation may not be restricted unduly a strip of fascia lata is passed, under local anaesthesia, round the artery below the bifurcation; by this means the artery can be gradually constricted until the pulsation in the eyeball ceases, and without producing signs of cerebral anaemia. The patient, being conscious, is able to help in judging the exact degree of constriction required; when this has been ascertained the fascial band is sutured and the wound closed, the lumen of the artery having been reduced usually about one-half. Temporary improvement resulted in all three cases, but as the symptoms showed signs of recurrence about three weeks later the carotid was completely tied just above the fascial band, with permanent benefit and without such signs of cerebral anaemia as were often encountered when the preliminary operation was not performed.

8. Extrapleural Thoracoplasty in Pulmonary Tuberculosis.

W. H. THEARLE (*Med. Journ. and Record*, October 7th, 1925, p. 399) records the result of sixty cases of extrapleural thoracoplasty for pulmonary tuberculosis. The frequent failure of sanatorium treatment to arrest the disease and the impracticability of pneumothorax in many cases owing to pleural adhesions are responsible for the recent recognition of this operation. The aim of the operation is to bring about the collapse of one lung mechanically by a diminution in size of half the thorax by a paravertebral resection of the upper eleven ribs, usually in two stages. The chest after the operation requires support by adhesive straps over gauze pads. The operation may be performed from below upwards or in the opposite direction; it produces immediate permanent collapse and the patient is spared prolonged medical treatment. A two-stage operation appears the best for most cases. Phrenicotomy as a preliminary measure tests the effect of additional work on the better lung. In sixty cases the disease was arrested in 30 per cent., improved in 25 per cent., and there was a mortality of 18 per cent. Thearle thinks that the operation is indicated in chronic fibrous disease with excavation, and also in recurrent haemorrhage. Five cases are reported in detail with radiograms and photographs of the patients after treatment.

9. Hernia of the Ovary in Infants.

H. L. ROCHER (*Journ. de Méd. de Bordeaux*, November 10th, 1925, p. 991) describes eight cases of infantile hernia of the ovary treated by himself and a colleague during the last six years, and mentions the importance of bearing such a possibility in mind in the case of an infant with a small protruding lump at the inguinal canal. It is, as a rule, painless and movable, but irreducible, and is accompanied by no gastrointestinal symptoms. The usual diagnosis is a cyst in the canal of Nuck, the operative treatment for which is usually deferred until the child is older. If, however, the condition is hernia of the ovary an immediate operation is indicated, because the vitality of the organ is at stake, and also because strangulation is liable to occur. In three out of the eight cases cited it was necessary to remove the ovary and tube owing to pathological changes due to acute or gradual strangulation.

10. Ectopia Testis.

F. BERNHARD (*Zentralbl. f. Chir.*, November 14th, 1925, p. 2592) records a case of displacement of the left testis in a man aged 24. The organ was of normal size and lay on the dorsal surface of the penis at the junction of the upper and middle thirds. At the operation a small hernial sac at the left external ring was found and excised. Both layers of the tunica vaginalis were divided and the testis was placed in normal position in the scrotum. Bernhard found that the vaginal process had united with the transversalis fascia, thus diverting the testis from its normal course and preventing its descent into the scrotum.

Therapeutics.

11. Urea in Cardiac Oedema.

J. H. CRAWFORD and J. F. MCINTOSH (*Arch. Intern. Med.*, October 15th, 1925, p. 530) state that while it has been known for a long time that the administration of urea in large doses produces a considerable diuresis, little effort has been made until recently to utilize this drug for therapeutic purposes. They have therefore investigated its value in eight patients with advanced heart failure and considerable oedema. The treatment included rest in bed, salt-free diet, thorough digitalization, and restriction of fluid to a daily intake of 1,200 c.cm. Urea was given in a small quantity of water after meals in order to avoid gastric disturbance; in some cases it was administered in two doses of 15 grams a day, and in others in steadily increasing doses up to 60 grams a day. The authors found that there was an immediate rise in the urine output, which followed closely the curve of urea excretion, but that this increased output was not maintained unless the urea administration was continued. Blood urea estimations showed that the changes in the urine volume and urea excretion were dependent on the concentration of urea in the blood. The authors found no appreciable increase in the amount of chlorides excreted, and no evidence of kidney irritation, but where the latter was present previously it rapidly disappeared after the urea treatment had begun. In some cases there was slight intolerance to urea, as shown by loss of appetite, nausea, vomiting, and a feeling of weakness or lassitude; on discontinuing the administration these symptoms disappeared. Most of the patients complained of thirst and headache during the treatment, but these were never sufficiently severe to compel its suspension. In all their cases the authors found there was considerable improvement in the general condition, the patients felt better, and the oedema disappeared. They therefore conclude that urea is a useful drug in the treatment of cases of heart failure with oedema in which treatment of the cardiac condition has failed to remove the oedema or to maintain an adequate excretion of water.

12. Treatment of Hodgkin's Disease.

LORTAT-JACOB, SCHMITZ, and LERASLE (*Bull. Soc. Méd. de Paris*, November 12th, 1925, p. 1394) report two cases of Hodgkin's disease both treated by x-rays. In one the treatment was for a time successful. The patient's condition improved and all palpable glands disappeared. There was a fatal recurrence, however, later. The second patient did not do so well. It occurred to the authors that in x-ray therapy substances inimical to the growth of the lymphadenoma were being set free in the blood. They therefore injected serum from the blood of the first "convalescent" patient into the second, who was failing to react to treatment. This had a remarkable effect on the blood picture, the red cells rising from $3\frac{1}{2}$ to $4\frac{1}{2}$ million and the whites from 12,000 to 25,000. Serum injections were given daily, beginning with $\frac{1}{4}$ c.cm. and rising to 1 c.cm., this dose being then continued for twelve days. A further course was given later. During the whole period x-ray treatment was given. All the symptoms, including boils which had been most intractable, cleared up, and the patient was discharged. The authors suggest that the serum augments but does not take the place of x-ray therapy.

13. Ichthyol in Gonorrhoea.

A. STRASZYNSKI (*Polska gazeta lekarska*, November 1st, 1925, p. 927) describes the treatment of 41 cases of venereal and skin diseases by intramuscular injections of a 2 per cent. solution of ammonium sulpho-ichthyolate in doses of 3 c.cm. every second or third day. The ichthyol should be diluted just before the injection. The author has obtained the best results in cases of gonorrhoeal epididymitis; in 17 out of 20 cases thus treated the pain ceased and the swelling was diminished after the first injection, while four or five injections were, as a rule, sufficient to enable the patient to be discharged well or to confine himself to local treatment. In a case of pyelitis with urethritis and epididymitis which was not due to the gonococcus the swelling had gone down after the third injection and the urine had cleared. On the other hand, no therapeutic benefit was observed in skin diseases treated by ichthyol, except in one case of furunculosis and two of psoriasis.

14. Therapeutic Uses of Peptone.

H. POLLITZER (*Wien. klin. Woch.*, November 5th, 1925, p. 1201) employs a sterile 5 per cent. solution in 1 c.cm. capsules, of either Merck's or Armour's peptone; Witte's preparation has been avoided because of its high histamine content. The basis of the therapeutic action of peptone is its constriction of the valves controlling the portal and pulmonary venous systems, thus tending to produce congestion, the reverse of what occurs

with the drug novasurol. The therapeutic value of peptone in bronchial asthma is explained as being due to shock effect on the sympathetic nervous system, and the pulmonary vessels and bronchial muscle fibres under its control. The action of peptone may be very pronounced; in an unselected case of lymphatic leukaemia an injection of peptone raised the weight 6½ lb. in three days. It is often rapidly effective in checking some forms of severe diarrhoea, haemoptysis, and asthma, the latter being probably its chief field of use at present. It is given by intramuscular injection. Pyrexia should never follow; if it does it indicates the existence of idiosyncrasy, failure of therapeutic action, or sepsis.

15. Sugar Treatment of Epilepsy.

S. WLADYCZKO (*Prossc Mtd.*, November 7th, 1925, p. 1475) noticed that in a district in Russia sugar shortage increased the incidence of epilepsy and aggravated already existing cases. Investigations of the blood sugar content of epileptics produced discordant results. One of the author's epileptic patients showed just before the attack only half the normal amount of blood sugar, and so Wladyczko determined to try the administration of sugar in such cases. He now recommends glucose in doses of 50 to 100 grams by the mouth, given in water, or else ordinary sugar, 200 grains, in either case once daily. This may be varied by giving sugary foods, such as jam or preserved fruit. The sugar cure should be combined with other medication, such as luminal or bromides, although in some cases sugar alone relieved all symptoms. The treatment is controlled by periodical examination of the blood and urine. The results were that in 18 cases the fits became less frequent and severe; in 5 cases the fits returned only once at intervals of four, five, or six months, whereas previously they had occurred every day in one patient, and in the others nearly once a week.

Ophthalmology.

16. Estimation of the Ocular Muscle Balance.

C. S. O'BRIEN (*Journ. Amer. Med. Assoc.*, October 24th, 1925, p. 1295) recommends prolonged monocular occlusion for the correct estimation of deficiency in the ocular muscle balance. He states that orthophoria is almost as rare as emmetropia, and that although the majority of heterophorias are of small degree, and are easily corrected by the average person without giving rise to symptoms, nevertheless where there is also present some other type of pathological change which affects the ocular muscles, or their innervation, or where the errors are large enough to require a constant spasm of the muscles in order to maintain binocular single vision, this test is necessary. The indications for the test are: (1) where the patient already has glasses which properly correct any refractive error, and yet continues to suffer from asthenopia; (2) where vision is distinct with one eye but becomes blurred when two are used; (3) where there is as much or more discomfort in distant vision as in accommodation; (4) when the patient shows pronounced symptoms of asthenopia after visiting a cinema or theatre; (5) where the symptoms are out of all proportion to the refractive error; (6) where headaches, vertigo, or vomiting are caused by riding in a swiftly moving vehicle. O'Brien has found that by this test he has been able to reveal high degrees of imperfect balance which were undetected by the ordinary methods. He considers this method to be analogous to that of estimating errors of refraction by using a mydriatic, since by prolonged monocular occlusion rest is given to the ocular muscles. When the test was originally devised by Marlow the period of occlusion recommended was about a week, but O'Brien had found that two or three hours suffice in the majority of cases.

17. Conical Cornea.

V. WESCOTT (*Amer. Journ. of Ophthalmol.*, October, 1925, p. 803), discussing the condition known as conical cornea, is inclined to attribute it to a developmental defect whereby the growth of the fibrous elements of the cornea is retarded; this retardation is most marked at the centre of the cornea, which is farthest removed from the blood supply. The fact that the disease usually appears just after puberty suggests, on the other hand, that it may be due to some metabolic change occurring at that time of life. While diagnosis of a well marked case is easy, Wescott thinks that many slight cases are probably overlooked. He has seen no good result produced by general medical treatment. The various operative measures, such as needling the lens, the formation of a slit-like pupil, paracentesis of the anterior chamber, trephining or cauterizing the cornea, and excising portions of the cornea with subsequent suturing, are mentioned. The author thinks that on the whole conservative measures are best, and that the prolonged use of miotics with a pressure

bandage gives the best result in most cases. In very extreme cases operative treatment may possibly be justifiable, he adds, but the state of the other eye must be considered in this connexion. In most cases vision can be improved by lenses.

18. Ocular Signs of Temporal Tumours.

W. I. LILLIE (*Journ. Amer. Med. Assoc.*, November 7th, 1925, p. 1465) has investigated the ocular changes in 53 patients suffering from temporal lobe tumours. He distinguishes four types of changes: (1) changes in visual acuity; (2) changes in the optic discs; (3) changes in the visual field; and (4) oculo-motor changes. He found that out of 168 verified cerebral tumours 53 were of the temporal lobes, thus suggesting that these are more common than was previously believed. He states that except for the absence of visual hallucinations in these cases his findings closely agree with those published by Cushing in 1921. Oculo-motor changes were not common and occurred in only 13 of his cases, but all these changes, with the exception of convergence weakness, were present on the left side, whereas the tumours were about equally divided between the two sides. Bilateral choking of the discs was present in 45 cases and was higher on the contralateral side as often as on the homolateral. He considers that an ocular syndrome could be established for early temporal lobe tumours—namely, normal visual acuity, bilateral choked discs, and homonymous quadrant defects either for colour or form. These last he found present in 43 out of his 51 patients in whom he was able to chart the fields, and he believes them to be of great importance in the diagnosis of temporal lobe tumours, especially when associated with bilateral choked discs.

Obstetrics and Gynaecology.

19. Control of Uterine Haemorrhage.

W. S. NEWCOMET (*Journ. Amer. Med. Assoc.*, November 7th, 1925, p. 1459) recalls that the cells of the generative organs are more susceptible to x rays than any other cells in the body, and that radium and irradiation have been used for the control of uterine haemorrhage for the last ten to twenty years. While with radium there has been considerable success the scarring and skin changes resulting from the use of large doses of x rays have deterred most practitioners from recommending their general employment. Radium, however, requires careful preparation of the patient before its use; the exposure is somewhat long, and disturbing results have been observed. Newcomet therefore investigated the control of uterine haemorrhage without checking menstruation by means of smaller doses of x rays than had previously been used. His method was to cover the body of the patient completely with a leaded rubber sheet or thin lead plates, and to expose four areas over the anterior portion of the pelvis, each 2 inches square, for four minutes, at a 10-inch focal distance, to rays produced by a current of 4 milliamperes, with an 8-inch spark-gap, and a 3 mm. aluminium filter. Subsequent applications depended largely on the results obtained by the first. If necessary a second application to five areas on the back were given at the end of three weeks, using the same technique. If still further sittings were required cross-firing from the two sides was adopted after six to eight weeks. In very few cases was there any tanning of the skin, and the pubic hair was retained in every case. By this treatment he has had 45 successful results in 60 cases of uterine haemorrhage. In some it was possible to control the bleeding without stopping menstruation, but the author states that in women nearing the menopause this method is likely to lead to permanent cessation of menstruation. In some of the younger women the periods ceased temporarily but returned later.

20. Necrobiosis in Fibromyomata.

FORGET-URION (*La Gynéc.*, October, 1925, p. 579) discusses the complications introduced into pregnancy, labour, and the puerperium by the uterine fibroids, and states that, while the size of the tumour is the most common cause of difficulty, yet such other conditions as degeneration, sepsis, and gangrene should not be overlooked. He recalls the opinion of Pinard that fibromyomata arise as perversions of genital activity owing to there having been no pregnancy before the age of 25, and that pregnancy is the best prophylactic and curative treatment. Considering the problem of whether marriage should be recommended in such cases, the present author points out that small fibromyomata occurring in older primiparae do little more than lengthen labour and render it irregular, while large fibromyomata are relatively infrequent in these patients. He mentions briefly the well known

mechanical complications, such as torsion, and points out that necrobiosis due to interference with the blood supply of the tumour is a definite danger which deserves more consideration than is usual. The degenerative change usually starts near the centre of the fibroid owing to its vascular arrangement, and an aseptic fluid mass results; this may, however, become infected secondarily, and particularly after delivery. The most distinctive sign of this degenerative process is pain in the fibroid and tenderness on pressure, which persist in spite of rest and cold applications. General signs of toxic absorption become apparent later, but without pyrexia or with transient spells of fever only. For treatment myomectomy is indicated when possible, or hysterectomy if there are multiple necrosed fibroids. Other forms of degeneration are said to be rare; only one case of true gangrene seems to have been reported during pregnancy, but this condition is relatively more common after delivery.

21. Brow Presentation.

F. JESS (*Zentralbl. f. Gynäk.*, November 14th, 1925, p. 2609) cites various observers who have recently drawn attention to a mechanism of labour in brow presentations which differs from that usually described in that the antero-posterior diameter of the foetal head passes through the pelvis in the transverse or oblique rather than the conjugate diameter. He records two cases of brow presentation in which the long axis of the foetal head engaged in the transverse diameter of the pelvis. In the first case oblique forceps application led with great difficulty to delivery of the head with the sagittal suture in an oblique diameter. In the second case the child was born alive; the forceps application was made transversely, one blade grasping the malar region and face and the other the vertex and occiput. The passage was aided by traction, first to one side and then to the other. Jess remarks that, owing to the rarity of brow presentations and their late recognition in labour, trustworthy observations in a series of cases are obtainable only with great difficulty; the publication of observations by general practitioners is desirable. There is some theoretical and actual evidence that rotation of the sagittal suture into the antero-posterior pelvic diameter is normally absent or incomplete in brow presentation, and that the commonly accepted indications for the use of forceps or other operative treatment need reconsideration.

22. Prolapse of the Ovary.

U. TROPEA-MANDALARI (*Riv. d'Ostet. e Ginecol. Prat.*, November, 1925, p. 482) regards prolapse of the ovary within the pouch of Douglas as a malady having fairly characteristic signs and symptoms. More often acquired than congenital, its predisposing cause is to be found in abnormal length and extensibility of the utero-ovarian and suspensory ligaments. The immediate causative agencies are trauma, the puerperal state, uterine and vaginal prolapse, and retroposition of the uterus. The symptoms consist in (1) pain, which is more often acute than subacute, (2) menstrual disturbances, (3) dyspareunia, (4) pain in defaecation. A symptom which, if present, is characteristic, is participation of the mammary gland in the attacks of pain. Diagnosis from ectopic pregnancy is usually easy, but from appendicitis and inflammatory adnexal conditions it may be very difficult. Palpated in the pouch of Douglas, the prolapsed ovary is very tender and is rounded and hard; the tumour associated with salpingitis, on the contrary, appears very closely connected with the posterior wall of the uterus and is soft and elongated. A valuable diagnostic sign in ovarian prolapse is the ascent of the tumour from the pouch of Douglas when the patient is examined with the pelvis elevated. In treatment pessaries are of little avail. Removal of the ovary is rarely justifiable. The operative method recommended is that of Merletti, who sutures the infundibulo-pelvic ligament to the round ligament about 3 cm. from the uterine insertion of the latter.

Pathology.

23. Callus Formation and Restoration of Function.

J. L. YATES and G. W. STEVENS (*Annals of Surgery*, October, 1925, p. 617) point out that the formation of callus in the repair of a fractured bone is comparable with the healing processes in other tissues, and that the amount and strength of the callus will depend upon the movements of the bony fragments. In those animals and birds which survive fracture of a bone the function of the limb is in most cases completely restored, and this is due to the persistence of active movements limited only by pain. The authors further compare callus with atrophic bone, in that in both there is less than the normal amount of bone tissue within the outer shell, and

therefore if the callus is subject to normal stresses there tend to be produced areas of more compact bone along the lines of these applied forces. If these stresses are present but not excessive the use of the limb is more rapidly regained than if immobilization is employed. Should the movements be excessive, then an increased and pathological form of callus results, which tends to imperfect union and to deformities. The amount of callus present is therefore no indication of its competence; the efficiency of the callus should be judged rather from radiograms which demonstrate the development of these lines of increased density. Complete immobilization of a limb produces atrophy of the bones and rigidity of the joints, and while these can be corrected by the resumption of active movements it is better that these evils should be prevented, as far as possible, by not allowing immobilization to be complete. The authors conclude that the treatment of fractures should proceed along the lines which assist the ordinary reparative processes of nature, as little support as possible being given. If immobilization is necessary it should be interrupted at frequent intervals by active movements. Plaster casts are undesirable unless they allow earlier active movement than other apparatus, since they render impossible the valuable use of sunlight. Above all, strict attention to the general physical and mental condition of the patient will greatly assist in hastening repair and obtaining efficient function.

24. The Cerebro-spinal Fluid in Diphtherial Paralysis.

P. FORNARA (*La Clinica Pediatrica*, September, 1925, p. 547) records his observations on the changes in the cerebro-spinal fluid in seven cases of generalized diphtherial paralysis in children aged from 2 to 10 years. Although this subject has received much attention in France, Germany, and the United States, this is stated to be the first paper in Italian on the cerebro-spinal fluid in diphtherial paralysis. Fornara found that the intensity of the changes in the cerebro-spinal fluid bore no relation to the severity of the paralysis. The fluid was perfectly clear in all cases. In five it escaped under considerable pressure. In only one case was there a great increase in the number of cells, while in the rest the number of cells was normal or only slightly increased. On chemical examination there was an increase in the albumin and especially of the globulin. Pandey's reaction was positive in all, the Nonne-Apert-Ross Jones test was weaker and less constant, the Weichbrodt reaction was definite and sometimes well marked, Boveri's reaction and the Voisin-Ajello reaction were positive in all cases. The spinal sugar was increased in all cases, with values intermediate between 0.70 and 0.85 per 1,000. The Wassermann reaction was always negative. The colloidal benzoin test was perfectly normal in three cases, doubtfully positive in one, and in three slightly deviated to the right. The cerebro-spinal fluid thus presented slight but definite changes in all cases of diphtherial paralysis, as had been shown by Laverigne and Regan.

25. Posterior Pituitary Extract.

W. SCHLAPP (*Quart. Journ. Exper. Physiol.*, October 30th, 1925, p. 327) investigated the active principles of the posterior lobe of the pituitary body with a view to finding out whether the many physiological responses evoked by its extracts were attributable to one or more active principles. The methods used in the preparation and preservation of extracts and in the estimation of their oxytocic, pressor, and other activities are described; so far as the pressor and oxytocic principles are concerned there appears to be evidence of the existence of different substances, though it may be that the pressor and melanophore responses are due to the same substances. It was found that when depressor-free extracts were boiled with dilute hydrochloric acid the oxytocic, pressor, and melanophore responses were slowly and simultaneously destroyed. It was possible also to separate a fraction containing the greater part of the oxytocic activity by treating depressor-free extracts with N-butyl alcohol. Experiments indicated that the oxytocic activity on the one hand, and the pressor and melanophore on the other, must be due to distinct substances, but there was no positive evidence that the two latter were not attributable to one and the same principle.

26. Basal Metabolism in Cancer of the Stomach.

C. B. UDAONDO, J. E. CARULLA, and H. ZUNINO (*Arch. Arg. de enferm. del apar. dig. y de la nutrición*, October, 1925, p. 13) record their observations on eighteen cases of carcinoma of the stomach in various stages in which they studied the basal metabolism. In every case there was a more or less considerable fall in the metabolic rate. This fall did not bear any relation to the size of the growth, but was attributed by the authors to the reduction in the amount of food taken owing to the anorexia which is the rule in this disease.

27. **The Blood Pressure in Tuberculosis.**
W. B. JAMESON (*Therapeutic Gazette*, November 15th, 1925, p. 770) has studied the blood pressure in 1,200 patients suffering from pulmonary tuberculosis, and has found that the average for men is—systolic 113 mm., diastolic 68 mm.; while for women it is—systolic 106 mm., diastolic 63 mm. He also found that age had very little effect on the blood pressure of the tuberculous patient, but that the rate of lowering of the blood pressure was proportional to the rapidity and extent of involvement of lung tissues. He states that the lower the blood pressure the worse is the prognosis. Wilkes believed that a low systolic pressure without any other manifest disease to cause it pointed conclusively to tuberculosis, but Jameson considers a low pressure to be only suggestive of this disease; he advises that patients with low systolic pressure should be carefully watched.

28. **M. VILLARET and M. MARTINY** (*Presse Méd.*, November 28th, 1925, p. 1563) have investigated venous pressure in a series of 200 cases of tuberculosis, and find that the pressure is raised in most cases. The exceptions occur in cases of a very toxic type, as in miliary tuberculosis. They recognize two other factors which might cause this rise—one is venous engorgement, due to cardiac weakness, and the other is direct pressure on the veins in the thorax; but they hold that a rise may also occur when neither of these factors is applicable. They add that clinically the importance of these findings is, first, that a venous rise precedes a haemoptysis in every case, and secondly, that in artificial pneumothorax a rise indicates that the limits of tolerance have been reached.

29. **The Development of Endocarditis.**
M. RENAUD (*Bull. et Mém. des Hôp. de Paris*, November 5th, 1925, p. 1352) remarks that nowadays the distinction between simple and malignant endocarditis is not retained in classification. Examination of the anatomical lesions of endocarditis shows that the essential feature is alteration of the superficial layers of the endocardium by thrombosis. Clinically there are three categories: acute endocarditis developing in the course of some acute illness; chronic endocarditis secondary to some unknown focus and manifesting itself in pyrexia and pyaemia; and, lastly, there is the much underrated endocarditis of cancer patients, Renaud having found endocarditis fourteen times in 136 cancer necropsies. The cancers most often complicated thus are large ulcerating lesions of the rectum, face, or uterus. He adds that clinically, at any rate, these complications of cancer by endocarditis are most insidious; diagnosis during life is perhaps possible only by blood cultures, though the necropsy discloses as copious valvular lesions as in typical malignant endocarditis. Every intermediate degree may be found between a quickly fatal endocarditis and the type which continues almost indefinitely.

30. **Collapse in Typhoid Fever.**
R. DE BRUN (*Thèse de Paris*, 1925, No. 197), who reports fourteen cases of collapse in enteric fever, holds that the term "typhoid collapse" should be reserved for a definite syndrome which is the same in all carefully studied cases. The essential features are as follows: (1) A sudden fall of temperature which is more or less steep and may reach an extreme degree of hypothermia. (2) An equally sudden fall of blood pressure, which is more or less marked and often steep. It may be latent. When it is well developed it is manifested by the following symptoms: a remarkable change in the expression, the face being pinched as in peritonitis, and cyanosis which sometimes affects the skin generally. The various clinical forms depend on the rapidity, depth, and duration of the fall of temperature. Sometimes a sudden fall of blood pressure is manifested by transient syncope, convulsions, and sudden death. These two symptoms—the fall of blood pressure and the fall of temperature—are almost constant features of typhoid collapse, but there may also be transient tachycardia and, less frequently, transient polypnoea. The curves of the fall of temperature and blood pressure are not simultaneous or identical, but run their course independently. The principal feature of typhoid collapse is its essentially transient evolution. It is an attack which may last from three or four hours to three or even four days. The prognosis of the attack is often good, but relapses are frequent. In most cases the temperature is a guide to the duration of the collapse, just as the fall of

temperature is to the gravity of the condition. The occurrence of collapse is independent of the gravity of the original disease, and in like manner it has no effect on the progress of the disease, which pursues its ordinary course when the collapse has passed off. The collapse is not due to cardiac failure, as examination of the heart before, during, and after an attack remains negative. It can only be due to a bulbar deficiency, which is sudden though transient. The different centres (thermal, vasomotor, cardiac, and pulmonary) may be inhibited more or less completely.

31. **Purpura Haemorrhagica of the Bladder.**
F. DE GIRONCOLI (*Arch. Ital. di Urol.*, July, 1925, p. 632) states that the first example of this condition was described by F. Kidd in 1913, since when nine cases have been recorded, including the following case which came under his own observation. The patient was a robust and previously healthy girl, aged 17, who suddenly developed frequent micturition, strangury, and haematuria. Cultures of the urine were sterile. The Wassermann reaction was negative. The red cells numbered 4,500,000 and the leucocytes 6,300; haemoglobin 80 per cent.; differential count: polymorphonuclear leucocytes 46.5 per cent., lymphocytes 45 per cent., monocytes 4 per cent., transitionals 4 per cent., Türk's cells 0.5 per cent. On cystoscopic examination punctiform haemorrhages were seen in the mucous membrane of the bladder. Large ecchymoses developed at the sites where the blood had been taken for diagnostic purposes. Under treatment by vesical lavage with silver nitrate solution the vesical haemorrhages soon disappeared and complete recovery followed. The author concludes: (1) Purpura haemorrhagica of the bladder is not a nosological entity but the expression of a haemorrhagic diathesis of the whole organism, usually due to a toxoinfection. (2) Purpura haemorrhagica of the bladder and simple ulcer of the bladder are two distinct affections with the same aetiology. (3) The diagnosis of purpura haemorrhagica of the bladder is made by cystoscopy, which shows the presence of characteristic haemorrhages in the fundus of the bladder. (4) Treatment consists in vesical lavage with a solution of silver nitrate in a strength of 1/4 to 1 in 1,000. (5) The prognosis is favourable. Under suitable treatment the haemorrhages and subjective disturbances disappear in a few weeks' time.

32. **Plexiform Neuromata.**
G. BELL and K. INGLIS (*Med. Journ. of Australia*, October 3rd, 1925, p. 423) report a case of plexiform neuroma with associated local hypertrophy and multiple chondromata in a girl, aged 20, who had had the middle finger of the left hand removed in infancy for hypertrophy. The swelling in the left index finger of which she now complained had been noticed first when she was 14 years of age. This swelling had increased in size and had extended upwards so as to occupy a great part of the radial side of the hand and the flexor aspect of the lower third of the forearm; there was some pain. The authors also report (*ibid.*, p. 427) a similar case in a farmer, aged 54. He gave a history of having been born with a large left upper limb, the thumb, index, and middle fingers of which were removed when he was 18 months of age. Nine months before he was admitted to hospital he fractured his right femur, and after this he noticed weakness in the left arm and increase in its size. In both cases the tumours were soft with an irregular cord-like structure, and on pathological examination were proved to be plexiform neuromata. As a result of their experience in these cases and study of the literature the authors suggest that the plexiform neuroma is the primary and essential lesion, the localized hypertrophy and multiple chondromata being secondary effects.

33. **Apophysitis of the Os Calcis.**
P. LEWIN (*Surg., Gynecol. and Obstet.*, November, 1925, p. 579) describes apophysitis, or inflammation of the epiphysis at the posterior portion of the os calcis, a condition but little noticed in the textbooks or literature. He considers that it is analogous to Legg's disease in the hip or Osgood-Schlatter's disease of the tibia, and attributes it to internal or external trauma combined with local circulatory disturbances affecting the apophysis at its critical period of growth. The onset is insidious, with or without history of injury, and occurs

usually in boys between the ages of 9 and 13. A limp is generally the earliest symptom, and there may be pain, tenderness, and thickening over the affected part, a slight equinus condition developing owing to disinclination to stretch the tendo Achillis. Radiographical examination shows irregularity and thickening. The prognosis is excellent if the limb is put in plaster from the toes to above the knee, with the foot in slight equinus and the knee in slight flexion to relax the pull of the triceps. After a fortnight this is replaced by another plaster application from the toes to just below the knee, the foot being now placed at a right angle. A month later a high laced shoe is used with three-quarters of an inch cork lift for the heel, crutches being used for a further two weeks. In very mild cases elevation of the heel and the insertion of a felt or rubber pad may be all that is necessary.

34. Bursal Exostosis.

A. ABRAMOWA (*Zentralbl. f. Chir.*, November 21st, 1925, p. 2649) describes a case of bursal exostosis. The etiology of this disease is obscure and the diagnosis may be difficult when the bony tumour is situated deeply under muscles. A peasant woman, aged 48, whose eldest daughter had died from tuberculous osteitis, complained of a swelling in the lower part of the right popliteal space, which, although not increasing in size, rendered prolonged standing or walking impossible on account of pain radiating down the leg. There was some oedema of the right leg below the swelling, which was of bony hardness and quite immobile. The circumference of the right knee was less than that of the left joint, and flexion was limited to 60 degrees. All movements of the ankle and foot were free. On separating the two heads of the gastrocnemius, the tumour was found to consist of three thin-walled sacs, communicating with each other by narrow necks; these were filled by three masses of bone united by slender pedicles, and a thicker pedicle formed the attachment to the upper third of the posterior surface of the tibia, apparently at the level of the junction of the epiphysis and shaft. The three sacs represented the bursa beneath the semimembranosus. The large proximal mass consisted of bone and hyaline cartilage, and was attached to the tibia by a thick pedicle which had to be divided by a chisel. The operation two years ago was completely successful, and there has been no recurrence.

35. Pancreatic Cysts.

H. ROTH (*Amer. Journ. of Surg.*, November, 1925, p. 257) points out that cysts of the pancreas are not at all common, and that their diagnosis is usually difficult. Pain is often present and loss of weight is generally marked; sugar in the urine is sometimes present. It is believed by many that these cases of so-called pancreatic cyst when of traumatic origin are really effusions into the lesser sac of the peritoneum. Traumatism may cause a true cyst or a pseudo-cyst; if true, the cyst may appear soon or late after the injury. Haemorrhagic cysts are usually of traumatic origin, but may also result from acute pancreatitis. Cysts of the pancreas are usually single; they have a smooth surface and are tense. The early symptoms are vague, including epigastric pain, flatulence, and indigestion; jaundice may be present, and there is usually loss of weight. The tumour is usually fixed, but may be movable. The diagnosis is often only made at exploratory operation, and treatment is always surgical. If the cyst has a small pedicle it may be entirely removed. The safest operation, however, is evacuation of the fluid and drainage of the cyst. Frequent changes of dressing are necessary and the skin must be protected from irritation. The cavity fills up with granulations, though occasionally a fistula persists. X-ray treatment and antidiabetic diet have been advised to hasten closure of the fistula. The results of surgical treatment are usually satisfactory.

36. Treatment of Liver Abscess.

O. CIGNOZZI (*Lyon Chir.*, September-October, 1925, p. 597), dealing with the surgical treatment of hepatic abscesses, distinguishes between those arising in the right lobe and those in the left lobe of the liver. The abscess may be found uncomplicated or it may be adherent to the abdominal parietes. The author bases his experience on thirty-three cases, and finds that abscesses of the right lobe are always larger and more extensive than those arising on the left side. He holds that the best approach for an abscess of the left side is by a longitudinal mid-line incision above the umbilicus. If the liver is not adherent to the abdominal wall it may be sutured to the parietal peritoneum or packed round with gauze before the abscess is opened. After evacuating the pus the abscess cavity is packed for several days. Abscesses of the right lobe when large may be drained through an incision dividing the fibres of the right rectus muscle. Where the abscess lies under the costal region an oblique incision below the lower ribs is made; this is considered preferable to

resection of the ninth or tenth rib, which often results in a fistula. In the rare cases where the abscess lies on the posterior aspect of the right lobe it should be drained by a transverse incision in the lumbar region which gives satisfactory drainage. In the thirty-three cases recorded there were seven deaths. Death is usually due to hepatic insufficiency or toxæmia, and sometimes to pyæmia or the secondary formation of a subphrenic abscess.

Therapeutics.

37. Sanocrysin in Pulmonary Tuberculosis.

V. BIE (*Ugeskrift for Læger*, November 19th, 1925, p. 1023) records several cases of acute febrile pulmonary tuberculosis treated with sanocrysin. He started with a dose of 0.25 gram and gradually increased to 1 gram, a total of 5.25 to 5.50 grams being given in one series of injections, and the interval between each injection being at least five days. An interval of three to four weeks was allowed between the first and second series of injections. In those cases which responded satisfactorily the temperature gradually fell to normal during the first series of injections, but it was only later that improvement was detected in the appetite, the general condition, and the stethoscopic signs. P. KÜHNEL (*ibid.*, p. 1036) has compared the results in twenty cases one month after the completion of treatment with the results in fifteen of these cases from two to seven months later. The first results were fair with three exceptions, two patients in the third stage of the disease and one in the second stage developing violent and fatal exacerbations. Between two and seven months later two more patients had died, and only three of the remaining fifteen had maintained their improvement. Kühnel fears, therefore, that even when the immediate effects of sanocrysin are good, the gain is seldom maintained. G. E. PERMIN (*ibid.*, p. 1037) recommends for adults a first dose of from 5 to 10 cg., and every fourth day, when the febrile reaction has passed off, this dose is increased by 5 to 10 cg. provided there is no albuminuria or rash. When the dose has been increased to 25 or 30 cg. the interval between each injection is lengthened to one week, and each dose is increased by 5, 10, 15, or 20 cg., the rate of increase being determined by clinical indications. When the dose has reached 1 gram the injections are continued at this level till no reaction occurs. He recommends also a second series of injections during which the dose may be increased more rapidly. He claims that the discomforts and dangers of early sanocrysin treatment have been much reduced, and that the results are as good as those with the original dosage.

38. C. BENEDETTI (*Il Policlinico*, November 9th, 1925, p. 1557), after a careful study of the results obtained in the treatment of pulmonary tuberculosis by sanocrysin, gives a qualified approval. He agrees that it has a bactericidal action on the tubercle bacillus, but is not devoid of danger, the chief troubles being albuminuria, shock, and the minor inconveniences of serum injection. He finds that the most suitable cases are those of the recent exudative type where the disease is neither extensive nor very active; little benefit was obtained in fibrous types or in surgical tuberculosis. Improvement was indicated by decrease of the cough, gain in weight, and disappearance of night sweats, while there was also radiographic evidence of benefit. Benedetti agrees also that sanocrysin must not be used when there is much fever, cardiac weakness, diarrhoea, or profuse night sweats, and that in any case sanatorium treatment should be given simultaneously.

39. Serum Treatment of Typhoid Fever.

A. RODET (*Journ. de méd. de Lyon*, November 5th, 1925, p. 619), who has collected more or less detailed information about 1,500 cases of typhoid fever in France and foreign countries treated by his serum, records statistics of 679 cases. Of these patients, 66 died—a mortality of 9.7 per cent. The best results were obtained when the serum was given early, the mortality being only 2.3 per cent. among 86 cases treated within the first five days. Like the mortality, the average duration of the disease and the frequency of complications and relapses were reduced by early administration of the serum. Rodet claims that serum treatment is superior to balneo-therapy, not only in being simpler to apply, but also in shortening the duration of the disease and even causing it to abort, if the treatment is begun sufficiently early. The serum may be given at any stage of the disease, but it is best to use it as early as possible. It should be given in larger doses than has hitherto been done, at least in some cases. It should be the only form of treatment applied and should not be associated with antipyretic drugs, baths, or other methods of reducing the temperature.

30. Vaccine Treatment of Whooping-cough.

A. PONDMAN (*Nederl. Tijdschr. v. Geneesk.*, October 24th, 1925, p. 1893) records the results of a questionnaire sent to medical practitioners who had employed the pertussis vaccine prepared by the Dutch Serological Institute at Utrecht; 89 answers were received, with the following results. The local reaction appears to have been insignificant. Only six practitioners stated that a small infiltration had occurred after large doses had been given, and in one case a transient urticaria was observed. As regards a general reaction 18 showed a slight rise of temperature not exceeding one degree, and in 5 the temperature was somewhat higher, the highest recorded being 102.6°. No reply was received about a focal reaction—that is to say, the effect of the vaccine on the respiratory tract. As regards the prophylactic value of the vaccine 12 answers were received, of which 8 were favourable, 3 were partly favourable, and 1 unfavourable. Of the 89 answers concerning the curative effect of the vaccine, 21 had to be excluded as the numbers treated were too small to justify a conclusion. Of the remaining 68, 61 were favourable and 7 unfavourable. Pondman's conclusions as the result of the answers to the questionnaire are as follows: (1) As a general rule it is advisable to increase the dose. (2) There is no objection to this, as no bad results were reported. (3) The vaccine should be used as early as possible. (4) It is essential that it should be prepared from different strains of pertussis bacilli.

Laryngology and Otology.**31. Tracheotomy in Tuberculous Laryngitis.**

T. RITCHIE RODGER (*Journ. of Laryngol. and Otol.*, October, 1925, p. 639) describes four cases of tuberculous laryngitis in which urgent tracheotomy had to be performed on account of dyspnoea. Three patients progressed extremely well after this procedure and the laryngeal tuberculosis cleared up satisfactorily. The fourth patient had very extensive lung infection and died about two months after the operation; he had, however, derived great benefit from the tracheotomy. In all four cases a fatal issue was certain without a tracheotomy. In these cases there is no question about the propriety of performing tracheotomy, but a much more difficult problem is set by the severe tuberculous laryngitis which does not improve and which has no signs of dyspnoea. Even after tracheotomy the cords move during deglutition, during quiet respiration, and during forced movements of the arms, as was pointed out by Negus. Tracheotomy, therefore, does not put the larynx at rest completely, but it eliminates speech, and is of value chiefly in those cases in which the disease is progressing, and the patient is incapable of observing the rule of strict silence. In favour of tracheotomy it may be said that the inspired air no longer passes over an ulcerated tuberculous area nor does the infected sputum reach the already damaged laryngeal mucosa. Against tracheotomy is the fact that cold dry unfiltered air is passed straight into the lungs, which are already weakened by tuberculosis, and there is the much greater difficulty of protecting the nursing staff and other attendants from the infected sputum. The author concludes that tracheotomy should be reserved for cases of marked dyspnoea and for patients in whom the complete silence regime is not possible.

32. Leptomeningitis in Acute Otitis.

C. FERRETTI (*Arch. Ital. di Otol., Rinol. e Laringol.*, October, 1925, p. 628) recalls the conferences at Perugia and Paris in 1922 on meningitis following otitis media and the various methods of treatment adopted. Gradenigo relied on a very extensive excision of the diseased area in the tympanum and mastoid process, laying bare a wide area of the dura mater, and on repeated lumbar puncture. He also injected autogenous vaccines and colloidal metals. Jenkins, however, considers that the infection travels through the labyrinth and internal auditory meatus, and treats such cases by opening up the internal ear and draining through the meatus. Turner performs the mastoid operation and employs lumbar puncture, but if this does not bring relief he at once drains through the labyrinth. Ferretti now records the case of a man with acute otitis media who after seven days showed signs of labyrinthine affection—vertigo, headache, and tremors. By the tenth day he had definite signs of meningitis—retraction of the head and Kernig's sign. A very wide mastoid operation was performed, and the operation area was irrigated by the Carrel-Dakin method. Lumbar puncture was performed four times daily with evacuation of large quantities (30 to 40 c.cm.) of turbid fluid. An autogenous vaccine was prepared and injected intramuscularly. Improvement began at once, and in a month the patient was discharged quite well. Three weeks later there was a recrudescence, but by thoroughly irrigating

the mastoid cavity with Dakin's solution and practising lumbar puncture recovery was speedy and complete. The author considers that the above is the ideal method of treatment and is strongly opposed to opening up the dura mater or of interfering unnecessarily with the labyrinth. When, however, the meningitic symptoms are preceded by signs of labyrinthine inflammation drainage through the internal ear is not irrational, though in many of these cases his own line of treatment proved sufficient. The repeated lumbar puncture he considers most important, as it serves to wash out the cerebro-spinal space and to keep down the pressure of the fluid, which tends to inhibit the cerebral blood supply.

33. Oto-sclerosis.

R. LAKE (*Journ. of Laryngol. and Otol.*, August, 1925, p. 512) does not accept heredity and congenital syphilis as etiological factors in oto-sclerosis. According to him any hereditary taint is confined to a tendency to nasal deformation and to tonsillar disease. Middle-ear disease is common in connexion with nasal irregularities and the consequent catarrh, but is more often found in cases of slight degree, and especially when the deformity is skeletal and not merely of the soft tissue. Tonsillar disease is very prolific of middle-ear disease, and acts as a septic focus which appears to be the exciting cause in a great many cases. Lake states that a considerable number of the so-called cases of oto-sclerosis in children are really of a different nature and tend to get better, a phenomenon which apparently rules out oto-sclerosis. The typical symptoms of oto-sclerosis are Bezold's triad (loss of low tones, prolonged bone conduction, and negative Rinne reaction), tinnitus, and the ability to hear better in a noise. The loss of low tone is a symptom which is present in all cases of Eustachian obstruction, and varies enormously with the type and pitch of tuning-fork used. Prolonged bone conduction is, again, a symptom of Eustachian obstruction, but also occurs as a result of rigidity of the ossicular chain. Rinne's reaction naturally varies in concert with the above test. Tinnitus commencing early in deafness is Eustachian in origin; when occurring in more established deafness it is probably due to stapedial immobility. Paracusis Willisii always occurs in stapedial immobility, but also appears in boiler-maker's deafness and the like. The author considers that the red reflex in the drum is a sign of a patch of rarefying osteitis beneath. Treatment consists in the radical elimination of septic tonsils, teeth, and other foci of infection, and the correction of nasal deformities. In conclusion, the author is doubtful if there is really a definite entity to be called oto-sclerosis, and suggests that further work will put this group of symptoms into the main category of non-suppurative deafness.

Obstetrics and Gynaecology.**34. Version in Central Placenta Praevia.**

P. BALARD (*Gaz. hebdom. des Sci. Méd.*, November 29th, 1925, p. 756) reports a case of total placenta praevia occurring in a country district in which removal to hospital would have meant recurrence of the bleeding and a dangerous delay. He emphasizes the point that obstetrical, as compared with surgical, treatment has a wider application in multiparae than in primiparae. Nevertheless, although his patient was a primipara, he at once perforated the placenta, performed version (there had been a head presentation), and delivered a living child; the mother was able to leave her bed on the fifteenth day. In this case the os was soft, and nearly the size of a penny; a primipara with a small rigid os would have required different treatment. Balard adds that another factor to be kept in view when determining treatment is that sepsis supervening upon obstetrical measures is a slower and more amenable complication than sepsis following Caesarean section, which may happen in spite of every care being taken with the abdominal wound.

35. The Cause of Eclampsia.

H. ELWYN (*Amer. Journ. Obstet. and Gynecol.*, November, 1925, p. 698) remarks that there have been several attempts to explain the phenomena of eclampsia in pregnancy, and that the modern tendency is to ascribe them to the toxic effects of metabolic substances derived from the placenta. Volhard thought that the clinical manifestations of eclampsia resulted from a general arterial spastic contraction. Elwyn states that stimuli controlling both uterine contraction and vaso-constriction travel along the thoracic-lumbar branches of the sympathetic nervous system; that uterine contractions can be influenced by stimuli applied to the anterior part of the optic thalamus and to the floor of the third ventricle; that in the medulla there is a vasomotor control centre; and that general vaso-constriction can be obtained by stimulating the region of the hypothalamus. He concludes that the

centres for control of vaso-constriction and uterine contraction are closely related to one another and the impulses travel along almost the same neural paths. He suggests that with the beginning of pregnancy there is an increase in the excitability of the nerve supply to the uterus and of the corresponding centre in the brain, and that the close proximity of the centre for vaso-constriction permits this increased excitability to spread to it. This condition of the nervous mechanism becomes more marked as pregnancy progresses and lasts as long as the uterus is required to contract—that is, into the puerperium. Elwyn states further that the increased excitability is probably present to some extent in every case of pregnancy, but that only in some cases does it become sufficiently pronounced to cause a general spastic contraction of the pre-capillary arterioles. He suggests that those stimuli which cause eclampsia are variable, and include emotional stress, excessive physical effort, and the passage of the child's blood into the mother's circulation should incompatibility exist. It is this general arteriole contraction which, in his opinion, gives rise to the clinical manifestations of eclampsia and to the histological changes found in this disease.

46. The Physiology of Menstruation.

S. D. LUDLUM and E. McDONALD (*Surg., Gynecol. and Obstet.*, November, 1925, p. 569) recall that the longitudinal muscle of the uterus is stimulated by the vagus and inhibited by the sympathetic system, that the circular muscle is stimulated by the sympathetic and inhibited by the vagus, and that the muscle of the intestine reacts in the same way to the same impulses. Acting on this they have made a number of radiographic examinations of the intestinal muscular tone before and during menstruation. These examinations indicated that normally during the intermenstrual period the innervation inclined towards sympathicotonia; during menstruation there was a preponderance of vagus stimulation, and during the subsequent five days the smooth muscle reaction gradually returned to normal. They suggest that the pains and cramps associated with menstruation may be due to vagus stimulation of intestinal muscle, and that the constipation which so often occurs at this time may be the result of stimulation of the pelvic branch of the vagus. They believe that Blair Bell's conclusions in regard to the influence of calcium on menstruation are probably correct, and suggest that the vagotonia during this period is, in part at least, due to the accumulation of calcium in the blood and tissues and that calcium is excreted during menstruation. They have found that drugs and salts which inhibit the vagus or stimulate the sympathetic lessen the pain of dysmenorrhoea, and those which stimulate the vagus increase the menstrual pain and flow.

47. Endometrial Hypertrophy and Ovarian Tumours.

H. O. NEUMANN (*Zentralbl. f. Gynäk.*, November 28th, 1925, p. 2695) has been able independently to confirm a recent report of R. Meyer that a pathological hypertrophy of the endometrium is not infrequently associated with the presence of ovarian tumours. Meyer's cases, like those of French observers, were chiefly those of women who had passed the climacteric; but Neumann's patients included three aged respectively 34, 35, and 36. In one of these a considerable degree of hyperplasia and hypertrophy of the endometrium was demonstrated microscopically, and in the other two the uterus was found by clinical examination and at operation to be enlarged and soft. In one of Neumann's cases, and in a patient aged 25 reported by Aschner, irregular and copious haemorrhages were succeeded, after removal of the ovarian tumour, by regular and less abundant menstruation. In another case the patient, aged 50, had post-climacteric bleeding in association with recently developed ovarian carcinoma. Neumann feels justified in concluding that an endometrial hypertrophy is brought about by internal secretion of the granulosa cells in ovarian tumours.

Pathology.

48. The Action of Iodine in Exophthalmic Goitre.

W. F. RIENHOFF, jun. (*Bull. Johns Hopkins Hosp.*, November, 1925, p. 285), discusses the histological changes brought about in cases of exophthalmic goitre by the administration of iodine. Three successive typical cases were studied, in each of which the basal metabolic reaction was well above 50 before the administration of iodine, but afterwards there was a striking clinical improvement with a precipitous drop in the basal metabolic rate. The changes produced by iodine were found to be an increase in the size of the gland with a decrease in vascularity and probably in lymph flow through the gland; there was a large increase in the amount of

fibrous connective tissue and of colloid. The acini from being lace-like papillomatous ingrowths became even-walled, smooth, and regular in size and form, with a transition of epithelium from high columnar to flat cuboidal and occasionally low columnar. The large clear nuclei of the epithelial cells became altered to the small irregular pyknotic type, and many mitotic figures present before the use of iodine disappeared after it had been given. The clinical improvement and lowered rate of basal metabolism were directly associated with the change from a typical histological exophthalmic goitre picture to a resting colloid state. Similar changes were noted in fifteen cases of exophthalmic goitre treated with iodine, as compared with fifteen who had had no medication. Rienhoff points out that an artificial remission is produced by iodine, and in the case of exophthalmic goitre this is associated with a change from a hyperplastic to a colloid state, even though definite hyperplasia remains, it being a question of relative hyperplasia. In operating he had noticed for some time that the glands of patients who had not been given iodine were more vascular than the glands of those who had been so treated; in the iodized cases also the glands were more fibrous, appeared to contain more colloid, and frequently showed small cystic areas.

49. The Pathology of Terminal Gastritis in Pulmonary Tuberculosis.

J. PARISOT, L. CÔRNIL, and P. HANSAL (*Rev. méd. de l'Est*, October 1st, 1925, p. 690) remark that until Marfan made a careful study in 1887 of the terminal gastritis in pulmonary tuberculosis little of value had been published by previous observers, as they had frequently mistaken the normal post-mortem changes in the gastric mucous membrane for pathological lesions. Marfan came to the conclusion that the most frequent lesions were a mammillated appearance of the gastric mucosa with thickening; more rarely the mucous membrane showed polypoid vegetations or punctiform erosions. On microscopical examination the inflammation was found to be interstitial at first, the covering epithelium undergoing only secondary changes. The erosion corresponded to accumulations of lymphocytes. Marfan regarded the lesions as indicating an infective gastritis like that found in general diseases with a tendency to suppuration, or as an irritative gastritis due to swallowing tuberculous sputum. Subsequent investigations have lent support to Marfan's views. As the result of naked eye and microscopical examination of the stomach in three cases of pulmonary tuberculosis in which the specimen was removed from three-quarters of an hour to two hours after death so as to avoid autolysis, the present authors found the following lesions: (1) Subacute gastritis characterized by granular and vacuolar degeneration of the gland cells in the fundus and especially the pyloric region. (2) A very abundant inflammatory infiltration of an interstitial lymphoplasmatic type with hyperplasia of the lymphoid follicles without specific tuberculous lesions. (3) Considerable congestion of the vessels of the mucosa and submucosa and even a few lesions of periarteritis and periplebitis.

50. The Virulence of *B. typhosus* for the Oyster.

S. COSTA, R. HOVASSE, and L. BOYER (*C. R. Soc. de Biologie*, December 11th, 1925, pp. 1439 and 1441) inoculated ten oysters with about 200 million typhoid bacilli; all the oysters became diseased within four days, and nine died within three weeks. A loopful of the almost lysed body was used for culture after death, and in five out of the nine oysters *B. typhosus* was recovered. The water in which they had been kept was found free from typhoid bacilli. In another experiment twenty oysters were placed in water that had been contaminated with *B. typhosus* by the addition of one slope culture per litre of water. The majority soon showed signs of illness, and eighteen died within three weeks. Cultures were taken from seven of the oysters after death, and the typhoid bacillus was recovered four times. In one instance an oyster dying twenty-one days after the commencement of the experiment was not examined till a fortnight later; a culture of the putrid material proved positive, showing that the body of the dead oyster seems to be not unfavourable for the growth of this bacillus. The authors state that it is not justifiable to conclude from these experiments that the typhoid bacillus is pathogenic for oysters, because the mortality amongst the control uninoculated oysters was very high—60 per cent. But it does appear that the bacillus is able to live and probably to multiply in the body and visceral glands of the oyster—in other words, to prove virulent to it. Further experiments undertaken to determine how long an oyster may remain infected showed that when placed in contaminated water the oyster rapidly became infected, and remained infected for at least twelve days, when the experiment ended. The method of purifying oysters by placing them in clean water for a week or so would therefore seem to be ineffective.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

51. Isolated Post-scarlatinal Adenitis.

P. NOBÉCOURT and L. LEBÉE (*Paris méd.*, November 7th, 1925, p. 385), who record an illustrative case in a boy aged 11, have drawn up the following classification of the types of adenitis occurring in scarlet fever: (1) Adenitis as the first manifestation of the disease, preceding the other symptoms and even the sore throat, and usually situated below the angle of the jaw. (2) Adenitis of the onset occurring simultaneously with the sore throat, rarely of large size and seldom ending in suppuration. (3) Adenitis of the second week of scarlet fever, usually situated below the angle of the jaw, accompanied by a rise of temperature, as a rule, of a few days' duration and with a good prognosis. (4) The typical scarlet fever bubo, which also occurs about the second week, and is associated with the tonsillar and pharyngeal complications of this stage of the disease. (5) The adenitis described by Leichtenstern in 1882 and by Stembo in 1900. This occurs a little later than the last form, is usually situated below the angle of the jaw, and is not accompanied by sore throat. It is a mild complication in itself, but is of grave prognosis, as it precedes the appearance of severe nephritis by one or two days. (6) True post-scarlatinal adenitis, which occurs towards the end of the third week, or in the fourth or fifth. It may be an isolated phenomenon. It is important that the practitioner should be familiar with it, so that he should not attribute it to another cause, especially tuberculosis. It also serves as an indication of a previous attack of unrecognized scarlet fever, like desquamation of the fingers and toes. It cannot be determined at present whether the late adenitis is due to a recrudescence of the agent of scarlet fever or to a secondary infection. Isolated post-scarlatinal adenitis is accompanied at its onset by a transient rise of temperature, and sometimes by slight headache and vomiting. It may assume three different types: (1) As a rule, it is most pronounced below the angle of the jaw; it is sometimes unilateral and may be confined to a single gland. (2) Sometimes the swelling of the face is so marked as to suggest nephritis, and it is difficult to distinguish the separate glands. (3) Sometimes, as in the case reported by the present authors, the first gland to be enlarged is in the supraclavicular region, the cervical chain being affected later.

52. Acquired Immunity to Tuberculosis.

A. DE BESCHE and J. O. JÖRGENSEN (*Norsk Mag. for Lægevidenskaben*, November, 1925, p. 1229) have compared the death rate from pulmonary tuberculosis in Oslo during 1921 and 1922 among the natives of this city with that among the persons who had moved from other parts of Norway into it and had died there. It has been calculated that by the time a native of Oslo has reached the age of 7 there are overwhelming odds in favour of tuberculosis having already been acquired. On the other hand, a certain proportion of the persons moving into Oslo from country districts may be supposed to have escaped infection with tuberculosis in early childhood. Comparison of the natives and the immigrants gives a clue to the influence of tuberculosis in adult life. If a slight infection in early childhood confers immunity in adult life, then the mortality from tuberculosis among the adult natives of Oslo should be less than that of the immigrants into this city. Of the 5,849 persons who died in Oslo in 1921 and 1922, only 2,301, or 39.3 per cent., had been born there. There were 762 deaths from pulmonary tuberculosis—that is, about 13 per cent. of all the deaths—and between the ages of 15 and 40 the deaths from pulmonary tuberculosis numbered 337 among the natives and 155 among the immigrants. Thus, in this age group as great a proportion as 53.5 per cent. of all the deaths among the natives was due to pulmonary tuberculosis, whereas this was the case with only 34.2 per cent. of all the deaths among the immigrants. Above the age of 40, 5.7 per cent. of all the deaths among the immigrants were due to pulmonary tuberculosis, the corresponding figure for the natives being 6.7 per cent. The authors conclude that the total mortality among the immigrants was somewhat less than among the natives, and that in the age group 15 to 40 the mortality from pulmonary tuberculosis was less among the immigrants than among the natives of Oslo. They are sceptical, therefore, about the soundness of the teaching that exposure to tuberculous infection in early childhood confers immunity later in life.

53.

Pulsating Veins in Cardiac Failure.

W. J. KERR and S. L. WARREN (*Arch. Intern. Med.*, November 15th, 1925, p. 593) discuss the occurrence of pulsations in the peripheral veins in failure of the heart with congestion associated with pulsation of the liver and tricuspid regurgitation. From observations of 56 cases of pulsations in the basilic veins the authors found that the condition was associated with some degree of myocardial damage and showed many of the signs of tricuspid incompetency—namely, cyanosis and dyspnoea, oedema and ascites, dilated right heart, a systolic murmur over the lower sternum, a large pulsating or tender liver, marked pulsations in the jugular veins, increased venous pressure, visible and palpable pulsations in the peripheral veins, especially the basilic, myocardial damage, and occasionally right-sided hypertrophy. In the presence of extensive valvular lesions and marked decompensation these venous pulsations are held to indicate a bad prognosis because of pronounced heart failure, and in less marked cases they should be regarded as a warning of early heart failure. Though other clinical signs may be present, the pulsating veins may be the earliest outstanding sign and be indicative of the degree of myocardial and tricuspid incompetency. The pulsations in the basilic veins may vary from a flicker to large excursions of from 2 to 3 cm.; they are centrifugally propagated by the contractions of the right ventricle and are associated with venous stasis.

54. Tetany and Convulsions in Whooping-cough.

G. F. POWERS (*Amer. Journ. Dis. Child.*, November, 1925, p. 632), who records five cases in infants aged from 4 to 17 months, maintains that infantile tetany and not anatomical injuries or an unknown toxin is often the cause of convulsions in whooping-cough. The electrical reactions of two infants, the only patients in his series on whom these determinations were made, were strongly suggestive of tetany in that they showed anodal hyperirritability. In one case the spinal fluid was examined and found to be negative, so that meningitis and cerebral haemorrhage were eliminated as causes of convulsions in that patient. In all the patients the calcium concentration in the blood was less than the normal 10 mg. per 100 c.cm., the lowest being 4.9 mg. and the highest 8.9 mg. Powers recommends that the calcium concentration of the blood and electrical reactions of all infants with whooping-cough should be determined if possible, and treatment guided by the evidence for or against the existence of latent tetany. If these determinations cannot be made, calcium chloride should be given to young children who have pertussis complicated by convulsions, even if there is no clinical evidence of tetany and rickets.

55.

The Spread of Diphtheria.

D. M. LEWIS (*Boston Med. and Surg. Journ.*, November 12th, 1925, p. 913) discusses the point that while the mortality of diphtheria has now been very greatly reduced, its occurrence has been little if at all influenced. He believes that periodical epidemics of measles are followed by an increased number of outbreaks of diphtheria, and he finds that epidemiologically, statistically, and biologically it is possible to correlate variations in the morbidity of diphtheria with epidemic measles. There appears to be little doubt that the nasal catarrh at the onset of measles, when affecting diphtheria carriers, is an important factor in the spread of diphtheria. Lewis believes that the spread of diphtheria would be much diminished by detecting and isolating diphtheria carriers, whether the bacteria were virulent or avirulent, during and following all respiratory infections, but particularly measles. He doubts, however, whether this would be equally effective in diminishing the mortality. He recommends that laboratory reports should not only state "diphtheria negative," but should define the predominant organism, as in this way the hidden factor in the varying mortality from diphtheria may be discovered. He supports his contentions by much statistical evidence.

56.

The Etiology of Osteitis Deformans.

G. GUILLAIN and N. PÉRON (*Ann. de Méd.*, September, 1925, p. 167) report a case of associated tabes dorsalis and osteitis deformans (Paget's disease). While the authors do not think that the latter is always of syphilitic origin, they believe their case to be rather suggestive. A man, aged 54, had suffered from tabes dorsalis since 1919. In March, 1922, his blood serum gave a negative Wassermann reaction, but the cerebro-spinal fluid was positive. In August, 1922, the

patient had a spontaneous fracture of the left femur in the upper third of the shaft. The bones of the pelvis and lower extremities are generally thickened and unduly curved. The circumference of the skull has increased from 21 inches in 1913 to 22½ inches in 1925. The skiagraphs of the cranial and long bones confirm the clinical diagnosis. Large areas of the ilia and sacrum are decalcified, and the lumbar vertebrae show similar changes. The symptoms of tabes dorsalis are typical and progressive. The authors suggest that the syphilitic origin of some cases of Paget's disease is probable, and also that this may not be a definite pathological entity. It is characterized by periods of alternating activity and quiescence, and if antisyphilitic treatment fails to cure either tabes or the bony lesions, it is at any rate probable that the progress of the lesions may be retarded or arrested temporarily.

57. Progressive Muscular Dystrophy in Congenital Syphilis.

G. C. BOLTEN (*Nederl. Tijdschr. v. Geneesk.*, October 17th, 1925, p. 1792) states that the part played by syphilis in the causation of muscular dystrophy is certainly unimportant, as cases with a positive Wassermann reaction have not, to his knowledge, been recorded. The reason for this is that in the great majority of cases progressive muscular dystrophy develops at a period of life when syphilis can usually be excluded, being most commonly found in children under 15 years of age. Bolten now records two cases of the juvenile type of progressive muscular dystrophy of Leyden and Moebius in two brothers, aged 19 and 12 years, in whom the early symptoms were first observed at 9 and 8 years of age respectively. The mother had had several miscarriages and gave a positive Wassermann reaction. The younger boy showed Hutchinson's teeth, although his Wassermann reaction was negative. Antisyphilitic treatment as well as endocrine therapy in the form of pituitary, thyroid, and suprarenal preparations had no effect. Bolten had previously pointed out (*ibid.*, 1925, 1, No. 6) that muscular dystrophy was in all probability due to polyglandular insufficiency in which the pituitary, thyroid, and chromaffin system were involved. In the present cases he considers that the muscular dystrophy was caused by the action of syphilis on the endocrine system, just as cases of infantilism in which there is a disturbance of the pituitary and thyroid, and possibly of the chromaffin system, are due to congenital syphilis.

Surgery.

58. Dermatoses as Premonitory Symptoms of Cancer.

A. HART (*Zentralbl. f. Chir.*, November 28th, 1925, p. 2699) recalls the fact that Kuttner has recorded three cases of chronic pruritus in patients who were found subsequently to be suffering from cancer of the stomach. Hart had observed definite skin lesions—prurigo, erythema multiforme, and dermatitis herpetiformis—in cases of sarcoma of the thyroid gland and of the cervical lymph nodes, and in gastric carcinoma. He now reports two recent and typical cases in married women, aged respectively 55 and 57. The first patient had suffered for two years from anaemia and gastric pain, and for one year had had a chronic dermatitis, diagnosed as scabies. During the last two months the gastralgia was associated with nausea. An annular eruption appeared in the umbilical region, accompanied by intense itching and severe abdominal pain. Repeated skiagraphs and chemical examinations of the contents of the alimentary canal failed to reveal any tumour or ulceration. The patient was well nourished, but her face was pale and greyish. The skin of the trunk was dirty and pigmented, and covered with old and recent scratches. No visceral tumour could be discovered. The abdominal wall was pendulous, and at the umbilicus there was a firm irreducible swelling as large as an apple, which was diagnosed as an omental hernia. A large ovarian carcinoma with metastases in the peritoneum (one of which was the supposed umbilical hernia) was discovered at the operation. The second patient, whose health had been good until June, 1924, complained of intolerable itching, with a recurring vesicular eruption over the entire trunk, limbs, and neck. Several dermatologists had made a diagnosis of dermatitis herpetiformis. For six months she had suffered from nausea, with eructations but no vomiting. Her complexion was greyish and she was rather emaciated. The left side of the neck was covered with a recent fine vesicular eruption. The trunk and limbs were extensively pigmented, the colour varying from light to dark brown. On the inside of both thighs the skin was much thickened, rugose, and dark grey. There was increased resistance and tenderness on pressure in the right hypochondrium. A skiagram showed delay in passage of food through the pylorus. An exploratory laparotomy revealed extensive carcinomatous infiltration of

the pyloric region with fixation of the posterior wall of the stomach. Hart suggests that these dermatoses are due to absorption of toxins. No local treatment alleviated the skin lesions.

59. Periarterial Sympathectomy.

G. PIERI (*Arch. Ital. di Chir.*, October, 1925, p. 433) states that down to July, 1925, he had performed 23 periarterial sympathectomies on 19 subjects. In one case the sympathectomy was performed on the brachial artery under ether anaesthesia, and in 22 on the femoral artery under spinal anaesthesia, except in one case where, owing to the early age of the patient, ether was employed. The indications for the operation were as follows: (1) perforating ulcer, 2 cases; (2) simple or varicose ulcers of the legs, 3 cases; (3) osteo-articular tuberculosis, 4 cases; (4) neuropathic gangrene, 1 case; (5) circulatory disturbances in the lower limbs of arterial origin, consisting in more or less severe pain and occasionally gangrene of a circumscribed or progressive character, 9 cases. The results were as follows: In every case the operation had a good effect upon the symptom pain, but did not appear to exercise a definitely favourable influence on the nutrition of the tissues and local circulation. In some cases symptoms of ischaemic necrosis developed and usually increased, while in others the autopsy showed that in cases of bilateral circulatory disturbance unilateral sympathectomy was not only not followed by permanent vaso-dilatation, but the calibre of the small arteries such as the dorsalis pedis was smaller than on the side where no operation had been performed. G. BONANI (*La Chirurgia degli organi di movimento*, October, 1925, p. 569) performed perifemoral sympathectomy for varicose ulcers in 7 cases. The immediate results were fairly good, cicatrization being complete in 4, partial in 2, and absent in only one. The remote results, however, were disappointing. In only one of the four cases in which cicatrization was complete did the cure persist for eighteen months, while the other three had recurrence of their ulcers in fifteen days, three months, and five months respectively. Bonani therefore concludes that Leriche's operation has only very limited indications in the treatment of chronic varicose ulcer.

60. Surgical Treatment of Scoliosis.

H. PLAGEMANN (*Zentralbl. f. Chir.*, November 7th, 1925, p. 2528) states that the frequent failure of spinal supports to relieve the severe intercostal neuralgia in scoliosis and the excessive displacement of the back muscles in rachitic scoliosis are sometimes remedied by prolonged gymnastic treatment. By an elastic bandage the displaced scapulae may be approximated to each other and to the thoracic wall; the intercostal nerves are thus relieved from pressure, and the overstretched muscles may recover their tone. If this treatment fails Plagemann recommends the following operation. Two small horizontal skin incisions are made over the outer part of each scapular spine, the bone is exposed and through it a number of holes are drilled. Silk threads are then passed subcutaneously between the scapulae by means of a pedicle needle, and on "lacing" the threads through the perforations the scapulae are approximated. The ends of the silk are tied under the skin and cut off. A plaster bandage is applied for seven to ten days, and after its removal a light bandage is worn for a short time. Plagemann has performed this operation on a number of patients at ages varying between 3 and 30 years. G. PERTHES (*ibid.*, p. 2529) criticizes Plagemann's operation, and doubts whether the good results are likely to persist.

61. Perforation of Peptic Ulcer into Peritoneal Cavity.

M. CHARBONNEL and F. LEURET (*Gaz. hebdomadaire des Sci. méd.*, November 15th, 1925, p. 727) describe a case in which gastro-enterostomy had been performed three years previously, and double ulcers, jejunal and gastro-jejunal, had subsequently perforated into the peritoneal cavity in consequence of the patient transgressing the dietary rules ordered. The patient died though a second operation was attempted. The authors consider such an occurrence very rare. In a recent series of twenty-three peptic ulcers there had been no case of perforation, which was prevented probably by early operation. Formerly, when the surgery of gastric and peptic ulcers was mainly confined to emergency treatment, perforation into the open peritoneum was much more common, whereas now it is almost limited to patients in whom the ulcer is latent or who have been poorly supervised. As in any other case of perforation, violent exertion or the overloading of the stomach conduces to its occurrence. Of peptic ulcers the gastro-duodenal is the commonest form. The treatment recommended is suture after excision of the edges, as in the case of an ordinary ulcer, together with verification of the size of the gastro-jejunal orifice; if this orifice is too small a rapid new anastomosis is made, using the button.

62. Acute Arterio-mesenteric Ileus.

E. M. McLAUGHLIN (*Minnesota Med.*, November, 1925, p. 670) reports two cases of acute arterio-mesenteric ileus occurring as a post-operative complication. This condition, he states, is characterized by symptoms of high obstruction, and usually occurs in persons who have lost considerable weight and who have general visceroptosis. In these circumstances, when the patient is in the dorsal position there is a considerable pull on the superior mesenteric artery, and thus the angle which the artery makes with the vertebral column and the aorta is obliterated. This compresses the transverse portion of the duodenum between the artery and the aorta, thereby producing obstruction. The patient persistently vomits a dark-coloured bilious material, which continues in spite of stomach lavage. There is no great abdominal distension and flatus is easily removed by enema. The respiration is shallow, the pulse rapid and weak, and the general condition becomes serious. The treatment which McLaughlin has found successful is to raise the foot of the bed on to 18-inch blocks, and to turn the patient into the right lateral prone position; this allows the caecum and intestines to float upwards and release the tension on the mesentery.

63. Appendicitis in Old Age.

A. G. J. HERMANS (*Nederl. Tijdschr. v. Geneesk.*, November 14th, 1925, p. 2188) remarks that appendicitis is pre-eminently a disease of early life, most of the cases occurring between the ages of 10 and 30. According to Strasburger, only 10 per cent. of the cases occur under 10 years of age, and then usually between 5 and 10. According to R. de Bovis, only 5 or 6 per cent. of all cases of appendicitis occur after the age of 50. The present author's paper is based on observations on 850 patients admitted to the Hospital of St. Francis at Rotterdam for appendicitis during the last four years. Of these, 33 patients, or 3.88 per cent., were aged 50 and over. The oldest was a woman aged 75, the oldest man was aged 69; 19 were men and 14 women; 18 were between 50 and 60, 13 between 61 and 70, and 2 were 71 and over. The diseases assumed the following different forms: (1) Acute appendicitis in 9 cases, 5 of which were in men and 4 in women. (2) Chronic appendicitis in 5 cases, 4 of which were in men and 1 in a woman. (3) A pseudo-neoplastic form in 6 cases, the disease simulating a malignant growth of the caecum or bladder. (4) Encapsulated abscess in 4 cases, 1 of which was in a man and 3 in women. (5) Appendicitis in a hernial sac in 3 cases, 2 of which were in an inguinal hernia in men and 1 in a femoral hernia in a woman. (6) Ileus in 3 cases; in only one of these was there a true ileus through the formation of bands originating from the appendix; in the other two there was a pseudo-ileus with ... of appendicular origin. (7) C ... processes—namely, ... and duodenal ulcer in 1 case. Two cases of the first group and all those of the sixth group ended fatally. Dubs reports a mortality of 12 per cent. among 500 cases of appendicitis over the age of 50, and Mertens a mortality of 25 per cent. in 47 cases over 60, the causes of death being diffuse peritonitis, pulmonary embolism, collapse, or hypostatic pneumonia.

64. Acute Hypotension of Cerebro-spinal Fluid.

E. STULZ and P. STRICKER (*Annals of Surgery*, November, 1925, p. 678) consider the rational treatment of acute hypotension of the cerebro-spinal fluid to be intravenous injections of 30 to 50 c.cm. of distilled water. Hypotension occurs rather frequently in fracture of the skull, and the authors report three cases in which it followed cranial trauma and was efficiently treated by their method. Two patients required two injections in order to restore the pressure, and in one of these the pressure was actually seen to rise during the course of the second injection. Three injections were necessary in the other case. The authors have found the treatment both easy and safe, but they can offer no suggestion as to its mode of action except that possibly the injections alter the osmotic changes between the blood in the choroid plexus and the cerebro-spinal fluid in the sub-arachnoid spaces.

65. Lymphosarcoma.

F. BATTAGLIA (*Arch. Ital. di Chir.*, September, 1925, p. 113), who records two personal cases in men aged 60 and 29 respectively, states that lymphoid tissue is subject to morbid processes in which the clinical and pathological features are so ill defined that it is difficult to determine whether they are examples of lymphosarcoma or pseudo-leukaemia. A distinction between lymphosarcoma and small round-celled sarcoma is probably to be found in the karyokinesis which is present in the cells of the latter and absent in the former. X-ray treatment produces a diminution in size in sarcoma and sometimes a sufficiently pronounced improvement in the patient's general condition to suggest a cure, but sooner or later the growth resumes its course and death occurs.

Therapeutics.**66. Ether Injections in Pertussis.**

A. GOLDBLOOM (*Journ. Amer. Med. Assoc.*, December 5th, 1925, p. 1791) discusses the treatment of pertussis by intramuscular and rectal injections of ether and points out the advantages of the latter method, except in very severe cases. Within one or two minutes after the injection of 1 to 2 c.cm. of ether intramuscularly it could be detected in the breath and remained noticeable for six to eight hours, with immediate and lasting improvement to the paroxysms; but the pain attending its administration and the possible danger of necrosis are serious drawbacks. The beneficial effect appears to depend upon the temporary sedative action during excretion through the alveoli, any specific bactericidal action being as yet unproved. Goldbloom has treated twenty-one children by rectal injections twice daily of half a drachm of ether in half an ounce of olive oil, and finds that the results compared favourably with those in patients treated intramuscularly. The rectal method can be easily employed by the mother or a nurse; the child is not in fear of a painful operation; there is no danger of necrosis; and the treatment can be safely continued for a much longer period than in the case of intramuscular injections. In an infant, aged 2 months, the paroxysms were completely controlled for six or eight hours, during which time the child scarcely coughed, though it ate and slept well.

67. Sugar Treatment of Acute Infections.

R. LATZEL (*Med. Klin.*, November 27th, 1925, p. 1797) describes a number of cases in adults in which threatening oedema of the lung and collapse were averted by the intravenous injection of 20 c.cm. of a 50 per cent. solution of grape sugar. In one case where there was cardiac degeneration a second injection was given. The patients recovered in all cases. The author then proceeded to treat a series of cases in the following manner. Protein shock was induced by the administration of an injection of 8 to 10 c.cm. of milk. This was followed twenty hours later by an injection of sugar solution with or without the addition of strychnine. This produced a rapid rise in temperature after the first injection, followed by an equally rapid fall after the second, and an amelioration of the symptoms leading to recovery. The treatment was most successful in adults between the ages of 25 and 45. Children did not react so well, and in some cases a rise of temperature occurred again a few hours later.

68. Phosphorus in Various Diseases.

A. CASTELLANI (*Journ. Trop. Med. and Hygiene*, November 2nd, 1925, p. 377) investigated the action of phosphorus in the treatment of various diseases, having discovered that the phosphorated oil of the *British Pharmacopoeia* could be administered hypodermically. Ampoules containing 5 minims of pure phosphorus oil and others containing half a minim diluted in 10 minims of almond oil may be obtained. In Oriental sore its action is specific, especially in old intractable cases with extensive ulceration, the oil being applied to the fundus and margin of the sore every other day. In nodular lesions 3 to 5 minims of oil may be injected into and around the nodule twice a week. Of two cases of granuloma inguinale one responded to the treatment and the other did not. No beneficial results followed its use in tropical sore, psoriasis, and lichen planus; and while it has no specific effect upon the malaria parasite, the administration of half a minim to 3 minims of the oil twice a week appears to act as an adjuvant of quinine. Encouraging results followed its use in rickets, osteomalacia, and beri-beri. The author adds that the action of phosphorus on the liver must be borne in mind and every precaution taken in its use, though he has not encountered any untoward result from its administration.

69. Treatment of Asthma with Tuberculin.

C. R. ØSTERGAARD (*Ugeskrift for Læger*, November 12th, 1925, p. 1091) has checked and confirmed, at the Bispebjerg Hospital in Copenhagen, the claims made by Storm van Leeuwen and other Dutch writers as to the efficacy of tuberculin in asthma. Altogether 11 cases were treated. In 4 it was ineffective, but in all these cases the treatment could not be carried through satisfactorily. In the remaining 7 cases the results were excellent, although all the patients were much debilitated, had suffered from asthma for many years, and were subject to several attacks a day. Many had been given other forms of protein-shock treatment, but in no case with permanent improvement. Tuberculin would therefore seem to be a much more effective remedy than the other proteins commonly in use in the treatment of asthma. The first subcutaneous injection consisted of 0.0001 gram of Koch's old tuberculin. The temperature was then taken three times a day, and when there was a considerable rise the next injection

tion was deferred till the temperature had become normal. As long as the temperature was normal the dose was doubled at each injection until a dose of 0.001 gram was reached. After this each dose was increased by 50 to 30 per cent. until a dose of 0.01 gram was reached. This treatment usually extended over about two months, and the patients had to be kept in bed only when an injection provoked a reaction. This was seldom violent, but most patients complained of slight headache, giddiness, and lassitude. The first injections usually gave rise only to a cutaneous reaction, but at a later stage they provoked a malaise suggestive of influenza. After this reaction had passed off the asthmatic attacks became less frequent and prolonged, and expectoration became easier and more profuse. The last injections seldom caused much disturbance, and in no case were alarming symptoms observed.

70. Sodium Sulphocyanate in Hyperpiesia.

J. B. NICHOLS (*Amer. Journ. Med. Sci.*, November, 1925, p. 735) recalls that the therapeutic use of sulphocyanates was first suggested in 1903 by Pauli, who found them to have a valuable sedative action in various circulatory and nerve disorders as well as in arterial hypertension. Nichols has used sodium sulphocyanate in the treatment of hyperpiesia for the last fourteen years with most satisfactory results. Those cases in which the hypertension was not due to organic changes in the arteries were the most amenable to treatment. He has found sodium sulphocyanate superior to any other drug in the reduction of blood pressure in appropriate cases, and has obtained marked lowering of 20 to 40 mm. or more after a few doses, although in some other cases the decline was more gradual. Nichols gives doses of 5 grains (1 teaspoonful of an 8 per cent. solution in water) thrice daily, well diluted, after meals; to this solution he adds a little phenol to prevent growth of fungi, and peppermint or similar aromatic to lessen the nausea which many of his patients experienced. This dose may be reduced to a half or a quarter of a teaspoonful if necessitated by the development of disagreeable symptoms, or as the blood pressure falls, and may be continued for several weeks in order to retain the lowered tension. He has found no indication of the sedative effects suggested by Pauli and other previous investigators. Nichols adds that there need be no apprehension of the formation of cyanide from the use of sodium sulphocyanate in therapeutic doses, although the drug is probably excreted slowly and a quantity greater than $\frac{1}{2}$ drachms may cause death in man.

71. Bismuth Hydroxide in Syphilis.

F. W. PORTMANN (*Dermatol. Woch.*, December 5th, 1925, p. 1781) recommends twice weekly injections of a milky colloidal preparation of bismuth hydroxide in syphilis. Commencing with a dose of 50 mg. of a proprietary preparation, all subsequent doses were of 100 mg.; the total number of injections given to each patient ranged from ten to fourteen. After such a course of intravenous injections it was found that the Wassermann reaction became negative, even in cases in which a previous course of salvarsan injections had failed to produce this result. After the first injection condylomata began to shrink, their surfaces became dry, and usually, after three or four injections, they disappeared entirely. In almost all cases spirochaetes had disappeared within twenty-four hours of the administration of the first injection. The value of bismuth in salvarsan-resistant cases was shown by a case of secondary syphilis in which there were numerous hypertrophic papillomata on the genitals. The Wassermann reaction was strongly positive after a course of twelve injections of salvarsan, which had had no effect upon the papillomata. After one injection of 50 mg. of bismuth-diarsporal the warts began to shrink, and after three more injections (each of 100 mg.) they disappeared, and the Wassermann reaction became negative. Though most bismuth preparations tend to produce stomatitis, gingivitis, and renal lesions, in no case in Portmann's series was there any evidence of toxic effect.

Radiology.

72. Uretero-pyelography.

S. A. SARMIENTO (*Arch. de med., cir. y esp.*, November 14th, 1925, p. 292), in a thesis on the technique, accidents, and clinical applications of uretero-pyelography, comes to the following conclusions: (1) Uretero-pyelography is a valuable exploratory method in urology. (2) The injection of opaque fluid should be made with a burette and not with a syringe, so as not to use force on the renal pelvis; small ureteral sounds should be employed so as to allow a return flow to the bladder. (3) Collargol may be used in cases of vesico-renal reflux, but in all other cases solutions of crystals should be employed, and preferably sodium bromide, which is the least toxic. (4) The technique should be as

follows: complete radiography of the whole urinary system on a single plate, one picture being made before the fluid is injected and another afterwards; careful lavage of the renal pelvis should then be carried out. (5) The accidents observed in pyelography are due to defects in technique, such as excess of pressure, overdistension, and use of the method in cases where it is contraindicated. (6) Uretero-pyelography is of great help in the diagnosis of ureteral and renal anomalies, vesico-uretero-renal reflux, hydronephrosis, and movable kidney; in the topographical diagnosis of reno-ureteral calculi, hydatid cysts of the kidney opening into the urinary tract, and in the early diagnosis of renal tumours. It is not of much use in the diagnosis of renal tuberculosis, pyonephrosis, chronic pyelonephritis, and least of all in renal cysts. Occasionally it may be of service in other conditions, such as renal or ureteral fistulae, spasm of the muscles of the calices, and so on. (7) Uretero-pyelography should not be employed simultaneously on both sides, and it is contraindicated in cases of great weakness, extreme intoxication, high fever, impaired function of the opposite kidney, acute pyelitis and pyelonephritis, and renal tumours. (8) Uretero-pyelography should be employed more extensively and systematically in clinical medicine, and like ureteral catheterization should form part of the routine examination of the kidneys. It represents one of the most important advances made in modern urology, and has a brilliant future in store.

73. Radium in Epitheliomata of the Tongue.

CL. REGAUD (*Brit. Journ. Radiol.*, October, 1925, p. 361) summarizes the results of four years' experience of the treatment of epithelial cancers of the tongue and floor of the mouth at the Radium Institute of Paris. Of 174 patients 24.1 per cent. remained cured at the end of 1924, while 22.4 per cent. had the tongue lesion healed but not their adenopathy. Nearly one-fourth of all the cases were completely cured and in almost another quarter the lingual lesion alone disappeared. Poor results were obtained from α rays, but since these have given good results in cancers of the pharynx Regaud believes that in cancers of the pars dorsalis posterior, in which radium gives but poor results, α -ray treatment should be more successful. Some patients suffering from very advanced cancers beyond even local or partial healing may nevertheless be benefited by radium therapy. The aim of treatment should be to distribute numerous weak radio-active foci in the whole cancerized part, using the gamma rays only and giving continuous irradiation for a long time by a single treatment. In the treatment of adenopathies of the neck irradiation by external radio-active foci should be provided by means of protected radio-active tubes placed upon two layers of wax which maintain a uniform 4 cm. skin distance.

74. X-ray Treatment of Local Infections.

F. M. HODGES (*Journ. Amer. Med. Assoc.*, October 24th, 1925, p. 1292) has treated carbuncles, erysipelas, ischio-rectal abscess, chronic parotitis, and other forms of local infection by means of α rays. The technique he employed in most cases included a current of 4 milliamperes, a 9-inch spark-gap, an exposure of eight minutes, filtration through 9 mm. of aluminium, and a distance of 9 inches. Half this dose was repeated about the fourth day, and again several days later if necessary. For the first treatment the area included at least one inch of healthy tissue; the later applications were directed towards the central part of the lesions, although this was more likely to produce necrosis. A small incision was made directly any part of the lesion showed signs of softening. In erysipelas and in some carbuncles unfiltered rays were used with a current of 4 milliamperes, a 7-inch spark-gap, and three and a half minutes' exposure at a distance of 10 inches. The most noticeable feature of this treatment was the almost immediate disappearance of pain. The majority of carbuncles, even in very extensive lesions when the inflammation was limited mainly to the skin and subcutaneous tissues, responded very well: in the deep-seated types, when treated after the carbuncle was well developed, the results were almost as good; but in two cases which were treated early no benefit could be traced, and there was probably a delayed breaking down and healing. Hodges states that cases of erysipelas must be treated early, when only a small area of skin is involved and there is no severe constitutional disturbance: he says that he would not attempt to treat a severe advanced case of erysipelas by this method. Chronic parotitis responded equally well to his treatment, but cases require care in selection, since there is some risk of a salivary fistula forming. Hodges believes that moderate doses of α rays cause increase in the activity of the cells and in the phagocytic powers of the blood. He suggests that the rapid destruction of the lymphocytes and the action of the rays on other tissues may cause the liberation of a substance that has a marked effect on the inflamed areas and possibly on the infecting organisms.

Obstetrics and Gynaecology.

75. Hydatidiform Mole.

R. BÉGIN (Bull. Soc. d'Obstét. et de Gynécol. de Paris, 1925, No. 9, p. 718) describes two cases admitted to hospital with the diagnosis of placenta praevia; vaginal examination showed commencing cervical dilatation, and it was possible to remove from the uterus characteristic hydatidiform vesicles. After further dilating the cervix under general anaesthesia the mole was removed digitally; curetting with the soft ennette followed. The author remarks that although curetting in these cases is fraught with danger of perforating the soft and loaded uterus, there is reason to doubt whether complete digital removal of every part of a hydatidiform mole is practicable. In a third case described a 3-para consulted her doctor because she felt no foetal movements in spite of four months' amenorrhoea. The uterus at this time corresponded to a three months' gestation, and subsequently was noted to have remained stationary in size at several successive monthly examinations. Slight and painless vaginal bleeding occurred during the ninth and tenth months; finally, ten and a half months after the last regular menstruation, a hydatidiform mole was expelled spontaneously after a labour unaccompanied by haemorrhage. This mole had the unusual characters of being surrounded by a translucent non-adherent capsule, containing an intact amniotic sac, without trace of a foetus, and of having undergone mummification with desiccation of the vesicles, which, however, were perfectly preserved.

76. J. VANVERTS (ibid., p. 716) describes the case of a woman, aged 49, whose third child had been born seven years previously, and whose menses were normal and regular until her admission to hospital for three weeks' copious bleeding, thought to be due to myoma. The uterus, of which the fundus reached the umbilicus, was uniformly soft and not tender. The menstrual history, the age of the patient, and the size of the uterus were taken to exclude pregnancy, and softened myoma was suspected. Hysterectomy revealed a large hydatidiform mole. In a second case recourse was had to laparotomy to distinguish between a myoma complicating pregnancy and a vesicular mole. It is noteworthy that a blood-stained peritoneal effusion had disappeared when the abdomen was opened a second time, the mole having been expelled per vaginam in the interval.

77. E. KLEIN (ibid., p. 696) states that the persistence of a hydatidiform mole to the eighth month is extremely rare, and records the case of a primipara, aged 29, who had three months' amenorrhoea followed by irregular bleedings. At the eighth month the onset of labour was accompanied by profuse haemorrhage, and placenta praevia was palpable. It was not until version was attempted under general anaesthesia that it was recognized that a foetus was absent. After removal of the low-lying portion of placenta extensive hydatidiform transformation of the remaining part of the foetal envelope was recognized.

78. Spontaneous Rupture of Ovarian Sarcoma.

H. KOSTER (Amer. Journ. of Obstet. and Gynecol., November, 1925, p. 716) reports a case of spontaneous rupture of sarcoma of both ovaries in a girl aged 14. She had been quite well until about four months before admission to hospital, when a gradually increasing swelling in the left side of the neck was noticed and was treated as a tuberculous gland. Menstruation had been established for nine months and there was no abnormality. For three weeks before admission she had suffered from paroxysmal pain in the lower part of the abdomen, which became acute fourteen hours before admission. The general examination suggested acute appendicitis, which diagnosis was provisionally made. At the operation there was found to be a considerable quantity of blood in the peritoneal cavity; both ovaries were fragmented, and pieces of ovarian tissue were lying free in the cavity. Bilateral ovariectomy and appendicectomy were performed, but while the immediate result was good, yet the patient rapidly became worse, in spite of radiation, and died two months after leaving the hospital. Microscopic examination of the ovarian tissue showed a small round-celled sarcoma. At no time had there been any palpable abdominal tumour.

79. Treatment of Hyperemesis Gravidarum.

J.-L. HENROTAY (Bruzelles-Médical, November 29th, 1925, p. 135) holds that the pernicious vomiting of pregnancy is primarily a hysterical manifestation; the secondary symptoms of acidosis are of graver importance, he points out, in pregnant than in other patients. An essential part of the treatment which he has found effective consists in the

abandonment of feeding by the mouth until narcotization by rectal administration of chloral hydrate has been secured. For five or six days the patient is completely isolated from her friends and relatives. During the first two days starvation is absolute; the mouth is washed out with an alkaline solution or Vichy water, and evacuation of the bowels is obtained by enemata containing sodium sulphate and senna. During the same period the dehydration and low vascular tension are treated by daily subcutaneous injections of 1 litre of saline solution containing 1 mg. of adrenaline. From the third day onwards the patient is given in the morning a scap and water enema, followed by rectal injection of 6 grams of chloral hydrate suspended in gummy solution. Somnolence being obtained, the patient is given by the mouth, at hourly intervals, first a mixture of milk and Vichy water, then pure milk. In the afternoon a drop-by-drop rectal injection of sodium bicarbonate is given. During convalescence vomiting of small amounts of watery or bilious fluid usually occurs in the afternoon as the effect of the chloral injection passes off. Conversation with the patient must be avoided as far as possible both by the doctor and the nurse. Allusion is made to cases successfully treated on these lines by Convelaire and by Lorier, and in the present paper Henrotay publishes details of two more cases in which cure was obtained, and one which terminated fatally, no autopsy being permitted. Lorier, it is stated, has increased the dose of chloral hydrate to 8 or 9 grams.

80. Treatment of Dysmenorrhoea.

E. KLAUS (Therapeutic Gazette, November 15th, 1925, p. 779) states that while the symptoms of dysmenorrhoea sometimes require very radical measures, yet palliative treatment by narcotics is often all that is required. The difficulty of this lies in the facility with which these patients acquire the drug habit. He reports seven cases of spasmodic dysmenorrhoea in which the symptoms were controlled by the administration of chlorotone. His usual practice was to give 5 grains two or three times daily for a week before the period. In six cases this was only necessary for a few months, after which the patient appeared cured; in the other case the treatment had to be discontinued owing to the hypnotic and depressing effect of the drug. He found chlorotone comparatively non-toxic in this dosage, and that if necessary the dose could safely be increased. In his opinion there is very little risk of habit formation, and chlorotone can be given to patients who would not be safe with other hypnotics.

81. Full-term Ectopic Gestation.

P. S. MILLS (Indian Med. Gazette, November, 1925, p. 510) reports a case of extrauterine gestation going to full term in which the mother and child both survived. A primipara, aged 20, was admitted to hospital having been in labour for three days. It was found that the foetus occupied a transverse position with the head to the right, and it was not more easily felt than normally. The other parts of the foetus could not be distinguished; foetal heart sounds could not be heard, but weak movements were felt. Abdominal examination revealed nothing to suggest ectopic gestation. There was a thick reddish-brown vaginal discharge unlike that of labour, and on digital examination the cervix was found to admit two fingers; the uterus was about twice the size of the non-pregnant uterus and was lying somewhat to the right of the normal. A diagnosis of ectopic gestation was made. Laparotomy was performed and the foetus was found to be lying in a thin sac in the left broad ligament. There were no adhesions and a living female child was extracted, the pedicle tied, and the sac with the placenta was removed. The left ovary was healthy and there was no enlargement suggestive of a corpus luteum in the right ovary; thus there was no evidence of external migration of the ovum. The mother developed an abscess in the cellular tissue of the left side, but this was drained through the vagina, and she later made an uninterrupted recovery.

82. Absorption from the Vagina.

A. LOESER (Zentralbl. f. Gynäk., December 12th, 1925, p. 2824) mentions salicin, antipyrin, salol, and re-orein as substances which can be absorbed from the human vagina, and cocaine and paraldehyde as substances which are not absorbed if the epithelium be intact. Toxic symptoms are shown after prolonged vaginal applications of ether or alcohol, and a transitory glycosuria follows insertion of phloridzin. The most quickly absorbed substances are mercuric chloride and iodine. Loeser has tested the rate of absorption of the latter in twenty patients by occluding the cervix with a waxed tampon and inserting in the posterior fornix a pessary containing 1 to 2 grams of potassium iodide and twice that weight of cocoa-butter; the urine was then tested for iodine at intervals of five minutes. He finds that healthy women,

aged 20 to 30, show signs of the absorption of iodine in from twenty to thirty minutes; this time becomes longer towards the climacteric. Absorption was also slower in three patients with colpititis, and became normal after cure of the morbid vaginal condition. In a group of nine patients with leucorrhoea of a non-purulent ("cervical") character, ascribed to functional disorders, absorption was notably slow.

Pathology.

83. The Production of Ozaena.

G. BLANC and G. PANGALOS (*C. R. Soc. de Biologie*, November 27th, 1925, pp. 1267 and 1268) have failed to substantiate Perez's claim that the bacillus of ozaena is characterized by a definite selective ability, which enables it even after intravenous inoculation to settle in the nose and to give rise to disease. On the contrary, they find that neither with the *B. ozaenae* nor with the *B. ozogones* (a coliform bacillus recently described by the present authors) is any disease set up in the nose by intravenous, intraperitoneal, or subcutaneous injection in rabbits. Neither the direct inoculation of the organisms on to the nasal mucosa nor washings from the nose of patients suffering from ozaena gave rise to disease, unless preceded by artificial irritation of the membrane with croton oil. The same failure was observed similarly in the case of children. Inoculation of a young man suffering from leprosy, and showing a marked atrophy of the inferior turbinate, proved successful. One month after the inoculation with *B. ozogones* there was a whitish membrane covering the inferior turbinate and the surface of the septum. A fetid odour was present, and cultures of the nasal secretion yielded *B. ozogones*. The authors therefore agree with Leroux-Robert that infection with *B. ozaenae* is a secondary phenomenon occurring only in those who are subjects of atrophic rhinitis and who are specially predisposed to attack by this organism.

84. High Protein Diet and Renal Function.

OWING to the conflicting nature of the evidence concerning the effect of high protein intake on the kidneys of laboratory animals and man, A. J. MILLER (*Journ. Exper. Med.*, December, 1925, p. 837) has undertaken a series of experiments on rats. Seven groups of rats were fed on diets containing protein that varied in amount from 1.36 to 40.13 per cent. of the total dietary, which included grain, casein, meat, and milk; carbohydrates, fat, and vitamins were also provided. From a number of animals one kidney was removed so as to double the work of the remaining one. After a period varying from nine weeks to six months estimations were made of the blood, uric acid, and the blood urea. The animals were then killed and their kidneys examined microscopically. In Group 1, which received only 1.36 per cent. of protein, the animals were markedly emaciated. In the groups receiving from 28.76 to 40.13 per cent. of protein there was definite hypertrophy of the kidneys. The nephrectomized animals that were fed on a high protein dietary showed great hypertrophy of the remaining kidney, amounting in weight to an increase of 85 per cent. over the controls. Chemical estimations revealed no evidence of renal disturbance. From these experiments the author concludes that there is no evidence of kidney damage resulting from a high protein diet. This is in accordance with observations made on human beings, notably on the Eskimos, and on explorers in the Arctic regions who have lived for several months at a time on an exclusively meat dietary. Miller adds that this conclusion must not be held to justify the administration of large amounts of protein to patients with nephritis; it is rational to relieve diseased kidneys of as much work as possible.

85. The Mechanism of Infection in Anthrax.

L. MÜLLER (*C. R. Soc. de Biologie*, November 20th, 1925, p. 1243) relates how, some years ago, he inoculated the interior of a pigeon's egg with virulent anthrax bacilli, sealed up the opening with Canada balsam, and introduced the egg into the peritoneal cavity of a rabbit. The animal died in five weeks of generalized anthrax. Recently this experiment led him to doubt the truth of Besredka's hypothesis that the skin is the only susceptible part of the body to anthrax, and that it is only when the skin is contaminated that infection can occur. In his original experiment the bacilli must have passed through the egg and given rise to a primary peritoneal infection without any involvement of the skin. He now describes a new series of experiments. He found that if the bacilli were introduced into a filter and the filter immersed in broth they eventually grew through the pores of the candle; with an L1 candle the time required for this was six to eight days, and with an L2 candle about three weeks. He therefore inoculated several candles with anthrax bacilli, sealed the ends very carefully, and introduced them intra-

peritoneally into rabbits. Of 9 rabbits treated thus 7 died in a period varying from six to fifty-one days. After death the skin was found to have healed perfectly, and the candles were surrounded by a sac of omentum. Large numbers of bacilli were found in the spleen, and pure cultures were obtained in each case. He considers it certain that in these experiments the infection must have occurred altogether independently of the skin, and that Besredka's hypothesis cannot be considered correct.

86. The Differential Blood Count in Hodgkin's Disease.

M. KRMPOTIC (*Lijsenicki Vjesnik*, November, 1925, p. 699) states that neutrophile leucocytosis with eosinophilia is considered to be typical of lymphogranulomatosis, or Hodgkin's disease, but his own experience of ten cases in the last three years indicates that there is no characteristic blood picture in Hodgkin's disease, as the differential count often resembles that of lymphosarcomatosis and of tuberculous or syphilitic granulomata. In lymphosarcoma the leucocyte count may vary from normal to 120,000 white corpuscles, which was recorded by Reinbach in a case of cervical lymphosarcoma, in which the eosinophiles amounted to 48.28 per cent. Lincoln found in one case an eosinophilia varying between 63 and 68.2 per cent. In the majority of cases of Hodgkin's disease there is a moderate polymorphonuclear neutrophile leucocytosis, but in 20 per cent. of these cases there is leucopenia. In 20 per cent. the differential count is normal, but in others lymphocytosis occurs, which may be transient or variable. In 25 per cent. of these cases there is eosinophilia, usually of moderate degree; myelocytes are common in the higher degrees of leucocytosis. The author adds that a single differential count is of little use in diagnosis, but repeated examinations will usually show a more or less characteristic blood picture.

87. Pulmonary Malignancy following Tar Applications to the Skin.

T. B. MURPHY and E. STURM (*Journ. Exper. Med.*, November, 1925, p. 693) report that mice in which skin cancer did not develop after tar applications were found to have growth in the lungs. It was at first thought that these were pulmonary metastases from skin growths which had healed or sloughed away, but in spite of the most careful examinations, both during life and after death, no cancerous lesions could be found in the skin. Further, the cells of the lung growth were quite different in type from those found in metastases from skin lesions. Although spontaneous tumours have often been observed in the lungs of mice, yet they do not occur generally in young mice, nor with such frequency as in the experiments with tar cancer. To throw light on this problem a number of separate skin areas in mice were treated with tar, but not for so long as to cause skin lesions. The incidence of lung neoplasms was 60 per cent. in one series of experiments and 78.3 in another. Spontaneous pulmonary tumours, even in a stock of mice specially prone to this disease, never exceeded 5.5 per cent., while the average was 1 to 2 per cent. over a period of several years. The experimentally produced neoplasms, however, closely resembled the spontaneous kind. The authors dismiss the suggestion that the pulmonary neoplasms are due to the carriage of tar particles to the lungs by the lymphatics, and state that they have definite evidence that painting with tar reduces resistance to transplanted cancer. They believe that the localization in the lungs was determined by pulmonary irritation due to sawdust particles in the respired air.

88. Antibodies in Tuberculous Pleural Fluids.

M. SALOMON and J. VALTIS (*C. R. Soc. de Biologie*, November 13th, 1925, p. 1145) have examined the blood serum and the pleural fluid of 14 patients suffering from unilateral pulmonary tuberculosis on whom artificial pneumothorax had been performed. Search was made in both fluids for the specific antibody and antigen, the complement fixation test being employed. In 11 of the patients the titre of antibody was the same in the blood serum as in the pleural fluid; in 2 others it was slightly higher in the serum; and in the last antibody was absent in both fluids. In 13 of the patients antigen was found present in considerable quantity. The authors then examined the pleural fluid and serum of 5 patients suffering from spontaneous tuberculous pleurisy. In 3 of them antibody was found, but in none of them was any trace of antigen present. These limited observations indicate that in the pleural fluid associated with artificial pneumothorax both the tuberculous antibody and antigen are present, whereas in the fluid of spontaneous cases of tuberculous pleurisy antibody is generally present, but antigen is absent. The authors seem to think that these differences can be explained by the fact that in the fluid of artificial pneumothorax tubercle bacilli are present in far greater numbers than in the fluid of spontaneous pleurisy.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

88.

High Blood Pressure.

R. D. RUDOLF (*Canadian Med. Assoc. Journ.*, November, 1925, p. 1093) classifies the varieties of hyperpiesis for practical purposes under the headings of nervous, toxic, and organic; into one of these categories all cases may be placed when considering treatment. In nervous hyperpiesis the blood pressure is principally influenced by the emotions, most forms of nervous tension tending to its increase either by intensifying the cardiac action or by causing vaso-constriction, or by both, with possibly an increased adrenal internal secretion. Starling believes that the vasomotor centre automatically raises the blood pressure to meet its own needs. In toxic hyperpiesis various toxins arising from metabolism, such as guanidin, accumulate and raise the blood pressure, while in intestinal disturbances toxins of the pressor type may be produced and absorbed. In organic hyperpiesis very slight interference with the circulation in some vital centre may cause a compensatory rise in pressure, though true arterio-sclerosis must be widespread before a rise occurs, a considerable amount of obstruction to the general circulation being necessary to raise the pressure. Treatment involves considerations of environment, diet, and specific and symptomatic therapy. Rest, both bodily and mental, and freedom from worry are important, and general restriction of the total diet is often necessary. A milk and vegetable diet, with avoidance of purine-containing foods, and with alcohol and tobacco in moderation, suit these cases best, and the bowels should be regulated with salines and an occasional mercurial pill. An attempt should be made to remove the underlying cause, but Rudolf considers that those patients without symptoms in whom the pressure does not lessen under dieting and rest are best left alone. When, however, symptoms are present, free purgation and diuresis may be beneficial, and the benefit derived from timely venesection in urgent cases is emphasized.

90.

Scarlet Fever.

H. ALDERSHOFF (*Nederl. Tijdschr. v. Geneesk.*, December 12th, 1925, p. 2694), director of the Dutch Serological Institute at Utrecht, summarizes the recent investigations in scarlet fever as follows: The Dick reaction is of considerable assistance in the diagnosis of scarlet fever. If employed judiciously it is a means of distinguishing persons who are susceptible to scarlet fever from those who are not. Antitoxic scarlet fever serum, if used early in the disease, serves to prevent complications. It is not very effective when the rash has faded, and has no influence on late complications. In mild and moderately severe cases the injection of antitoxin can be given intramuscularly, but in severe cases large doses should be given intravenously. The risk of serum sickness can be considerably reduced by the use of refined dealbuminized serum. During a severe epidemic active immunization by injection of scarlet fever toxin is advisable.

91.

Polyneuritis following Wound Diphtheria.

REINHOLD (*Deut. med. Woch.*, December 11th, 1925, p. 2064), who records two illustrative cases, states that Leppmann and Röper showed that a considerable number of cases of so-called polyneuritis in infected wounds were really examples of clinical picture being that of post-diphtheria. He finds that, as a general rule, paralysis and cardiac disturbance are less frequent after wound diphtheria than after diphtheria of the fauces, a fact which must be attributed to the slight degree of absorption from granulation tissue. Reinhold has not seen any convincing evidence of the benefit of injections of antitoxic serum in the few cases of diphtheritic paralysis in which he has employed this method. According to pharmacological experiments it is probable that diphtheria antitoxin has as little effect as tetanus antitoxin or toxin which has been taken up by the nervous system, and a protective action only can be expected against absorption of fresh toxin. On the other hand, Reinhold has long been an advocate of injections of strychnine for diphtheritic paralysis. His first case was that of a soldier, aged 21, who, after wounds of both legs, complicated by furunculosis, developed all the signs of diphtheritic paralysis, including difficulty in swallowing, dimness of vision, weakness of the arms and legs, and loss of knee-jerks. The second case was that of a woman, aged 68, who, after an operation for cholecystitis, developed diphtheria of the wound, which was treated by antitoxin. Six weeks later palatal and ciliary

paralysis occurred, followed by loss of knee-jerks. There was no paralysis of the abdominal muscles. Improvement followed the injection of strychnine and digitalin, contrary to the experience of Walshe, who maintains that paralysis of the palate occurs only after faucial diphtheria; in neither case was there any faucial involvement.

92.

Diagnosis of Early Apical Tuberculosis.

D. MAESTRINI (*Il Policlinico*, November 16th, 1925, p. 1593) reports that in early apical tuberculosis he has found present an area of tenderness on moderate pressure over the fossa supraclavicularis minor between the heads of the sterno-mastoid. He considers this indicative of disease of the corresponding apex of the lung; it was not present in disease of the middle or lower lobe. The author reports five cases where his sign was present and the existence of disease was confirmed by radiological and other examination. It was present in the very earliest stages, and was, he thinks, of reflex origin, associated with the sympathetic system and the cervical plexus. He refers to Head's work in this connection, but states that this particular localization is not described by Head. Photographs showing the exact spot are included in the paper.

93.

Progressive Atrophy of the Salivary Glands.

H. GOUGEROT (*Bull. de Derm. et de Syph.*, November 8th, 1925, p. 376) records three cases of progressive atrophy of the salivary, parotid, and submaxillary glands, causing complete dryness of the mouth with secondary trophic troubles. All the patients were women and treatment was ineffective. The etiology is obscure, but in one case congenital syphilis was present. The author suggests that it may be a specific disease, starting in the mouth, but capable of spreading to the conjunctiva, larynx, nasal fossae, and the vulva. Various kinds of treatment were tried without success, and the prognosis is bad.

Surgery.

94.

Treatment of Obstructive Jaundice.

J. P. BOWLER (*Boston Med. and Surg. Journ.*, December 3rd, 1925, p. 1045) discusses the treatment of obstructive jaundice as a factor affecting surgical risk. Hepatic insufficiency, uraemia from a toxic nephritis, and haemorrhage from a lack of available calcium are the chief fatal complications in operations for obstructive jaundice, and require pre-operative treatment. By animal experiments and from a study of the part played by the liver in carbohydrate metabolism it has been shown that jaundiced patients should be given large quantities of carbohydrates. A 15 per cent. glucose solution may be administered rectally by the Murphy drip and the patient be encouraged to eat reasonable amounts of sugar. The presence of a toxic nephritis which has developed during the course of obstructive jaundice is disclosed after the operation by a sudden cessation of the drainage of bile accompanied by a steadily increasing albuminuria and the presence of casts. The jaundice gradually deepens and the coagulation time increases; treatment is necessary for uraemia and the maintenance of free biliary drainage. The most frequent post-operative complication is secondary haemorrhage due to a lack of available calcium, as shown by examination of the coagulation time of the blood. Treatment consists in the administration of calcium, either orally as calcium lactate 100 grains a day for three days, or as calcium chloride by slow intravenous injection in 5 c.cm. doses of a 10 per cent. solution for three successive days. Since there is frequently an accompanying infection a larger fluid intake should be encouraged. Bowler advises that these patients should receive 4,000 c.cm. of fluid every twenty-four hours for three or four days before the operation, by which time the coagulation period should have been reduced to normal and a more satisfactory surgical risk established.

95.

Gastroptosis.

V. MATTEI (*Il Morgagni*, November 25th, 1925, p. 1377) points out that gastroptosis occurs in the hypotonic and atonic stomach. In ptosis the volume of the stomach is very slightly altered; in dilatation there is an increase. Mattei believes that duodenal ptosis is more common than is generally believed, and enteroptosis may be the cause of some of the various colics, constipation, and uneasy sensations. He refers

to De Giovanni's views on the relation between the morphological type of body of the patient and his gastric signs and symptoms, and points out how much more common these pososes are in the asthenic type; these patients are usually poorly nourished, and have weak muscles, sharp costal angles, sloping ribs, small cold feet and hands, delicate skin with poor growth of hair, increased tendon reflexes, a tendency to mental depression, and occasionally a "floating" tenth rib. As regards treatment, some form of abdominal support is often useful; it should be applied before rising from bed. Food should be light and easily digested, and solids and liquids should be taken together. The emptying of the stomach may be aided by posture and its walls strengthened by strychnine; the general nervous system is improved by suitable tonics, fattening when necessary, regulation of the bowels, raising the foot of the bed, and in some cases prolonged rest in bed. Operation is only advisable in severe cases, since cure is not often obtained and secondary ailments sometimes follow.

96. Foreign Bodies in the Bronchi.

J. BIJTEL (*Nederl. Tijdschr. v. Geneesk.*, October 24th, 1925, p. 1888) states that before laryngoscopy was introduced into current practice in 1866 the mortality from foreign bodies in the respiratory tract was 41.2 per cent. for all cases and 28.2 per cent. for those which received treatment (Preobraschensky). Between 1866 and 1893, when laryngoscopy was generally employed but not bronchoscopy, the mortality for all cases was 30 per cent. and 19.4 per cent. for treated cases (Pohl). Among cases treated by bronchoscopy von Eichen in 1908 reported a mortality of 13.1 per cent. among 305 cases, and Kahler in 1911 a mortality of 9.6 per cent. among 291 cases. Bijtel has collected statistics of 504 cases from the oto-rhino-laryngological clinic at Amsterdam for the period 1908 to 1925, the surgical and laryngological clinics at Groningen from 1907 to 1924, and the bronchoscopic clinic of Chevalier Jackson at Philadelphia as described in Huizinga's Groningen thesis. Of the 504 cases 27 were fatal—a mortality of 5.3 per cent. The cases in Bijtel's series were divided into the following four groups. (1) Inorganic foreign bodies: 234 cases, with a mortality of 4.3 per cent. (2) Animal foreign bodies: 45 cases, with a mortality of 13 per cent. (3) Vegetable foreign bodies excluding Brazil nuts: 120 cases, with a mortality of 5.8 per cent. (4) Brazil nuts: 106 cases, with a mortality of 3.8 per cent. The causes of death were in most cases pneumonia, purulent bronchitis, and pulmonary abscess, in two cases cardiac failure, and in one case each pyopneumothorax, mediastinal emphysema, pulmonary haemorrhage, and haemorrhagic bronchitis.

97. Blood Transfusion in Post-operative Collapse.

AUMONT (*Bull. et Mém. Soc. Nat. de Chir.*, December 5th, 1925, p. 1008) records the case of a young girl operated on for acute appendicitis. The operation, though somewhat difficult, was successful, and the patient made satisfactory progress with no complications till the tenth day. The temperature then rose and there was marked headache, with later collapse and some gastro-enteritis. The temperature and pulse rate were both increased and the diagnosis remained in doubt as there were no abdominal or other signs present to account for the condition. Blood transfusion was performed, 400 c.cm. of citrated blood being given to the patient. A few hours later she began to improve and after a good night her condition was rapidly restored to the normal; the subsequent history was uneventful. Aumont considers that the abdominal symptoms, marked asthenia, and low blood pressure were probably due to some disturbance of the endocrine system, possibly originating in the suprarenal bodies. There was no doubt that the recovery was due to the blood transfusion, and this line of treatment may be useful in similar conditions of acute toxæmia.

98. Periarterial Sympathectomy.

N. J. GUREWITSCH (*Zentralbl. f. Chir.*, November 14th, 1925, p. 2581) states that the general adoption of the Jaboulay-Leriche-Britting method of periarterial sympathectomy has revealed two serious dangers: (1) laceration of the arterial wall, and (2) stenosis of the artery by contraction of the scar tissue. These complications have been recorded by several observers, and Gurewitsch has endeavoured to find a method of minimizing these dangers. After removing 6 to 8 cm. of the adventitia of the femoral artery in dogs he excised strips of the fascia lata from the same animals, and fixed these strips with fine catgut over the denuded femoral arteries. The operation wounds were firmly sutured. At periods of from two to five weeks the arteries with their surrounding tissues were excised and examined histologically. No signs of narrowing of the arterial lumen or of thrombosis were found at any period, and at the end of five weeks the

fascia was firmly united to the arterial walls. The author has treated two cases of progressive dry gangrene of the toes, in old men, by Leriche's operation, modified as described above. Primary union occurred in both cases, followed by rapid separation of the necrotic tissues.

Therapeutics.

99.

Treatment of Asthma.

L. HOFBAUER (*Wien. klin. Woch.*, December 3rd, 1925, p. 1311) agrees that in the curative treatment of asthmatic attacks adrenaline injections are very valuable. There may, however, sometimes be such unpleasant symptoms as faintness, pallor, and nausea, while with long-continued use there is the risk of arterio-sclerosis. Adrenaline is less harmful in combination with pituitary extract, but this also must not be kept up for long. The author thinks that theobromin preparations are much safer and probably as good. Diuretin-calcium, taken once or twice in the evening, is recommended as an almost certain preventive of an attack. The better known iodine derivatives of theobromin are depressant and have been said to induce Graves's disease. Tuberculin treatment acts by virtue of its foreign protein content. Hofbauer thinks that the desensitizing theory does not hold good in the great majority of asthma cases, and that the elaborate quest for specific irritants is inadvisable. He adds that the dangers attending resection of the vagus or the sympathetic much outweigh the possible benefits of such operations.

100.

Intravenous Iodine in Influenza.

C. P. V. SHUNKER (*Indian Med. Gazette*, November, 1925, p. 513) has investigated the use of iodine intravenously during an epidemic of acute catarrhal influenza in a prison. He applied this treatment in patients who had high fever with delirium and prostration, or had developed severe pulmonary complications. His initial dose was 20 minims of a solution containing iodine 1 drachm, potassium iodide 1 drachm, distilled water 42 drachms; this was added to 10 c.cm. of saline solution for intravenous injection. Shunker found that within twenty-four hours after injection most of his patients passed from a condition of anxiety and distress into comparative comfort. If within forty-eight hours of the first injection the temperature and general condition did not improve a second dose of 40 minims of the solution in 10 c.cm. of saline were administered: one patient required as much as five injections. The majority of the patients required only one injection; no bad results followed, and the benefit was usually very rapid.

101.

Hexyl Resorcinol as a Urinary Antiseptic.

V. LEONARD and A. WOOD (*Journ. Amer. Med. Assoc.*, December 12th, 1925, p. 1855) have continued their investigation of hexyl resorcinol (see *Epitome*, 1925, vol. 1, paras. 146 and 240) with special reference to its acting equally well in acid and alkaline urines, which is explained in terms of surface tension. They remark that the rate of diffusion of a germicide through the cell membranes of the renal tissue is dependent on the surface tension of the fluid, and by experimental work *in vitro* they have proved that hexyl resorcinol is more effective in a solution of low surface tension. Moreover, this drug itself greatly lowers the surface tension of a solution. They have found that the surface tension of normal urine is about 60 "dynes" (ordinary water 77 dynes), that the administration of hexyl resorcinol in therapeutic doses lowers the surface tension to about 50 dynes, and that the administration of sodium bicarbonate in therapeutic doses raises the surface tension to 66 dynes and over, which explains why it has long been contraindicated in hexyl resorcinol treatment. Free intake of water may raise the surface tension of urine by as much as 15 to 20 dynes. Leonard and Wood have now given hexyl resorcinol in 500 cases of urinary infection with considerable success. They used gelatin capsules containing a 25 per cent. solution in olive oil, equivalent to 0.15 gram hexyl resorcinol; for children the strength was 2.5 per cent., one drachm containing 0.1 gram of the drug. The dosage was, for adults, 0.45 to 0.6 gram thrice daily immediately after meals; for children a relatively larger dose was given. Fluids were not increased and sodium bicarbonate was not given. The authors found that this treatment must be prolonged for considerable periods amounting to sixty to ninety days in the case of *B. coli* infection, which is the most resistant to surface tension changes in the urine. They state that if combined with the usual local measures the length of treatment is shortened and the percentage of successes increased. No toxic effects were observed.

102. Intravenous Administration of Digitalin.

J. SURMONT and A. SCHFDROWITZKY (*Presse Méd.*, December 2nd, 1925, p. 1590), while strongly recommending the intravenous administration of digitalin, add that the indications for it are rather exceptional, and that the drug must be very pure. It has been maintained that digitalin by the mouth acts as well, but this is unlikely in view of the fact that cardiac failure entails hepatic insufficiency, which in turn hinders absorption from the alimentary canal. Onabain has also been recommended for intravenous administration, but the authors have observed a number of cases in which after onabain treatment had been tried without benefit the patients made undeniable progress when treated with digitalis. They think that if some form of reactivation is concerned it is a reactivation due to a better method of administration, not to co-operation of the two drugs. Details are given of a man with mitral and aortic disease, astyole, and many grave symptoms, who after eight years' illness—marked by temporary remissions under ordinary treatment, including digitalin and theobromine by the mouth, when at home—came into hospital. There, after digitalin by the mouth and intravenous injections of onabain had failed, digitalin was given intravenously with such dramatic results that in three months the patient returned to work.

103. Treatment of Syphilis.

W. H. GOECKERMAN (*Minnesota Med.*, December 2nd, 1925, p. 740), in a review of recent advances in the therapeutics of syphilis, states that although the supremacy of the arsenobenzols remains unshaken, yet when they fail certain other remedies may be successful. The toxicity of bismuth has been reduced by combinations with other elements, but many of these preparations have little therapeutic value. The author uses sodium potassium bismuth tartrate almost exclusively, giving 0.2 gram intramuscularly about every fifth day. If well borne, twenty doses are given in each course. Although slower in action than the arsenobenzols, bismuth is valuable when these or mercury are not tolerated. Apparently the immediate action of bismuth is superior to that of mercury, but it fails to reduce the induration of chancres or of lymphadenitis. Its influence on syphilides is slower than that of the arsenobenzols, and it does not produce a focal reaction. Its effect on the Wassermann reaction is slower but probably more lasting than that of other remedies. Bismuth has been found repeatedly in the cerebro-spinal fluid, which supports the claim that it is particularly useful in neuro-syphilis. It produces very few complications. Gingivitis and stomatitis appear to be due to neglect of oral hygiene; transient albuminuria is frequent, and the author has never seen dermatitis nor evidence of cumulative action. Sulpharsphenamine is probably less toxic than novarsenobenzol and may be given subcutaneously, intramuscularly, or intravenously in doses of 0.4 gram every five days, a 30 to 40 per cent. solution being best. Spirochaetes disappear from a chancre in seven to ten hours after the first injection; little or no local pain occurs, and chancres heal in from seven to ten days. The author gives three doses of 0.4 gram every third day, then every fifth day. After the third dose mercurialunction is commenced and continued for six weeks, when a second course of sulpharsphenamine is commenced; four such courses complete the treatment. Intravenous injection is only required when intramuscular administration is painful. It may produce dermatitis, purpura-haemorrhagica, or aplastic anaemia, even without intensive dosage. Tryparsamide has a marked action on the Wassermann reactions in blood and cerebro-spinal fluid, but it appears that relapses are more frequent than with the arsenobenzols, to which it is inferior in latent and tertiary syphilis. It has been found valuable in some cases of neuro-syphilis after a previous systematic arsenobenzol treatment, but may be followed by retrobulbar neuritis. By malaria treatment the author has obtained satisfactory remissions in more than 50 per cent. of his cases. It has been effectual in cases of neuro-syphilis without paresis; the Wassermann reaction of the cerebro-spinal fluid has become negative, while tabetic lightning-pains and optic atrophy have been relieved.

Anaesthetics.**104. Blood Pressure in Anaesthesia.**

M. A. MORTENSEN (*Anaesthesia and Analgesia*, December, 1925, p. 333) advocates a careful study of the blood pressure before and during any operation and until convalescence is established as the best means of estimating the cardiac efficiency and anaesthetic risk. By means of a tilting table blood pressure and pulse changes were observed during passive postural changes of the body, the change from the

reclining to the erect position being obtained without any effort on the part of the patient. Comparisons with patients with symptoms of myocardial inefficiency showed a more pronounced drop in the systolic pressure and an abnormally increased pulse rate than in healthy persons, thus affording positive evidence of cardiac weakness. In ninety healthy girls the average systolic pressure was 118, the diastolic 72, and the pulse rate 72 when reclining, while in the erect posture the readings were 114, 80, and 86 respectively. Only rarely was a drop in diastolic pressure noted on putting the patient in the erect posture, and this occurred in those who were prone to fainting attacks. During operations lowering of the blood pressure is the earliest sign of collapse and shock, and it occurs before any other sign of danger. Mortensen therefore advises routine estimation of the blood pressure at five to ten minute intervals. In unfavourable cases the degree of anaesthesia may be altered, or the chest be rubbed with cold compresses to stimulate respiration; in more precarious conditions the slow continuous intravenous injection of Ringer's solution is suggested. After an operation regular estimations reveal the condition of the myocardium, maintenance of blood pressure at the pre-operation level being indicative of sustained cardiac efficiency, while a drop of many millimetres calls for cardiac treatment. Occasionally an increase in pressure is accompanied by alarming symptoms, and a case is mentioned in which the systolic pressure rose from 140 to 200 mm. in consequence of a progressive thrombosis in the ascending vena cava ten days after gastro-enterostomy. Mortensen concludes that careful readings and their correct interpretation are of more value to the anaesthetist and surgeon than any other procedure in affording early detection of a failing myocardium.

105. Anaesthesia in Rectal Operations.

G. M. LINTHICUM (*Amer. Journ. Surg.*, December, 1925, p. 300), in a comparative study of anaesthesia in various rectal operations, concludes that local anaesthetics are preferable to general ones, although he agrees that spinal analgesia is more dangerous than chloroform. He believes, however, that many of the failures and complications of local anaesthesia are due to the administrator rather than to the agent. Sacral or intraspinal anaesthesia is inadvisable when there is any adjacent local infection, and in operations for fistula it is of doubtful value, since the extent of the disease is uncertain and extensive exploration may be necessary. In haemorrhoids and rectal carcinoma the value of sacral anaesthesia is being increasingly recognized, and Lepoutre, after dealing with 500 cases, believes that spinal anaesthesia is indicated in all subumbilical operations. Trans-sacral anaesthesia has been used satisfactorily in low carcinoma, haemorrhoidectomy, and amputations of the rectum, but Linticum recognizes the difficulty of the method and does not recommend it. Parasacral anaesthesia was used by Staffel in 413 perineal and pelvic operations; he considers it safer and more certain than the lumbar method. For patients with cardiac, respiratory, or renal changes, contra-indicating general ether anaesthesia, but requiring some degree of unconsciousness, Linticum recommends a gas-oxygen mixture or ethylene.

106. Synergy in Anaesthesia.

J. T. GWATHMEY (*Journ. Amer. Med. Assoc.*, November 7th, 1925, p. 1482) discusses the discovery and development of synergistic analgesia produced by magnesium sulphate and morphine and magnesium sulphate and ether. He describes experiments conducted in collaboration with C. W. Hooper in which they found that the intravenous administration of less than one-half the anaesthetic dose of magnesium sulphate combined with approximately one-ninth the anaesthetic dose of ether produced surgical anaesthesia, and conclude that ether and magnesium sulphate act synergistically without producing any increase in toxicity. Gwathmey states that in the albino rat the addition of 2.5 per cent. procain to 50 per cent. magnesium sulphate, alone or combined with 1/8 grain of morphine for subcutaneous injection, definitely prolongs the effect, and allays irritation without increasing toxicity. He suggests that the combination of 50 per cent. magnesium sulphate with 2.5 per cent. procain may be a good substitute for morphine in general practice. Gwathmey further describes experiments on rats in which it was found that those previously injected intravenously with 0.8 c.cm. per kilogram of a 50 per cent. magnesium sulphate solution containing 2.5 per cent. procain and 1/8 grain morphine per 2 c.cm. survived ether anaesthesia for twenty to twenty-five minutes, while animals which had not received this preliminary treatment died within from eight to ten minutes. From this Gwathmey and Hooper conclude that the use of synergistic drugs with ether anaesthesia may result in a considerable saving of life.

Obstetrics and Gynaecology.

107. Cystic Corpus Luteum.

ACCORDING to R. KELLER (*Gynecol. et Obstét.*, December, 1925, p. 288), cysts of the corpus luteum are found in many gynaecological affections; they are not more frequent in ectopic pregnancy than in other conditions. Inflammation and adhesions of the pelvic peritoneum seem to have no share in their formation, and adhesions over them are often not the remains of peritonitis, but of chronic congestion of the pelvic organs. In most cysts the lutein elements are found in a state of retrogression. Some patients complain of pain over the lower abdomen, but this is due to some concomitant affection and not to the cyst. Large cysts, which are rare, may cause symptoms by giving rise to torsion or incarceration. In most cases the menstrual flow was more abundant than normal and sometimes associated with pain, though without change in periodicity.

108. Muscular Attachment of the Cervix.

F. G. DUBOSE (*Surg., Gynecol. and Obstet.*, December, 1925, p. 834) calls attention to the presence of certain muscle fibres inserted into the anterior portion of the cervix uteri which, he states, are analogous to the prostatic fibres of the levator ani muscle in the male. These uterine fibres arise from the pubis and pass backwards along the sides of the vagina over the anterior vaginal fornix and anterior surface of the cervix to be inserted into the anterior surface of the cervix at the isthmus. The fibres of the two sides fuse to form a strong medium aponeurotic band. On either side of this band the tissue is loose, but the band itself is dense and firmly adherent, attaching the base of the bladder to the cervix. The author adds that the function of this muscle is to form a sling for the cervix uteri on its anterior surface when the uterus is normally anteverted. It is separated with difficulty by blunt dissection and in the operation of hysterectomy is usually cut by scissors in the process of separating the cervix from the bladder.

109. Pregnancy in Apparent Absence of Adnexa.

RUDAUX and DURANTE (*Bull. Soc. d'Obstét. et de Gynecol. de Paris*, 1925, No. 9, p. 639) record the case of a woman, aged 32, who died of eclampsia shortly after delivery at term. At the necropsy the adnexa of both sides appeared to be absent. Four years earlier the right Fallopian tube and ovary had been removed for ectopic pregnancy. Microscopical examination of the uterus removed *post mortem* showed on the left side an atrophic Fallopian tube and a corpus luteum surrounded by rudimentary ovarian tissue. They were embedded in loose connective tissue in a small groove in the myometrium, nearer the upper than the lower limit of the uterus, and were covered by peritoneum of normal appearance. No broad ligament was present on the left side. The authors add that this case is of interest in that it casts doubt on cases of unilateral or bilateral absence of the adnexa recorded in the absence of microscopical examination; the occurrence of a similar anomaly may explain the occasional persistence of menstruation after bilateral castration.

110. Treatment of Gonorrhoeal Endocervicitis.

L. BRADY (*Bull. Johns Hopkins Hosp.*, December, 1925, p. 400) records results obtained in 36 cases of gonorrhoeal endocervicitis treated by mercurochrome. The criterion of cure was three successive negative smears at two-week intervals and a further negative smear at the end of a month after the completion of all treatment, by which time, in the great majority of cases, all discharge had ceased. The patients were douched daily except during menstruation and on the days when the smears were taken. Twice a week the vaginal portion of the cervix was painted with a 20 per cent. mercurochrome solution, and, using a thin wire applicator, the entire cervical canal was swabbed up to the internal os. In 4 cases a profuse leucorrhoea with negative smears entirely cleared up in six weeks, and of the remaining 32 cases with positive smears 25 were certainly, and 4 probably, cured, while 3 failed. The 4 probable cures had three successive negative smears and had no vaginal discharge at the end of treatment, but the fourth smear at the end of the month could not be obtained. The three patients in whom the treatment failed had histories suggestive of salpingitis, and in two of them there was infection of Bartholin's glands. Five other patients with evidence of salpingitis on admission were entirely cured with hot douches and mercurochrome treatment, and in no instance did salpingitis develop during treatment. Of the 25 cases absolutely cured the average time occupied by the treatment, including the month during which all treatment

was suspended prior to the fourth examination, was three and two-third months. Brady holds that infection of Bartholin's glands should be treated by their complete removal, and he claims that two distinct advantages of the mercurochrome method are its simplicity and minimal danger of salpingitis resulting.

Pathology.

111. Hepatic Activity in Toxaemia.

E. L. OPIE (*Journ. Amer. Med. Assoc.*, November 14th, 1925, p. 1533) discusses the relation of the liver to toxæmic conditions. It has been shown by many observers that the liver can remove from the blood certain substances owing to the ability of some of the endothelial cells lining the sinusoids of the liver to arrest and engulf minute insoluble inorganic particles circulating in the blood, and also bacteria, substances in colloid suspension, and probably certain substances dissolved in the plasma. The liver takes up bacteria which have penetrated the intestinal wall and entered the portal circulation, thus preventing their entrance into the systemic circulation; this activity was found to increase with immunization. Micro-organisms that have temporarily lodged within vessels of the lungs or other organs are finally dealt with by the liver. This power of fixation of injurious substances may cause destructive changes and permanent lesions of the liver. Opie adds that experiments suggest that the action of the liver on foreign protein is analogous to its action on bacteria, since in both instances the injurious effect is diminished and the protective action increased as the result of immunization. It seems probable that it has a similar effect on many injurious bacterial products which act as antigens and induce immunity.

112. Effects of Quinine on the Blood Sugar.

T. A. HUGHES (*Indian Journ. Med. Research*, October, 1925, p. 321), as the result of experiments and from a study of the literature, concludes that quinine influences the level of the circulating glucose by stimulating the sympathetic system. This probably results in the secretion of adrenaline leading to hyperglycaemia; insulin is then liberated and causes hypoglycaemia. The method by which quinine may affect the output of insulin is not known, and while it is possible that it acts by stimulating the para-sympathetic nerves, causing a lowering of blood sugar, the hypoglycaemia may be due to induced hyperaemia of the pancreas, which has been shown to cause an increased production of insulin. The effect of insulin on the hyperglycaemia which large doses of quinine produce in rabbits is similar to its effect on adrenaline hyperglycaemia. The glycogenolytic effect of quinine is inhibited by ergotoxin and in a less degree by pituitrin. In antimalarial doses quinine causes a lowering of the blood sugar in man, an effect which is antagonized by pituitrin, and the fall in blood sugar so produced may sometimes set up mild symptoms of hypoglycaemia, which can be prevented by carbohydrate ingestion or by a meal rich in carbohydrate half an hour to an hour after the drug has been taken.

113. The Blanching Phenomenon in Scarlet Fever.

K. E. BIRKHAUG (*Journ. Clin. Investigation*, No. 3, 1925, p. 273) summarizes his observations as follows: (1) Serum from normal persons without a history of scarlet fever or general septic infections produced the Schultz-Charlton rash extinction phenomenon in 4 out of 6 cases tested on the second day of the rash, and in 1 of 7 cases tested on the third day of the rash. (2) Serum from convalescent scarlet fever patients produced the Schultz-Charlton phenomenon in 24 out of 27 cases tested, or in 89 per cent., during the first sixty hours of the rash, but did not cause blanching seventy hours after appearance of the rash. (3) Dochez's serum produced the phenomenon in 40 cases, or 100 per cent., during the first sixty hours of the rash. It continued to produce blanching seventy hours after the appearance of the rash, but did not produce blanching eighty hours after the rash had appeared. This indicates that Dochez's serum possesses the same specific property that is found in normal and convalescent serum, but contains this specific property in considerably greater concentration. (4) Blood serum from scarlet fever patients first showed the property of producing the Schultz-Charlton phenomenon about the eighth day of disease. (5) Epinephrin, normal horse serum, and diphtheria antitoxin consistently failed to produce the phenomenon. (6) Normal horse serum, convalescent scarlet fever serum, and Dochez's serum failed consistently to produce blanching in other eruptive diseases. (7) Rash extinction areas were directly proportional in size to the amount of serum injected.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

114. Local Immunity in Mumps.

A. CRAMER (*Rev. méd. de la Suisse rom.*, December 25th, 1925, p. 893) records a case of mumps which occurred during an epidemic of the disease at Geneva, in a boy aged 16, in whom the disease was confined to the sublingual glands. Three years previously he had had a first attack of mumps, when he had a bilateral swelling of the parotid and submaxillary glands followed by left orchitis. The case was thus an example of local immunity which Askanazy attributes to the endothelial cells, and especially to the cells of connective tissue. In enteric fever, for example, the typhoid or paratyphoid bacilli are attracted by the intestine, and in mumps the salivary and genital glands are specially affected. The cells of these organs show an "avidity" for the mumps virus, and when their "avidity" has been satisfied a fresh dose of the virus has no longer any effect. It seems probable that local immunity is established rapidly long before the appearance of antibodies, so that the participation of the latter in the process of vaccination and immunization does not seem to be proved. It is suggested that in the present case the first attack of mumps vaccinated the cells of the parotid, submaxillary gland, and testis, and that these glands, having become saturated with the virus, became refractory at the time of the second infection, whereas the sublingual glands which had not been in contact with the virus on the first occasion attracted and absorbed it.

115. The Prognosis in Subacute Bacterial Endocarditis.

E. LIBMAN (*Amer. Heart Journ.*, October, 1925, p. 25) records his observations on 800 cases of subacute bacterial endocarditis extending over a period of twenty-five years. He divides the cases into the following five groups: (1) Cases of the usual type, running a course of four to eighteen months or more and characterized by fairly marked elevation of temperature, positive blood cultures, and usually embolic phenomena. Libman has records of at least ten complete recoveries in this group. If cases which recovered and finally developed a fatal recurrence be added, this number is raised to twelve. The cause of death in this group is usually exhaustion. Embolism of a coronary artery is rare, of a cerebral vessel frequent. Other important causes are polynuclear meningitis, subarachnoid and intraventricular haemorrhage due to rupture of embolic aneurysms, and rupture of such aneurysms elsewhere in the body, hyperpyrexia, and uraemia. (2) Cases in the bacteria-free stage. Patients in this group may remain well indefinitely, but are liable to a recurrence, the issue of which may or may not be favourable. (3) Transitional cases in which the symptoms are present but the blood cultures are negative. Such cases are usually fatal in a short time. (4) Mild cases of long or short duration. All the patients which Libman has seen recovered. (5) Recurrent cases in which the recurrence ends in recovery or death. The repetitions of the infection may be due to invasion from a local infection or to invasion of the blood by bacteria, deposited in the various organs during the previous attack.

116. Spontaneous Meningeal Haemorrhage.

JOSEPHINE B. NEAL (*Journ. Amer. Med. Assoc.*, January 2nd, 1926, p. 6) records 35 cases of spontaneous meningeal haemorrhage and discusses this rare condition. In most of the cases no cause could be determined, but in 4 cases the haemorrhage was associated with an attack of epidemic meningitis and in another 4 cases with a cardiac lesion. Four other cases were associated respectively with pneumonia, syphilis, nephritis, and high blood pressure. Recovery followed treatment in 21 out of the 35 patients, though one died of nephritis a month later. The early symptoms were those of an acute and often of a fulminating meningitis. The onset was sudden, with intense headache, usually vomiting, and not infrequently unconsciousness within a few hours. In some cases there were twitches or convulsions, and stiffness of the neck, and a positive Kernig sign; changes in the reflexes were observed within a few hours or in a day or two. In most instances there was a rise of temperature of 1 to 3 degrees; the pulse was usually but not invariably slow. Early unconsciousness was not found to have any prognostic value. The diagnosis was made chiefly by examination of the spinal fluid, which contained blood evenly distributed through it without signs of coagulation. The author con-

siders that lumbar puncture is a most important measure in treatment. She states that it should be repeated daily, or less often, according to the clinical symptoms; in most of the cases it was followed by improvement. Antimeningitic serum was injected in several cases and may have had a restraining influence on the haemorrhage.

117. Hyperglycaemia without Acetonuria.

W. P. ARGY (*Boston Med. and Surg. Journ.*, December 31st, 1925, p. 1236) gives an account of a case of diabetes mellitus which lasted for six months and was characterized by the absence of acetonuria, high blood sugar concentration, and a considerable amount of acetone in the spinal fluid. The patient, a negro, aged 33, was admitted to hospital in a comatose state, after having been treated by dietetic restriction. The urine contained much albumin and many hyaline casts, together with sugar; the blood sugar was 1.71 per cent. Insulin was given as emergency treatment, but, though the blood sugar concentration was reduced at once, the patient died the next day without recovering consciousness. In the kidneys advanced fatty degeneration and necrosis was found; there was a focal necrosis of the liver with fatty degeneration, cerebral oedema, early bronchopneumonia, and a dense interstitial fibrosis of the pancreas. The author thinks that the large amount of sugar in the urine, together with the absence of acetonuria, may be associated with the kidney complication, as has been previously suggested by Joslin.

118. Congenital Syphilis of the Joints.

P. BLUM and FATOU (*Presse Méd.*, October 14th, 1925, p. 1366) report six cases of late congenital syphilis of the joints. In addition to the classical osteo-articular type there exist also pure synovial forms which, owing to their polymorphism, may simulate acute, subacute, or chronic rheumatism. They may be accompanied by fever and be painful or indolent. In some cases the appearance of bilateral hydrarthrosis, whether simultaneously or not in both joints, points to a syphilitic etiology. Systematic examination of the synovial fluid brought to light the existence of a polymorphonuclear count of from 70 to 95 per cent.; the fluid was sterile, and animal experiments were negative. The Wassermann test was always positive. Congenital syphilis is believed to play an important part also in the development of some fibrous forms of chronic arthritis deformans. The authors think that the fixation of a fibro-ankylositic character which occurs in gonorrhoeal arthritis may be referable sometimes to congenital syphilis.

Surgery.

119. Infections by Fusiform Bacilli and Spirochaetes.

I. PILOT and K. A. MEYER (*Arch. Derm. and Syph.*, December, 1925, p. 837) point out that putrid infections are often caused by the organisms of Vincent's angina, and the source of these infections is related to the normal distribution of the bacteria in the body. They report a case of gangrenous infection of a finger in which these organisms were found. A negro in the course of a fight was bitten on his left middle finger. The next day the finger was swollen; one week later a swelling on the radial side was incised. The lesion subsequently became deeper and discharged foul pus. A deep ulcer occupied the base and sides of the distal phalanx; it involved the entire circumference of the middle phalanx, and extended on to the dorsal surface of the proximal phalanx. The lesion was moist and dull green in colour, bone was visible in the centre of the base with a black irregular slough around. The margins were irregular and shaggy, and bled readily. The discharge was thick, blood-stained, and purulent, and had a putrid odour. The epitrochlear and axillary lymph glands were not enlarged; the Wassermann test was negative. The radiologist reported an old fracture of the middle phalanx with a deep destructive infection superimposed. Pathological examination showed many fusiform bacilli, spirochaetes, and a few streptococci and diphtheroids. Two doses of 0.6 gram of neo-arsphenamine were given intravenously, but as the distal part of the finger was hanging loosely amputation was performed through the middle phalanx. Two more doses of neo-arsphenamine were given later; following this the ulcer improved rapidly and was completely healed eight days after the operation.

120. A Pulsating Sacral Tumour.

M. BÉCLÈRE (*Journ. de Radiol. et d'Électrol.*, November, 1925, p. 503) describes the case of a girl, aged 13, who had a large irregularly rectangular swelling occupying the whole of the sacral area, apparently following a fall four months earlier. The skin was smooth and thin, but otherwise normal; the subjacent tumour appeared somewhat elastic and was distinctly pulsatile. The patient suffered from incontinence of urine and faeces. There was tactile and thermal anaesthesia over a saddle-shaped area comprising the buttocks, perineum, vulva, and inner surfaces of the thighs. The lower limbs were so wasted and weak that she could walk only a few steps when supported on either side. The abdominal and patellar reflexes were present, but the tendo Achillis reflex had disappeared on both sides. A skiagram showed almost complete decalcification of the sacrum. The Wassermann reaction was negative. She received four applications of x rays at intervals of two days, and fifteen days after the fourth irradiation the tumour was distinctly smaller and pulsation had ceased. Incontinence of faeces and enuresis occurred only at night, during sleep. The patient could raise herself and walk a few paces without pain. Three weeks after the termination of the first series of irradiations a second course of four was given over the suprapubic region in the direction of the anterior surface of the sacrum. Five months later the patient had gained 11 lb., and appeared to have recovered her health completely. She could stand and walk without pain, as before her fall. A slight ridge in the sacral region was the only vestige of the tumour. The lower limbs had recovered their normal size, but the saddle anaesthesia persisted and the tendo Achillis reflex had not reappeared. Incontinence occurred nocturnally at intervals of ten to fifteen days. A skiagram of the pelvis showed some deformity of the sacrum, but no other abnormality.

121. The Treatment of Keloid.

P. DEGRAIS and A. BELLOT (*Presse Méd.*, November 28th, 1925, p. 1531) describe the factors which predispose to keloid, which include a lymphatic area and a tendency to seborrhoea; they then describe three methods of treatment. The first is surgical; its success is dependent on the extent and situation of the growth and it may be followed by recurrence; after-treatment by radium is recommended. The second method is to attack the scar directly by such methods as scarification, electrolysis, escharotics, or carbonic acid snow. Most of these methods are painful and can therefore only be applied to small scars. The third method is the one of choice and consists of either x rays or radium, the latter being preferable because it is more easily controlled. The dose will depend on two factors—the depth of the scar and the tolerance of the patient. The object is to penetrate to the base of the growth and at the same time to avoid reaction in the adjacent tissues.

122. Tumour of the Carotid Body.

G. LECLERC (*Bull. et Mém. Soc. Nat. de Chir.*, November 28th, 1925, p. 982) records a case of a tumour of the intercarotid body in a woman, aged 37, which had been present for seven years. At the operation the common carotid was found to run through the tumour, which was firm in consistence, did not pulsate, and evidently arose from the carotid body. Its removal was difficult, and entailed ligation of the carotid artery and resection of a portion of the internal jugular vein. The post-operative course was complicated by dysphagia and aphonia, but there were no cerebral or paralytic symptoms. Her condition slowly improved, but there was still some difficulty in deglutition and weakness of the voice. These tumours of the carotid body histologically reproduce the structure of the normal gland; they are apparently benign in character. Operation for their removal is difficult, and a mortality rate of between 20 and 30 per cent. was reported in a series of collected cases.

123. Results of Sympathectomy in Angina Pectoris.

T. JONESCO and D. IONESCO (*Presse Méd.*, December 26th, 1925, p. 1697) have performed total resection of the sympathetic splanchnic ganglion in 32 cases of angina pectoris, partial resection of the cervical sympathetic in 24, and the Eppinger-Hoyer resection of the depressor nerve in 18. All three operations gave about the same mortality—namely, 20 per cent. The patients who recovered showed no cardiac disability, the pulse and blood pressure being unaffected and the heart responding to drugs such as adrenaline as before. One man with angina, operated on nine years previously, was now working seven days a week and did much walking; another had been a butcher for three years and felt well. A young man operated on for Graves's disease had been through the war since; and two epileptic women were now married and had large families, twenty-five years after operation. The authors state that the patient may have to remain in bed for four months after the operation. The

freedom from subsequent cardiac disability was to be expected in view of the physiological findings, it having been shown that the heart can meet all needs of the circulation by the automatism of its muscle, even when communications with the central nervous system are quite cut off.

Therapeutics.

124. Treatment of Scarlet Fever.

U. FRIEDEMANN and H. DEICHER (*Deut. med. Woch.*, November 13th, 1925, p. 1893, and November 20th, p. 1938) maintain that the organisms described by Di Cristina, Caronia, and Sindoni as the cause of scarlet fever are merely precipitates derived from the culture media and that the eruptions produced thereby are only anaphylactic reactions to foreign proteins. They agree that the scarlet fever streptococcus described by the Dicks and Dochez fulfils Koch's postulates. The uncertain therapeutic action of the serum of scarlet fever convalescents is readily comprehensible, since there is no means of determining its antitoxin content. The serums of individual convalescents show great differences. Moreover, the difficulties of obtaining a sufficient quantity of serum in practice are very great. Lastly, the best convalescent serum cannot be compared for efficacy and antitoxin content with the scarlet fever streptococcus serum. Dochez's serum was used in fourteen cases of scarlet fever in doses of 40 to 50 c.cm. intramuscularly; in very severe cases the injections were repeated on the following day. The warning is given that, owing to the large size of the dose, the risk of anaphylaxis must be borne in mind. The serum should be given as early as possible, but if it is injected within the first three days of the disease no difference can be detected in its action. It is only after the fourth day that its effect becomes less striking, though it is still distinct. In all but three of the fourteen cases the injection of serum was followed by a remarkable change in the clinical picture. In the course of twelve to fourteen hours the temperature fell by crisis to normal and the feeling of illness disappeared. Complications, if not present at the time of injection, did not occur. This remedy is described as being superior to any other therapeutic serum, including even diphtheria antitoxin. During the last ten years scarlet fever in Germany has assumed a remarkably mild form, but epidemics have occurred in which the mortality was as high as 20 or even 40 per cent., and in such epidemics it is suggested that the serum would be of the utmost value.

125. The Use of "Bipp" in Osteomyelitis.

A. P. MACKINNON (*Canadian Med. Assoc. Journ.*, November, 1925, p. 1222) states that the treatment of osteomyelitis is still far from satisfactory and urges the more frequent use of bipp. He believes that few cases of osteomyelitis are recognized by the general practitioner in the early stages, when they might be cured by simple drainage, and it is not until there are present discharging sinuses, bone cavities, and sequestra that the patient is referred for surgical treatment. At this stage MacKinnon uses bipp: the wound is thoroughly exposed and all sinuses traced to their origins. Sequestra are removed, the walls of the cavity levelled so as to allow the soft parts to fall in, or the cavity filled with fat grafts in order to leave no dead space. Bleeding must be stopped as far as possible; the wound thoroughly swabbed with alcohol-soaked gauze, and bipp then applied so as to leave a thin smear, the wound being closed in layers without drainage. Dressings were usually not removed for ten to fourteen days after the operation, when the stitches were taken out; this eliminated frequent painful dressings. MacKinnon states that there is no danger of serious poisoning, but healing by first intention has not been so frequent in his cases as in those reported by Rutherford Morison.

126. Boric Glycerin in Post-operative Urinary Retention.

TANT (*Bruxelles-Médical*, December 13th, 1925, p. 216) for the last five years has treated 175 cases of post-operative urinary retention by the following method, modified from that of Corbican. The bladder is first emptied by the catheter and then an injection is given of glycerin 50 grams, boric acid 5 grams, sterilized water 5 c.cm. Power of micturition is established in a quarter to half an hour. In about three-quarters of all cases one injection suffices; if not, a second injection is nearly always successful, and only very exceptionally is a third necessary. Tant has known only one instance of failure; this occurred in a man suffering with erysipelas who died three days later. As the operations were of the most diverse kinds, ranging from resection of the rectum to the radical cure of varicocele, and as success was so constant, the author considers this method worthy of routine use.

127. Vaccine Treatment in Epidemic Encephalitis.

A. REMOND and H. COLOMBIER (*Arch. medecine*, December, 1925, p. 177) treated five cases of post-encephalitic Parkinsonism by intraspinal injections of the Levaditi-Poincloux vaccine. Only one patient appeared to derive definite benefit from the treatment, three after a slight improvement remained in the same serious condition as before, and one developed severe symptoms after injection which at one time resembled Landry's paralysis. Poincloux, who used the vaccine in 50 cases, 7 of which were suffering from acute encephalitis and 43 from the sequelae, obtained complete cure in 3 and considerable improvement in 2 cases of the acute group, whereas the results in the chronic cases were not so good. Although improvement occurred in every case no actual cure resulted. The present authors conclude that in a condition so invariably fatal as post-encephalitic Parkinsonism there is justification for employing Levaditi's vaccine, even though its use is not without danger. The possibility of an occasional arrest of the disease, especially when the treatment is employed early, must be taken into consideration.

128. The Bromide Treatment of Epilepsy.

W. WEIGANDT (*Klin. Woch.*, December 10th, 1925, p. 2400) states that the combination of the three bromides presents no advantage over the potassium salt, while the latter is cheaper. He thinks that luminal is the better remedy and is invaluable if bromism supervenes, and it is not much more expensive. Many of the modifications or combinations of bromide for use in bromism are in his experience not only expensive but of doubtful value. Bromism can be prevented by administering the drug in capsules that dissolve in the intestine, not in the stomach. All medicinal treatment of epilepsy can be aided by attention to the diet, which should be poor in sodium chloride, although a complete deprivation cannot be borne. No salt should be taken on the plate, milk (the best vehicle for bromide) should be the chief drink, and white bread and meats should be substituted for brown bread and purine-containing flesh. Any exacerbation of symptoms may be treated by rest in bed.

Diseases of Children.**129. Renal Tuberculosis in Childhood.**

E. FALCI (*Journ. d'Urol.*, October, 1925, p. 301) discusses the incidence, clinical course, and prognosis in renal tuberculosis in the child as compared with the adult. The condition is less common in childhood, but increases in incidence with age, and the greatest frequency in the young is from the thirteenth to the eighteenth year. The number of cases of bilateral renal tuberculosis is greater in early life; in the first years of life its incidence is double that of later life, 28 per cent. of the cases being in children, 14 per cent. in adults. Bilateral disease is more frequent in the very young and decreases as the child grows up; its course in children is very rapid and soon proves fatal. After operative treatment in unilateral cases there is a mortality of 44 per cent.; in 16 per cent. the condition is aggravated, in 16 per cent. the patient's condition is stationary, and there are 24 per cent. absolute cures. In the adult the incidence of the disease is greatest between 19 and 30 years of age. In bilateral cases the course is not so rapid and there is a greater reaction on the part of the patient. After an operation in unilateral cases there is a complete cure in 56 per cent. of cases in adults. Falci concludes that in children the disease is very serious, and that it tends to spread generally; even after operation the prognosis is distinctly poor.

130. Brain Tumours in Children.

M. CRITCHLEY (*Brit. Journ. Child. Dis.*, October-December, 1925, p. 251) discusses the phenomena common to all varieties of cerebral tumour as seen in pediatric practice in a paper based on the analysis of 125 cases admitted to the National Hospital, Queen Square, between 1912 and 1925. The rarity of the disease in the first few years of life is shown by the fact that only three in this series occurred in the first thirty-six months. The frequency then gradually increases up to the age of 8, after which a fairly uniform level is maintained. As regards the localization 59, or 47.2 per cent., of the tumours were situated in the pons or cerebellum; 34, or 27.2 per cent., in the cerebral hemispheres; and 14 were classified as pituitary or supratentorial. In other words, the more archaic and primitive areas of the brain tended to be affected by tumour growth rather than the younger and higher evolved telencephalon. As regards the various types of tumour tuberculomata were the most frequent, the masses being often multiple. Gliomata came next in frequency. Sarcomata were third in importance, while gummata, endotheliomata, and neuro-fibromata occurred in much smaller proportions. Carcinomata were very rare. Headache was

the most constant symptom of all, but varied greatly in severity, character, and position. An alteration in the child's disposition was often the earliest and most outstanding symptom in cerebral tumour. Somnolence was a marked and persistent feature from the onset, with tumours in certain localities, especially in the neighbourhood of the diencephalon and mesencephalon. Vomiting occurred in most patients sooner or later. In very slow-growing tumours, such as endotheliomata, it might be absent altogether. Papilloedema, often incorrectly described as optic neuritis, occurred in about 80 per cent. of all cases, being most intense in subtentorial growths. Convulsive attacks, with or without unconsciousness, might occur at any stage. In most cases the march of the disease was progressively downhill, but in some cases, especially in tuberculomata situated in the ponto-cerebellar region, one or two remissions might occur.

131. Pyelitis in the Infant.

G. LEMOINE (*Le Scalpel*, October 10th, 1925, p. 1049) holds that in infantile pyelitis the blood stream is the most frequent channel of infection of the kidney. The organisms commonly recovered, generally in pure culture, are *Staphylococcus pyogenes albus* and *citreus*, the pneumococcus, *B. typhosus*, *B. coli*, *B. tuberculosis*, *B. diphtheriae*, and the gonococcus, the one that appears most often being the colon bacillus. The clinical picture is of a severe general infection—high temperature, convulsions, cyanosis, vomiting, and diarrhoea. The pain may be either suprapubic or iliac. Two types are recognized, the primary and the secondary, the latter following gastro-enteritis in the summer, or affections of the upper respiratory passages in the winter. There is usually nothing to indicate renal trouble until the urine is examined and found to be acid and to contain pus. Treatment includes warmth, applied locally, a diet of milk, or milk foods, and fluid should be given freely. When vomiting occurs the author gives enemata, and subcutaneous, intravenous, or intraperitoneal injections of glucose serum. Helmholtz has recommended hexamine tetramine in doses of 3 to 5 grains four or five times a day for infants over six months. The treatment most generally adopted, however, is rapid alkalization of the urine with potassium citrate, less commonly with the carbonate or bicarbonate of soda. For nurslings Helmholtz finds potassium citrate sufficient, either alone or with equal parts of sodium bicarbonate. To an infant of two months or more he gives 1½ drachms daily, increasing by 1 drachm daily till the urine becomes alkaline. The treatment should be continued for two weeks. With older children, if the symptoms have not improved after three days of alkalization of the urine, it is necessary to give urotropine and acid sodium phosphate, which will render the urine acid again. Further changes may have to be rung on alkalizing or acidifying the urine. In most cases material improvement follows on alkalization of the urine. But after about ten days the urine should be rendered acid again with acid phosphate or benzoate of soda, kept acid for ten days, and then alkalized again with potassium citrate. Care should not be considered complete until the urine remains sterile after this test.

132. Hypoplasia Mandibulae as the Cause of Choking Fits.

E. LENSTRUP (*Acta Paediatrica*, October 22nd, 1925, p. 154) records three cases in infants a few weeks old who suffered from violent choking fits caused by a deficient development of the lower jaw, as the result of which the tongue could not be kept in its normal position in the mouth, but fell back into the pharynx, blocking the opening of the larynx. The patients were successfully treated by fixing the child in a lateral position by means of pillows, so that the tongue fell forwards by its own weight. Lenstrup quotes two similar cases reported by Shukowsky, who described them as examples of congenital stridor. One of these infants died of asphyxia. Cleft palate was present in all five cases, but did not appear to affect the clinical picture.

Obstetrics and Gynaecology.**133. Conservative Treatment of Eclampsia.**

S. BERMAN (*Boston Med. and Surg. Journ.*, January 7th, 1926, p. 7) compares the Stroganoff and Rotunda methods of the conservative treatment of eclampsia, and gives an account of his own modification of the former. Absolute quiet in a darkened room is provided. On admission the patient receives a quarter of a grain of morphine, followed by the Stroganoff routine of chloral hydrate, morphine, milk, and saline solution. All examinations are made under gas and oxygen anaesthesia, but so far as possible any disturbance of the patient is avoided. Magnesium sulphate is given intravenously after each convulsion, the dose being 20 c.cm.

of a 10 per cent. solution, and oxygen is administered during the convulsion. Magnesium sulphate is also given if the patient becomes restless some hours after a convulsive attack. Berman recommends having available a 25 per cent. solution of calcium chloride, 10 c.cm. of which can be given intravenously in the event of respiratory embarrassment after the magnesium sulphate injection. He has not experienced this complication himself, however. If the patient is comatose and not taking fluids by the mouth, he recommends the intravenous injection of 1 litre of a 5 per cent. glucose solution every six hours. He does not think venesection necessary as a general rule, and, unless there is no response to treatment, he postpones delivery of the patient until the os is fully dilated and convulsions have ceased. Transfusion may be necessary after delivery if shock supervenes.

131. Cornual Pregnancy.

J. L. GROVE (*Surg., Gynecol. and Obstet.*, January, 1926, p. 102) believes that there has been during recent years an increase in the incidence of tubal pregnancy as compared with normal gestation, possibly owing to more cases being recognized by the improved methods of diagnosis, and also owing to surgical treatment being now more common and facilitating diagnosis. He maintains also that gonorrhoea should be considered as an important etiological factor in ectopic pregnancy, and states that this infection was traced in eight consecutive cases of ectopic gestation in his clinic. He gives details of one case of cornual pregnancy, and suggests that the asymmetry of the fundus, when distinguishable by bimanual examination, is very suggestive, though it may be solid enough for a fibroid.

135. Pregnancy in Chronic Leukaemia.

R. CHIARI and F. DAUTWITZ (*Wien. Arch. f. inn. Med.*, November 1st, 1925, p. 475), who record an illustrative case, state that there are only twelve cases, including their own, of pregnancy occurring in leukaemia. As a rule the foetus is expelled dead, and in only five instances, including the authors' case, was a living child born. The authors' patient was a woman, aged 31, who had been suffering from chronic lymphatic leukaemia for eighteen months. She was treated by radium in the fifth month of pregnancy, which ran a normal course. A healthy child was born at full term, and there was no dangerous post-partum haemorrhage. Owing to a return of the leukaemic symptoms the patient underwent a second series of radium applications twenty-two months after the first, and rapid improvement followed as on the first occasion. A year after the delivery both the mother and child were in good health.

136. Perforation of the Uterus during Curetting.

MOLIN and DESJACQUES (*Lyon Méd.*, November 29th, 1925, p. 643) record four cases of accidental perforation of the uterus during operation for curetting. In two cases the instrument was a small Hegar's dilator (No. 1 and No. 2 respectively), and in the third case perforation by the curette was not suspected until an iodine injection had failed to return from the uterus. The authors suggest that in general these perforations of the uterus are best treated by incising and draining the posterior fornix, a large gauze drain being left for five days in the colpotomy wound. Against purely expectant treatment they urge (1) that complete ascopis is obtained with difficulty in a curetting operation; (2) that even with minute perforations there is always (as proved in their own colpotomy and in other surgeons' laparotomy cases) bleeding in the pouch of Douglas whereby an excellent culture medium is afforded to micro-organisms; (3) that colpotomy secures drainage at practically negligible operative risk. If the interior of the uterus is highly septic an abdominal operation, completed if necessary by hysterectomy, is indicated.

Pathology.

137. Serological Classification of the Haemolytic Streptococci.

S. ANDERSEN (*C. R. Soc. de Biologie*, January 5th, 1926, p. 1690) has made an examination of 88 strains of haemolytic streptococci obtained from human beings, of whom 61 were suffering from scarlet fever. After a preliminary attempt to employ the agglutination test in their classification, he abandoned this method on account of its technical difficulties and resorted to the complement fixation reaction. Immune sera were prepared by injecting rabbits with cultures killed by heat at 65°C. for thirty minutes, eight different strains being employed. Each serum was then absorbed with every strain in the series and then tested against its homologous antigen. The suspensions utilized were from ascitic agar

cultures, the growth of which had been washed twice with saline. The results showed that the 88 strains fell into five serological groups; one of these contained all of the scarlet fever strains. A serum prepared against a strain of endocarditic origin was absorbed only by its homologous organism. A serum prepared against an abscess strain was absorbed by three other strains of varying origin. A serum prepared against an erysipelas strain was absorbed by nine strains, five of which were isolated from cases of erysipelas. Three sera prepared against a strain of meningial, of phlegmonous, and of anginal origin respectively were absorbed by every strain except the endocarditic one. A serum prepared against a strain isolated from a patient with catarrhal angina was absorbed by all the scarlatinal strains, the anginal strains, and three others. Finally, a serum prepared against a strain of scarlatinal origin was absorbed by all the scarlatinal strains, and by only two others. The scarlatinal strains, therefore, form a fairly homogeneous group.

138. Chronic Intestinal Dyspepsia in Children.

A. BROWN, A. M. COURTNEY, G. A. DAVIS, and I. F. MACLACHLAN (*Amer. Journ. Dis. Child.*, November, 1925, p. 603) submit that the characteristic intestinal flora in the chronic intestinal dyspepsia of childhood is strongly suggestive of a bacterial influence in the etiology. There is a delay in the normal change from the Gram-positive (*Bacillus bifidus*) or aciduric group to the Gram-negative or colon group. The authors are not yet satisfied whether this aciduric group comprises several distinct organisms, or only one extremely pleomorphic organism, but tend rather to support Noguchi in the latter view. A spore-bearing bacillus was isolated from the faeces of two children suffering from chronic intestinal indigestion, which at first was proteolytic, but was found to change its nature greatly after long culturing. Some feeding experiments with white rats showed that they did not gain normally while being fed with milk cultures of the above spore-bearing bacillus, but resumed the normal rate as soon as the diet was changed. Lactic acid milk and milk cultures of *Streptococcus lactis* inhibited the growth-depressing effect. The proteolytic nature of this spore-bearing bacillus is of interest since abnormal putrefactive activity in chronic intestinal indigestion is general, as evidenced by the high ammonia content of the faeces. *Streptococcus lactis*, cultures of which are used therapeutically, was very active metabolically in casein-enriched, low sugar milk, and formed no harmful products. It establishes itself as the predominant organism of the faeces soon after its ingestion has been begun, but probably takes a long time to oust completely the pathological bacteria.

139. Cholesterin in Pleural Fluids.

C. MAININI (*Bull. et Mem. Soc. Méd. des Hôp. de Paris*, December 10th, 1925, p. 1534) states that rather more than twenty cases of pleural fluids containing cholesterin have been recorded, but the etiology has not been investigated. He now describes two new cases in men, aged 27 and 28 respectively, who had been treated with apparent success for pulmonary tuberculosis by artificial pneumothorax. In both cases the family history of tuberculosis was very bad, and the subsequent effusion was sterile and extensive. On standing, the pleuritic fluids showed three strata: the lowest was crystalline and fairly copious, the middle was pale, and contained sparkling crystals, while the highest stratum consisted of yellow opalescent fluid. There was no coagulum. Aspiration showed the pleurae to be thickened and tough, but without extensive adhesions. No tubercle bacilli were found, but the pulverized crystalline sediment proved to be pathogenic when injected into guinea-pigs. The soluble cholesterin of the exudates was much increased and both patients had hypercholesterinaemia. Repeated paracentesis was required in both cases, followed by irrigation with chlorine water.

140. Post-anaesthetic Hypoglycaemia.

H. JOSEPHS (*Bull. Johns Hopkins Hosp.*, December, 1925, p. 376) found that after short periods of ether narcosis in a series of tonsillectomies in children a moderate degree of hypoglycaemia occurred and was accompanied by an increased excretion of acetone bodies in the urine, more than would have been the case from an equal period of starvation without anaesthesia. This hypoglycaemia was usually, though not invariably, preceded by an increase in the respiratory quotient. Josephs concludes that anaesthesia may cause an increased oxidation of carbohydrate lasting for several hours, and that this is usually accompanied by a more or less parallel hyperglycaemia. He believes that the increased carbohydrate oxidation is in part at least responsible for the hypoglycaemia which occurs twelve to eighteen hours later, and is a factor in recurrent vomiting and post-anaesthetic acidosis.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

141. Heart Failure with Normal Rhythm.

J. PARKINSON and A. E. CLARK-KENNEDY (*Quart. Journ. Med.*, January, 1926, p. 113) investigated 100 unselected cases of severe congestive heart failure with normal cardiac rhythm between the ages of 20 and 70, with 84 deaths and 48 necropsies. Only the severe form in which the patient was confined to bed with breathlessness and oedema of the legs was studied, the object being to define the type of case in which auricular fibrillation might be expected if it were going to occur at all, recognized endocarditis and heart failure in the acute infections, such as pneumonia, alone being excluded. Pathologically failure was found attributable to cardio-vascular hypertrophy (high blood pressure) in 26 cases, to cardio-vascular syphilis in 20, to chronic pulmonary disease in 19, to chronic rheumatic heart disease in 7, to acute or chronic rheumatic endocarditis in 4, to atheromatous coronary occlusion in 4, and to congenital heart disease in one. Chronic rheumatic myocarditis and the toxæmia of exophthalmic goitre are undoubted factors in the production of auricular fibrillation, and intensive treatment with digitalis may occasionally produce it. In heart failure due to acute infections of the heart itself, such as rheumatic carditis, infective endocarditis, and diphtheria, normal rhythm usually persists. In hyperplasia (cardio-vascular hypertrophy) it was found that the blood pressure sometimes fell to normal during cardiac failure. The authors find that fibrillation is of value in the differential diagnosis of the pathology of a case of heart failure and it may assist in assessing the relative importance of different causes in a complicated case. The average duration of life after the onset of oedema was found to be only eight months, and the prognosis in cases of failure with normal rhythm was less favourable than in a corresponding degree of failure with auricular fibrillation, being least favourable in rheumatic cases and in those secondary to chronic lung disease.

142. The Prognosis for High Blood Pressure.

R. EHRSTRÖM (*Ugeskrift for Læger*, November 19th, 1925, p. 1038), as the result of a study of over 300 cases of high blood pressure, finds that the average age at which this condition begins to make itself felt by the patient is 52 years, but that before this age the high blood pressure has existed for about ten years unobserved by the patient. The average age at death of this class of patient is about 62 years; thus, from the beginning to the end of this condition there is apparently about two decades of life. Life may, however, last as long as twenty-five to forty years, and in 20 of the author's cases in which he kept in touch with the patient for ten to sixteen years the blood pressure was seldom or never below 200 mm. of mercury, although most of the patients were well and fit for work during the greater part of this time. The author insists that the patient whose high blood pressure begins at the age of 50 and lasts for twenty years or more can hardly complain that this condition has shortened his life, seeing that, at the age of 70, he has already exceeded the average expectation of life. Factors affecting the prognosis unfavourably are an early onset of the high blood pressure, the coexistence of syphilis, and disease of the kidneys. In most cases it is impossible to decide whether the disease is progressive or not, and the physician is therefore not justified in giving a grave prognosis.

143. Mumps with Visceral Complications and Death.

M. BARBATO (*Rif. Med.*, November 23rd, 1925, p. 1109) reports the case of a man, aged 53, in whom inflammation of the left testicle developed one week after the onset of an attack of mumps. Seven days later he showed signs of acute uræmia (unconsciousness, high blood pressure, anuria, cardiac weakness), which yielded to bleeding and purging, the uræmia being probably an exacerbation of a previous underlying nephritis. Later on, when the acute symptoms of uræmia had passed off, the patient developed marked sleepiness, diplopia, and paresis of the third and sixth cranial nerves, probably of central origin, and possibly due to small thrombi in the arterioles, which were already affected with arterio-sclerosis. Consciousness was unaffected, and, although lumbar puncture showed considerable pressure, there was no headache. The heart became enlarged and gradually failed. Death followed vesical and respiratory paralysis. No autopsy was made. The author thinks that the later symptoms may have been due to mumps.

144. Late Perforation in Typhoid Fever.

DARAIGNEZ (*Journ. de méd. de Bordeaux*, December 10th, 1925, p. 1086), who records a personal case, states that intestinal perforations in convalescence from typhoid fever are rare, occurring in only 30 per cent. of all typhoid perforations according to Devic and Froment. As a rule they are situated at the lower end of the small intestine, and more rarely in the appendix and caecum. There is usually only a single perforation, but sometimes multiple perforations may be found. The condition may be mistaken for acute appendicitis. There is a striking contrast between perforations in convalescence, which are ushered in by violent symptoms in apparently healthy persons, and those occurring in the acute stage of typhoid fever, when the symptoms are masked by stupor and prostration, and often consist merely in a dissociation between the pulse and temperature. The ideal treatment would be resection of the whole terminal segment of the ileum, but usually the patient's state only permits of suture of the perforation. The prognosis is very bad. The few cases of spontaneous recovery on record are open to criticism, as there was no means of verifying the lesion. Success depends on early operation. Hardly any recovery has been reported when the operation was performed more than twenty-four hours after the onset of the symptoms. Daraigne's patient was a youth aged 17, who was convalescent from a severe attack of typhoid fever which had kept him in bed two months; he had had phlebitis of the left lower limbs three weeks before the onset of the perforation. He was awakened suddenly one morning by severe pain in the right iliac region. There was no vomiting, but there was passage of faeces and flatus. When Daraigne was called to see him, four days after the onset, he made a diagnosis of acute generalized peritonitis from perforation of a typhoid ulcer. Laparotomy was performed under a local anaesthetic, and generalized peritonitis, due to a perforation, was found. The perforation was sewn up and the peritoneum drained. Death occurred the next day. The necropsy showed generalized peritonitis and a second perforation 20 cm. above the first.

145. Acute Parkinsonism at the Onset of Encephalitis.

H. ESBACH (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, December 10th, 1925, p. 1548), who records an illustrative case, states that acute Parkinsonism is rare at the onset of epidemic encephalitis. Lhermitte and Cornil, Thomas and Jumentié have noted it in old age, and Rimbaud, Rouquier, and Lacambre have also observed it. The associated symptoms in these cases showed that it was connected with epidemic encephalitis. Esbach's case occurred in a man, aged 28, in whom Parkinsonism developed in a single night. The patient, who had been drowsy the previous day, woke up the following morning with so marked a contracture that he was immobilized in bed in a position of semi-flexion, his mouth half open, and the muscles of the limbs rigid. The contracture was accompanied by continual tremor of the fingers. Death, which was preceded by delirium and mental confusion, occurred five days after the onset of the Parkinsonism.

146. The Incidence of Tuberculosis.

R. DÉPRÉ and F. CORDEY (*Paris méd.*, January 2nd, 1926, p. 31) have studied the incidence of tuberculosis at different ages, and conclude that there is evidence that the resistance increases from birth onwards. Thus, whereas the newly born child appears to have little or no resistance, of older children up to 5 years of age exposed to infection only 50 per cent. will develop the disease. Between the ages of 5 and 10 the proportion that become diseased falls to one-third, and from 10 to 15 years to a quarter. In the case of adults similarly exposed to infection only one in twenty develop tuberculosis. This difference in susceptibility, they add, depends upon the power, acquired with age, of reacting to the bacillus by forming localized and fibrous lesions instead of by generalized granulations, as are found in infants and savage races. The occurrence of bone and joint tuberculosis at an earlier age than pulmonary disease indicates a low resistance to the bacillus, the interval between infection and the appearance of disease having been too short to allow the development of sufficient resisting power. The authors add that allergy or the altered reaction to fresh infections and to the injection of tuberculin must have been established for some considerable time before an effective degree of immunity can be developed.

147. Chronic Nasal Diphtheria and Atrophic Rhinitis.

A. ABRAHAM (*Deut. med. Woch.*, December 18th, 1925, p. 2114) records thirteen cases of atrophic rhinitis in which true diphtheria bacilli were found in the nasal cultures; eleven were females and two males. The ages ranged from 14 to 49. All the patients had the same symptoms, which consisted in nasal discharge of several years' duration, formation of crusts, headache, anosmia, and lassitude. With the exception of one case of chronic rhinopharyngitis sicca the clinical diagnosis was atrophic rhinitis. Infection of the nasal accessory sinuses was not present in any. Two patients had chronic otitis media. Two patients had had diphtheria, and another two gave a history of diphtheria in the family. Treatment consisted in administration of 4,000 to 6,000 units of diphtheria antitoxin for three days, combined with twelve to fourteen injections of an auto-vaccine prepared from an isolated strain of diphtheria bacilli, or in most cases from other organisms associated with the diphtheria bacilli, such as *B. proteus* and *B. mucosum*. The nose was also irrigated thrice daily with a 1/4 per cent. solution of chloramine. Abraham concludes that a previous attack of acute diphtheria was the cause of the atrophic rhinitis in these cases. Similar cases had been previously recorded by Pfeiffer.

148. Acute Ascending Myelitis following Chicken-pox.

D. P. WALDMAN (*Journ. Amer. Med. Assoc.*, November 21st, 1925, p. 1612) records a fatal case of this condition in a woman aged 32. The attack of chicken-pox was mild and accompanied by only slight fever. The vesicles were chiefly on the chest and back, with only a few on the abdomen, and none on the face and extremities. Zoster was excluded by the 2-year-old son of the patient having a typical attack of varicella immediately after the subsidence of his mother's eruption. On the tenth day of disease the woman suddenly developed loss of power in the lower limbs, with rapid onset of complete anaesthesia, retention of urine and faeces, and later incontinence of faeces. Clinically the case appeared like acute myelo-malacia, with an extreme degree of softening and degeneration of the spinal cord. Sacral bedsores rapidly developed, together with severe cystitis and diarrhoea. Death, which occurred in coma after three months' illness, was preceded for several weeks by progressive weakness and pain in the back of the neck. There was no necropsy.

Surgery.

149. Myositis Ossificans.

A. GRUCA (*Annals of Surgery*, December, 1925, p. 883) points out that though the appearance of parosteal bone within muscle following trauma has been known for over two centuries, yet its etiology and pathology are not fully understood. The traumatic variety follows a single severe injury and is the most frequent type. It affects the thigh and upper arm, and one form occurs after dislocation of the elbow, commonly in the brachialis anticus muscle. The condition is also seen in gunshot wounds and after clean incised wounds. The chronic variety is met with after repeated slight injuries and is found as "rider's bone" in the adductor muscles. Myositis ossificans is also seen in muscles the seat of a metastatic abscess and around joints affected with a chronic inflammatory process. The course may be divided into three stages. In the first typical traumatic symptoms are present, and are followed by pain and impaired movement and increase in size of the mass. Finally growth stops and pain disappears and the mass is clearly shown by the x-ray picture. The condition occurs in the thigh and on the arm near to joints commonly, and is usually seen in middle life. Conservative treatment is usually the best, unless the growth interferes with function; it has a tendency to disappear without any active intervention. In some cases simple excision of the mass may be advisable. Myositis ossificans is a reparative process within the young connective tissue originated by inflammation. It is possible that there may be a special tendency, congenital or acquired, for this excessive callus formation to take place.

150. Omental Strangulation.

E. SCHWARZ (*Zentralbl. f. Chir.*, January 2nd, 1926, p. 5) records a case of omental strangulation in which the symptoms suggested acute cholecystitis. He operated upon a somewhat obese woman, aged 48, for a large right inguinal hernia, and in the sac found loops of infestine and omentum which was adherent at two points. The patient made a rapid recovery, but five weeks later she was readmitted with very severe pain in the right hypochondrium, especially in the nipple line; there was obvious rigidity of the abdominal wall, and an oval tumour, moving with respiration, could be felt. A diagnosis of acute cholecystitis was made. On opening the

peritoneum a fibrin-covered tumour as large as a child's fist was seen in the gall-bladder region. This tumour was adherent to the anterior abdominal peritoneum and to the liver, and the fibrinous envelope formed a cap over the gall bladder; its surface was mottled with yellowish-green or bluish patches. On removal of the matted omentum the subjacent gall bladder was found to be healthy. The commencing gangrene of the omental mass was due to torsion of its pedicle through ten turns. The pedicle originated beneath the transverse colon, and the adhesion of the omental tumour to the gall bladder produced the clinical symptoms of acute cholecystitis when strangulation occurred. The patient made an uninterrupted recovery. Schwarz states that more than 100 cases of torsion of pedicles of omental masses have been recorded; he remarks that it is probable that most of these cases are traceable to the return to the peritoneal cavity of damaged adherent herniated omentum. The congestion persists, rendering the omental mass hard and heavy; peristaltic action twists the pedicle, and this movement, once started, continues until strangulation ensues. The author recommends that whenever the herniated omentum appears atrophic, adherent, and congested, it should be resected rather than returned to the abdominal cavity.

151. Congenital Dislocation of the Hip.

C. A. VELO (*La Chir. degli Organi di Movimento*, December, 1925, p. 1) reports an unusual sequel to the bloodless reduction of a congenital dislocation of the hip in a girl aged 10 years. After a fortnight's massage the double dislocation was reduced by the Lorenz method and put up in a fixed position. Much oedema and cyanosis, especially of the left leg, followed, so that the apparatus was removed, and eventually it was seen that paralysis of the sciatic nerve had developed, which persisted for six months, when improvement was noted, and in another month complete recovery had occurred. Paralysis of nerves has been described before as a sequel to the treatment of reduction of congenital dislocation, but it is rare, and the author gives the statistics of 113 patients (151 dislocations) treated in his hospital in recent years. Of the 113 patients 103 were female; the ages ranged from 2 to 14, and in 75 the dislocation was unilateral (46 per cent. right, 20 per cent. left). The average length of treatment was seven months, and the case reported above was the only one in which paralysis occurred. In two other cases separation of the lower epiphysis of the thigh and upper epiphysis of the tibia were noted; otherwise no accidents occurred and the results were excellent. The author refers to other accidents in association with this operation, including ecchymosis, laceration of the skin, fracture, gangrene, crural hernia, rupture of the capsule, and convulsions, but adds that as experience is gained these complications get less and less common. A bibliography of some forty references to recent literature is appended.

152. Dilatation of Stenson's Duct.

T. BARSONY (*Klin. Woch.*, December 24th, 1925, p. 2500) reports the case of a man aged 70, with two years' history of recurrent swelling of the left parotid gland after eating. The opening of Stenson's duct was patent, and a probe was found to be freely movable in it. Pressure on the parotid swelling produced abundant saliva with some flakes of pus. A parotid calculus was suspected, but skiagrams were negative. A 20 per cent. potassium iodide solution was injected into the duct and skiagrams showed a widely dilated duct, extending into the gland, the filled duct being as large as the little finger. The author is unable to find a similar case in the literature, and attributes the condition to muscular weakness of the walls of the duct; he thinks it is comparable with idiopathic dilatation elsewhere in the alimentary tract. He suggests that the condition would be diagnosed more often if lipiodol was injected before examining Stenson's duct radiologically.

153. Gastric Acidity after Gastro-enterostomy.

K. NICOLAYSEN (*Norsk Mag. f. Laegevid.*, December, 1925, p. 1328) investigated the gastric acidity of fifteen patients who had been operated on for gastric ulcer, with the following results. The majority of those who had been cured after an operation several years previously were without free hydrochloric acid, whereas all those who had not been cured showed free hydrochloric acid in the stomach contents after Ewald's test meal. X-ray examination showed that an empty condition of the antrum pylori was associated with an absence of free hydrochloric acid, whereas filling of the antrum was accompanied by persistence of acidity. Nicolaysen's conclusions are as follows: (1) With few exceptions the effect of gastro-enterostomy is proportional to its power to reduce acidity. (2) Diminution of acidity is due partly to decreased secretion and partly to neutralization. (3) Decreased secretion generally coincides with rapid emptying of the stomach and depends among other causes on non-filling of the antrum pylori.

Recurrent Peptic Ulcer.

154. P. RIESS (*Zentralbl. f. Chir.*, December 12th, 1925, p. 2818) observes that in recurrent peptic ulcer there must be considered: hyperacidity of the gastric juice, pyloric spasm, and a neurotic temperament. The relative importance of these three factors is variable, and one or more may be absent. Riess describes the case of a man, aged 27, who was admitted to hospital with a perforated pyloric ulcer which had penetrated the pancreas. The ulcer was excised and an anterior gastro-enterostomy performed, but two and a half months later a second ulcer had perforated. The site of the gastro-enterostomy was normal, but the perforated ulcer was found in the distal loop immediately below the site of the gastro-enterostomy; this portion of bowel was resected. Six months later the patient was readmitted for a third perforation: the ulcer was as large as a pea and was found in the anterior surface of the proximal loop. The site of the former gastro-enterostomy was resected with the neighbouring portion of the stomach wall, and a fresh anterior gastro-enterostomy was performed. The excised portion contained two ulcers, a large perforated ulcer on the anterior surface of the proximal loop and a small shallow ulcer on the anterior surface of the distal loop. Two years later another perforated ulcer was found at an operation.

155. Pulmonary Carcinoma simulating Lung Abscess.

KRAMPF (*Deut. Zeit. f. Chir.*, December, 1925, p. 128), who records three illustrative cases, remarks that pulmonary cancer may assume a variety of forms according to its localization and extent. Thus carcinoma arising from a bronchus is characterized by the early development of a troublesome cough with occasional haemorrhage, whereas the less frequent solid carcinoma developing in the substance of the lung may remain latent for a long time. Cachexia, which is usually present in the subjects of cancer, is always absent at first, because the absorption of the toxic products of the tumour is much less in the lung than in the gastro-intestinal tract. Solid tumours in the substance of the lung usually do not make themselves apparent until they come into relation with the bronchial tree and thereby with the exterior. The tumour then rapidly undergoes necrosis, and portions of it are expectorated, the sputum being at first mucoid, later purulent, and occasionally haemorrhagic. An abscess cavity thus develops and increases in size as the necrosis continues. The process is usually accompanied by a rise of temperature and the growth gives rise to pneumonic changes in its neighbourhood. In the diagnosis of pulmonary cancer from pulmonary abscess most importance is to be attached to examination of the sputum, though it is only by good luck that tumour cells can be discovered in it. The opening of a doubtful abscess cavity may clear up the condition. After evacuation of a true abscess the lung can be seen, whereas the walls of a cavity caused by a tumour present a characteristic appearance due to the presence of necrotic tissue.

156. Congenital Dislocation of the Patella.

R. ZANOLI (*La Chir. degli Organi di Movimento*, December, 1925, p. 83) describes 13 cases of this rather rare affection, with numerous photographs and radiograms. He classifies the cases in two groups—permanent and habitual. Of his 13 cases, 10 occurred in females, but this was rather exceptional; as of 152 cases collected from various sources there was not much difference in the sexes. The condition is often hereditary and familial and frequently associated with other congenital deformities. The author discusses some of the more probable theories of pathogenesis—such as the presence of genu valgum, atrophy of the external condyle, flattening of the trochlear groove, small size of the patella, and arrested development. Most of these conditions he believes are effects rather than causes; he thinks the efficient cause is anomalous orientation of the bony parts of the knee, and especially external rotation of the tibia with slight internal torsion of the lower epiphysis of the femur. The fact that some cases are cured by operation without remedying the torsion he explains by the altered direction of the muscular pull. Incidentally he refers to recent views as to the morphological significance of the patella, which is not now looked upon as merely a sesamoid bone but as a regression of a primitive bone of which the proximal part remains as the patella, the distal as the os trigonum of Bardeleben, while the middle part has disappeared. The treatment is purely surgical and various operations are described. Zanoli prefers median transplantation of the patella tendon combined with capsulorrhaphy. The results are very satisfactory, and photographs are given of patients from three to sixteen years after operation. A bibliography of sixty references is added.

Therapeutics.**Treatment of Pulmonary Gangrene.**

157. G. CAUSSADE and A. TARDIEU (*Bull. Soc. de Thér.*, November, 1925, p. 228), who record twelve illustrative cases illustrating the various methods of treatment of pulmonary gangrene, come to the following conclusions: (1) Serum treatment, and Weinberg's antigangrene serum in particular, gives only very inconstant results. None of the cases so treated showed an undoubted or permanent improvement. In his recent thesis Briant has come to the conclusion that antigangrene serum is not specific, and has shown that while temporary improvement is frequent a permanent cure is rare, only one such example, reported by Lemierre, being on record. (2) Arsenical treatment, advocated by Perrin of Nancy, also proved a failure in the authors' hands. Vincent's fusospirillar symbiosis is only transient in pulmonary gangrene, so that the indications for this mode of treatment are very restricted. (3) Auto-vaccines proved quite useless. (4) Tincture of garlic showed only a slight antiseptic action when given by the mouth. (5) Repeated intratracheal injections of gomenol oil in progressive strengths of 5 to 10 per cent. may produce slow but steady improvement. (6) Artificial pneumothorax is often difficult if not impossible owing to the early formation of pleural adhesions. Though it has been successful when employed at an early stage by Dumarest and Bonafé and Améville and Teissière, the present authors never derived any benefit from it. (7) The formation of a tracheal fistula deserves to figure in the therapeutics of pulmonary gangrene, as its indications, though limited, are real. (8) Intrapulmonary injection of drugs in oily suspension is valuable when other methods fail. (9) Surgical intervention is only rarely indicated. Death often occurs very rapidly after operation. (10) Phrenicotomy is chiefly indicated in bronchial dilatation. In the authors' experience it produced only a very temporary improvement.

Insulin Treatment.

158. L. HERTOGHE (*Le Scalpel*, January 9th, 1926, p. 25) remarks that though the value of insulin treatment remains indisputable, yet the difficulties associated with its administration are more obvious now than was the case hitherto, and its field of utility has diminished. Thus, apart from renal glycosuria, there are cases of pancreatic diabetes in which degeneration of the islands of Langerhans has gone so far that insulin treatment is ineffective. Again, a hyperglycaemia which is yielding to insulin may be complicated by the presence of renal glycosuria, which is resistant. Difficulty in assessing the value of insulin is caused by its cumulative action, which results in there being considerable delay after a course of treatment before the patient feels the full benefit or begins to relapse. The symptoms of developing hypoglycaemia Hertoghe puts in the following chronological order: first, disquiet and nervousness; then pallor, tachycardia, and sweating; and lastly, syncope, convulsions, and coma. He adds that there is no risk involved in the prophylactic use of sugar, and great care should be taken that this safeguard is available. The author recommends that a hypodermic syringe should be kept ready for injecting carbohydrate in an emergency.

159. Protein Therapy in Diabetes Mellitus.

G. SINGER (*Wien. klin. Woch.*, January, 1926, p. 28) reports further cases of diabetes treated by protein shock. During the last two years 92 cases were treated, with the following results: considerably improved 51, improved 22, not improved 17, made worse 2. The first criterion of improvement was the increase in sugar tolerance. In one case before treatment started the ingestion of 60 grams of white bread produced 18 grams of sugar in the urine. After treatment, 180 grams of white bread were ingested without glycosuria. The second criterion was the duration of improvement; this had persisted for twelve to twenty-two months. The author found that skin complications, such as furunculosis and gangrene, were particularly favourably influenced. The patient is placed upon a low carbohydrate diet of sufficient calories, and is given 0.5 gram novoprotein as an initial dose. The dose is increased by 25 to 50 per cent. each time, and injections are given every other day at the commencement, later every fourth day. As the glycosuria diminishes or disappears carbohydrates are added to the diet. The author attributes the improvement to a better metabolism of sugar. In conjunction with A. Fischer he conducted experiments on dogs with phloridzin glycosuria, which when treated by protein shock therapy showed a marked decrease in the nitrogen-sugar ratio in the urine. The author considers this method an improvement on insulin treatment because of its simplicity and the lasting improvement.

160. The Therapeutic Use of Infra-red Rays.

C. BENOIT (*Revue d'Actinother.*, October-December, 1925, p. 61) states that the infra-red rays which immediately succeed the red or red-black rays in the spectrum have a much greater power to penetrate the tissues than the ultra-violet rays, their penetration being 1 to 3 cm., and even more when the irradiation can be prolonged. The penetration diminishes as the wave-length increases. The tissues show a varying degree of permeability by the infra-red rays. After the skin the muscular tissue is most readily permeated, and then the cellular tissue, aponeuroses, and bones. Blood, on the other hand, absorbs and arrests the rays. Serous membranes which contain a certain quantity of fluid, and especially morbid effusions, show considerable resistance to the rays. The penetration of the rays varies with the sensitiveness of the subject under treatment, some tolerating the sensation of heat better than others. Infra-red rays give rise to intense hyperaemia with redness of the skin in the zone irradiated. The redness is sometimes uniform, but may present dark streaks on a lighter background. The redness persists for a long time, as a rule two to three hours, and sometimes eight to ten hours, and then progressively fades, the darkest streaks being the last to disappear. The local temperature after cessation of the irradiation sometimes remains high for as long as two hours. Infra-red rays have an important action on the blood vessels and their contents, causing marked vaso-dilatation, a progressive increase in the number of red corpuscles, a marked diminution of the leucocytes, and an increase in the temperature of the plasma. Lastly, they exercise a remarkable analgesic effect, which is due partly to the hyperaemia and vaso-dilatation accompanying the irradiation and partly to the action of the radiations on the nerve endings in the dermis.

161. Dietetic Treatment of Gastric Ulcer.

A. J. JAROTZKY (*Therap. Gazette*, December 15th, 1925, p. 837) discusses the dietetic treatment of ulcer of the stomach and advocates a diet limited to white of egg in the morning and butter in the evening as giving the most perfect rest to that organ. The uncooked white of one egg, without salt and not beaten up, is swallowed in the morning and three-quarters of an ounce of unsalted fresh cream butter in the evening. On each of the following days the number of eggs is increased by one and the amount of butter by three-quarters of an ounce until eight eggs and six ounces of butter are being given; no other food, drink, ice, or medicine is allowed by the month. By the limitation of drinking the secretion of gastric juice is delayed and the deficiency of water in the organism can be overcome by the rectal administration of water and sugar. By such means the disadvantages of the milk treatment are obviated and the closure of the pylorus which occurs as soon as milk or yolk of egg reaches the duodenum is avoided. The time of retention of food in the stomach is thus reduced to a minimum and the stomach remains contracted instead of distended. Jarotzky claims that this method alleviates pain quickly and that the feeling of epigastric distension is soon abolished. Such a diet, he adds, can be given with advantage even in the presence of haemorrhage, and there is no need for it to be preceded by a period of starvation.

162. The Gold Treatment of Surgical Tuberculosis.

SIEDAMGROTZKY (*Zentralbl. f. Chir.*, No. 47, November 21st, 1925, p. 2642) has employed two German substitutes for sanocrysin—krysolgan and triphal; the gold content of both of the German preparations is similar. The largest single dose employed was 40 c.cm. of a 1 per cent. solution (0.04 gram of the solid gold preparation); this dilute solution had no injurious effect on the kidneys. Siedamgrotzky gives the results of treatment in 26 cases of various forms of surgical tuberculosis. In 6 cases the treatment was ineffectual; 15 patients improved under treatment; and 5 patients, with tuberculosis of the bones or joints, were cured. He used a 1 per cent. solution of the gold preparation in normal saline solution, and as the injection might be very painful infiltration anaesthesia was induced prior to injection. A very fine needle was used. In children the author did not administer more than 40 c.cm. as an initial dose, nor more than 10 to 20 c.cm. at subsequent injections, which were repeated at intervals of fourteen days.

163. Osmotic Therapy in Glaucoma.

W. S. DUKE-ELDER (*Brit. Journ. Ophthalmol.*, January, 1926, p. 30) describes four cases of acute glaucoma treated by intravenous injection of a 30 per cent. solution of sodium chloride. The dose was calculated as 1 c.cm. per kilo body weight and the average adult dose was about 50 c.cm. of this solution. The fluid was injected slowly and evenly for a period of ten minutes, with the patient recumbent so as to obviate any danger from the sudden drop in blood pressure

which occurred. The general dehydration of the tissues which followed appeared to cause little discomfort and was easily combated by free administration of fluids by mouth. The effect of this treatment was to reduce speedily and effectively the tension of the eye. The effect was not permanent and the tension tended to rise again in the course of the next twenty-four hours. Duke-Elder, however, considers it a very useful method of tiding over the emergency of an acute glaucoma.

Neurology and Psychology.

164. Mental Changes in Encephalitis Lethargica.

G. A. AUDEN (*Journ. Mental Sci.*, October, 1925, p. 647), discussing the psychological implications of encephalitis lethargica, points out that while its acute stages may be so indefinite as to render a diagnosis not always possible, the later manifestations are so constant that they form a syndrome which is characteristic of a distinct morbid entity. Limiting his observations to children between 5 and 15 years of age, attention is called to the frequency with which moral changes and failure of adjustment to their social environment supervene together with outbreaks of spitefulness and disobedience, noisy excitability at night, destruction of clothes, and frequent tics and habit spasms. Experience in juvenile delinquency points to the basic causal factor in many of these cases being a suppression of discrimination and intelligent self-control, so that it seems reasonable to conclude that the lesions in encephalitis lead to a reduction of such control comparable by analogy with the geological process of denudation whereby younger sedimentary rocks become removed by various physical actions laying bare the ancient primitive rocks upon which they had been deposited. Such changes in behaviour following an attack of encephalitis can be explained as regressions similar to those which sometimes follow other acute infections and disease or injury to the brain. If this explanation is correct little or no deterrent effect can be expected from punishment, which rather may produce disastrous results by the fixation of an antisocial attitude; commitment to reformatories is therefore deprecated. Auden maintains that one of the most pressing needs of the time is the establishment of special institutions in which, by a simple regulated life, these patients could regain self-control without being handicapped by the stigma of judicial proceedings.

165. Etiology of Dementia Praecox.

S. KURE and M. SHIMODA (*Journ. Nerv. and Mental Dis.*, December, 1925, p. 597) give the statistical results of an investigation of the various conditions which might have affected the brain before the onset of dementia praecox. In 47.2 per cent. of the cases there was evidence of heredity being a definite factor, and though different figures have been given by other observers all agree that this factor is traceable in a large percentage of dementia praecox patients. The present authors found that 46.2 per cent. of the patients had parents who were addicted to alcoholism; this contrasts with the percentages of 20, 25, and 26 of other observers. There was a previous history of convulsions in childhood in 8.4 per cent., while histories of trauma, poor development, and disease were obtained in a large number of cases. Poor intellectual development characterized 21.9 per cent., and 15 per cent. showed significant physical abnormalities. The authors conclude that at least 80 per cent. of the patients were abnormal prior to the onset of dementia praecox, which would appear to exclude coincidence.

166. The Plantar Lines in Mental Defectives.

T. BRUSHFIELD (*Brit. Journ. Child. Dis.*, October-December, 1925, p. 274) remarks that though the hands of mental defectives have been studied and their various characteristics described, especially in mongols, no similar description of the foot and its markings is available. In a study of the foot in the mongol and other varieties of mental defectives, of whom 618 in all were examined, Brushfield noted the following lines: Crease lines—(1) transverse, caused by flexion; (2) longitudinal, caused by the movement of bringing all the toes together; (3) a delicate network of lines. Plantar lines or folds—namely, the oblique plantar line, the transverse plantar line, and the transverse hallucal line. The oblique plantar line, which is an almost constant feature of the mongol, commences in the cleft between the first and second toes and runs obliquely outwards to end about the ball of the big toe. From this point the transverse plantar line and transverse hallucal line run outwards and inwards respectively to the outer and inner borders of the foot. In addition to the oblique plantar line a characteristic feature of the foot in the mongol is a wide gap between the first and second toes. In normal children, as was found by

examination of over a hundred cases, these lines are all rudimentary, and generally become obliterated after the third to the fifth year, whereas in mental defectives they persist up to the fourteenth year. Brushfield maintains that owing to the constancy and persistence of these lines in mental defectives they should always be looked for and their presence regarded as a stigma.

Obstetrics and Gynaecology.

167. Full-Term Ectopic Gestation.

J. M. H. ROWLAND (*Surg., Gynecol. and Obstet.*, January, 1926, p. 50) reports a case of extrauterine pregnancy which went to full term, and resulted in a living child. The diagnosis was made by a vaginal examination after the patient had been reported to have been in labour for two days, the head of the child being discovered in the pelvis, but not in the vagina. At the operation the placenta was found attached to the posterior surface of the uterus and the broad ligaments, some small extensions being fixed to the mesentery and folds of the small intestine by light adhesions. A well developed normal child, weighing 8½ lb., was delivered, and the patient made a good recovery, the only complication being a slight infection of the operation wound. Rowland believes that the development of the head must have been entirely in the pelvis in this case; the uterus had been completely displaced from the pelvis. The placenta, apart from a few small extensions, was an almost exact quadrilateral mass. Rowland adds that the case illustrates the importance of a very careful supervision of pregnant women and consideration for a history of irregular haemorrhage early in pregnancy. Pelvic examination at any time before labour would in this case have disclosed the absence of the cervix.

168. L. HERTZENBERG (*South African Med. Record*, December 26th, 1925, p. 550) describes a case in which an extrauterine pregnancy went to full term, the dead foetus being removed by operation from the abdominal cavity. He concludes that the extrauterine pregnancy had ruptured, but the ovum had survived and continued to live in the abdominal cavity up to full term, when spurious labour set in. The woman made a good recovery.

169. Insulin and Pregnancy Glycosuria.

H. ELIAS, J. GÜDEMANN, and R. ROUBITSCHKE (*Wien. Arch. f. inn. Med.*, November 1st, 1925, p. 567) state that hitherto two views have been held as to the pathogenesis of glycosuria in pregnancy. According to the first view, which is maintained by Porges, Novak and Strisower, Frank, Frank and Notbmann, Notbmann, Guggisburg, Roubitschek and others, it is mainly due to a greater permeability than usual of the kidneys, with relatively slight increase in the blood sugar. Others, such as Rosenberg, Umber, Lepine, Hofbauer, von Noorden, and A. Gottschalk, hold that there is an hepatic insufficiency which causes a disturbance of carbohydrate metabolism, so that the liver is unable to store up as glycogen the sugar which has been brought to it. The present authors carried out an investigation on women in the third and fourth months of pregnancy and came to the following conclusions: (1) Small doses of insulin often increase the normal blood sugar. (2) After intravenous injection of sugar the blood sugar increases in the same degree in the normal and the pregnant woman. An intermediate factor in the form of damage to the liver could not be demonstrated to account for the glycosuria of pregnancy. (3) After injection of insulin the raised blood sugar level in pregnancy and menstruation sinks less than in normal subjects.

170. Surgical Treatment of Contracted Pelvis.

C. VERCESI (*Ann. di Ostet. e Ginecol.*, November 30th, 1925, p. 764) states that Costa's operation for contracted pelvis has now been performed about sixty times by Italian surgeons. The whole thickness of the symphysis pubis, including periosteum, cartilage, and ligaments, is now removed between the pubic spines and reaching from 1 to 1.5 cm. below the upper margin of the symphysis. The permanence of the consequent enlargement of the pelvic brim has been demonstrated radiographically and otherwise; there has been no maternal mortality, and difficulty in walking followed in one case only. Summaries are given of 16 cases operated on before and 42 during labour. Death of the foetus during or shortly after birth occurred in 11 instances. With regard to the scope of the operation, which has been almost entirely restricted to the flat type of pelvis, Vercesi is unwilling to define the precise arithmetical limits of the conjugata vera which are suitable or unsuitable. Each case demands separate consideration, especially with regard to the age, obstetric history, condition of the soft parts, and probable or ascertained foetal

dimensions. In general, he concludes, Costa's operation may be expected to give entirely favourable results with a conjugate not less than 85 mm.; with a conjugate of 83 to 80 mm. the operation is still definitely useful, especially if delivery is subsequently accelerated by forceps or version. With conjugates of 80 to 75 mm. Caesarean section is in general preferable, but may well be followed by Costa's operation in order to facilitate delivery in subsequent labours. In comparison with symphysiotomy or pubiotomy the operation, besides giving permanent pelvic enlargement, is easy, safe, and unattended with inconvenient sequelae. The alternative method of enlarging the bony pelvis consists in resection of the sacro-vertebral promontory, as suggested by Rotter in 1912, employed shortly afterwards by Schmid, and practised later by Maugiacalli: this demands a true conjugate exceeding 75 mm., and except as a complement to Caesarean section is inapplicable to cases in labour. Vercesi records two additional cases in which this operation has been successfully performed, giving rise to enlargements of the conjugate of 6 and 11 mm. respectively. He mentions that Fossati has twice seen spontaneous delivery follow an old operation of this nature.

171.

X Rays in Obstetrics.

R. MITCHELL and M. R. MACCHARLES (*Canadian Med. Assoc. Journ.*, November, 1925, p. 1202) discuss the value of x rays in the practice of obstetrics. They state that while numerous observers have found it possible to produce changes in the embryo by means of long exposures to the x rays, yet the momentary exposure necessary for the production of a radiogram is probably harmless, and the present authors have never had a single case of physical or mental maldevelopment result. They point out that x rays can be of great assistance in examining the general conformation of the pelvis. During pregnancy they have found the rays to be of greatest assistance after mid-term, which is usually the earliest time when the foetal skeleton can be distinguished. The position of the foetus and its presenting part can be determined, and a twin pregnancy be recognized. X rays can also be used in cases of illegitimate pregnancy or pseudocyesis. Foetal abnormalities, such as hydrocephalus and spina bifida, or death, can also be diagnosed by this means, and trouble in delivery may be avoided by perforation if necessary. After delivery x rays can be used to demonstrate injuries to the pelvis of the mother, or fractures and dextrocardia in the child. For the purpose of radiography the authors place the patient in the prone position with the chest and thighs supported; the factors used are 10 milliamperes current, 87 kilovolts, and 15 seconds exposure through a Bucky diaphragm.

172. Conservation of Menstruation after Hysterectomy.

ROUFFART-THIRIAR (*Bruxelles-Médical*, January 3rd, 1926, p. 316) discusses the value of the uterine transplantation of an ovary in preserving menstruation and a limited degree of fertility after double salpingectomy and states that the mortality of the procedure is negligible. Subsequent pregnancy may, he finds, be expected in up to 10 per cent. of cases, but more than one subsequent pregnancy has not been reported. Persistence of menstruation was observed in 26 out of 27 patients; in the one exception it was only possible to transplant a very small piece of ovarian tissue. Ten women complained later of pains in the side, and three of them were operated on again, when the implanted ovarian tissue was found to have become cystic. Four became pregnant, two aborted at the third or fourth month, and the other two gave birth to healthy children. One of Tuffier's cases developed acute intestinal obstruction after the lapse of nine months, and at a spot remote from the former pelvic operation. Hysterectomy was performed and histological examination of the implanted tissue showed that ovulation had occurred. The author thinks that the number of subsequent pregnancies would have been higher had more of the patients desired offspring.

173.

Tubal Insufflation in Sterility.

R. POLLART (*Bruxelles-Médical*, January 10th, 1926, p. 353), discussing the value of tubal inflation in the differential diagnosis of sterility and certain types of dysmenorrhoea, prefers filtered air to the more usual carbon dioxide. He finds that after injection of 100 c.cm. or more into the uterus and the peritoneum there is no reaction and the air is absorbed quickly. Careful preliminary examination of the pelvic organs is necessary in order to avoid the danger of forcing infective material into the peritoneum. When the tubes are normally patent air passes into them at a pressure of 80 to 100 mm. of mercury, but should the pressure rise to 200 mm. it is certain that the tubes are impermeable. It is possible to determine in some cases that one tube is patent and the other closed. The patients tolerated the procedure well as a rule, but some complained of abdominal pain for

two or three hours subsequently; these patients usually had impermeable tubes. Pollart gives details of its use in 22 patients, of whom only 3 had previously borne children; impermeable tubes were found in 16 cases. Of the other 6 patients one, previously nulliparous, became pregnant a few months later, and another, who had had one child, also became pregnant after insufflation. Although the remaining four patients had no tubal obstruction their sterility persisted.

Pathology.

174. Chemical Changes in the Intestine.

N. J. NOVELLO, W. WOLF, and C. P. SHERWIN (*Amer. Journ. Med. Sci.*, December, 1925, p. 888) have investigated the chemical defence of the animal and human body against the products formed in the process of intestinal putrefaction. They find that as a rule there is an initial effort to oxidize completely such products and if this is not successful an attempt at reduction follows. Should both fail the organism tries to attach the toxic substance to a compound or radicle which will decrease the toxicity and increase the solubility, thus making possible the rapid elimination of the resulting compound in the urine. The authors believe that the products of intestinal putrefaction are much less toxic than has been generally thought and that some of these substances are harmless. The putrefactive products usually formed are indol, skatol, phenol, imidazol, and imidazol acetic acid. The authors fed individuals on these substances under experimental conditions, and their urines were examined at twenty-four hour intervals. Skatol was found to be slightly more toxic than indol, 0.1 gram producing a feeling of nausea but no vomiting, loss of appetite, belching, and a dull headache which lasted for at least twelve hours after the dose. Phenol caused no untoward effects. Imidazol compounds produced an increase in the pulse rate of 10 to 20 a minute. The authors consider that glycuronic acid serves only in a minor capacity as a detoxicating agent for indol and is apparently used only after the sulphate supply has been nearly exhausted. The greater part of the indol is excreted uncombined. They find Jolles's test superior to that of Obermayer for the estimation of indican. They state that skatol is mainly detoxicated by union with sulphuric acid, very little being excreted unchanged or in combination with glycuronic acid. Phenol is also detoxicated chiefly by sulphuric acid, which seems to be derived not only endogenously but also exogenously from cystine, so that the percentage of phenol excreted in this way is dependent on the amount of cystine in the diet, and, therefore, the amount of ethereal sulphate excreted is no indication of the amount of phenol present. Imidazol and imidazol acetic acid appear to be split into uric acid, urea, and ammonia.

175. Spirochaetal Infections in Vienna Rats.

I. TAKAKI (*Wien. klin. Woch.*, November 12th, 1925, p. 1231), of the State Serotherapeutic Institute at Vienna, states that the *Spirochaeta icterohaemorrhagiae* has been found in rats in most of the large towns in all countries. In Germany, for instance, Uhlenhuth and Zuelzer found it in 10 to 50 per cent. of the rats, while Noguchi in Quajauil found an incidence of 67 per cent., and Smillie in Sao Paulo one of 75 per cent. In three out of eight healthy rats examined in Vienna Takaki found the *Spirochaeta icterohaemorrhagiae*. Spirochaetosis icterohaemorrhagica was successfully transmitted to healthy guinea-pigs by inoculation of the organs of the infected rats, and the spirochaete was demonstrated in the blood and organs of the inoculated guinea-pigs by dark-field illumination and Giemsa's stain. In another case after inoculation of the blood of a healthy rat into mice it was possible to find the *Spirochaeta morsus muris*, or organism of rat-bite fever, in the blood of the inoculated animals. It is therefore obvious that rats in Vienna, as in other countries, may be carriers of spirchaetosis icterohaemorrhagica and rat-bite fever. Systematic measures for the destruction of rats are, therefore, required in Austria, and especially in Vienna, such as have been taken in other countries, including Great Britain and Denmark.

176. Stages in the Development of the Tubercle Bacillus.

F. BEZANÇON and A. PHILBERT (*Presse Méd.*, January 9th, 1926, p. 33), from a study of the structure of growing colonies of the tubercle bacillus, have come to the following conclusions as to the development of this organism. The surface membrane which is formed on liquid media was fixed in alcohol, embedded in paraffin, and cut into thin sections, which were stained either by Ziehl-Neelsen or by Fontès's method with Gram's stain, fuchsin, and methylene blue. Examination of these sections showed that the greater part of the membrane consisted of a network formed of fibrils arranged parallel to

the surface; they did not show true branching, and they were decolorized. For this reason they call it the cyanophilic substance. On the under surface of the membrane a variable number of acid-fast bacilli were seen lying parallel to the fibrils of the network; on the upper or free surface, and in that part of the membrane which extended up on to the walls of the flask, there were none to be seen. In some of the bacilli there were granules, similar to those described by Babès, which took on the Gram stain with great avidity; for this reason the authors call them the chromophilic corpuscles. The granules were not confined to the bacilli; they could often be seen lying free in the cyanophilic network, disposed in long rows. Examination of cultures of different ages showed that in very young membranes there was nothing but cyanophilic substance. After sixteen to twenty-five days acid-fast bacilli appeared containing chromophilic granules. In a culture aged sixty days the bacilli were few in number, but there were numerous granules lying mostly in the network. Finally, after two hundred days there were practically no bacilli; the cyanophilic membrane had lost its striation and was riddled with granules. From this they deduce that in the course of growth non-acid-fast filaments are first formed; these are transformed later, partly into acid-fast bacilli, which are finally replaced by chromophilic granules. The acid-fast bacilli appear to be only one stage in the life-history of the tubercle bacillus. The observations afford some explanation of the well known fact that acid-fast bacilli are often hard to find in tissue sections, and of the recent reports that tuberculous pus which has been filtered through a Berkefeld candle may yet be infective to guinea-pigs.

177. Action of Ultra-violet Light on Tissue Cultures in Vitro.

S. KIÆR (*C. R. Soc. de Biologie*, December 4th, 1925, p. 1389) exposed a pure culture of connective tissue *in vitro* to the action of ultra-violet light. The culture was placed in a water-bath at a temperature of 38°C., and was separated from the source of light—a Kromayer lamp—by 3 cm. of water, a quartz square, and 3 cm. of air, to exclude the heat rays. Exposure of a twenty-four hour culture for five minutes did not affect the subsequent growth of the tissue, but an exposure of eight minutes decreased the rate of growth during the next twenty-four hours; on subculture after this period the tissue grew normally. An exposure of one hour retarded the growth in such a way that the tissue did not recover its original rate of proliferation till after two or three subcultures had been made. Finally an exposure of two to three hours definitely killed the fibroblasts. It was expected that a very small dose might actually stimulate the growth, but this was never observed, even with exposures of 0.5 second. From these experiments it appears that the action of the ultra-violet rays is to injure the cells; the lethal dose is about ten to fifteen times the inhibitory dose. In another paper (*ibid.*, p. 1391) the author describes the use of embryonic chick heart. With this tissue he found that a small exposure of fifteen seconds to two minutes increased the rate of contraction. After a short lag period the heart cells began to beat faster; return to the normal rate occurred in three to twenty minutes. To show that this accelerating action was due to the ultra-violet rays themselves, he replaced the quartz square by a piece of glass which would filter off the rays; exposure under these conditions was without effect. Further, by covering the tissue with China ink, he found that the rays had no effect, showing that the action was not due to the production of a change in the surrounding medium. It may be concluded that the accelerating action of the rays on heart muscle is the result of the ultra-violet light itself.

178. Glycaemia in the Newborn.

L. AURICCHIO (*La Pediatria*, December 1st, 1925, p. 1274) examined the blood sugar in 18 normal newborn children aged from 1 to 10 days, investigating the alimentary glycaemia in 10 and the adrenaline glycaemia in 8. The alimentary glycaemia was tested by giving the infant a gram of glucose per kilo of body weight in 10 c.cm. of distilled water, and the adrenaline glycaemia by intramuscular injection of 0.2 per cent. of 1 in 1,000 adrenaline solution. The results were as follows: The newborn child even before it has received its first feed has a glycaemia almost equal to that of the adult. Ingestion of glucose produced an increase in the amount of glycaemia, which became appreciable in fifteen minutes, and reached its maximum in half an hour, and then diminished. Two hours later the glycaemia had returned to its original level. The maximum increase was from 50 to 100 per cent. Injection of adrenaline was followed by a marked and prolonged increase of glycaemia. Fifteen minutes after injection the initial value was doubled, and it was not until two hours later that the glycaemia began to diminish. These findings show that in the normal child the regulation of glycogen starts at birth.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

179. Tuberculous Peritonitis in Children.

C. GIAUME (*La Pédatrie*, January 1st, 1926, p. 1) has investigated 450 cases of tuberculous peritonitis in children. He found the disease most common between the ages of 4 and 6 and relatively rare in infancy; 60 per cent. of his patients were boys, and the disease mostly started in the earlier months of the year, rarely in the summer. It was usually associated with other tuberculous manifestations, and the infection seemed to be traceable to the circulation or to primary tracheo-bronchial tuberculosis. A family history of tuberculosis could be traced in 40 per cent. of the infantile cases and in 16 per cent. of the older children. The importance of measles and whooping-cough as predisposing causes was clearly shown, even allowing for the great prevalence of these diseases. Giaume finds that in diagnosis the von Pirquet reaction is helpful, though it was negative in 32 per cent. of the children under 1 year and in 25 per cent. of the older children. In early infancy the symptoms are often obscure, the course more rapid, and the prognosis worse; in many cases ascites was the only symptom. The ascitic type was present in about 70 per cent. of children between the ages of 2 and 5, while in those under 1 the ascitic and fibrocaseous forms were about equally present. In a third of the cases some other tuberculous localization was clinically demonstrable. The mortality in the caseous type was as high as 75 per cent., but the prognosis in the ascitic forms was fairly good. Surgical treatment of the ascitic form is now reserved for prolonged and obstinate cases. Heliotherapy and tuberculin therapy have given good results, but the former is contraindicated in rapidly progressive cases with high fever. The author refers to the pseudo-ascites due to collections of intestinal fluids in loops of bowel.

180. Recrudescence of Encephalitis in the Parkinsonian Stage.

J. FROMENT and P. DELORE (*Lyon méd.*, December 20th, 1925, p. 753) record the case of a woman who, two years after the onset of Parkinsonism and seven years after the onset of encephalitis, developed a fresh attack of somnolence and fever. The amount of sugar in the cerebro-spinal fluid during this stage rose from 0.65 to 0.85 gram per 1,000. There was a considerable increase of rigidity. Injections of urotropine, which had been employed in the primary attack, were resumed, with the result that the fever and somnolence disappeared and the rigidity became less pronounced. This case may be compared with that previously reported by Guillaïn, Alajouanine, and Célèce, illustrating the contagiousness of epidemic encephalitis in the Parkinsonian stage. The present authors conclude that epidemic encephalitis, which is a chronic disease, should be subjected to a prolonged treatment, and that urotropine, which in the absence of a specific remedy is a really active drug, should be administered for several years with short interruptions.

181. Relapsing Cerebro-spinal Fever.

C. ZOELLER (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, November 26th, 1925, p. 1473) records a case of cerebro-spinal fever in a young sailor in whom the disease ran its course in three successive stages. The first, in which the symptoms assumed the form of a meningeal reaction, lasted a week, the cerebro-spinal fluid being clear and aseptic and containing only a few lymphocytes, a slight and transient excess of albumin, and sugar not below 0.62 per litre. After an interval of twenty days the disease recrudescence fluid now contained numerous leucocytes and a few diplococci. In each of these two stages signs of general infection were present in the form of herpes facialis and purpura in the first stage and of herpes facialis alone in the second stage, without it being possible to find meningococci in the blood. The lowest amount of sugar in the second stage was 0.56 gram per litre. Finally, after an interval of two and a half months, a fresh attack occurred which lasted about a month and was much more severe in character. An organism was isolated from the cerebro-spinal fluid and proved to be meningococcus A. Recovery followed repeated lumbar puncture, serum treatment, and vaccine therapy. The case was therefore a typical example of relapsing cerebro-spinal fever. Zoeller states that it is not exceptional to find a clear cerebro-spinal fluid in meningococcal

meningitis, either at the onset or at an advanced stage of the disease, as has been noted by Dopter and Netter and Debré. In the first attack the meningococci were probably localized in some part of the cerebro-spinal axis or in the accessory nasal sinuses, and produced a meningeal reaction which subsided of itself. In the second stage the meningeal reaction was more violent and gave rise to a puriform effusion with a few meningococci. In the third stage there was typical meningitis with the presence and persistence of meningococci in the cerebro-spinal fluid. The changes in the cerebro-spinal sugar in the case were of interest. During the first two stages it was remarkably high, and in the last stage very irregular, ranging from 0.17 to 0.50 gram, according as the first or last cubic centimetres of the fluid withdrawn were examined. Zoeller thinks it probable that the specimens of fluid came from different parts of the cerebro-spinal axis, in some of which the inflammatory process was still active, while in others it was tending to subside.

182. Diagnosis of Congenital Syphilis.

SABOURAUD has maintained since 1917 that the "mamillary eminence," a supernumerary cusp springing from the palatine surface of the first upper molar, is an indication of hereditary syphilis if it is well developed, pointed, and separated from the tooth by a subadjacent groove. E. JANÉ (*Ann. de Derm. et de Syph.*, December, 1925, p. 734), who has been working in Sabouraud's laboratory, now reports the examination of 29 patients with this dental peculiarity. In 17 cases the Wassermann reaction was positive, and in 12 other cases in which it was doubtful or negative 9 patients exhibited other stigmata of syphilis. Jané concludes, therefore, that confirmation is provided of the truth of Sabouraud's suggestion, and draws attention to the absence of variation in skeletal structures when no congenital infection, such as syphilis, is present, which produces such malformations by interference with ossification. Some of the signs attributed to congenital syphilis appear to be reversions to prehistoric ancestral types; thus the sabre-shaped tibia was normal in the Cro-Magnon race. Jané claims that the mamillary eminence is a special transformation of the tubercle of Carabelli, which is an abnormal development of the primitive enamel belt on the internal surface of the first upper molar. A fifth cusp may have existed normally on this molar in prehistoric races. Jeannelme has shown that the rudiment of this tubercle is recognizable in many other teeth than the first upper molar, and that it is a normal feature in lemurs, whose dentition, like that of chimpanzees, resembles most closely the human type.

Surgery.

183. Ligature of the Jugular Vein in Pyaemia.

P. RIESS (*Zentralbl. f. Chir.*, December 5th, 1925, p. 2755) describes three cases of pyaemic sinus thrombosis treated by tying the jugular vein. In a man aged 26 severe left tonsillitis was followed by diffuse cellulitis of the same side of the neck, high pyrexia, and rigors. Under ether anaesthesia the internal jugular vein was tied just above its junction with the left subclavian vein, since the tissues were so inflamed that it was impossible to isolate the internal jugular vein in the neck. The vein was then opened, the septic thrombus removed, and a rubber drainage tube was inserted. The wound healed in six weeks. In the second case, a man aged 21, severe pyaemic infection followed the removal of adenoids; there were frequent rigors and high pyrexia, with much brawny infiltration and cellulitis of the right side of the neck. The right internal jugular vein was ligatured at its deepest part. The rigors ceased immediately after the operation, but there was protracted suppuration in the wound and the patient had pyaemic abscesses in the sacral and femoral regions. He finally recovered. The third patient, aged 29, was admitted with cellulitis in the left temporal region, following a carbuncle which had been opened four weeks previously. The swelling returned three days before admission, and was accompanied by rigors and headache. The swelling was incised. The patient was very ill; he was semiconscious, with high temperature and rapid pulse, and was evidently suffering from thrombo-phlebitis. The left jugular vein was ligatured and the mastoid process was explored, but no focus of suppuration was found. The patient

had recovered completely five weeks after admission. Riess observes that the number of these patients who recover under expectant treatment is so small that early surgical intervention should be regarded as routine treatment.

184. Acute Typhoid Cholecystitis Forty-one Years after Typhoid Fever.

L. A. POMEROY and J. K. SHEN (*Amer. Journ. Med. Sci.*, December, 1925, p. 881) record the case of a man, aged 57, who had had an extremely severe attack of typhoid fever at the age of 16 complicated by intestinal haemorrhage, when he was attended by Pomeroy's father. He remained in good health for the next forty-one years, and then developed symptoms of acute cholecystitis which required operation. The gall bladder was found to be acutely inflamed, and on aspiration yielded a mixture of blood and pus. Owing to the patient's condition it was considered better to drain the gall bladder than to remove it. Cultures of the bile yielded a pure growth of *B. typhosus*, but the Widal test was negative for *B. typhosus* and *B. paratyphosus* A and B. Cultures from the stools were also negative. The authors believe that this case presents the longest interval on record between the original attack of typhoid fever and the recovery of *B. typhosus* directly from the gall bladder. When the patient was last seen, two months after the operation, the sinus still discharged slightly at intervals a fluid containing *B. typhosus*, while the stools remained negative.

185. Rectal Diverticula.

G. FANTOZZI (*Arch. Ital. di Chir.*, October, 1925, p. 418), who records an illustrative case, states that the first example of this rare condition was described in 1762 by Morgagni, who spoke of a diverticulum "somewhat smaller than a fig situated two fingerbreadths above the anus." Physick of Philadelphia in 1836 gave the name of "encysted tumours" to formations which subsequent writers called ulcers of a tuberculous, syphilitic, or dysenteric nature affecting the solitary follicles. Under the name of "saciform disease of the anus" Gibson and Gross described a dilatation of the anal region corresponding to the crypts of Morgagni. Fantozzi's patient was a woman, aged 56, who for the last two years had noticed a small round painless swelling in the left labium majus. Eighteen months later some other small swellings appeared and all united to form a single lump. The part then became painful, there was an evening rise of temperature, and some oedema of the lower limb occurred. There was no disturbance of micturition or defaecation. Examination of the vagina was negative. Rectal examination, on the other hand, showed on the anterior wall above the sphincter a depression which appeared to be the opening of a cavity connected with the tumour in the labium. Under ether anaesthesia the labium was incised and the diverticulum containing a coprolith was removed. Complete recovery took place. The histological and clinical study of the case showed that the diverticulum originated in a congenital anomaly. Fantozzi has been able to find only two similar cases on record, reported by Terrier (1889) and Neumann (1896) respectively.

186. Ectopic Thyroid Tumours in the Neck.

F. FEDELI (*Arch. Ital. di Chir.*, September, 1925, p. 167), who has collected 53 cases from literature as well as 3 which came under his own observation, states that cysts and tumours presenting the structure of the thyroid may develop in regions of the neck which are not the usual site of the thyroid gland. Of these cases 80 per cent. are found in females and 20 per cent. in males. The ages of the patients ranged from 10 to 76 years. Malignant changes never occurred before the age of 40. Goitrous inheritance, prolonged coughing, and various infections have been incriminated as causes of the condition. The symptoms may be classified into positive and negative. The positive are: (1) Their situation on the side of the neck; (2) position beneath the sterno-mastoid muscle; (3) roundish form; (4) multiple character; (5) lobulated surface; (6) slow development for a long period; (7) mobility in all directions; (8) independence of movements of deglutition; (9) soft consistence; (10) transient increase in size during menstruation; (11) frequent, sudden, and considerable increase in size; (12) transmitted pulsation; (13) presence of murmurs; (14) obstruction to circulation; (15) tendency to involve the vessels of the neck. The negative symptoms are: (1) absence of pain and tenderness; (2) absence of subjective symptoms; (3) absence of symptoms of hyper- or hypo-thyroidism; (4) absence of any effect on the general state of nutrition; (5) absence of glandular metastases. The growths must be distinguished from lymphosarcoma, aneurysm of the carotid or subclavian artery, fibroma, lipoma, and branchiogenic carcinoma. Treatment is exclusively surgical and consists in removal of the growth as soon as possible.

Therapeutics.

187. Subcutaneous Injection of Milk in Infants.

A. B. MARFAN and R. TURQUETY (*Paris méd.*, November 7th, 1925, p. 377), who have employed injections of milk on a large scale in the treatment of infants, though inclined to regard the early enthusiasm for the method as unwarranted, maintain that it may be of value in the following groups of cases: (1) the severe form of prurigo, or strophulus of former writers, when the ordinary methods of treatment have failed; (2) more or less generalized erythrodermia exfoliativa; (3) the very rare cases in which diarrhoea in breast-fed babies interferes with growth. In these cases the injection of milk hardly ever causes a violent or early reaction, so that there is a doubt as to their anaphylactic origin. Whether cow's milk or woman's milk is to be employed will depend on the mode in which the child has been fed. If combined feeding has been employed, cow's milk should be injected alternately with woman's milk. Woman's milk should be drawn off as aseptically as possible and injected undiluted. If there is a fear of its being contaminated, it is best to sterilize it. Cow's milk should be boiled for at least five minutes, but it is preferable to employ milk which has been completely sterilized in the autoclave. As it is impossible to determine beforehand the child's degree of sensitiveness, only a very small dose, such as 4 or 5 drops diluted in normal saline, should be given on the first occasion. If this dose does not produce any reaction, 1/2 c.cm. may be injected next day. Subsequent doses ranging from 2 to 5 c.cm. may be injected every two days until improvement has been obtained, but if none occurs after five injections it is useless to continue.

188. Blood Transfusion in Potassium Chlorate Poisoning.

A. BÉCART (*Bull. Soc. de Thé.*, November 11th, 1925, p. 254) reports the case of a woman, aged 55, who accidentally took 40 grams of potassium chlorate in mistake for sodium sulphate. The following morning she was awakened by severe abdominal pain; she vomited everything she took, and had suppression of urine. Numerous wet cups were applied to the lumbar region and gave issue to a thick brownish-black viscid blood which coagulated at once. Bécart, who was called to see the patient the next day, transfused 200 c.cm. of whole blood, and a few hours later she evacuated a few drops of black urine and spontaneously passed a motion of the same colour. The following day she passed 38 grams of urine which was less dark in colour. A second transfusion was performed three days after the first, and eight days after the accident the total amount of urine in the twenty-four hours was 165 grams. Improvement was gradual, and eventually complete recovery took place. Bécart adds that the case is of interest, first, in view of the rarity of recovery after so large a dose of potassium chlorate, and secondly, on account of the rapid destruction of the red corpuscles. Examination of the blood twenty-four hours after the drug had been taken showed that the red cells had fallen to 2,500,000.

189. Protein Therapy in Syphilis.

S. S. GREENBAUM and C. S. WRIGHT (*Arch. Derm. and Syph.*, December, 1925, p. 853) recall that a rise in the body temperature may serve to hasten the involution of the cutaneous manifestations of syphilis and that injections of protein may cause such a rise. They have, therefore, tried protein injections in conjunction with neo-arsphenamine for the treatment of syphilis. They treated 25 patients with injections of milk protein and neo-arsphenamine and 25 with the drug alone. The average number of injections of neo-arsphenamine required in the first series to produce a negative Wassermann reaction was 4.7, but in the second series the average number of injections was 7.5. The number of failures was less with the combined treatment than with the neo-arsphenamine alone. They found that protein injections alone produced involution of the skin lesions in some cases, and think that such non-specific therapy stimulates the natural defensive forces of the body. They believe that the combined treatment will be found of greatest service in latent syphilis where a strongly positive Wassermann reaction is the only symptom.

190. Ovarian Extract in Graves's Disease.

M. LAEMMER (*Bull. Soc. de Thé.*, October 14th, 1925, p. 216) states that when he first treated cases of Graves's disease he attributed more importance to preparations of the blood of animals from which the thyroid had been removed than to the ovary, whereas at present he does exactly the reverse, for the following reasons. A woman suffering from exophthalmic goitre has a genital sign, which is hardly ever absent—namely, irregular menstruation and often amenorrhoea. This fact is so important that some endocrinologists, especially Marañón, are of opinion that in the overwhelming majority of

cases of Graves's disease in women ovarian disturbance is also present, at least at first. This fact accounts for the predominance of the disease in the female sex. Moreover, it is well known how frequently symptoms of Graves's disease develop at the menopause. Guided by these considerations Laemmer has made a systematic use of ovarian preparations in the treatment of Graves's disease with very successful results, as shown by considerable improvement in the cardinal signs, and almost complete disappearance of the secondary signs. The method consisted in a series of fifteen to twenty injections of the fresh product, 0.20 to 0.25 gram being injected daily. Sympathicotonus being the rule in Graves's disease, the injections were associated with the administration of hyoscyamus, which has a depressing action on the sympathetic. As regards the therapeutic action of ovarian preparations on the thyroid Laemmer points out that ovarian insufficiency may give rise either to hyperthyroidism or hypothyroidism, according as the patient shows a tendency to sympathicotonus or vagotonus.

191. The Effect of Tobacco in Post-encephalitic Tremor.

G. HERRMANN and E. WOTKE (*Med. Klin.*, December 4th, 1925, p. 1842) have noticed a remarkable improvement in post-encephalitic tremor from the employment of tobacco derivatives. The first case of the kind seen by them was in a man, aged 27, whose tremors improved so much after smoking a cigarette that he was able to write a letter. The authors have now treated altogether fourteen cases, and with three exceptions have found that tobacco exercised a favourable action on the tremor, although the result was not so striking as in their first case. Of the three exceptions one was an example of true paralysis agitans and another a severe case of post-influenzal encephalitis. A nicotine salt in the form of nicotine tartrate had only a very slight action in no way comparable to that of smoking a cigarette. The authors add that the question of what constituent of tobacco is the active agent must first be decided before nicotine can be employed therapeutically. Nicotine is found in the leaves of *Cannabis indica* and *pistia* isolated from the leaves of the Australian solanaceous plant *Duboisia hopwoodii* is said to be identical with nicotine. Duboisin is well known to have an action similar to that of hyoscyne in the treatment of true and pseudo-Parkinsonism.

Dermatology.

192. Thrush Infections of the Skin.

B. SHELMIER (*Arch. Derm. and Syph.*, December, 1925, p. 789), who records five illustrative cases, states that during recent years a great many skin eruptions formerly regarded as "eczema" have been shown to be due to *Oidium albicans*. They occur either as disseminated lesions over large areas of the skin surface as in water-bed treatment, after wet dressings, in nursing infants, or are found localized in the contact areas of the skin (anus, genitals, under the breasts, the axillary and interdigital folds), where the warmth and moisture are especially favourable for the growth of the fungus. In water-bed treatment the sites of predilection are those areas of the skin which are alternately exposed to water and air, such as the axillae, knees, and hands. The genital and anal regions are often much involved, and sometimes the greater part of the body may be affected, the areas being thickly studded with papules and vesicles. In nursing infants the favourite site for the lesions is the circumanal region, whence they extend to the thighs, genitals, abdomen, and buttocks, consisting of superficial punctate vesicles, which frequently become pustular, or lentil-sized areas of erythema, with branny scales in the central portions. Mycotic infections following wet dressings show no typical localization and are characterized by the presence of vesicles and pustules, often in herpetetic arrangement. Thrush infection beneath the breasts is often seen in nursing mothers whose infants are suffering from stomatitis due to *Oidium albicans*. There is only one case on record, reported by Engelhardt, of thrush infection of the axilla. Interdigital thrush infection is seen in one or more spaces of the hands and feet, the third interdigital space being the site of predilection in the hand. Women, and especially those engaged in house work, are particularly prone to this infection. Other localizations of thrush infection are the nails, in which hyperkeratotic changes, abscesses or chronic paronychia may occur. Thrush infections are very resistant to treatment, salves, wet dressings, and the quartz lamp being unavailing. In Riehl's clinic at Vienna the only satisfactory results have been obtained from radium treatment, by which complete healing of the lesions is usually effected.

Eczema and Focal Infections.

193. J. W. VISHER (*Amer. Journ. Med. Sci.*, November, 1925, p. 723) points out that most authorities regard sensitization to various foods as being the most important cause of infantile eczema, and that since most children slowly improve and eventually recover without dietary restrictions it would seem likely that immunity to food substances is gradually acquired. But, he states, in the adult one group of cases of eczema appears to be due to external irritants and in another group this condition seems to be a result of some focus of infection. He reports five cases in which when a focus of infection was removed the existing eczematoid condition rapidly cleared up. In three of these recovery followed the removal of diseased teeth, in one the eczema ran its course concurrently with an attack of acute pharyngitis, and in the other case the condition appeared soon after the onset of puerperal sepsis, and subsidence of the eruption accompanied improvement in the pelvic infection. In each patient careful search was made to discover some other possible cause of the skin lesions, but with no success. Local treatment had little success, and the eczema appeared to improve in spite of, rather than because of, it. Visher suggests that the eruption is due to the patient becoming sensitive to the end-products formed in the focus of infection.

Pityriasis Rubra.

194. IN view of the obstinate character of pityriasis rubra H. GOUGEROT (*Bull. de Derm. et de Syph.*, November 8th, 1925, p. 374) publishes the following case. A girl, aged 5, was seen in May, 1925, covered with an extensive eruption of pityriasis rubra pilaris, which had proved very resistant to treatment. In addition to the local application of salicylic ointment, dieting, small doses of calomel and arsenic, injections of Vaudremer's antituberculous vaccine were given, and by the end of June the child was completely cured and remained so. The author believes that the vaccine was the effective agent in producing so speedy and satisfactory a cure; he does not think that spontaneous regression occurred. He had previously used this vaccine with success in the treatment of cutaneous tuberculosis.

Obstetrics and Gynaecology.

Prognosis in Uterine Cancer.

195. BÖHM and ZWEIFEL (*Zentralbl. f. Gynäk.*, January 2nd, 1926, p. 30) describe various efforts which have been made to find which histological types of cancer of the uterus are most amenable to x-ray or radium treatment. Bergonié's law, according to which tumours possessing less highly differentiated cells show the greater radio-sensitivity, has not been confirmed by certain recent observers, who attach more importance to the relative amount of connective tissue present, to the quantity of effused blood, and to other factors. Adeno-carcinomatous tumours have been described as being refractory in the cervix, but in the corpus uteri as responding favourably to radiation, but Döderlein found that cases which were cured had always shown solid and never glandular carcinoma. The investigations of the present authors show that the prospect of cure is relatively favourable where the stroma of the tumour is richly infiltrated with leucocytes. Other favourable signs are relative "unripeness" of the tumour cells, a large amount of cytoplasm with abundant vacuolation, and rich leucocytic infiltration of the tumour epithelium; these conditions, however, rarely coexist. They find the medullary type of tumour more favourable and attach little importance to the frequency of mitoses. Formation of epithelial pearls is not discouraging if other histological criteria are favourable. Comparing the prognosis formed on histological grounds in 122 cases (before radiation) with the subsequent clinical course Böhm and Zweifel found that they corresponded in at least three-quarters of the cases.

Removal of Fibroids during Pregnancy.

196. R. SCHOCKAERT (*Bruxelles - Médical*, January 17th, 1926, p. 378) points out that during the early months of pregnancy fibroids, especially of the interstitial type, grow larger and also softer, owing to the hyperaemia of the pelvic organs generally. The consequent infiltration may go so far as to produce a cystic condition, and even a central cavity, in which case pressure on the fibroids causes flattening, and tension results in lengthening, so that the course of pregnancy is little disturbed. Rapid hypertrophy of a pedunculated fibroid often gives rise to pressure on the diaphragm and intestines, or, if the fibroids are impacted in the lower pelvis, to interference with the rectum and bladder. Schockaert removed one such fibroid from a primigravida by cutting the pedicle, and the pregnancy went to term; this fibroid was

as large as a man's head. He maintains, however, that unless symptoms are urgent no surgical intervention is desirable. Impacted fibroid is an indication for treatment, and pressure on the intestine caused by a hardish fibroid of the anterior uterine wall with much pain. In another patient with a fibroid which involved the whole thickness of the uterus, so that its removal left a two-inch hole in the wall, the author by rapid suture averted expulsion of the ovum and the pregnancy continued.

197. The Virulence of Vaginal Organisms.

E. PRIBAM (*Zentralbl. f. Gynäk.*, January 16th, 1926, p. 137) refers to the attempts of Ruge and of Philipp to determine the virulence of the micro-organisms, especially the streptococci, present in the vagina and cervix. An increase in the number of streptococci, after a mixture of the discharge and the blood of the patient has been allowed to stand for some hours, is taken to indicate a relatively high degree of virulence of the organism. At certain clinics so great importance has been attached to the Ruge-Philipp reaction that a positive result has been considered to prohibit operative treatment of cancer of the cervix and to render the risk of a Caesarean section unjustifiably great. Pribam's study of a hundred gynaecological and obstetrical cases leads him to conclude that many patients suffer no severe infective phenomena in spite of a high degree of virulence of the cervico-vaginal flora as shown in the Ruge-Philipp test. E. M. FUSS (*ibid.*, p. 140) records 238 cases of radiological treatment of uterine carcinoma, comparing the course of events in those patients locally infected with virulent and non-virulent organisms respectively as shown by the Ruge-Philipp test. In the latter group treatment was followed by septic complications in 6 per cent., with 1.2 per cent. mortality; where virulent organisms were present severe infectious processes (such as protracted fever, peritonitis, and parametritis, occurred in 42 per cent., with a 10 per cent. mortality. In the Berlin Universitäts-Frauenklinik cases showing a positive Ruge-Philipp test are rarely submitted to operation; of the "negative" series of 65 cases surgically treated infection was absent or very slight in 91 per cent. Mortality and morbidity in a series of 180 cases were definitely less if febrile conditions following labour or abortion were associated with a negative Ruge-Philipp test. Fuss concludes that the presence of "virulent" organisms is a significant warning sign, and thinks that when severe infection follows operative or radiation treatment in spite of a negative Ruge-Philipp test the micro-organism responsible is probably an anaerobe which has eluded the test.

198. The Etiology of Eclampsia.

ZANGEMEISTER (*Med. Klin.*, January 2nd, 1926, p. 38) puts forward the theory that eclampsia is caused by cerebral pressure which is due to an oedematous swelling of the cerebral tissue, part of a general dropsy occurring slowly in the pregnant, and more rapidly in the parturient woman. He ascribes the albuminuria to a corresponding oedema of the kidney. The symptoms of eclampsia are ushered in by a rise in blood pressure; this should be treated by rest in bed, control of diet, and lumbar puncture; a later symptom is a rapid increase in weight. In the event of these symptoms not responding to treatment, the author considers it justifiable to empty the uterus. Employing this preliminary treatment he has had only one death from eclampsia during the last three years.

Pathology.

199. Infectivity of Tuberculous Filtrates.

T. YEGER (*C. R. Soc. de Biologie*, January 15th, 1926, p. 8) describes a case of artificial pneumothorax in which a pleural effusion appeared six weeks after the operation, large numbers of tubercle bacilli being found. Later the effusion became purulent, and the bacilli diminished in numbers till after five months they were no longer to be found. Nine months after the operation 5 c.cm. of the fluid was withdrawn, incubated at 37° C. for three days, mixed with 45 c.cm. of saline, and filtered through a Chamberland L2 candle. Two guinea-pigs were inoculated subcutaneously with 15 c.cm. of the filtrate. One of these animals died in four months, and at necropsy was found to have enlarged tracheo-bronchial glands; no tubercle bacilli were demonstrated. The other animal was killed a few days later, and also showed marked enlargement of these glands; tubercle bacilli presenting the usual acid-fast characteristics were found in the gland pulp. Yeber concludes, therefore, that in a pleural fluid containing no visible tubercle bacilli there may exist certain forms which are capable of passing through a Chamberland filter, and which on inoculation into guinea-pigs can give rise to a type of disease differing from the

usual experimental tuberculosis in the confinement of the lesions to the tracheo-bronchial group of glands. In the same journal (p. 46) F. ARLOING, A. DUFOURT, and MALARTRE describe the production of an atypical tuberculosis in guinea-pigs by the injection of filtered suspensions of tubercle bacilli. The material that they worked with consisted of extracts passed through a Chamberland L3 candle, from thirty human cases of tuberculosis of diverse nature. To all appearances these filtrates were sterile, but after injection fourteen of them gave rise to tuberculosis. As a rule the infected animals remained well for three or four months, then became cachectic and died. At the necropsy no macroscopic lesions were seen, but tubercle bacilli were found in smears from the glands. In two cases the animals developed the typical inoculation disease.

200. The Morphology of *B. melitensis* and *B. abortus*.

G. FAVILLI (*Lo Sperimentale*, January, 1926, p. 1041) has tried to distinguish morphologically between *B. melitensis* and *B. abortus*. Working with 20 strains of Bang's bacillus and 7 strains of *B. melitensis*, he found that both organisms were pleomorphic, presenting in one and the same preparation coccoid, coccobacillary, and definite bacillary forms. The use of Amato's brilliant cresyl-blue stain demonstrated the presence in each bacillus of a very tiny round granule, stained dark blue, and situated either at the equator or near one end. No difference was established between the granules of the two species of organism. By means of a stain for flagella he was able to make out a short prolongation of the protoplasm at one end of the bacillus. This was considerably thicker than a flagellum, and was no longer than the bacillus; sometimes it stretched backwards, sometimes it curled round to touch the side of the organism. Careful examination for motility under dark-ground illumination failed to show any true movement of the bacilli; the very active Brownian motion was not hindered by the presence of weak solutions of antiseptics. Further, using Rovid's sand tube, he failed to demonstrate any movement of the bacilli. It is doubtful, therefore, whether the protoplasmic prolongation can be regarded as a true flagellum. The main point of interest is that the two species of bacilli are alike in respect of their pleomorphism, their granule formation, their flagellum-like bodies, and their non-motility. Morphologically they must be considered indistinguishable.

201. Immunization against *B. melitensis*.

E. SANFILIPPO (*Biochimica e Terap. Sperimentale*, December, 1925, p. 493) has obtained some successful immunization results in white mice by the use of a vaccine consisting of organisms treated with gold chloride. Cultures of *B. melitensis* grown for forty-eight hours at 37° C. were suspended in a 1 per cent. solution of gold chloride; after one hour the suspensions were centrifuged, the supernatant fluid drawn off, the organisms washed repeatedly with distilled water, and finally suspended in the same medium. The gold chloride appeared to have a detoxicating action, for after treatment with this salt the organisms could be injected in large quantities (two agar slope cultures) intraperitoneally into white mice. Similar injections of organisms sterilized by heat killed the animals in two or three days. Mice injected with the bacilli treated by gold chloride were found able to resist without any injury ten lethal doses of a living virulent strain of *B. melitensis*. Mice injected with heat-killed organisms succumbed to a similar dose of living bacilli in twenty-four hours. The author believes that the use of this detoxicated vaccine confers a definite protection on mice.

202. The Action of Mixtures of Rabies and Herpes Virus.

P. REMLINGER and J. BAILLY (*C. R. Soc. de Biologie*, December 18th, 1925, p. 1486), in view of the resemblance between the viruses of rabies and herpes febrilis, determined to study the action on animals of a mixture of the two viruses. Two quarters of the brains of rabbits which had died, one of herpetic encephalitis and the other of paralytic rabies, were crushed together in a mortar and made into a fine emulsion with 40 c.cm. of normal saline. The emulsion was kept twenty-four hours in the ice-chest and then inoculated into the brains of rabbits, guinea-pigs, and cats with the following results: The rabbits died on the third or fourth day of an encephalitis indistinguishable from that due to inoculation of herpes virus. In three days' time the virus of rabies had not had time to develop. The cats usually died on the eighth to the tenth day after inoculation of a disease impossible to distinguish from paralytic rabies. In guinea-pigs the symptoms were not characteristic either of rabies or herpes, death occurring five to eight days after inoculation. The authors conclude that there is no antagonism between the viruses of rabies and that of herpes, and that they are capable of developing in the inoculated animal in a pa manner without affecting one another.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

203. Rheumatic Fever and Chorea in Children.

H. C. BUSSIERE and L. J. RHEA (*Canadian Med. Assoc. Journ.*, January, 1926, p. 35) record the results of an analysis of 100 cases of acute rheumatic fever and chorea in children, undertaken to determine the clinical picture and the results of treatment in the two diseases. Before the sixth year both diseases are rare and occur most frequently between the sixth and the twelfth, females being more susceptible than males, especially as regards chorea. In both there was a high percentage of cardiac lesions, though such involvement was more frequent in acute rheumatic fever than in chorea. Acute or chronic disease of the tonsils was of frequent occurrence; only 3 per cent. of cases of chorea were without an associated tonsillitis, acute rheumatic fever, or cardiac involvement. The treatment adopted in acute rheumatic fever comprised rest in bed between woollen blankets, with a mixture of 1 grain of sodium salicylate a day for every pound of body weight, sufficient sodium bicarbonate to reduce the acidity, and 10 to 30 minims of tincture of nuxvomica. In cases showing cardiac weakness tincture of digitalis was given commencing with five minims three times a day and gradually increasing. A similar line of treatment was followed in chorea with isolation and as complete quiet as possible for at least a month, even in mild cases, and as soon as the acute stage had subsided removal of the tonsils if diseased. The authors add that while the prognosis in both diseases is generally good as regards life, the prospect of a return to complete health is poor if there has been any involvement of the heart; if attacks of chorea are repeated, or are of long duration, the children may become nervous and their intellectual ability be impaired.

204. Irregularity of the Pulse in Epidemic Encephalitis.

Y. HANNEMAN (*Nederl. Tijdschr. v. Geneesk.*, January 2nd, 1926, p. 12), who records four illustrative cases, draws attention to the occurrence of irregularity of the pulse in epidemic encephalitis, and states that this symptom is sometimes present in the early days of the disease. Some patients may complain of palpitation. L. BOUMAN (*ibid.*, January 16th, 1926, p. 293), on the other hand, remarks that he has never observed this symptom in epidemic encephalitis, and that it has not been described in the literature as in any way characteristic of the disease. Slowing or quickening of the pulse has been recorded, usually corresponding to the temperature. In the examination of 100 cases Nellis found only one patient who showed any change in the pulse—namely, slowing. Achard alone states that extra-systoles may occur. He thinks it, therefore, very remarkable that Hanneman had found irregularity of the pulse so frequent in epidemic encephalitis, and adds that further observations on this point are required.

205. Infectious Mononucleosis or Glandular Fever.

J. G. HISLOP (*Med. Journ. of Australia*, November 7th, 1925, p. 557), who records four cases, three of which occurred in children aged 1 year and 8 months, 5 years, and 10 years, and one in a nurse, states that Filatow of Moscow first described the disease in 1886 as glandular inflammation of the neck without inflammatory changes in the mouth, nose, or pharynx. Pfeiffer in 1889 gave the first clear account of the disease. Dawson Williams in 1897 also gave a full description of it, but it was left for the later writers to describe the accompanying blood changes. The leucocytes may range as high as 26,000 per cubic millimetre, but one observer says that there may be a leucopenia. According to Longcope, 80 to 90 per cent. of the leucocytes are of the non-granular type, and may appear as (1) small mononuclear leucocytes identical with the small lymphocytes seen in normal blood; (2) large mononuclear cells identical with the large mononuclear and transitional cells of normal blood; (3) mononuclear cells of a type not usually seen in normal blood. All observers agree regarding the acute onset with malaise, anorexia, obstinate constipation, pain and stiffness in the neck, abdominal pain, and high fever. The glandular enlargement occurs early, the usual site of the first enlargement being just beneath and posterior to the left sterno-mastoid. The glands then become enlarged on both sides of the neck anteriorly and posteriorly; the axillary and inguinal glands may also be enlarged. The acute symptoms subside about the fifth day and the glands then begin to resolve. The liver is almost invariably enlarged,

and the spleen in about half the cases. The mediastinal and bronchial glands may be affected, and their enlargement accounts for the cough which accompanies the infection and may persist for some time. The disease is rarely fatal, but may be severe. Hislop's cases were of a mild type. The glands may take from a fortnight (Dawson Williams) to a month (Kellert) to subside. Acute nephritis, which occurs in about 6 per cent., is the commonest complication. The disease must be distinguished from tuberculosis, syphilis, and Hodgkin's disease, which have not a sudden onset and are more chronic. Acute leukaemia is excluded by the low leucocytosis or leucopenia.

206. Prophylaxis in Tuberculosis.

B. WEILL-HALLÉ and R. TURPIN (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, December 24th, 1925, p. 1589) describe an attempt to obtain active immunity from tuberculosis in the case of infants. They used the special vaccine of Calmette known as "B.C.G.," which is a living culture. It was given by mouth on the fourth, sixth, and eighth days after birth. Bacilli were passed in the excreta for a few days, but no ill effects were observed. The authors have treated a series of 254 patients, some with a healthy and others with a tuberculous parentage. The mortality in the whole series was 13; 5 children died within the first month of gastro-enteritis, but in the institution where the tests were made 5 deaths occurred from the same cause among non-vaccinated infants. There were 8 deaths between the ages of 1 month and 1 year, but in no case was the death traceable to the vaccination. Certain infants born of healthy parents, and who became exposed to infection for the first time at the age of a few months, lost no weight and showed no clinical evidence of the disease, but the von Pirquet reaction became positive and pulmonary nodules were seen on x-ray examination. The question now confronting the authors is that of revaccination, since the immunity lasts only about two years. The original method is no longer suitable, since the child's intestine differs from that of the infant at or shortly after birth. The difficulty lies in the fact that to establish the success of a subcutaneous injection the child's von Pirquet reaction must have been negative for at least one month beforehand.

Surgery.

207. Sequels of Prostatectomy.

R. H. HERBST (*Journ. Amer. Med. Assoc.*, January 9th, 1926, p. 93) discusses the causes of interference with urinary function after removal of the prostate, and emphasizes the importance of the pre-operative examination from this point of view. Diverticula of the bladder, which are frequently associated with prostatic obstruction, may be congenital or acquired, and if overlooked retard convalescence by maintaining cystitis with frequent and painful micturition. The author recommends strongly that in every case of prostatic obstruction the bladder should be distended before the operation with a 15 per cent. solution of sodium iodide and a radiogram taken; the bladder should then be emptied, air injected, and a second radiogram taken. In this way diverticula which do not retain urine can be recognized and need not be removed, though the retention type must be excised when the prostate is dealt with or soon after. Examination of the central nervous system is also recommended in order that any nerve or circulatory lesions may be detected. Fibrosis of the internal sphincter may interfere with the urinary function after prostatectomy, and prostatic tags left behind and attached to the internal urethral orifice may be large enough to obstruct the flow of urine. Another cause of obstruction is the barrier produced by the trigone crossing the internal urethral orifice at a high level. This can be detected after enucleation of the prostate and may be corrected by a V-shaped excision of the bladder wall at this point. Urethral polyps developing in the prostatic bed may be the cause of impaired function; they can easily be removed by diathermy. Careful bimanual palpation of the prostatic bed and the trigone will reveal the presence of any deep-seated, enlarged submucous glands. Retention and infection of the upper urinary tract is not uncommonly overlooked and is usually corrected quickly by pelvic lavage and instillation of silver nitrate. Other possible causes of impaired function after prostatectomy include infection of the seminal vesicles; formation of a stone in the bladder; the incomplete removal of a prostatic adenoma; and malignancy in the lower segment

of the prostate, with benign hypertrophy in the upper one. Adhesion of the posterior surface of the gland to the lower segment should arouse suspicion of the existence of this last condition, and bimanual palpation of the prostatic bed after enucleation will usually reveal some hard nodules in the so-called surgical capsule of the gland.

208. Treatment of Surgical Tuberculosis.

DURING the past two years G. B. RHODES (*Journ. of Lab. and Clin. Med.*, December, 1925, p. 227) has performed a number of experiments to discover a substance that could be injected into a tuberculous abscess cavity and exert an antiseptic action on the causative bacilli. The best results have been obtained with cod-liver oil. As this substance is too acid to be tolerated by the healthy tissues, it must first be boiled with an equal quantity of an aqueous suspension of magnesium hydroxide; the mixture is then centrifuged, and the supernatant fluid, which contains the oil, is removed. In this form it may be introduced into an abscess cavity without causing irritation. The success that has followed the evacuation of tuberculous abscesses and replacement of the pus with this oil has led the author to inquire into the manner in which it acts. Campbell and Kiefer found that cod-liver oil exerts a bactericidal effect on virulent strains of tubercle bacilli; Kugelmass and McQuarrie showed that the oil possesses the property of emitting ultra-violet rays. An attempt to confirm the latter statement has cast doubt on the ultra-violet nature of the rays. An x-ray film enclosed in black paper and placed over a metal dish containing cod-liver oil, when developed after forty-eight hours, was found to have a perfect representation of the oil upon it; rays must have emanated from the oil to affect the sensitized film. It seems probable that these rays are not of one type, but are composed of different wavelengths.

209. Intracranial Abscess.

SIR W. MILLIGAN (*Journ. of Laryngol. and Otol.*, January, 1926, p. 1) remarks that the bony walls of the middle ear and mastoid act as a barrier against acute infective processes, but that chronic inflammation in time makes a breach in this barrier and some extradural complication arises. If the infective process is virulent and comparatively acute, meningitis is one of the commonest complications, but in more chronic cases adhesions form and some kind of abscess results. Intracranial abscesses occur as an almost invariable rule only after many years of suppuration and may be classed as cerebral and cerebellar. It is usually accepted that cerebral are commoner than cerebellar abscesses, but the author's experience is that the proportion is one cerebral abscess to two cerebellar. Many cases of infection arise from the labyrinth, the usual path being along the internal auditory meatus, or the aqueductus vestibuli. An extradural abscess or sinus thrombosis and suppuration may convey the infection through the meninges. The author stresses the importance of cholesteatoma which opens up the spaces of the internal ear and allows the infection with which it is almost invariably associated to enter. Cerebellar abscesses are never large because of the proximity of the cardiac and respiratory centres. They usually run a latent course and then cause sudden death. Intracranial pressure is the rule, with the classical triad of headache, vomiting, and papilloedema. There may be homolateral hemiparesis and ataxia. Nystagmus in early stages is directed towards the affected side, but later towards the sound side. Dysidiadokokinesis is a common symptom. The abscess should be drained at once on account of the danger of sudden death.

210. Surgical Treatment of Angina Pectoris.

S. A. LEVINE and F. C. NEWTON (*Amer. Heart Journ.*, October, 1925, p. 41) give detailed reports of seven patients upon whom cervical sympathectomy was performed for the treatment of angina pectoris. These patients were all alive three months to two years after operation. Of the seven, three were completely and immediately cured, three were considerably improved, and one was neither better nor worse; three of these last four later responded to medical treatment. An eighth patient died a few hours after the operation, which was only performed as a last resource in a moribund case at the patient's request; necropsy showed an occlusion of the left coronary artery. The authors emphasize the importance of proper selection of patients in diminishing the immediate mortality and increasing the number of successes. In estimating the patient's suitability they lay stress on accuracy of diagnosis, with special reference to cardiac infarction; the myocardium must be sound, and preferably there should be no valvular disease. Coronary thrombosis, they add, may be distinguished from an ordinary anginal attack by its longer duration, greater severity, and resistance to medical treatment. In thrombosis also the pulse tends to become rapid and to change in rhythm, whereas in angina it remains essentially unchanged. Moreover, the blood

pressure rises during an anginal attack and falls with thrombosis, in which latter fever and leucocytosis are common. In order to assist the establishment of indications for this operation the authors suggest that all reports of cases should be in full detail. They believe that with a proper selection of patients, so as to exclude cases of cardiac infarction and congestive heart failure, this method of treatment is of distinct value.

Therapeutics.

211. Treatment of Pulmonary Tuberculosis with Metal Salts.

N. LUNDE (*Ugeskrift for Læger*, January 7th, 1926, p. 1) has tested at the Lyster Sanatorium in Norway Walbum's statements as to the therapeutic action of small doses of certain metals in a variety of infectious diseases, including tuberculosis. The best results were achieved with manganese chloride, intravenous injections being given at intervals of four to seven days. Injections of small doses of salts of calcium, gold, and beryllium were also given, from ten to twenty-six injections being given in each case. Of the 58 tuberculous patients whose treatment was completed, 31 were in the third stage of the disease, and 25 of them benefited from the treatment. Of the remaining 27 patients who were in the first or second stage of the disease, 24 derived benefit from the treatment, which in no case seemed to be injurious. In 22 cases the rate of sedimentation of the erythrocytes was investigated, and in as many as 16 of these cases there was an improvement, the rate of sedimentation being reduced by an average of 13.1 mm. in an hour. Among the same 22 patients there were 5 who gave a positive urochromogen reaction at the beginning of the treatment, and in 2 of these cases this reaction became negative under the treatment. As many as 51 of the 58 patients had tubercle bacilli in the sputum at the beginning of the treatment, and in 8 cases the bacilli disappeared. Comparing Walbum's system of small, carefully graduated doses with Moellgaard's system of massive dosage, Lundé argues that the former is a process which stimulates the reactive properties of the tissues, and thus promotes an active defence of the body by its own mechanism, whereas the processes concerned when the dosage is massive are largely passive, the high concentration of the salt in question being sufficient in itself to interfere with the action of microbes in the body. Lundé believes that Walbum's system could be developed into a very effective weapon against tuberculosis.

212. Acriflavine in Epidemic Encephalitis.

C. E. RIGGS (*Minnesota Med.*, December, 1925, p. 753) records three cases of epidemic encephalitis in patients aged 24, 40, and 33, treated by intravenous injections of neutral acriflavine. Each patient received eight consecutive injections. The dosage was 10 c.cm. of a 0.5 per cent. solution. In order to avoid distressing symptoms the injection was given slowly at the rate of 10 c.cm. in five minutes. If the injection was given more rapidly there would be gasping respiration with air hunger, associated with a sensation of heat, affecting the mucous membrane of the respiratory tract, and intense lacrimation. After two or three injections the patients experienced great relief, and after eight injections the improvement was really remarkable. The Kernig, Babinski, and other objective signs disappeared slowly.

213. Prostatic Massage in Gonorrhoeal Urethritis.

A. L. WOLBARST (*Med. Journ. and Record*, January 6th, 1926, p. 3) calls attention to the value of prostatic massage in acute gonococcal infections of the anterior urethra. In forty cases so treated there was no extension of the inflammation to the posterior urethra, and very often the pre-existing congestion was relieved. In about 30 per cent. of cases of first infections of acute anterior gonococcal urethritis in which there was no clinical evidence of posterior involvement the prostate was found to be enlarged, soft, and congested; there was unmistakable evidence of a chronic low grade, non-venereal prostatic inflammation with similar evidence in some cases of chronic inflammation in the seminal vesicles. The existence of such a low-grade inflammation accounts for those cases in which a mild anterior urethritis suddenly develops an acute or subacute prostatitis tending to chronicity and complications. Wolbarst recommends the routine examination of the prostate and seminal vesicles in every case of anterior urethral infection, and in the event of prostatic congestion being present, as evidenced by a large, soft, and boggy prostate, he advocates gentle massage carefully performed as a protective measure against the extension of the inflammation and for the reduction of the pre-existing chronic congestion. Such massage should be given every four or five days as long as signs of chronic inflammation exist.

214. Refined Therapeutic Serums.

J. M. DUBREUILH (*Thèse de Paris*, 1925, No. 515) states that a refined serum can be obtained by the following method. To a fixed quantity of dried serum are added increasing quantities of distilled water. The dried serum is dissolved in water in the proportion of 1 to 10, the solution being all the more viscid the less water is present. The different solutions of serum are then put in the coagulator for half an hour at 60°C. Part of the albumin is precipitated and becomes insoluble. The maximum quantity (0.53 gram) of protein substances or residual serum is thus obtained with a syrupy fluid consisting of two parts of water and one of serum. The most favourable dilution is consequently 1 gram of serum for 2 grams of water. By this method a refined serum is obtained freed from more than 50 per cent. of its albumins. Refined serum is five times less toxic experimentally than the original serum, and the more the process of refinement is repeated the less toxic does the serum become. The preventive and curative value of refined serum is about the same as that of the original serum. This fact has been proved experimentally in the case of anticholera, antitetanic, and antidiphtheritic serums, and clinically as regards its prophylactic action in the case of antidiphtheritic serum.

215. Stovarsol in Vincent's Angina and Ulcerating Stomatitis.

J. A. VOSS (*Tidsskrift f. d. Norske Lægeforening*, December 15th, 1925, p. 1227) has tested at the municipal fever hospital in Oslo the efficacy of stovarsol in Vincent's angina and ulcerating stomatitis. There were 10 patients suffering from the former disease and 2 from the latter. No other treatment, general or local, was employed. The drug was administered by the mouth, the first two tablets, each of 0.25 gram, being given on an empty stomach in the morning with a glass of water. In the absence of diarrhoea four tablets were given on the second day, and this dose was repeated till the membranes had almost completely disappeared. In 9 of the 10 cases of Vincent's angina recovery was complete when twelve to twenty-eight tablets had been given. Only in one case was it necessary, after twenty-eight tablets had been given, to resort to an injection of neosalvarsan. As stovarsol is excreted slowly, it is not necessary to continue giving it till the ulceration has cleared up completely. The author recommends this treatment in general practice, on the grounds that it renders local applications superfluous and saves the patient the cost and loss of time entailed by admission to hospital. The patient can, he adds, continue at work while taking the stovarsol. For patients already in hospital the author prefers the older method of local applications of salvarsan in glycerin, since this is cheaper and as effective.

Radiology.

216. Radiography of the Gall Bladder.

W. BAETZNER (*Med. Klin.*, January 2nd, 1926, p. 18) describes his method of examining the gall bladder radiologically. After purgation the patient is given 5 grams of tetra-iodo-phenolphthalein sodium or 3 grams of tetra-bromo-phenolphthalein sodium dissolved in 40 c.cm. of distilled water and boiled for twenty minutes; the intravenous injection of this solution should be spread over ten to fifteen minutes. The preparation may be given by the mouth, 0.1 gram for each kilogram of body weight, but the result is said to be less satisfactory as some of the dye passes through the intestine. After fourteen to eighteen hours the patient is x-rayed and a shadow of the gall bladder will be seen. A faint shadow suggests partial obstruction of the ducts, while a mottled appearance indicates the presence of stones. A completely negative picture—that is, the absence of any shadow—points in most cases to a stone in the duct or a severe degree of inflammation. There is a possibility of error, however, and Baetzner mentions four cases in which, on the strength of a negative picture, the patients were operated on and were found to possess healthy gall bladders. Two proved to be cases of acute pancreatitis, one of acute appendicitis, and one of spastic colitis.

217. X-ray Treatment of Malignant Granuloma.

N. VOORHOEVE (*Nederl. Tijdschr. v. Geneesk.*, October 10th, 1925, p. 1677) records the results of x-ray treatment of 19 cases of malignant granuloma; 11 were in women and 8 in men. The ages ranged from 8 to 49, the average age being 29. Apart from purely symptomatic treatment no therapeutic measures were employed. The results were as follows. The average duration of life and good health was considerably prolonged. Voorhoeve points out that it is essential that all the localizations of the process should receive a sufficiently large dose, and that any recurrence should be treated at

once. He frequently observed that a few hours after the first application of x rays, especially when there was a sudden and considerable absorption of the granulomatous tissue, there was a rise of the already elevated temperature, which subsided in one or two days, when an improvement of the general condition and a fall of temperature occurred. Leucopenia in patients under treatment might reach a considerable degree without any permanently bad effect resulting. The lowest number of leucocytes found was usually between 3,000 and 5,000. The prognosis was unfavourable in cases where the malignant granuloma was situated in the lung and abdominal lymphatic glands, in cases of pleural effusion, and in those complicated by diffuse tuberculosis of the lymphatic glands. X-ray treatment is contraindicated in the following conditions: association with pulmonary tuberculosis when the malignant granuloma is situated in the mediastinum or lung, amyloid disease, multiple metastases in the bone marrow, and acute infective processes in the neighbourhood of the malignant granuloma.

218. Radiography of the Lungs.

L. H. CLERF (*Surg., Gynecol. and Obstet.*, December, 1925, p. 722) has used bismuth subcarbonate and lipiodol as radiopaque substances for radiological examination of the lungs in a large series of cases. He has found that the bronchoscopic insufflation of bismuth subcarbonate into the tracheo-bronchial tree is devoid of untoward effects, but although the introduction of lipiodol was harmless in all his cases there has been one reported instance of acute iodism with oedema of the larynx following it; Clerf advises, therefore, that lipiodol should not be used in persons susceptible to iodine. His investigations have shown that in an adult 1 ounce of bismuth subcarbonate can be safely used, as the greater part is rapidly expectorated within forty-eight hours. The quantity of lipiodol required in an adult is usually about 20 to 25 c.cm. and several days elapse before it all disappears. Clerf considers such radiological examination of great assistance in the diagnosis and localization of foreign bodies, neoplasms, and suppuration in the lungs.

219. Radiographic Diagnosis of Cervical Spinal Caries.

E. SORREL and G. MAURIC (*Journ. de Radiol. et d'Électrol.*, November, 1925, p. 497) state that the pharynx, larynx, and trachea form, in profile, in a skiagram a clear column, easily visible in front of the vertebral column; this is displaced forwards when an abscess due to cervical caries is present, and constitutes a simple means of diagnosis which is a valuable sign in some cases when there are no clinical signs of abscess. Occasionally, subsequent skiagrams show regression of the abscess. The relations of the "clear column" with the cervical spine indicate also the best route for its evacuation. In one case of compression of the oesophagus and trachea of uncertain origin, the skiagram showed displacement of the soft tissues, and indicated indirectly the presence of an abscess.

Obstetrics and Gynaecology.

220. The Low Cervical Operation in Caesarean Section.

L. C. CONN (*Canadian Med. Assoc. Journ.*, January, 1926, p. 32) reports two cases in which the low cervical operation for Caesarean section was employed without difficulty and with satisfactory results. In discussing the relative values of this operation and the classical method he points out that after the latter there is considerable danger of rupture and that there is doubt whether regeneration of muscular tissue occurs. In favour of the low cervical operation are the facts that the cervix resists infection better than the fundus; healing is also more rapid owing to the absence of the repeated contractions which affect the upper uterine segment, and the active involution and fatty degeneration of the uterine wall after delivery. There is also less danger of leakage into the peritoneal cavity during the operation or after it, and the risk of adhesions being formed is reduced to a minimum. Conn adds that an uninterrupted convalescence after operation is characteristic when the low method is used, and intestinal complications are rare. The method cannot, however, be recommended for the obviously infected case. The mortality of the classical operation increases with every hour after the commencement of the pains, and especially after rupture of the membranes, whereas the low cervical operation has been stated to be easier when the patient has been in labour for some time. Where speed is a vital factor the classical operation retains its supremacy, because the low cervical operation takes fifteen to twenty minutes longer. Conn also reports a case in which uterine rupture followed two previous Caesarean sections of the classical type. Although there was only slight pain, the abdomen was opened and it was found that the whole of the uterine scar had ruptured

and a dead child was floating free in the abdomen. There was evidence that the scar had been gradually giving way and only required a few labour pains for the process to be completed. Conn, therefore, emphasizes the importance of avoiding such dangers by performing the low cervical operation whenever possible in preference to the classical method.

221. Lymphangioma of the Fallopian Tubes.

L. W. STRONG (*Amer. Journ. Obstet. and Gynecol.*, December, 1925, p. 853) reports two cases of lymphangioma of the Fallopian tube—a rare condition, of which only five previous cases appear to have been recorded. These two tumours gave rise to no clinical symptoms, and were only discovered during the course of operations for inflammatory conditions of the uterus; one was 5 mm. and the other 1/2 cm. in diameter. Subsequent microscopical examination showed the tumours to be typical lymphangiomata. Their small size and the absence of any clinical manifestations causes Strong to suggest that these tumours are not so rare as was previously thought. These two cases differ from the others reported in that they were unassociated with myomata, thus controverting the original belief in this relation. The Fallopian tubes were otherwise normal in all respects and there was no evidence of any malignant process. Both Strong's patients were married: one was aged 48 and had a large fibrous tumour of the ovary; the other, aged 52, had a retroverted uterus and cystic changes in both ovaries.

222. Absorption from the Vagina.

R. ROSENTHAL (*Zentralbl. f. Gynäk.*, January 9th, 1926, p. 122) describes the case of a woman who committed suicide by introducing three mercury sublimate tablets into the vagina. The whole of that organ sloughed, thus facilitating absorption of the poison from the wound. Rosenthal states that deposits of mercury albuminate may also be formed in the periproctal tissue, for which reason a good immediate treatment is to inject milk into the tissue lying between vagina and rectum, as a neutralizer. Remoter lesions are severe parenchymatous nephritis and fatty degeneration of the heart. He adds that it is advisable to supervise the preparation of vaginal douches until the patient becomes thoroughly familiar with the correct procedure, since there is a real danger of the solution being too concentrated.

Pathology.

223. The Bacteriological Diagnosis of Botulism.

V. DE LAVERGNE and E. ABEL (*Rev. d'Hygiène*, November, 1925, p. 950) summarize the methods available for the bacteriological diagnosis of botulism. A suspension of the suspected food should be heated to 70° C. for half an hour to destroy all vegetative bacteria, and inoculated in decreasing quantities into ten or twelve Veillon tubes of agar, which are incubated at temperatures varying from 25° to 55° C. After eight days suspicious colonies are picked off, planted in broth, gelatin, and glucose broth and incubated anaerobically. If a growth is obtained of organisms morphologically similar to the *Clostridium botulinum*, cultures should be put up in peptonized bullock's heart broth and tested for the presence of the specific exotoxin. This toxin varies according to whether it is secreted by Type A or Type B of the bacillus. With either type ingestion of the toxin will produce mydriasis, and pharyngeal and laryngeal pareses in the cat. If Type A is present, ingestion of the toxin produces muscular paralysis of the neck in fowls, followed by generalized paralysis, coma, and death in twenty-four to forty-eight hours. Type B does not affect fowls. If the result is negative, the filtered toxin should be injected subcutaneously into a guinea-pig. The result with either toxin is to produce abdominal paralysis, paralysis of the hind legs, dribbling, and death in two or three days. A similar result occurs with injected mice. Having proved the presence of a toxin, the next step is to ascertain if it is the toxin of the *Cl. botulinum*, and, if so, to which type it belongs. This is effected by injecting three guinea-pigs or mice—one with antitoxin A, one with antitoxin B, and one with normal serum; at the same time an equal dose of toxin is given to each animal. Provided that the control mouse and one of the antitoxin-injected mice dies, it may be concluded that the toxin injected was the toxin of the *Cl. botulinum*, and that it was of the type corresponding to that of the protecting antitoxin. Similar animal experiments are conducted on a suspension of the original food. From the human patient an attempt should be made to recover the organism from the faeces or vomit, and from the intestine after death. Occasionally it is possible to demonstrate the toxin in the circulating blood by animal injection.

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224. Relation between Herpes Zoster and Varicella.

A. NETTER and A. URBAIN (*C. R. Soc. de Biologie*, January 22nd, 1926, p. 98) have examined the blood serum of 100 patients suffering from zona and 24 from varicella. They used the complement fixation test, preparing their antigens from the crusts of the skin lesions. In some tests the antigen was derived from herpes, in others from varicella; in other tests both antigens were used. The reaction was positive in 93 per cent. of the serums from zonal patients and in 91.7 per cent. from patients with varicella. Where both antigens were used the results were qualitatively identical and quantitatively similar. The authors conclude that the antibodies in both diseases behave in exactly the same way. They add that during the first few days of the attack they are in very low titre; their maximum is reached at the end of the second week, and after the attack they may persist for several months. Clinical evidence of the connexion between the two diseases was obtained in sixteen cases of zona. Netter and Urbain consider the zonal virus to be a mutation form of the chicken-pox virus, standing in much the same relation to this as the virus of vaccinia stands to that of variola. The zonal virus has a strong affinity for the nervous system, the chicken-pox virus a low one. The human body destroys the chicken-pox virus rapidly; the zonal virus is much more resistant and may remain latent for a long time, presenting in this respect a close analogy with the herpetic virus. Under the influence of various causes, of which arsenical intoxication is the best established, the zonal virus may resume its activity, and give rise to the typical eruption.

225. Structure of the Nasal Polypus.

G. BUSACCA (*Arch. Ital. di Otol., Rinol. e Laringol.*, November, 1925, p. 696) has investigated the structure of the ordinary polypus of the nose, and has drawn the following conclusions. The liquid in the glandular acini, in the cysts, and in some of the cells of the epithelium is normal mucin. The liquid in the mesh of the stroma is not mucin; van Gieson's stain indicates the presence of amyloid material, but no other stains confirm this, and the author considers that the substance must be hyaline. Fibrin is found in amorphous masses or in a definite reticulum of fibres. Elastic fibres are not found in a well formed state, but small fragments of fibrin are scattered through the sections, due, the author suggests, to the breaking up of the elastic fibres by oedema. Plasma cells are fairly numerous and are particularly grouped round the vessels. The epithelium shows in many cases a mucoid degeneration, in others a change to a pavement epithelium. The stroma consists of a fine connective tissue network containing fluid, leucocytes, and some stellate and fusiform cells. The glands have irregular acini which are often dilated and may form large cysts. The vessels, and especially the arteries, present a hyaloid degeneration and a notable thickening of the outer coat. The author concludes that the nasal polypus is not a myxoma, an oedematous fibroma, or a simple hydrops of the nasal mucosa, but an inflammatory condition resembling granulation tissue.

226. The Influence of Fatigue on Infection.

A. E. BOYCOTT and C. PRICE-JONES (*Journ. Path. and Bact.*, January, 1926, p. 87) have investigated the generally accepted belief that fatigue predisposes to infection. Rats were exercised in drums which were rotated quickly so as to cause them considerable difficulty in maintaining their equilibrium. There was a fall in the rectal temperature roughly corresponding to the degree of fatigue. Both the fall in the temperature and the onset of fatigue were slower in rats exercised at a temperature of 25° to 30° C. than at one of 4° C. In the first series of experiments ten batches of rats after exercise were injected intraperitoneally with Gaertner's bacillus; another eleven batches were first injected and then fatigued, the exercise being repeated on the next and sometimes on the following days. A similar number of control animals in each case were injected but not fatigued. The mortality among the exercised and the control animals was closely similar, indicating that fatigue did not lower the resistance to infection. In another series of experiments the rats were fed on Gaertner's bacillus, fatigued daily for several days, and killed after about a fortnight. The results were unexpected. Of 27 exercised rats 24 became ill and 13 died; of 28 non-exercised rats fed with the bacillus only one showed slight symptoms of illness and not one died. Fatigue after infection increased both the morbidity and the mortality, but this result did not seem to be due to the ease with which the bacilli penetrated the alimentary mucosa, since in both the exercised and the control animals the bacillus was recovered from the spleens of about 90 per cent. of the survivors. Similar experiments were made with the tubercle bacillus, but no evidence was obtained that the resistance of the animals was diminished by fatigue.

Medicine.

227.

Hypogentital Ascites.

P. STANGANELLI (*Rif. Med.*, January 11th, 1926, p. 25), while recognizing tuberculous peritonitis in the young, simple idiopathic peritonitis at all ages, and abdominal scrofulosis with conspicuous lymphoid masses, describes a fourth form with the following characteristics. It occurs at or about puberty and is frequently associated with genital defects, such as amenorrhoea and monorchidism. There is no family history or predisposition to tuberculosis; the general condition of the patient is good, and there is complete absence of the tuberculous type of constitution. The patients belong to the lymphatic type and have short limbs, large abdomen, short neck, small pupils, open mouth, and an expressionless face. They are dull and apathetic, and the urine is scanty with a low urea content. The ascitic effusion forms rapidly; it is very obvious, very thin, and unassociated with any friction rub or adhesions. There is no pain and no fever, no night sweats, and no tuberculous foci in other organs. The fluid has the characteristics of a transudate, being serous with a specific gravity of 1008 to 1015; it rarely coagulates and contains 18 to 20 per cent. of albumin. It is not toxic for guinea-pigs, and tubercle bacilli are not present. There is no concomitant pleurisy. The author suggests that this type of essential ascites is due to an endocrine deficiency, especially of the thyroid and thymus and the lymphatic system. Working on this hypothesis good results were found to follow treatment with polyglandular substances and opotherapy, including a mixture of extracts of both ovaries and testes.

228. Anomalous Forms of Recklinghausen's Disease.

F. WISE and J. J. ELLER (*Journ. Amer. Med. Assoc.*, January 9th, 1926, p. 86) report three anomalous cases of Recklinghausen's disease, and summarize the literature, referring particularly to the reports of Parkes Weber, Trimble, and Levin. Regarding the propriety of including these anomalous types under Recklinghausen's disease, they state that they are found usually in the children of a family in which one or other parent has the classical signs of disease. Their cases were two brothers, aged 11 and 9, the older having many scattered light brown freckles on the neck, trunk, and extremities, together with a number of large café au lait spots. The pigmentation had been present since birth, and there were no blue spots. On the upper aspect of the left scapula there was a soft elevated tumour about an inch in diameter, which appeared at the age of 8. The younger brother had many small pigmented light brown lesions on the neck, trunk, and extremities, together with a few large café au lait spots of irregular shape and size. In both cases subjective symptoms were absent, and the testes were undescended. The father had an eruption, including numerous tumours, distributed irregularly over the trunk and extremities and varying in consistence. Almost the entire skin was covered by pigmented macules, chiefly dark or light brown; there were no blue spots. The eruption in his case appeared first at about the age of 5. There were no subjective symptoms and no history of Recklinghausen's disease in any of his ancestors. In none of the patients was there any deficiency of mentality.

229.

Exanthema Subitum.

S. SALOMON (*Deut. med. Woch.*, December 25th, 1925, p. 2152) refers to the cases of this condition recently reported by von Bokay (*Epitome*, December 19th, 1925, para. 558), and records four cases from his own practice in female infants, aged from 5½ to 9 months, one of whom was his own daughter. The course of the disease was the same in all. The children, who had hitherto been perfectly well, suddenly became peevish, refused their food, and became restless in their sleep. The temperature ranged between 100.4° and 103.2° F. Nothing was to be found on physical examination beyond considerable injection of the posterior pharyngeal wall and slight conjunctivitis. After seventy-two hours in three cases and forty-eight hours in the fourth a morbilliform eruption appeared on the scalp, face, trunk, and extremities, the temperature falling to normal immediately after its appearance. The rash faded in another forty-eight to seventy-two hours, and complete recovery took place. As regards the diagnosis, Salomon states that a toxic rash, measles and rubella, can easily be excluded, but anaphylactic phenomena are more difficult to distinguish. Exanthema subitum has

only a very slight degree of contagiousness, and apart from amnesia, which may last several months, leaves no sequelae. Salomon considers the term "exanthema subitum" less suitable than Zahorsky's term "roseola infantilis" or Glanzmann's term "exanthema irriticum." D. BARSÌ (*Wien. med. Woch.*, October 31st, 1925, p. 2435), director of the children's department at the Hadassa Hospital in Haifa, records three sporadic cases of exanthema subitum in infants aged 2½ months, 8½ months, and 11 months. No similar cases have been described before as occurring in the East, and particularly in Palestine.

230. Arthropathy as an Initial Symptom of Tabes.

R. ZANOLI (*La Chir. degli Organi di Movimento*, October, 1925, p. 613), who records two illustrative cases, states that the incidence of bone and joint complications in tabes is estimated at 4 to 5 per cent. by Marie and twice as high by Lotheissen. In both Zanoli's cases arthropathy was a very early symptom of the disease, as neither showed ataxia or disturbance of the tendon reflexes. The first patient was a man, aged 52, who had contracted syphilis at 18 and had remained in good health until 51, when, after a slight injury to the left knee, he developed a painless swelling of the joint. The suspicion of tabetic arthropathy was confirmed by changes in the pupils and superficial sensibility as well as by x-ray examination, which showed the typical appearances of a tabetic joint. Zanoli's second patient was a man, aged 33, who had contracted syphilis at 22, and ten years later, without obvious cause, developed slight pain in the right hip, shortening of the limb, and a limp. The diagnosis of tabetic arthropathy was confirmed by the presence of typical disturbance of superficial sensibility and characteristic changes of the head of the femur on x-ray examination.

231.

Lumbar Puncture in Meningitis.

REICHE (*Med. Klin.*, January 2nd, 1926, p. 37) describes his procedure in lumbar puncture. He introduces two needles; fluid passes out through the lower one and air is forced in through the upper one. From 60 to 200 c.cm. of the spinal fluid can thus be removed. Disinfectants may also be introduced through the upper needle and a 40 per cent. solution of urotropine is suggested. Reiche thinks this treatment should be beneficial in all forms of meningitis except the tuberculous type. It also facilitates the x-ray diagnosis of internal hydrocephalus.

Surgery.

232.

Intermittent Joint Effusion.

H. SCHLESINGER (*Wien. klin. Woch.*, January 15th, 1926, p. 68), who in 1903 published a monograph on intermittent effusions into joints, now reports nine additional cases of this condition, which appears as a recurrent articular swelling at regular intervals, without inflammation, endocardial disease, or permanent changes in the joint. The condition usually affects one knee, but sometimes both are involved; any other joint may be simultaneously affected, even the mandibular or an intervertebral articulation, as in one of the new cases reported. The effusion returns in the same joint with constant regularity for each patient, so that the date of the next attack can be predetermined; the interval varies in different individuals from a few days to several weeks. Paraesthesia or severe pain may precede its appearance by a few days or accompany it. The maximum extent is reached in two or three days, when the normal contour of the joint is lost; the skin is often pale and slightly oedematous, but not hot, while pressure is painless. Usually in four or five days the swelling subsides, without leaving residual periarticular or osseous changes. Fever is occasionally present at the commencement. The condition has been observed in patients over periods of twenty and even thirty years; it is more common in women and the neurasthenic. The onset has followed trauma. Pregnancy has some influence on the condition in women. It sometimes starts soon after parturition, and may continue until the next pregnancy, when it disappears until after parturition. An hereditary or familial factor is sometimes present, but often other members of the family suffer from some other disturbance of the vasomotor system, such as angioneurotic oedema, to which the author thinks the condition is analogous. He suggests that it is caused by a metabolic toxin which affects the vasomotor system, and that the gonads influence the disease in some way, since

it has not been reported before puberty or after the reproductive life of the individual is over, while it is influenced by pregnancy. He has found no treatment effective, but two of his patients recovered spontaneously.

233. The Wrist Mobility in Diagnosis.

E. F. CYRIAX (*Journ. Anat.*, January, 1926, p. 199) calls attention to a possible fallacy in testing the extent of pronation and supination when the elbow is fixed. He has demonstrated the existence of a considerable amount of passive rotation of the wrist by placing the hand, with the fingers abducted, flat upon a table and immobilizing it by holding it with the other hand while alternate pronation and supination at the wrist are performed. By a series of studies of dissected and undissected arms the amount of rotation of each of the carpal bones was found to average 24.5 and 19 degrees respectively, though considerable variations existed, especially in the case of the semilunar bone. In the living subject the range of passive rotation of the wrist, as elicited by fixing the radius and ulna with one hand and rotating the hand alternately in both directions, was found to be about 45 degrees. Cyriax adds that in attempting to break down adhesions passive rotation will frequently accomplish results unattainable by other passive movements of the wrist.

234. Haemangioma of the Breast.

B. LUBARSKY (*Zentralbl. f. Chir.*, January 9th, 1926, p. 77) states that Kormmann (Odessa) has collected eleven cases of the rare condition of mammary haemangioma, in which the diagnosis was confirmed histologically. Lubarsky now reports the case of a multipara, aged 26, who had had a painless tumour of the inner quadrant of the right breast as large as a plum for four months. The tumour was removed under local anaesthesia: it was nodular and contained one large and a few small cysts filled with a yellowish-red fluid. The stroma consisted of firm connective tissue with few nuclei and areas of apparently hyaline degeneration; some islands of fat were seen, within and around which round-celled inflammatory infiltration had occurred. No gland tissue was found, but some excretory ducts were seen. The parenchyma of the tumours consisted of a mass of dilated capillaries, lined with swollen endothelial cells and filled with blood corpuscles. These tumours have been classified as (1) cutaneous angioma involving the nipple or areola, (2) subcutaneous haemangioma, (3) glandular haemangioma; but Klebs denied the possibility of the development of a haemangioma in glandular tissue. Other authors have stated that these tumours originate during childhood, and that trauma hastens their development. Both sexes are affected equally; according to Kormmann haemangioma is found three times more frequently in the right than in the left breast, and ranges in size from that of a nut to that of an orange or more. The tumour may be fluctuating or tense; the skin is usually unaltered, but it may be tightly stretched over the tumour and colourless, or it may exhibit numerous telangiectases. The ordinary haemangioma is usually single and painless, but in one case it was tender; it has a well defined capsule of connective tissue, but the cavernous form has none; it is diffuse, and penetrates the glandular tissue. Removal is the only treatment. Recurrence has not been reported.

235. Post-encephalitic Tic of the Diaphragm.

C. J. GAMBLE, O. H. P. PEPPER, and G. P. MULLER (*Journ. Amer. Med. Assoc.*, November 7th, 1925, p. 1485) record a case in a man aged 38, whose attack of epidemic encephalitis was followed by marked tachypnoea with nothing to explain it in the heart or lungs. The respirations were 84 to the minute. There was tremor of the outstretched hands, especially the left, and some ataxia and weakness of the left hand. Simultaneous pneumographic tracings of the chest and abdomen showed that the rapid breathing was due, not to frequent normal respiratory movements, but to definitely abnormal spasmodic contractions of the diaphragm. Chemical analysis of the blood confirmed the view that there was overventilation as a result of the tic with the synchronous and rapid respiratory movements. The respiratory centre was not receiving normal stimuli to respiration and was not sending out strong rhythmic impulses. It seemed probable that there was no actual damage to the respiratory centre itself, but that the respiratory disturbance was entirely secondary to the overventilation induced by the diaphragmatic tic. As relief had been obtained in cases of post-encephalitic hiccup by blockage of the phrenic nerves by injection of procain or alcohol, or by freezing, the authors determined to employ blockage of the phrenic nerves in the present case, which presented a similar condition. An incision was made on each side of the neck, and the phrenic nerves exposed and frozen with ethyl chloride spray. During the operation the respirations fell from 90 to 20 a minute, and the relief at the time of publication had lasted seven months.

Therapeutics.

236. Insulin in Diabetic Coma.

J. GRÉ (*Journ. de Méd. de Bordeaux et du Sud-Ouest*, January 10th, 1926, p. 7) observes that acidosis is of far greater import than hyperglycaemia, which may exist for a long period without the onset of coma. Acidosis has been attributed to destruction of the acid-basic equilibrium in the blood, and it is generally recognized that it may arise from many causes, such as starvation, nephritis, pregnancy, cyclic vomiting of children, shock, and anaesthesia. Acetone bodies are produced by defective oxidation of hydrocarbons and proteins. Gré states that importation of foreign insulin is prohibited in France, and that the various French products are insufficiently standardized, which may account for the fact that insulin has not received in France such approval as in England and America. He believes that the best results are obtained from subcutaneous or intramuscular injection; only in cases of extreme urgency should it be given intravenously, and then it must be injected very slowly. Rectal administration, he finds, is useless. In "intensive" treatment 40 units should be injected at the beginning, followed by 20 units every two hours, as long as coma persists and the percentage of sugar does not fall. If the patient's condition improves doses may be given at longer intervals, but the patient should receive 200 to 300 units during the first twenty-four hours. At the same time glucose should be administered (in 4 per cent. solution) subcutaneously, or in urgent cases intravenously. Gré points out also that American authors insist on the great importance of such adjuvants as hot-water bottles, administration of fluids by Einhorn's tube, and hot coffee or broth every fifteen minutes to arrest vomiting. After two hours lemonade sweetened with glycerin should be given, since glycerin checks the formation of ketone bodies. Orange juice may also be administered when the patient can swallow. If vomiting persists the stomach may be washed out with tepid saline solution. To stimulate the heart, digitalis, caffeine, or camphor in oil and subcutaneously should be administered. Frequent examinations of the urine should be made, the estimation of the degree of acidosis being much more important than that of the glucose content of the urine.

237. Hepatic Symptoms during Arsenical Treatment.

BERTRAND (*Bruxelles-Médical*, January 17th, 1926, p. 380) remarks that the distinction between the toxic conditions produced by arsenic and syphilis is not always clear, particularly in the case of hepatic symptoms. Early jaundice during the arsenical treatment of syphilis may be due to the massive destruction of spirochaetes (Herxheimer reaction), or to reactivation of the spirochaetes in the liver tissue—in either case of syphilitic origin. Jaundice occurring near the end of the course of treatment is much more likely to be due to the arsenic. Bertrand considers, however, that exceptions to these generalizations are not infrequent. In his experience ten out of fifteen patients gave a history of liver disease, five of them being Africans; others gave a family history of gall stones, while one had had malaria. When the jaundice appeared late in the course it could be checked readily by stopping the arsenic. The author thinks that arsenic in large doses may cause toxic hepatitis, and that the optimum therapeutic concentration lies near the toxic limit. Therefore if the latter be lowered, as by a tendency to hepatic disease, the hepatic cell may become more susceptible to the drug than is the treponema itself.

238. Chloralose in the Insomnia of the Insane.

A. MARIE and V. KOHEN (*Bull. Soc. de Thér.*, December, 1925, p. 272) state that since Richet and Hanriot demonstrated the hypnotic and anaesthetic properties of chloralose and its homologues in 1893, numerous clinicians have emphasized its hypnotic effects as well as the uncertainty of its action and the occasional appearance of nervous disturbances which have given rise to its being abandoned as a hypnotic. The uncertainty of its action must be attributed to its insufficient purification. Chevalier and Cherbuliez have shown that these drawbacks were principally due to the presence of parachloralose, from which it could not be completely freed by the old method of preparation. Since the work of Aguilhon, however, a chemically pure chloralose has been obtained in the form of fine crystalline needles with a bitter taste, which are only slightly soluble in cold water, more soluble in hot water, and very soluble in oil. Richet has shown that the action of chloralose is confined to the grey matter of the cortex without affecting the bulb and spinal cord. The present authors have given the drug by mouth to 20 patients in the Sainte-Anne Asylum in doses of 0.10 to 0.60 gram for from two to eight weeks with or without interruption. The patients were suffering from various forms of mental disease in which their insomnia was not affected by

other hypnotics. Hypodermic or intramuscular injections in doses of 0.10 to 0.40 gram were given in cases where chloralose was ineffective by the mouth. The injections were not painful, but often no effect was obtained until a dose of 0.30 or 0.40 gram had been reached. When chloralose was injected intravenously in doses of 0.05 to 0.40 gram sleep accompanied by anaesthesia was obtained in fifteen to twenty minutes. The authors conclude that with the exception of the last stage of general paralysis, in which the sleep centre appears to be destroyed, clinically pure chloralose seems to be of great benefit in nervous insomnia.

239. The Use of Oil in Artificial Pneumothorax.

G. DESMET (La Vie Méd., December 18th, 1925, p. 2039), discussing the pneumothorax treatment of tuberculosis, suggests the injection of oil into the pleural cavity. He states that it is a better compressor of the lung than air and therefore refills will be less frequently required. It can also be combined with antiseptics which have a deterrent action on the development of effusions. Desmet uses a mineral oil and adds to it goménol, a French proprietary balsamic preparation. This antiseptic is absorbed by the pleura and fresh quantities must be introduced from time to time in order that the oil may remain completely sterile. He injects the oil also in cases of pleural effusion, and finds that the emulsion which it forms with the pleural fluid is inimical to the growth of secondary organisms.

240. Treatment of Posterior Gonorrhoeal Urethritis.

M. MICHAÏLOVSKY and P. M. BUTTERFIELD (Urol. and Cut. Rev., November, 1925, p. 662) believe that the incidence of posterior urethritis in gonorrhoea amounts to as high as 90 per cent. In their own cases it occurred in 63 per cent. The average date of its onset in their cases was the twelfth day, the earliest date being the fourth day and the latest the twenty-eighth day. The authors recommend the following method of treatment, based on a series of fifty cases. In each case a concentrated non-irritating antiseptic solution was instilled into the posterior urethra with a No. 10 Guyon catheter. A 10 per cent. solution of silvol was the most satisfactory solution. Acriflavine in a solution of 1 in 4,080 was also largely used and in most cases well tolerated. In resistant cases solutions of protargol and argyrol and silver nitrate from 1/4 to 2 per cent. were used. Patients with acute posterior urethritis were treated twice daily, the solutions being retained in the bladder as long as possible. As the urine clears and the discharge lessens the number of injections may be reduced. Patients with chronic posterior urethritis need only one injection daily. Old and new strictures must be dilated as soon as the urine clears and gentle massage given to the prostate and seminal vesicles if their secretions show more than a normal white blood cell content. The authors' patients treated by instillations of the posterior urethra were free from infection on the eighteenth day and clinically well on the twenty-eighth day of treatment.

Ophthalmology.

241. Glaucoma in Myopic Eyes.

A. KNAPP (Arch. Ophthalmol., January, 1926, p. 35) records 32 cases of glaucoma in myopic eyes, contradicting the widespread—though erroneous—idea that the myopic eye is immune to glaucoma. In all these cases the glaucoma was of the chronic type with a deep anterior chamber, no great rise in tension, some excavation of the discs, which, however, was often somewhat disguised by the surrounding myopic change, and definite and characteristic field changes. The results of operation were on the whole satisfactory and compared well with the operative results of chronic glaucoma in emmetropic and hypermetropic eyes.

242. The Treatment of Painful Blind Glaucomatous Eyes.

H. NEAME and WAJID KHAN (Brit. Journ. Ophthalmol., December, 1925, p. 618) describe their investigations into the occurrence of new growth of the choroid in blind painful glaucomatous eyes. In 402 cases in which glaucomatous eyes were excised 16 (4 per cent.) proved to contain sarcoma of the choroid. In all these cases there was not the least suspicion of new growth prior to excision. In this series the average age of the patients at the time of excision was well above the average age of appearance of sarcoma of the choroid and near the middle of the age period of the onset of congestive glaucoma (50 to 70). They come to the conclusion that the treatment of cases of blind painful glaucomatous eyes should be enucleation, excepting possibly in the few cases in which the media of the eye are sufficiently transparent to allow of complete examination of the fundus.

243. Inflammation of the Cornea caused by Silver Nitrate.

J. FEJER (Amer. Journ. Ophthalmol., November, 1925, p. 863) describes the case of a newly born infant into whose eyes the midwife instilled silver nitrate drops as a prophylactic measure. Instead of a 1 per cent. solution a strength of 10 per cent. was used in error. Three months later the right cornea showed a round diffuse opacity the size of a pin's head in the lower and inner quarter, and the left cornea a widespread diffuse nebula in the central zone. Fejer claims that silver acetate is a much safer antiseptic for routine prophylaxis. He asserts that silver acetate prevents ophthalmia neonatorum as well as silver nitrate, that it causes less catarrh, and does not become concentrated on standing. An additional and most important recommendation is that at room temperature it is only soluble to a 1 per cent. strength, the remaining salt being thrown out of solution. It is impossible therefore for an overdose of silver acetate to be given.

244. Unilateral Proptosis due to Scurvy.

E. CLIFFORD PLACE (Amer. Journ. Ophthalmol., December, 1925, p. 955) describes a case of unilateral proptosis coming on suddenly in a male infant aged 8 months. The possibility of this being due to scurvy was recognized at once, but an erroneous report of the infant's diet directed attention elsewhere. Eventually an incision was made into the orbit and the remains of a large subperiosteal haematoma situated along the orbital plate of the ethmoid was found. The child rapidly improved on a suitable diet. The ocular signs of scurvy, which may be the first and in the early stages the only signs, are protrusion of the eyeball and haemorrhage beneath the skin of the lids. The proptosis usually occurs suddenly, and often after a fit of crying.

Obstetrics and Gynaecology.

245. Pregnancy complicated by Pyelitis.

J. T. WILLIAMS (Amer. Journ. Obstet. and Gynecol., December, 1925, p. 765) reports twelve cases of pyelitis complicating pregnancy, and expresses the opinion that this condition is not due directly to the pregnancy, but pre-exists in most cases. He thinks that a chronic infection is brought to a state of acute activity by the pregnancy and persists after it, the stages of development being as follows. The kidney becomes prolapsed and the pelvis dilates with or without kinking of the ureter. The excretory apparatus is strained during pregnancy, with later some compression of the ureters by the foetal head; urinary stasis follows, and infection with *B. coli*. In eight of the author's patients the right side alone was involved, and in two both sides. This preponderance of involvement of the right kidney is possibly attributable to the right lateral torsion of the uterus which is common in pregnancy; the abnormal mobility of the right kidney; the fact that the foetus more commonly occupies the right oblique diameter of the pelvis; and the close relation of the ascending colon and its lymphatics to the right kidney. Pyelographic examinations confirmed the presence of kinking of the ureter and dilatation of the pelvis. The author adds that catheterization usually proves effective.

246. Puerperal Sepsis.

E. A. SCHUMANN (Med. Journ. and Record, December 16th, 1925, p. 722) observes that puerperal sepsis begins almost always as a localized endometritis which may remain localized with little systemic disturbance, be followed by systemic absorption of bacterial endotoxin, or by an entrance of the invading organisms into the blood stream. The infection may spread by continuity, involving the veins of the broad ligaments, or small necrotic masses may enter the tubes and cause salpingitis. General peritonitis may occur. In a few cases the infection is autogenous. The diagnosis of these several types of puerperal sepsis is most important, the author states, since any hope of success in treatment depends on interpreting correctly the exact pathological condition. Repeated physical examinations are necessary in order that the right moment for the evacuation of a localizing collection of pus may be recognized. The general mortality is about 30 per cent., but when the *Streptococcus pyogenes* haemolyticus is the causal organism the death rate is from 60 to 80 per cent., and in general peritonitis from 85 to 90 per cent. Sepsaemia, localized infection, cellulitis, and salpingitis, carry a low mortality. The author recommends the use of pituitrin and a combination of ergot and strychnine. Septic material accumulating in the vagina should be removed

by gentle irrigation at frequent intervals. Where the infection remains apparently localized in the uterine cavity attempted sterilization by Dakin's fluid is advocated. A small rubber tube with minute perforations is introduced into the uterine cavity, a light gauze plug applied to the cervix, and Dakin's solution instilled by the continuous drip method. The gauze is changed daily, and should not be placed too firmly to allow free return of the fluid by seepage through it without distension of the uterus. The author maintains that the curette, the placental forceps, and even the gloved finger have no place in the treatment of septic endometritis in the puerperium. Repeated blood transfusions and rectal injections of 5 per cent. sodium bicarbonate solution are advised. For the sterilization of the blood stream the use of a 1 per cent. mercurochrome solution in sterile water is advocated. An initial dose of about 30 c.cm. is slowly injected intravenously with a salvarsan syringe, and a violent reaction occurs in thirty minutes to six hours. Shock during the reaction is met by the administration of adrenaline, strychnine, or other cardiac stimulants; diarrhoea by the administration of opium, belladonna, and bismuth; and chill is treated by local external heat. The symptoms of reaction usually subside within forty-eight hours, when another injection of 30 to 35 c.cm. of mercurochrome solution is given. Surgical intervention is indicated, according to Schumann, only when definite evidence of localization of pus is present.

247. Treatment of Leucorrhoea.

S. RECASSENS (*Arch. de med., cir. y esp.*, January 30th, 1926, p. 207) states that leucorrhoea may or may not be of microbial origin. Before puberty the vagina contains only cocci which produce an alkaline reaction, but subsequently the invasion of the genital tract by various saprophytes causes the alkaline reaction to become acid, with the result that pathogenic organisms find it more difficult to grow in this medium. The acidity becomes more pronounced in certain circumstances, such as pregnancy, when the need for a defensive reaction is greater. The production of some forms of amicrobial leucorrhoea, in which the glycogen stored up in the genital cells plays an important part, depends on biological causes, and often on changes in the composition of the blood. Thus chlorotic girls suffer from leucorrhoea which is connected with nutritional changes in the vaginal cells, and in such cases considerable quantities of glycogen are found in the leucorrhoeal discharge. Rational treatment of leucorrhoea depends on the recognition of the nature of the process; 75 per cent. of all leucorrhoeas are due to the gonococcus. Strong solutions of the antiseptics most commonly used, such as thymol, carbolic acid, potassium permanganate, and lysol, increase leucorrhoea, while weak solutions have no bactericidal action, but cause a swelling of the epithelium and consequently an abnormal increase of secretion. Moreover, repeated irrigations may give rise to the antiseptic fluid used being converted into a culture medium. The inefficacy of vaginal irrigations has led to the use of the so-called "dry cure" of leucorrhoea, in the form of application of aluminium oxide powder or silver nitrate. Treatment of gonorrhoeal leucorrhoea with silver salts often yields satisfactory results, but sometimes very obstinate cases are encountered in which the infection has invaded the blood stream. Recassens adds that the employment of such drugs as sandalwood oil, copaiba, cubebs, and arrheol, on the ground that they are eliminated by the kidneys and so come in contact with the infected urethra, is illusory, as in 90 per cent. of the cases gonococcal leucorrhoea is not accompanied by urethritis, and it is only in cases in which the bladder is involved that the use of these drugs is justified. Treatment by intravenous injection of various antiseptics, such as gold or colloidal copper, has not yielded the desired results, but has merely given rise to the appearance of casts in the urine.

248. Treatment of Gonorrhoea in Women by Diathermy.

P. J. VAN PUTTE (*Nederl. Tijdschr. v. Geneesk.*, January 30th, 1926, p. 437) states that, in addition to local antiseptic measures, a local non-antiseptic treatment has been introduced in the form of diathermy, which produces surprisingly good results in chronic gonorrhoea. Owing to anatomical conditions diathermy is more suitable for the treatment of the disease in women than in men. One electrode is introduced into the vagina up to the posterior fornix and the other is placed on the abdomen or on the flanks. The whole genital apparatus, including the urethra and bladder, is treated at one sitting, which lasts two hours the first day and one hour each of the three following days. The patients are irrigated twice daily with an astringent, such as potassium permanganate or copper sulphate solution. The strength of the current is not more than 1.5 amperes. The rationale of the treatment is that the application of heat to the infected tissues produces an increased formation of antibodies which destroy the gonococci.

Pathology.

249. The Presence of a Transmissible Lytic Agent in Water.

F. ARLOING and SEMPÉ (*C. R. Soc. de Biologie*, January 29th, 1926, p. 191) have found that the water of certain of the French rivers has an inhibitive or actually destructive effect on the growth of the intestinal bacteria. As examples may be quoted the antagonistic action to *B. coli* of the Saône, to *B. typhosus* of the Rhône, to *B. paratyphosus* A of the Isère, and to *B. dysenteriae* Shiga of the sea in the port of Havre. An extensive series of observations has been carried out on waters in different parts of the world. The results show that many streams possess the power of lysing one or more of the pathogenic bacteria, and that the lysis can be carried over from one culture to the next for a considerable number of passages. It is possible that this lysis may be of chemical nature, but the fact that its action is often unimpaired after several passages, and may even be exalted by this procedure, renders this supposition unlikely. Moreover, it is unusual to find purely chemical agents with the degree of specificity obviously possessed by this lytic agent. The authors consider that the lysis is probably of a similar nature to that described by Twort and by d'Herelle. If this is so it is important from a hygienic standpoint as being a hitherto unrecognized means, by which the self-purification of waters is attained. It may also serve to explain why certain regions and certain persons are immune to water-borne diseases.

250. Basal Metabolism in Pulmonary Tuberculosis.

M. REALE (*Il Morgagni*, January 3rd, 1926, p. 9) has estimated the basal metabolism in 116 cases of pulmonary tuberculosis. The methods employed were the indirect calorimetric method and the more precise one of Zuntz-Geppert. In this way not only was the consumption of oxygen estimated, but also the amount of carbon dioxide produced. Most of the patients examined were undergoing the ambulatory treatment, but the clinical and pathological types of the disease from which they were suffering varied considerably. The results showed that the majority had a basal metabolism closely approximating the normal, varying generally within 10 per cent. above or below this value. In the favourable cases the values tended to be below normal; in the serious cases above normal. In some of this latter type of case the values obtained were as high as 64 per cent. above the normal. The patients with a low basal metabolism as a rule gained weight; those with a high basal metabolism lost weight. In patients with a low basal metabolism there was a slight or moderate degree of allergy, whereas in those with a high basal metabolism a state either of hyperallergy or of complete absence of allergy was noted. An increase in respiration was observed in advanced cases of pulmonary tuberculosis, generally accompanied by a rise in the basal metabolism; in less advanced cases showing an increase in respiration the basal metabolism was normal or even depressed.

251. The Chemical Nature of Tuberculin.

J. H. MUELLER (*Journ. Exper. Med.*, January, 1926, p. 1) states that "old tuberculin" is a complex product containing one substance which is responsible for the precipitin and complement fixation reactions and another which produces the skin reaction. It was observed that a solution of old tuberculin treated by peptic or tryptic digestion gradually lost its power to provoke a skin reaction in tuberculous guinea-pigs but retained its precipitating power unimpaired. Similarly, precipitation of the protein with acetic or tannic acid had the same effect. This suggested that the factor responsible for the skin reaction was of protein constitution, while the one giving the precipitin test was of non-protein constitution. This surmise was proved to be correct. By growing tubercle bacilli in a synthetic medium, and precipitating the partly evaporated fluid with alcohol, a residue was obtained consisting of a non-protein gum that gave the precipitin but not the skin reaction. By treating the culture fluid with 5 per cent. acetone, dialysing, and subsequently precipitating with dilute acetic acid, the protein fraction was obtained, and was found to give the skin but not the precipitin reaction. These two reactions are therefore caused by different substances in the tuberculin—the skin reaction by a protein fraction (or at least a fraction containing a considerable quantity of protein), the precipitin reaction by a non-protein gum. In another paper (p. 9) the preparation of the non-protein gum is described in detail. The deduction is drawn that, as the substance responsible for the toxic action of tuberculin is different from that concerned with the precipitin and complement fixation reactions, the present methods of standardizing tuberculin by *in vitro* tests must be revised.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

252. The Clinical Course of Diabetes.

H. F. ROOT and S. WARREN (*Boston Med. and Surg. Journ.*, January, 1926, p. 45) believe that regeneration of the pancreas plays a greater part in the clinical course of diabetes than has previously been realized. They have collected a series of 26 cases of diabetes, including 6 of a very chronic type and others of an acute nature. Death in 22 of the cases was due to complications, and it is thought that the fatal issue might have been prevented in 10 cases. Arterio-sclerosis was present in 10 cases, while fibrosed coronary arteries existed with myocardial change in 11 cases. Cholelithiasis and cholecystitis occurred in 32 per cent. of cases over 25 years of age. In 13 cases hyalinization of the islets of Langerhans was found, and a variable degree of sclerosis of the islets was present in 5 instances. In 3 patients there was a slight lymphocytic invasion of scattered islets and in 5 more no obvious lesions could be found, although the number of islets was decreased in two of these five. Normal islets were present in all the pancreatic glands examined, and in 2 cases treated by insulin over a period of five months the number of normal islets seemed greater than in those patients who had received dietetic treatment alone. Root and Warren suggest that the pathological lesions in the islets are due either to prolonged functional strain or to some toxic process of a chronic nature. They point out that in haemochromatosis the type of diabetes is the same as that in diabetes mellitus, and both acinar and islet units exhibit evidence of regenerative changes. In the case of diabetes they believe that long-continued strain, either functional or caused by chronic toxæmia, slowly destroys the islets and in certain cases the acinar tissue also. Regeneration occurs, but it is followed by destruction of the newly formed units, and again new cells are formed. The rarity of uncomplicated deaths in diabetes suggests the presence of some regenerative power; the first two years are the danger period and coma is the condition to be most carefully prevented. The disturbance of the carbohydrate metabolism in diabetes mellitus, giving rise to abnormal fat and protein metabolism, may, they add, be a contributing cause of the high incidence of vascular disease.

253. Tertian Malaria with a Long Latent Period.

V. FOSSATI and C. SALVO (*Rev. Sud-Am. de endocrinol.*, December 15th, 1925, p. 871) record a case in a man, aged 29, who contracted malaria while living in an infested district in Italy during 1919-20. The disease, however, was not manifested at the time by fever or any other symptoms, and it was only after the patient came to Buenos Aires, five years later, that symptoms of benign tertian developed and *Plasmodium vivax* was found in the blood. Cases of latent malaria were first described by Koch, who observed them in natives of Africa. Other writers, especially during the world war, found that actual malaria carriers exist, as occurs in other diseases, such as typhoid fever, cholera, etc. These carriers have been discovered by methodical examination of their blood. The present authors' patient was undoubtedly an example of the kind. His absence of symptoms was due to a natural immunity which was diminished by a combination of circumstances, which included a change of life, work, and climate. Such cases of prolonged latency are rare, and are of considerable epidemiological and social importance. Treatment by quinine is very efficacious, and should be continued for a long period.

254. Sea-Sickness.

P. H. DESNOES (*Journ. Amer. Med. Assoc.*, January 30th, 1926, p. 319) believes that sea-sickness in the healthy adult is usually due to excessive stimulation of the labyrinth. The effects on the body on the whole are, he thinks, most plausibly explained by radiation of these stimuli from their receptive centres in the brain to such associated centres as the vasomotor, respiratory, and vagal. Other factors in the condition are fatigue of the eye muscles, disturbance of the muscular sense reflexes, irritation in the gastro-intestinal tract, and certain neurotic or psychic reactions. The immunity of a healthy adult to the effects of the ship's motion, which is usually established after three or four days, is said to be due to the brain having learned to inhibit the irritating sensations or to be less affected by them. This immunity is not permanent, but is more readily acquired on a second voyage than on a first. After many voyages complete freedom from sea-sickness may be expected, with the exception of slight

relapses during severe weather conditions. Failure to acquire such immunity may be due to the presence of low-grade, chronic inflammatory foci in the gastro-intestinal tract such as colitis or gall-bladder disease; anatomical malformations and congenital anomalies; improperly balanced diets; and a possibly inherited inferiority of the adaptive mechanism of the brain. Since stimulation of the horizontal semicircular canals is the least objectionable; the recumbent position is often found to be beneficial. When the condition does not respond to treatment, careful examination is required, since a slight pre-existing cardiac incompetence may be aggravated by the efforts of vomiting and cause passive congestion of the abdominal viscera. In treatment Desnoes places main reliance on the use of scopolamine and strychnine; he has, however, obtained good results from sedatives and centrally acting hypnotics, such as chloralhydrate and veronal. When viscerospasm exists, an elastic belt or adhesive plaster support may be very valuable. In cases of excessive vomiting that resist treatment, morphine combined with atropine must be used, and after the sleep so induced is ended the patient must not be allowed to raise his head for several hours. Careful attention must be paid to the diet and to the regular action of the bowels.

255. Active Immunization against Diphtheria.

W. BAYER (*Jahrb. f. Kinderheilk.*, November, 1925, p. 272) has recently employed the method introduced by Böhm and Riebold of using living Klebs-Loeffler bacilli for immunization against diphtheria. From January, 1924, to February, 1925, 87 infants, aged from 4 to 12 months, with positive Schick reactions, were inoculated by this method at the Berlin University Children's Clinic. The skin of the thigh or upper arm, after previous disinfection, was scarified to an extent of 1 to 2 cm. and the contents of a capillary tube containing the bacilli were rubbed in. No constitutional symptoms or sequelae were observed. The local reaction consisted in slight redness at the site of inoculation and pustule formation, which subsided in five or six days without leaving any trace. Of the 87 children inoculated 63 gave a negative Schick reaction on the tenth to twelfth day after inoculation. Nine months later 39 children were examined: 10 in whom the positive reaction had at first persisted were now found to be negative, and the remaining 29 continued to be negative. None of the children had had an attack of diphtheria in the interval. Bayer concludes that the method is inexpensive, readily applied, and yields the same results as those hitherto employed. The lack of exactness in the dosage is its only drawback.

Surgery.

256. Dupuytren's Contraction.

P. COKKALIS (*Deut. Zeit. f. Chir.*, January, 1926, p. 256), who records an illustrative case, states that Dupuytren's contraction, which usually affects only the palmar fascia, may also involve the plantar aponeurosis. Such cases, though very rare, have been described by Dupuytren himself and by Madelung. Cokkalis's patient was a man, aged 52, whose hands had been affected for the last nine years. One year after the onset of the disease in the hands the patient noticed a feeling of tension on walking, first in the left sole and later in the right. On examination both hands showed typical Dupuytren's contraction, all the fingers of the left hand being affected, and the third, fourth, and fifth fingers of the right hand. In both soles, especially the left, a tough cord could be felt beneath the skin on the mesial border of the foot and became particularly prominent on dorsal flexion of the great toe, the movement of which was decidedly less than that of the other toes. G. SPROGIS (*ibid.*, p. 258) reports the occurrence of Dupuytren's contraction in three generations. The genealogical tree showed 17 cases of the disease, of which 15, or 88.24 per cent., were in males and 2, or 11.76 per cent., in females. Sprogis's cases confirmed the investigations of Krogus that apparently healthy women can transmit the disease. In addition to typical cases of Dupuytren's contraction there were six examples of induration of the extensor tendons of the fingers; one patient besides Dupuytren's contraction showed marked thickening of the nails, and two were imbeciles. There were no examples of os priapi, or formation of bone in the penis, which according to Hans Smeend is sometimes associated with Dupuytren's contraction.

257. The Subsequent History of Benign Mammary Tumours.

P. WALZEL and F. STARLINGER (*Deut. Zeit. f. Chir.*, January, 1926, p. 152) state that from January 1st, 1903, to December 31st, 1922, 248 women and girls were admitted to the First Surgical Clinic of Vienna University with benign tumours of the breast. In 216 the tumours were classified as adenofibroma or fibroadenoma, and in 32 as chronic mastitis or papillary cystadenoma. Sixty-seven, or 27 per cent. of the 248 patients, presented themselves for subsequent examination, consisting of 53 whose tumours had been classified in the first group and 14 in the second. The first group of patients were mostly in the third, fourth, or fifth decennium when they came under treatment. Both breasts in this group were affected with almost equal frequency. The same is to be said of the upper two quadrants. The lower and outer quadrants were affected in 11 cases, and the lower and inner in only 4. Bilateral involvement was found in only 3. The size of the tumour in the first group ranged from that of a hazel nut to that of a hen's egg. Most were the size of a walnut or slightly larger. There was no marked difference in the size of the tumours in married and unmarried women, or in nulliparous women on the one hand and multiparous women on the other. The second group of patients were mainly in the third or fourth decennium. In 7 both breasts were affected; with four exceptions, in which the tumour was the size of the first, it was almost always the size of a hen's egg. There was no essential difference in the frequency with which the different quadrants of the breast were affected, apart from the fact that the lower internal quadrant always escaped. One case showed evidence of carcinoma of the nipple. Operation was performed in 48 and refused in 5 cases of the first group; in the second group 8 cases underwent operation. In several instances in which operation had been refused the tumours subsided spontaneously. The operation, which was almost always performed under local anaesthesia, consisted in excision of the breast with preservation of the nipple, a good functional and cosmetic result being obtained.

258. The Treatment of Recurrent Dislocations of the Shoulder and Patella.

S. S. GIGOLAFF (*Zentralbl. f. Chir.*, January 16th, 1926, p. 138) refers to the operations devised by Plummer, Potts, Joseph, and Wülfing (see *Epitome*, August 29th, 1925, para. 157) for the treatment of recurrent dislocations of the shoulder, and describes his own procedure, which aims at strengthening the atrophied and relaxed capsular ligament of the shoulder-joint by means of a broad strip of fascia lata. The deltoid is split vertically so as to bring into view the surgical neck of the humerus below the attachment of the capsular ligament and to permit of the exposure of the acromion and coracoid processes. The shaft of the humerus is then drilled through in an antero-posterior direction; the strip of fascia lata is passed through this canal and crossed over the outer aspect of the capsular ligament. The ends of this fascial strip are then sutured to the two processes, that from the posterior surface of the humerus being brought forward and fixed to the coracoid process, while that from the anterior surface of the humerus passes backwards and is attached to the acromion process. A suture is fixed in the fascial band at its crossing and the ends are sutured to the capsular ligament and periosteum. Gigolaff performed this operation upon three men and one woman during 1925. He reports that so far the functional results are excellent, but the operations are too recent for judgement as to the permanence of the benefit. He has employed the same method of fixation in recurrent patellar dislocation. The patient was a powerfully built seaman, who, after the operation, recovered full movements of the joint without recurrence of the patellar dislocation.

259. Lumbar Pain treated by Sympathectomy.

O. BITTMANN (*Lyon Chir.*, November-December, 1925, p. 757) points out that pain in the lumbar region is one of the most common affections met with in females after puberty. Not only the gynaecologist but all practitioners meet them, and the condition is very difficult and unsatisfactory to treat; opinions differ widely as to their cause and pathology. The pain is usually situated in the lower part of the body, specially in the lumbar region, and varies considerably in character and duration. In a large series of cases the condition was found to be associated with a considerable variety of other affections, the most frequent one being that of general asthenia. This is an affection accompanied by a general visceroptosis, associated with nervous dyspepsia, and defined as neurasthenic dyspepsia. This asthenia may be congenital or acquired. Nine cases of this disease are recorded in detail. The treatment adopted was laparotomy together with periaortic sympathectomy; it is based on the

opinion that there is some chronic inflammatory disease present in one or other of the abdominal organs—in these cases usually in the pelvic region. The nerve fibres of the sympathetic are reflexly irritated by this condition, causing pains in different parts of the body. Interruption of the nervous arc by removal of the sympathetic plexus is stated to be a simple procedure, free from danger, and apparently followed by encouraging results.

Therapeutics.**260. Treatment of Malignant Pustule.**

M. SALOMONE (*Studium*, January 20th, 1926, p. 12) states that since the introduction of antianthrax serum the mortality from the disease in Italy has been reduced to 5.3 per cent., and that if the diagnosis is made early and the treatment properly administered it should be reduced to nil. Out of sixty cases of malignant pustule treated by himself and two colleagues during the last few years only two, which came under treatment late, were fatal. Salomone always uses the thermo-cautery and has abandoned excision, as this procedure opens up the blood vessels and allows the organisms to enter the circulation. In some localizations of malignant pustule, such as the eyelids, the cautery should not be employed and the specific serum only should be used, as the scar left by the malignant pustule is less disfiguring than that caused by the cautery. An ointment composed of copper sulphate and yolk of egg is very effective when there is no constitutional disturbance. When the pustule is well developed and accompanied by oedema the cautery should be used, followed by hot fomentations containing boric acid in the case of the eyelids and 1 in 1,000 perchloride for other parts. Injections of 5 per cent. carbolic acid should be made all round the oedematous area. The dose of specific serum is determined by the pulse and temperature. If the temperature is below 102.2° and the pulse under 130, 20 to 30 c.c.m. is a sufficient dose for an adult; it should be given daily until the temperature becomes quite normal. If the temperature is high and accompanied by severe constitutional disturbance, the dose should be increased, and 20 c.c.m. should be given intravenously. Digitalis is useful in these cases in view of the tendency for the vagus to become paralysed.

261. Iodine in Exophthalmic Goitre.

R. R. FITZGERALD (*Canadian Med. Assoc. Journ.*, February, 1926, p. 159) reports an investigation into 148 cases of goitre which, in addition to operative treatment, had received administrations of iodine, either in the form of Lugol's solution or of resublimed iodine in hydriodic acid. Lowering of the basal metabolic rate occurred in nearly all the cases, irrespective of the kind of iodine used, and the two forms of iodine produced practically the same amount of diminution in the rate, and within the same length of time. It was found necessary, however, to give nearly four times as much resublimed iodine as Lugol's solution to produce the same clinical result. Lugol's solution was given in daily doses of from 6 to 20 minims, and the resublimed iodine dissolved in hydriodic acid in doses of 100 to 200 mg. of iodine daily. The advantages gained by the use of iodine were the shortening of the period of pre-operative rest that was necessary, and the abolition of distressing post-operative reactions. Many cases previously considered inoperable were rendered suitable for surgical treatment.

262. Protein Therapy in Resistant Syphilis.

R. D. HERROLD (*Journ. Amer. Med. Assoc.*, February 6th, 1926, p. 413) reports that the intramuscular injection of gonococcus protein, combined with the intravenous injection of neo-arsphenamine, exerts a markedly favourable influence on the reduction of the Wassermann reaction and on the clinical course of resistant syphilis, especially in the case of glandular enlargements. His patients had had three previous courses of treatment—with neo-arsphenamine intravenously, mercuric chloride intramuscularly, and potassium iodide by the mouth—and the Wassermann reaction was still positive in each case. The protein used consisted of a clear extract of gonococci in normal saline solution, its strength being 500 million per cubic centimetre. Four injections, each of 15 to 20 minims, were given intramuscularly in the gluteal region at intervals of three days and five days. After the last injection a combined administration of neo-arsphenamine intravenously and protein intramuscularly was continued twice a week for four weeks. In each case the Wassermann reaction either became completely negative or was markedly decreased in degree after one course of the combined treatment, and the lymph nodes diminished in size. No adverse symptoms of any kind were observed as a result of the combined treatment.

263. Vaccine Treatment of Typhoid Fever.

L. Y. ESPINOSA (*Bruzellas-Med.*, January 10th, 1926, p. 357) states that as a general rule the first doses of typhoid vaccine should be determined by the patient's sex, age, and fever, and the stage of the disease; subsequent doses should be estimated from the amount of reaction caused by the first. Small doses should be employed at first and their strength gradually increased; 50 million as a rule should be the initial dose. The vaccine should be given as soon as the clinical diagnosis is made, without waiting for bacteriological confirmation. When the patient's condition permits vaccine treatment should be preceded by a purge or an intestinal disinfectant such as calomel. Hitherto the only serious contraindications for vaccine treatment have been a hyper-toxic infection or hyperpyrexial attacks of the ataxo-dynamic variety of typhoid fever. Cardiac complications are not a contraindication, except during the early stage. The presence of pulmonary complications requires reduction in size of the doses, and on the occurrence of intestinal haemorrhage the treatment must be temporarily suspended. Hyperpyrexia, syncope attacks, and much enlargement of the spleen also require suspension of the treatment. The unpleasant effects of vaccine therapy consist in a local reaction at the site of injection which is soon relieved by hot applications, a slight rise of temperature which becomes less marked after subsequent injections, and sweating. The good effects are a sensation of well-being and increase in strength, return of appetite, and shortening of convalescence.

264. A. CAVAZZUTI (*Il Policlinico*, Sez. Prat., October 26th, 1925, p. 1485) treated 23 typhoid patients with antityphoid serum. Three injections, each consisting of 10 c.c.m., were given, with one or two days' interval between; 16 recovered and 7 died. He also treated 24 patients with antityphoid vaccine. Of these 13 had previously received antityphoid serum without any improvement, and 11 were given the vaccine only. Only 3 of the 24 cases died. Apart from slight rashes and pain in the joints no bad effects were noted from the use of antityphoid serum and vaccine. Cavazzuti recommends that the vaccine should be given early in the disease and its use continued after the fall of the temperature so as to avoid relapses.

Dermatology.

265. Attenuated Forms of Acne Varioliformis.

R. SABOURAUD (*Paris méd.*, January 16th, 1926, p. 59) describes atypical forms of acne which occur on the scalp as well as on the body, affecting more severely the middle of the face and chest and the vertebral groove. The crusted top of the lesion comes off, leaving a little ulcerated cone covered with clear exudation which then cicatrizes like a small-pox papule. The morbid process is a necrotic one affecting a hair follicle, sometimes with its attendant sebaceous gland. The course is characterized by successive crops, each preceded by local discomfort. In children local medication is quickly effective, but in the middle-aged the disease may be much worse and more intractable; it has even led to suicide. In young subjects, also, the characteristic distribution on the forehead and temples may lead to a suspicion of the syphilitic "corona venerea." In most patients every form of bread should be strictly excluded from the diet. As with all acnes, sulphur has proved to be the sheet-anchor in local treatment, and the author recommends that it be applied in an ointment of lanoline, vaseline, and resorcin.

266. Treatment of Acne by Testicular Implantations.

L. E. STANLEY (*Urol. and Cut. Rev.*, January, 1926, p. 6) remarks that the sexual organs have a certain influence on the skin, as is shown by the following occurrences. Ringworm of the scalp is nearly incurable in children, but at puberty disappears without any treatment. A dermatitis symmetrica dysmenorrhoeica has been described. All kinds of skin diseases have been influenced by menstruation. Pigmentation during pregnancy is well known. Seborrhoea often disappears in pregnancy. In myoma of the uterus loss of the hair has often been observed. Scleroderma beginning at the menopause has been described. All these facts point to the existence of relations between the skin and the general condition. Stanley, who records 17 illustrative cases, with photographs showing the condition before and after treatment, treated 66 cases of acne in men aged from 18 to 65 by transplantation of testicular substance. The experiments, which were first made in 1918 with testes from executed criminals, were sufficiently encouraging to warrant further investigations. In 1921 a method for transporting testicular substance from animals to man was devised, the glandular substance of the testis, including the interstitial cells and the seminiferous tubules,

being injected beneath the skin of the abdomen. As the result of the treatment 54 patients, or 82 per cent., were benefited, and 18 per cent. showed no change.

267. The Etiology of Psoriasis.

R. BERNHARDT (*Ann. de Derm. et de Syph.*, January, 1926, p. 27) dismisses the theory of the bacterial origin of psoriasis as being incapable of proof and does not consider the disease hereditary in the strict sense of the term. The statistics (varying, according to different writers, from 15 to 44 per cent. of familial cases of psoriasis) show that there is some innate and latent inherited predisposition of familial type which causes the skins of these persons to react to a variety of stimuli. Bernhardt draws an analogy between psoriasis and freckling of the skin, in which such an hereditary predisposition is manifested under the influence of solar rays. Similarly, in psoriasis there is, he thinks, some hereditary specific property of the skin to react, and certain external causes which act as irritants can be defined. Anaphylaxis is also apparently a preponderant factor, since, without this, it is impossible to understand why some members of these families remain free from psoriasis, although living under similar conditions; why psoriasis may appear in elderly patients; why certain patients have recurrences at definite periods; and finally, why untreated psoriasis may disappear completely. He defines psoriasis as a congenital, hereditary, and familial tendency to react to different agents, both exogenous and endogenous, after sensitization of the skin; among the endogenous causes endocrine defect must be considered. Bernhardt's statistics show thyroid deficiency in 42 per cent., gonad deficiency in 22 per cent., and thymus deficiency in 21 per cent. of cases; but the physiology of the endocrine glands is not yet sufficiently understood for any etiological conclusions to be drawn.

268. Salicin in Psoriasis.

G. PERNET (*Arch. Derm. and Syph.*, January, 1926, p. 111) advocates the use of salicin in the treatment of psoriasis. He states that it should be administered in solution, being ineffective in tablet form, commencing with 1 gram in 30 c.c.m. of water (approximately 15 grains to the ounce), increasing to 1.2, 1.5, or even 2 grams three times a day immediately after meals, tragacanth for its suspension being necessary in the larger doses. During its administration only soothing local applications of lead lotion and occasional sodium bicarbonate baths should be used, chrysarobin and tar preparations being avoided. A case is recorded in which salicin taken regularly and perseveringly had given an interval of eleven years' freedom from an attack, after failure under arsenic and salicin in tablets. The drug does not terminate eruptive attacks, but it was found that fresh elements ceased to appear and the earlier ones became involuted. It has no effect upon old chronic patchy psoriasis. Not being a prophylactic its indefinite continuance is useless after its effects have been obtained in an acute or subacute attack. Pernet has found it useful in attacks of spreading psoriasis in children, young women, and in nursing mothers in whom psoriasis may become acute and generalized as the result of lactation. Those severe and extensive cases seen in elderly people are benefited by rest in bed, and soothing oily calamine applications with salicin internally in increasing doses combined with nuxvomica if necessary. In the acute generalized form associated with rheumatoid arthritis in women whose nutrition was lowered it was found that the rash was diminished and the joints were improved by its administration.

Obstetrics and Gynaecology.

269. Treatment of Severe Uterine Prolapse.

E. SOLMS (*Zentralbl. f. Gynäk.*, January 30th, 1926, p. 263) quotes Stoeckel as stating that failures result in 87 per cent. of severe cases of uterine prolapse treated by operations which, without involving fixation of the uterus to the vagina, the abdominal wall, or the pelvis, consist simply in shortening of the uterine ligaments. He thinks that little advantage is to be gained by such surgical shortening in young women suffering from severe prolapse, in whom, because of the risk of sterilization, vaginal or other forms of interposition are avoided. Rather than perform a ligament-shortening operation in these cases he advises treatment for a time by pessary. In order that this may be retained in the worst cases, he sutures folds of skin from the labia majora over the perineum—a procedure that can also be employed in senile asthenic subjects in whom operation is dangerous. In thirteen cases of severe prolapse he has had lasting success from an operation consisting of fixation of the fundus of the uterus to the symphysis pubis, the uterine body being fixed to and

between the bladder and the recti abdominis muscles, with the cervix directed towards the umbilicus. The action of the intra-abdominal pressure, he states, can only result in a raising of a uterus which has been fixed in this position.

270. Varicose Veins of the Female Pelvis.

L. A. EMGE (*Journ. Amer. Med. Assoc.*, November 28th, 1925, p. 1690) gives a statistical report of twenty-four cases of varicose conditions in the female pelvis, and states that a definitely circumscribed varicocele is of rare occurrence. Venous disturbance causing temporary or permanent dilatation is usually of a varicoid nature and involves one or more divisions of the ovarian and uterine circulation; it is therefore not easily dealt with by surgery. He believes that this condition is mainly due to damage of the fibro-elastic supporting tissue and is only occasionally produced by degenerative changes in the actual walls of the veins. The author's treatment is based on the intimate attachment of the pelvic peritoneum to the suspensory tissue. He has found that by shortening the sacro-uterine and associated ligaments, together with transplantation of the round ligaments, traction can be exerted on the peritoneum and control of the veins obtained with disappearance of large varicose vessels. This method has given freedom from symptoms for from one to seven years and has also removed varicosities due to childbirth. He thinks that resection of the veins is only necessary when some organic disease of the vein walls is present.

271. Thymus Extract in Obstetric Practice.

N. TEMESVÁRY (*Zentralbl. f. Gynäk.*, February 6th, 1926, p. 322), after an intensive trial of thymus extract, reports that it is no more potent in inducing abortion than any other single medicament. At most it produces slight pain, and must be supplemented by such agents as laminaria tents before useful uterine contractions ensue. Sometimes, but not always, when an abortion has already started, thymus extract will hasten its conclusion. With regard to premature birth the same rule holds—namely, that the extract will act only on a uterus made sensitive previously. Its chief use is in encouraging early contractions, at which stage hypophysis is either without action, or else, by producing a continuous pain, involves the risk of uterine rupture or of asphyxiation of the child. In practice the author uses a mixture of both drugs, and claims that complete safety is thereby secured. The preparation acts as well in a first as in later pregnancies, but the pains must be true pains, and not those sometimes felt three or four weeks before the onset of labour. He adds that thymus extract is unsuitable as a substitute for ergot after expulsion of the placenta because the contraction induced is clonic, not tonic.

272. The Value of Radiography in Pregnancy.

S. GENELL (*Gynéc. et Obstét.*, January, 1926, p. 41) refers to a case recorded by Essen-Møller in 1920 in which a skiagram, taken immediately before delivery, showed three foetal heads. He reports a somewhat similar case. A primipara, aged 29, was admitted to hospital when seven months pregnant. There was generalized oedema, especially of the lower extremities, and albuminuria. Two foetal heads could be felt and foetal heart sounds were heard in each flank, with a "silent area" in the mid-line. The diagnosis of "twin pregnancy" was made. Skiagrams of the abdomen and pelvis showed two foetal heads and the shadow of a vertebral column between those of the heads, which obviously belonged to neither. One week after admission labour commenced, and three female children were born alive, but in spite of injections of pituitrin and ergot the uterus failed to contract. The patient lost about 1,200 c.cm. of blood, and died ten hours after the termination of labour. The author emphasizes the value of skiagrams in all doubtful cases of multiple pregnancy.

Pathology.

273. Experimental Transmission of Leprosy.

J. REENSTIERNA (*Ann. Inst. Pasteur*, January, 1926, p. 78) reports the experimental transmission of leprosy to two species of monkeys—*Macacus sinicus* and *M. rhesus*. The infective material was derived from two untreated patients who during the preceding year had developed generalized leprosy of the nodular form. A saline suspension of the ground-up lepromata was injected in the supraorbital and malar regions of both sides of the face, in the pubic region, and into both nostrils. Three days later all signs of the inoculations had disappeared. On the thirty-ninth day a small round hard nodule was visible over the right malar bone. Similar swellings appeared later over the other sites of inoculation with the exception of the nasal mucosa, which

remained intact. The nodules increased in size till on the seventieth day they varied from a small pea to a nut. Pieces were excised from some of them and were injected into guinea-pigs and monkeys; both sets of animals remained well. Microscopic examination of the excised tissue showed typical leprosy bacilli in films. Sections demonstrated the presence of granulation tissue containing large mononuclear, often vacuolated, cells; some giant multinucleated cells; and round the peripheral portion lymphocytes, polymorphs, and plasma cells. Acid-fast bacilli were found within the large mononuclear cells. Shortly after the removal of the nodules the remaining lesions commenced to decrease in size; they ultimately disappeared. Similar results were obtained with two other *sinicus* and four *rhesus* monkeys. The incubation period varied from about five to eight weeks. The nodules reached in some instances the size of a small plum; they disappeared as a rule in from six to ten weeks. Clinically and histologically they closely resembled human lepromata. Acid-fast bacilli were uniformly found in films, but only occasionally in sections. Reinoculation of two of the animals gave rise to the disease again, in each case with a shortened incubation period—nineteen and twenty-two days respectively. Passage experiments were unsuccessful, and in no case was the disease transmitted to guinea-pigs. The author concludes that the disease reproduced in the monkeys was a localized form of leprosy.

274. Effect of Carbon Dioxide on the Growth of the Tubercle Bacillus.

THE gaseous requirements of the tubercle bacillus are of importance in connexion with its ability to grow in the body. G. E. ROCKWELL and J. H. HIGHERBERGER (*Journ. Infect. Dis.*, January, 1926, p. 92) have carried out a number of experiments to determine the part that is played by carbon dioxide in the growth of the tubercle bacillus and the saprophytic acid-fast bacilli. Novy recently came to the conclusion that this gas was of no importance, and explained the results that have pointed to the contrary as being technically fallacious. One of the main errors that is likely to confuse the investigator is the action of dehydration on the medium. To control this the authors have made careful measurements of the loss of water throughout their experiments. The technique used was to incubate the culture tubes over water, sulphuric acid, or alkali, and to calculate the amount of growth that ensued. Briefly, they found that the best growth occurred over sulphuric acid, the next best over water; in the tubes incubated over alkali there was very little growth—never more than a few discrete colonies. The inhibitive action of the alkali was not due to dehydration, because this was not nearly so marked as in the tubes incubated over acid. It appeared to be due to the absorption by the alkali of the carbon dioxide in the atmosphere over the tube. When the alkali was saturated with carbon dioxide—that is, when the tube was incubated over sodium bicarbonate—profuse growth occurred. The authors therefore conclude that carbon dioxide is a vital factor in the growth of the tubercle bacillus.

275. The Wassermann Reaction in Congenital Syphilis.

F. BRUNETTI (*La Clinica Pediatrica*, November, 1925, p. 685) states that the founding hospital at Rome was one of the first to use the Wassermann reaction in the diagnosis and prognosis of congenital syphilis. In 1910, or three years after discovery of the reaction, the director, Professor Flaminio, was one of the first to show that the reaction in the newborn was often negative, even when the mother was syphilitic, and that the reaction in the child was very rarely positive before the tenth day of life, especially in cases in which syphilitic manifestations were absent. From 1921 to the first half of 1925 the Wassermann test was performed 2,846 times at the hospital, and there were 2,000 Sachs-Georgi and 440 Meinicke reactions. The patients were divided into the following three groups: (1) Mothers and children with active syphilitic manifestations. In this group the Wassermann reaction was always positive both in the mother and the child. (2) Mothers and children in whom the evidence of syphilis was doubtful. In these cases the reaction was positive in 70 per cent. of the children and 80 per cent. of the mothers. (3) Mothers and children in whom there was not the slightest evidence of syphilis. In this group the reaction was positive in 8 per cent. of the children and in 15 per cent. of the mothers. The Sachs-Georgi reaction gave less conclusive results than the Wassermann reaction, being positive in only 76 per cent. of the mothers, and in 62 per cent. of the children belonging to the first group, and the percentage of positive Meinicke reactions was still less. The occasional lack of correspondence between the Wassermann reaction in the child and that in the mother and the possibility of detecting syphilis in the child from examination of the mother's blood alone render it necessary that the Wassermann test should be performed on the largest number of mothers possible as well as on all the children.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

276. Cardiac Infarction.

H. A. CHRISTIAN (*Amer. Heart Journ.*, December, 1925, p. 129) considers cardiac infarction (coronary thrombosis) a condition easily recognizable by simple clinical methods. Since the pain in such cases may be referred to the abdomen, with fulminating and alarming symptoms simulating some lesion therein, the importance of correct diagnosis is obvious, lest, as not infrequently happens, an unnecessary laparotomy be performed. The differentiation of the condition from angina pectoris is essential, seeing that cervical sympathectomy might be advised in the latter case but is contraindicated in cardiac infarction. A history of varying degrees of precordial or epigastric distress without any evidence of cardiac insufficiency is suggestive, and in most cases the occurrence of the infarction is marked by pain which predominates over other symptoms. A few patients are without pain, but become collapsed and dyspnoeic with a feeling of impending death. The pain, which is always deep-seated, is generally felt behind the upper portion of the sternum, or it may be entirely below the diaphragm. The frequent history of attacks of "indigestion" without any definite cause suggests that such attacks may have been occasioned by slight vascular myocardial disturbances. Dyspnoea out of all proportion to any demonstrable pulmonary or cardiac lesion is a striking characteristic, and the most constant physical sign is a weak cardiac action with a poor arrhythmic pulse. Crackling râles at the bases of the lungs are nearly always present. The blood pressure is lowered after an attack and there is slight fever. Treatment consists in morphine for the relief of pain and absolute rest for as long as the blood pressure remains lowered, with avoidance of nitroglycerin. Christian prefers the intravenous or intramuscular administration of caffeine to digitalis, and for grave circulatory failure 1/4 c.cm. of 1 in 1,000 epinephrin solution intravenously or intracardially.

277. Convalescents' Serum as a Protection against Varicella.

A. G. MITCHELL and S. F. RAVENEL (*Arch. of Ped.*, November, 1925, p. 709) injected intramuscularly 68 patients who had not previously suffered from varicella with 2 to 10 c.cm. of convalescents' serum within from one to seven days after exposure to the disease: 4 developed typical varicella in from seventeen to twenty-one days after exposure, and 64 showed no signs of the disease during a period of thirty days' observation after exposure. The ages of the patients ranged from 1 month to 27 years, and the percentage of those exposed who developed varicella was 4.4. After exclusion of 13 patients who were over 15 years of age and 11 who were under 6, the incidence of those developing the disease in the remaining 44 was 6.8 per cent. Twelve children were re-exposed to varicella twenty-one days after the injection of serum, six were re-exposed thirty-two days and three forty days after injection. One of the children re-exposed on the twenty-first day developed varicella, but the rest escaped. The authors' conclusions are as follows: (1) Varicella convalescents' serum has sufficient protective power against the disease to warrant its collection and employment in prophylaxis in hospital wards in the case of children whose nutritional state or general health is poor. (2) In view of the uncertainty of dosage it is probable that more than 4 c.cm. should be injected intramuscularly. (3) The serum should be given, when possible, within three days after exposure to varicella. (4) The serum is apparently protective for as long as eleven months after collection. (5) The temporary immunity conferred by varicella convalescents' serum possibly lasts as long as fifty days.

278. The Cardiac Symptoms of Aerophagia.

G. T. FLORA (*Thèse de Paris*, 1925, No. 514), who records numerous illustrative cases, states that the cardiac symptoms which may be caused by aerophagia are tender spots in the left submammary and precordial regions, extrasystoles, palpitation and tachycardia, faints, anginal attacks, and acute asphyxia. Angina pectoris associated with aerophagia is usually of mixed origin, the angina being due to a cardio-arterial affection and the asphyxia to a gastro-intestinal cause. In exceptional cases, the cause of the anginal symptoms may be the cause of the asphyxia. The most dramatic episode caused by extreme distension of the stomach and colon is the syndrome denominated "acute asphyxia," which is characterized by four

cardinal symptoms—namely, very intense respiratory disturbance causing orthopnoea, cyanosis, small rapid pulse; and disappearance of all the symptoms under the influence of oesophageal catheterization. As regards the pathogenesis, any severe vaso-sympathetic shock, like that caused by gaseous distension of the stomach and colon, is capable of affecting the neighbouring regions, which accounts for the cardiac symptoms of aerophagia. The prognosis is generally favourable, but an anginal attack caused by an impulse arising from the vagus may in rare cases give rise to sudden death. The prognosis of acute asphyxia is very grave unless it is relieved by oesophageal catheterization. The treatment consists in combating aerophagia by regimen and appropriate drugs, and the hyperexcitability of the vagus by belladonna, which often has a good effect.

279. Musculo-spiral Paralysis after Serum Treatment.

A. CARRAN (*Arch. Lat. Amer. de Ped.*, October, 1925, p. 1158) states that in 1911 Thacon published a case of partial neuritis of the brachial plexus with atrophy and paralysis of the muscles of the shoulder following injection of antitetanic serum. Subsequently Lhermitte drew attention to this sequel of serum treatment, and in 1924 about twenty-four cases were published, mainly in the *Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris*. Carran now reports the case of a boy, aged 13, who, after receiving 20 c.cm. of antitetanic serum for a wound in the right foot, developed left musculo-spiral paralysis, which was still present six months after the onset. The paralysis could justifiably be attributed to the serum, as it appeared at the same time as the other serum phenomena. In two-thirds of the cases on record the cause of the paresis was antitetanic serum, the next most frequent causes being diphtheria antitoxin and antistreptococcal and antipneumococcal serums. In most of the cases small doses have been employed for a prophylactic or curative purpose in subjects who have not been injected before, so that there could be no question of anaphylaxis. The subcutaneous route has been used in almost all the cases, so that the sequel is not more frequent after intraspinal or intravenous injection. Almost all the cases have occurred in adults, children being rarely affected. The clinical picture varies from a slight paresis to a complete paralysis. The commonest forms are neuritis localized to a single nerve, the left musculo-spiral being most frequently involved, though cases have been reported in which the vagus, recurrent laryngeal, and optic nerves have been affected; plexitis and radiculitis, especially of the brachial plexus, frequently in a dissociated form such as the Erb-Duchenne type; more or less generalized polyneuritis in the form of hemiparesis or hemiplegia, with or without amyotrophy or sensory changes; and finally myelitis, which in one case assumed the form of Landry's ascending paralysis, with death of the patient from involvement of the bulbar centre. Some authorities regard the condition as due to oedema and infiltration of the nerve trunks, while others attribute it to fixation of the toxin in the nerves. Prophylaxis should consist in adopting the method advocated by Besredka and others of injection of sodium carbonate and daily ingestion of large doses of sodium citrate or calcium chloride before the appearance of serum sickness. Auto-haemotherapy has been recommended by A. Haedo, Zerbino, and others.

280. Intravesical Pressure.

F. VICENTINI (*Arch. Ital. di Urol.*, November, 1925, p. 93), who records twenty-eight illustrative cases, states that when the bladder is at rest the intravesical pressure is related to the muscular tonus of the organ. The curve of a perfectly normal evacuation of the bladder should be absolutely regular, but in practice it is affected by various individual or general factors which may lead to misinterpretation. In pregnancy the intravesical pressure is higher than normal, the highest values being found in primigravidae. Affections in the neighbourhood of the bladder may or may not affect the intravesical pressure according to their nature. In vesical affections the pressure may be greatly or only slightly above the normal, but it is always proportionate to the gravity and duration of the lesions. The characters which distinguish an abnormal from a normal curve of evacuation are the higher degree of pressure and a fall of pressure disproportionate to the quantity of fluid evacuated. Changes in pressure and in the curve of evacuation are due in some cases to hypertrophy of the vesical musculature and in others to hypersensitiveness of the bladder wall, which responds to stimuli in an abnormal manner.

Surgery.

281. The Serum Prophylaxis of Measles.

S. DEBRÉ, H. BONNET, and C. DECAM (*Rev. d'Hygiène*, January, 1926, p. 24) describe the results they have obtained from the prophylactic injection of immune serum in patients or normal children exposed to measles. In March, 1925, a special laboratory was established in France for the collection of serum from convalescent and recovered cases of measles. From March 1st to November 18th 2,897 c.cm. of serum was collected, mostly from adults; this was equivalent to 555 doses. The serum has been used chiefly for controlling epidemics of measles that have broken out in children's hospitals, but part has been devoted to the protection of normal children in families in which a case of measles has developed. With the results the authors are entirely satisfied. Of children inoculated prophylactically 83.5 per cent. have been completely protected and 12.5 per cent. have had only a mild attack; not a single fatal case has occurred. Numerous instances are cited in which the serum appears to have been the means of rapidly controlling an epidemic, and many instances in which serum-injected children have escaped, while the control non-injected children have developed measles. Although no strictly comparable data are provided, the authors state categorically that during the time mentioned 875 children have been protected from measles.

282. Pleurisy in Scarlet Fever.

H. BERNARD (*Thèse de Paris*, 1925, No. 506), who records four illustrative cases, comes to the following conclusions: (1) Scarletinal pleurisy is rare. (2) It is often purulent, but frequently remains sero-fibrinous. (3) It is almost always secondary to pulmonary lesions, which are frequently very slight and require looking for, but often escape detection. (4) The streptococcus and pneumococcus are the organisms most frequently found in the effusion. The presence of the tubercle bacillus is more frequently indicated by the cytological formula than by its actual discovery in the effusion. As soon as the effusion occurs, therefore, thoracentesis should be performed in order to determine the cytological formula and bacteriological nature of the effusion. (5) There is no antagonism between tuberculosis and scarlet fever. The two affections may exist concurrently, and the supervention of one does not necessarily imply aggravation of the other. But in the tuberculous subject who is debilitated scarlet fever may assume a malignant character. Much more frequently scarlet fever rouses into activity a dormant or latent tuberculous focus. (6) The prognosis of scarlatinal pleurisy is generally favourable apart from tuberculous pleurisy and empyema which has received inadequate surgical treatment. (7) The treatment of scarlatinal pleurisy is the same as that of any other pleurisy.

283. Meningococcal Ependymitis.

VIALARD and DARLEGUY (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, January 14th, 1926, p. 14), who record four illustrative cases in soldiers, state that ependymitis is always present in meningococcal cerebro-spinal meningitis, at least in those forms beginning with mainly encephalitic signs, such as delirium, mental confusion, and coma. They do not think trephining is always necessary in the adult, followed by intraventricular injection of serum, as Lewkowicz suggests, since they have seen such patients recover after early and massive doses of serum given intraspinally. If, however, after energetic treatment by the intraspinal route has been continued for two or three days, and the physical and psychical symptoms do not subside, while the signs of cerebral blockage become definite, it is imperative to bring the serum into direct contact with the ependymal walls themselves, and if necessary into the region of the base of the brain by trephining followed by puncture. The procedure is simple and should be adopted without delay when there is any doubt as to the possibility of pyocephaly developing.

284. Relapsing Fever.

A. Z. PÁRAMO (*La Medicina Ibero*, January 9th, 1926, p. 29), who records five illustrative cases with their temperature charts, states that relapsing fever occurs in the province of Toledo, the transmitting agent in most cases being an acarid of the family of Ixodidae, a parasite of the pig. In some cases relapsing fever may be transmitted by lice which have been infected by persons suffering from the disease. Páramo thinks it probable that relapsing fever is a disease of the pig, and that the ixodide mentioned is the intermediate parasite between the animal and man. The incubation period is between five and seven days, and the prodromal period from one to twenty-four hours. Headache and pains in the legs are constant during the febrile period. Splenic infarction is rare. After the fever has subsided the temperature remains below 95.8°F. for two or three days. Recovery is spontaneous.

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285. Resection of Long Bones for Osteomyelitis.

G. I. BAUMAN and H. E. CAMPBELL (*Surg., Gynecol. and Obstet.*, January, 1926, p. 114) describe sixteen cases of subperiosteal resection of the diaphyses of long bones for chronic osteomyelitis. The patients selected for operation had had discharging sinuses from four months to four years. In all twenty-one resections were performed, five patients having two each. Out of nine femora which were resected, in only one case, a man aged 40, did regeneration fail to occur; in this case, however, the union was becoming firmer after a year and a good functional result appeared probable. Of six tibias three united perfectly, two have failed to unite, and one fractured at the end of two years with poor union, but later became firm under immobilization treatment. One ulna out of two resected failed to unite. Two clavicles, one fibula, and one humerus have regenerated perfectly. The authors suggest that the good blood supply to the femur is responsible for the excellent results, while the defective supply to the tibia and the bones of the forearm explains the failures in these regions. The calcium metabolism was, however, not investigated. They resect as much of the diaphysis as has become diseased, and the periosteal edges are stitched together over perforated rubber drainage tubes which are allowed to project from the wound. Through these tubes the cavity was irrigated with Dakin's solution for two to five weeks, depending upon the duration and character of the discharge. The patients were kept in bed with extension for eight to ten weeks and then allowed to walk with crutches and a cast or brace until the sixth month; partial weight-bearing with the cast or brace was then permitted until the eighth or tenth month. The authors do not recommend resection of the tibia except when nothing less radical will remove the infected bone, but they state that in properly selected cases subcutaneous resection of the long bones in cases of chronic osteomyelitis, together with subsequent bone grafting if necessary, offers the best chance of cure.

286. Tuberculosis of the Sacro-iliac Joint.

M. N. SMITH-PETERSEN and W. A. ROGERS (*Journ. Amer. Med. Assoc.*, January 2nd, 1926, p. 26) report the results of arthrodesis in thirteen cases of sacro-iliac tuberculosis during the last seven years, and conclude that a more optimistic attitude is now justifiable with regard to this disease. In diagnosis they emphasize the following points. Pain radiating over the posterior aspect of the thigh and leg was present in ten of the cases, and tenderness over the inferior sacro-iliac ligaments and sacro-sciatic notch was invariably present. In no case was sensitiveness found at the lumbosacral junction, and the authors regard this absence of pain as a positive indication of sacro-iliac tuberculosis. In two cases in which the entire gluteal region and the lower abdominal quadrant were sensitive to touch the patients had psoas and gluteal abscesses. In the majority of cases there was an increased range of movement in the sitting position as compared with the standing, due to the elimination of leverage on the joint by the hamstring muscles. In only one-third of the cases was pain elicited by compression of the iliac crests. In the early stages of the disease rectal examination brought to light an increased density along the joint line and in the soft tissues at its inferior margin; in the later stages there was also erosion of the joint line and atrophy of the ileum and sacrum. In all cases x-ray examination showed that there was destruction of the joint surfaces and adjacent bone; an increased density was present in more than half the cases. Four deaths occurred in a series of thirteen patients. In one case there was a pre-existing extensive abscess which became secondarily infected after the patient had left hospital against advice. In the second case Pott's disease supervened, followed by tuberculous meningitis. The other patients died from tuberculous peritonitis more than a year after the operation; in no case was death attributable directly to the operation. The remaining nine patients returned to their previous occupations, and had been at work for an average of seven months; three of them had been at work for more than six years without local recurrence or the appearance of secondary foci. Post-operative fusion occurred in all the cases, with cessation of pain.

287. Cysts of the Urachus.

M. PATEL and R. LABRY (*Gynecol. et Obstet.*, 1925, xii, No. 6, p. 449) state that large closed cysts of the urachus are extremely rare; more commonly the whole of the urachus is canalized, giving an umbilico-vesical fistula; or the canal is closed at the umbilical end but at the other communicates with the bladder, forming a variety of vesical diverticulum. Cysts which originally were closed not uncommonly acquire,

as a result of accumulation of their contents, secondary communications with the exterior or the bladder. As a rule the fluid within closed cysts contains a considerable amount of effused blood, but in a personal case here recorded the liquid was non-albuminous and limpid, with a specific gravity of 1007. Acute traumatic rupture has not been recorded. The cystic swelling is strictly mesial and gives rise to a swelling closely resembling the pregnant uterus. These features, together with its adherence to the umbilicus, may in the case of moderate sized cysts render possible a pre-operative diagnosis, but usually the swelling is taken for an ovarian cyst or an encysted effusion in connexion with peritoneal tuberculosis. Although the cyst is entirely extraperitoneal it is best at operation to open the peritoneal cavity, when a portion of the parietal peritoneum can be excised with the cyst. Dissection of the cyst from the bladder is often difficult.

288. Treatment of Varicose Ulcer.

J. MEYER and R. WEILL-SPIRE (*Journ. de Med. et de Chir. Prat.*, January 25th, 1926, p. 49) state that in dealing with varicose ulcers excision of veins or of the ulcer itself is giving place to treatment by injections so as to produce venous sclerosis. After the ulcer has become clean and non-oedematous, and the inguinal glands are no longer swollen, an injection of 50 cg. of sodium citrate in 1 c.c.m. of distilled water is made into the varicosity, the needle being entered perpendicularly to the surface. Immediately on withdrawal a pad of cotton-wool is applied, and kept firmly in position by pressure for twenty minutes. It is important that there should be no escape of fluid, and the first injection may be more dilute, higher concentrations being used later according to the patient's reaction. A start should be made with veins in healthy tissue an inch or two above the ulcer. Other substances recommended include sodium salicylate 20 to 40 cg. in 1 c.c.m. of distilled water, quinine 10 to 20 cg., and urethane 5 to 10 cg. The amount injected should always be 1 c.c.m. This treatment is said to be applicable to about two-thirds of all cases of varicose ulcers. Insulin has been applied to the base of the ulcer, even in the absence of permanent glycosuria, in view of the fact that hyperglycaemia is not uncommon with varicose ulcer.

289. Gastro-jejuno-colic Fistulas.

R. APPELMANS (*Rev. de Chir.*, 1925, No. 10, p. 757), having had two cases of this condition under his care, records their histories and has traced eighty-five similar cases in the literature. An interesting feature of these cases was that they all occurred in men. These fistulas followed both an anterior and a posterior gastro-jejunostomy. They are generally found on the anterior aspect of the jejunum, and usually follow operations for duodenal ulcer, very rarely operations for cancer. The ulcer often makes its appearance one or two years after the gastro-enterostomy. In the two cases described the fistula occurred sixteen and nineteen months respectively after the first operation. The symptoms are those of peptic ulcer—pain, vomiting, and often haematemesis. When the fistula becomes established diarrhoea is the most common symptom. It is often very profuse, and the faeces contain recently ingested food. There is often eructation of foul gas, which clinches the diagnosis. Radiography will clearly demonstrate the fistula; bismuth appears in the colon a few minutes after the test meal has been taken. The prognosis is bad; the surgical operation is difficult and dangerous, but without it death is certain to ensue in a short time. Preventive treatment aims at the avoidance of fresh ulcer formation; unabsorbable sutures should not be used, and care should be taken at the first operation not to cause traumatism and occlusion of the pylorus. Curative treatment includes the closure of the fistula and re-establishment of the continuity of the bowel. If the first ulcer is still active, gastro-enterostomy must be repeated. It may be best to excise the old gastro-enterostomy, the fistula, the colon, and the jejunum after the new channel has been formed. In both recorded cases the recovery was complete.

290. Non-venereal Prostatitis.

T. BAKER (*Journ. Amer. Med. Assoc.*, November 21st, 1925, p. 1606) holds that prostatitis due to non-venereal causes is commoner than is generally realized, amounting to 15 to 20 per cent. of all cases. The importance of recognizing a non-venereal cause is obvious in the interests of the patient; sociological and economic considerations are involved, and correct diagnosis is necessary for treatment. The author remarks that many cases are due to focal infections or arise as sequels of acute infections. Further investigation is necessary, but it appears already that these non-venereal cases are often more resistant to treatment and prone to relapse than gonococcal infections.

Therapeutics.

291. Mercurochrome-220 in Chronic Septic Endocarditis.

A. W. FALCONER (*South African Med. Record*, January 9th, 1926, p. 14) discusses the intravenous treatment of chronic septic endocarditis with mercurochrome-220. Other observers have reported successful results in the treatment of septicæmias due to various causes by intravenous injections of mercurochrome, and cures have been claimed in erysipelas, streptococcal pneumonia, septicaemia caused by staphylococci and *B. coli*, pyelonephritis, puerperal sepsis, subacute endocarditis, and gonorrhoeal infections. Notes of three cases of subacute malignant endocarditis are given, in two of which 25 to 35 c.c.m. of a 1 per cent. solution of mercurochrome were administered intravenously on several occasions. A definite temporary improvement resulted, as shown by diminution in the size of the spleen, disappearance of Osler's nodules, and a general improvement in the appearance and feelings of the patients, but in neither case was a fatal issue averted or life materially prolonged. Although the injections produced considerable reactions with severe intestinal irritation and high fever, the temperature generally settled down when the reactions were over. The third patient refused further injections after the first, from which no improvement was noted.

292. Application of Cold in Dermatology.

P. LORTAT-JACOB and P. LEGRAIN (*Presse Méd.*, January 30th, 1926, p. 131) say that the application of cold has a wide field of application in skin diseases. They use a cryocanther which can be recharged directly from a carbon dioxide container; regulation of dosage is easily obtained by a pressure screw and interchangeable nozzles. Each application lasts from ten to thirty seconds. The principal indications are angioma, naevi, lupus erythematosus, keloid, and small baso-cellular epitheliomata; to these must be added various affections of the mucous surfaces, such as leucoplastic patches on the tongue and cheek. Repeated applications at five-day intervals are required for their disappearance. Cervicitis necessitates much longer application and a special form of instrument; moreover, since the treatment tends to sclerosis and is not disinfectant, the cervicitis must not be a virulent type. Treatment by cold (cryotherapy) is valuable in that it is easy of application and leaves no scar. The pain is much less than that caused by "carbonic snow," and the authors state that they have not known any patients abandon treatment for this reason.

293. Treatment of Hay Fever.

E. W. PHILLIPS (*Journ. Amer. Med. Assoc.*, January 16th, 1926, p. 182) has obtained very good results from treating twenty-nine patients suffering from hay fever with daily intradermal injections of pollen extract. After determining the degree of sensitization and the size of the initial dose, the subsequent increase in dose was adjusted to the tolerance of each patient, the aim being to produce a local reaction about the size of the patient's palm which subsides within twenty-four hours. In some cases the dose could be doubled on each treatment, while others only tolerated a 50 per cent. increase. Care was taken to select a fresh site for each injection in order to avoid desensitized areas and to ensure a brisk local response. Intradermal injections were found painful if more than 0.25 c.c.m. was introduced into one wheel, and accordingly stronger dilutions of the pollen extract had to be prepared. Complete relief occurred quickly in each case; six patients were made comfortable by the first dose, others improved in less than three days, and the longest refractory period was seven days, with six doses. Phillips states that such injections are safe provided that the reaction from the preceding dose has begun to subside, and the ratio of increase is calculated carefully. He gives the warning that this form of treatment should only be employed by those who are familiar with the particular extract concerned.

294. The Use of Pimpernel in Intestinal Affections.

H. LECLERC (*Bull. Soc. de Thé.*, December 9th, 1925, p. 278) states that recognition of the astringent properties of the pimpernel (*Poterium sanguisorba*) can be traced back to the time of Atilia. Its chemical composition has not been investigated since the end of the seventeenth century, when the Royal Academy of Sciences discovered that it contained "much acid, much volatile salt, much oil, and earth." It is well known, however, that the reactions produced in its decoction in the presence of iron salts indicate the presence of powerful antidiarrhoeic action. Leclerc has recently employed an infusion of the plant for infants suffering from enterocolitis. In most of the cases he noted a marked reduction of the hypersecretion from the intestinal mucous

membrane and rapid disappearance of streaks of blood from the stools. An equally satisfactory result can be obtained by using a tincture of the plant. In addition to its astringent effect the pimpernel possesses very marked carminative properties when taken a few minutes before meals.

295. Sodium Bicarbonate in Polycythaemia.

SCHUERMANS (*Le Scalpel*, January 23rd, 1926, p. 76) has had favourable results after giving sodium bicarbonate in two cases of Vaquez's disease—polycythaemia vera—and in two cases of secondary polycythaemia. He suggests that polycythaemia is affected by the acid base equilibrium of the blood, but admits that his treatment of these cases has been empirical. To three of his patients he gave 10 grains thrice daily and to the fourth 5 grains. In every case the red blood corpuscles diminished by about 25 per cent. during administration, though the haemoglobin and the white blood cells were relatively unaffected. Coincidentally with the diminution of the red blood corpuscles there was noticed an improvement in the patients' general condition, especially relief of pain in the long bones. When the administration of sodium bicarbonate was interrupted the erythrocytes rapidly returned to their former numbers.

296. Stovarsol in Chronic Respiratory Disease.

V. KOHEN (*Bull. Soc. de Thér.*, December, 1925, p. 287) has found that stovarsol (acetyl-ammon-hydroxy-phenyl-arsonic acid) has a favourable action when given by mouth to subjects of chronic bronchitis, tracheo-bronchial adenopathy, bronchial and pulmonary sclerosis, emphysema, inactive pulmonary tuberculosis, or chronic rhinitis, in an average dose of 0.50 gram given for periods of ten to fifteen days at a time, interrupted by intervals of equal duration. The cough, expectoration, and dyspnoea diminish and even disappear, the permeability of the nostrils becomes re-established, and the general condition is greatly improved. The only contraindication to the use of stovarsol is hepatic and renal insufficiency, shown by an eruption with or without fever. The drug can be given to children in smaller doses without any harm. Kohen does not suggest that most of the chronic affections of the respiratory tract are of a syphilitic nature, but maintains that pentavalent arsenic in this form frees the respiratory and intestinal tracts of waste matter and has a favourable action on their functions.

297. Tannic Acid as an Intestinal Astringent.

J. W. C. GUNN (*South African Med. Record*, January 9th, 1926, p. 11) discusses the behaviour of tannic acid in the intestine in the treatment of diarrhoea. He states that to be of any value in those cases due to inflammation after the passage of an irritant it would be necessary for tannic acid to precipitate protein all along the intestinal tract. Experiments indicate, however, that precipitation of proteins occurs mainly in the stomach and duodenum, and that as the acid passes along the intestines the less acid the contents become and the less favourable is the reaction for precipitation. After long trial of tannic acid in the treatment of moderately severe cases of dysentery and diarrhoea no difference in progress was noted between those patients receiving it and others treated as controls, while in the very severe types tannic acid had no effect at all. From his own observations as well as from the experience of other investigators Gunn concludes that treatment with tannic acid in mild cases of diarrhoea is unnecessary, while in severe cases it is useless.

Disease in Childhood.

298. The Effect of Early Treatment of Congenital Syphilis in Children.

G. GARDEL (*Thèse de Paris*, 1925, No. 520) states that of 80 children with more or less definite signs of congenital syphilis who had received early treatment and been kept under observation for several years 72, or 90 per cent., survived and 8 succumbed. Death in 5 of the 8 fatal cases was due to an intercurrent infection. Syphilis by itself was rarely the cause of death, which is not surprising in view of the fact that there were few severe cases with grave visceral lesions. Among all the manifestations of congenital syphilis eruptions entailed the gravest prognosis (6 out of 20 cases were fatal), as they were an indication of septicaemia. The earlier they appeared after birth the more serious they were likely to be. Eruptive cases constituted 80 per cent. of the deaths. In fatal cases death almost always occurred in the first year, especially in the first six months (in 7 out of 8 cases). The child's future depends mainly on the conditions of hygiene and the environment in which it is brought

up. None of the cases observed by Gardel were admitted to hospital and almost all (70 per cent.) had been fed at the mother's breast, or at least had had a mixed diet (13 per cent.). Of the 72 survivors who had undergone more or less regular mercurial treatment 48, or 66.6 per cent., were absolutely normal at the time of the last examination, and 24, or 33.3 per cent., showed stigmata of congenital syphilis. Sequelae were relatively rare and generally mild. In view of the fact that every severe case of congenital syphilis with profound visceral lesions or considerable mental impairment has never had the slightest treatment, it is concluded that apart from cases with early cerebral lesions every case which is recognized and treated early escapes severe late sequelae.

299. Nutritional Keratomalacia.

A. B. SCHWARTZ (*Journ. Amer. Med. Assoc.*, December 26th, 1925, p. 2025) reports a case of keratomalacia occurring in an infant and following deprivation for three weeks of the fat-soluble vitamin A. Breast-fed until 10 months of age, the baby later developed a "toxic dyspnoea" with stupor and intractable constipation; this was treated by a diet of oatmeal water and a proprietary infant food for three weeks. The infant was then admitted to hospital, the outstanding symptoms being stupor, irritability on being disturbed, loss of weight, pallor, doughy skin, dry inflamed mouth, cracked lips, fever, and the characteristic corneal ulceration. The liver was unusually large and firm; there were symptoms of meningeal disturbance and a transient strabismus. The cerebro-spinal fluid showed only slight diminution in the sugar content with no pleocytosis or increase in globulin. The infant assumed the frog-like attitude occasionally seen in scurvy, but which might have been due to the gluteal injections of cod-liver oil which were being given daily. In addition to this lactic acid milk and orange juice were given by the mouth; quartz lamp radiation was also employed. The child made a slow but complete recovery except for loss of vision in the right eye, in which there had been extensive ulceration of the cornea.

300. Hypertelorism.

E. A. COCKAYNE (*Brit. Journ. Child. Dis.*, October-December, 1925, p. 265) refers to the previous cases reported by D. M. Greig and D. C. Muir (see *Epitome*, September 19th, 1925, para. 223), and reports two cases which came under his own observation in a female child aged 7 months and a boy aged 6 years. From consideration of the six cases now on record Cockayne concludes that hypertelorism is congenital but not hereditary. He points out that there is nothing in any of the family histories to support Greig's contention that it is due to an hereditary want of balance in development occurring in a family marked by Nature for extinction. It is probable that the multiple abnormalities present are caused by a deficient oxygenation of other tissues which occurred at the same time as that of the chondrocranium.

301. Anaesthesia in Young Children.

P. ERLACHER (*Wien. klin. Woch.*, January 21st, 1926, p. 98) has performed major operations on infants under anaesthesia produced by rectal injections of hedonal in 10 cases and combined hedonal and local anaesthesia in 54 cases. The conditions treated thus included inguinal hernia, appendicitis, umbilical hernia, removal of angioma, and hydrocele. The method was also used for orthopaedic operations and blood transfusions. In two cases of congenital dislocation of the hip the combined anaesthetic effect was found to be inadequate. The patients ranged in age from 3 months to 4½ years. The dose of hedonal was 0.5 gram for an infant of 3 months, 0.75 gram up to 9 months, 1 gram up to 1 year, and 1.5 grams for over 1 year. The weight and physical condition of the child were also taken into account, and generally an amount of 0.15 to 0.2 gram per kilo of body weight was found sufficient. The bowel was washed out by a simple enema two hours before the operation. The hedonal was dissolved in 30 c.cm. of rice water and introduced into the rectum, and the buttocks were then strapped together to prevent its being evacuated. It was found that in ten to fifteen minutes the child sank into a natural sleep, and after half to three-quarters of an hour the necessary degree of insensibility was reached. During this time the child should be protected from all external stimuli—light, shaking, noise. If the sleep was not sufficiently deep local anaesthesia was used. Immediately after the commencement of the operation the bowel was washed out to prevent unnecessary duration of the narcosis. The infant was usually awake after three hours, taking food well and not vomiting, which fact the author considers of great importance in infants. In one case the administration of hedonal was followed by collapse, which was treated by strychnine, a supposed specific antidote for hedonal poisoning.

Obstetrics and Gynaecology.

302.

Endometrioma.

S. B. HERD (*Journ. Obstet. and Gynaecol. of the British Empire*, Winter No., 1925, p. 649) states the conclusions derived from microscopical study of twenty-five cases in which endometrial tissue was present in abnormal pelvic situations, giving rise to the tumours which were formerly described as adenoma or adenomyoma, but have recently been called endometrioma. In their advanced stages as "chocolate" or haemorrhagic cysts with tarry contents, or in other formations—in the uterus, ovaries, ligaments of the uterus, recto-vaginal septum, or elsewhere—these tumours have been held to take origin (1) by direct extension from the uterine endometrium, (2) from serous (peritoneal) epithelium, (3) from Wolffian relics, (4) from germinal ovarian epithelium, (5) by implantation of endometrial fragments which have passed from the uterine cavity through the Fallopian tubes to the pelvis, whence they penetrate the ovary or other organ from without. The last-named view, elaborated by Sampson, is confirmed by many recent workers, and finds support in microscopical demonstration of retrograde menstruation in the human subject, and in the development of small "adenomatous" tumours after experimental implantation of endometrial fragments in the pelvis of the rabbit. That the adenomatous tissue is endometrium is proved by its showing menstrual reaction corresponding with the phase of the uterine endometrium, as well as its atrophy at the menopause and decidual reaction in pregnancy. Herd has found microscopical evidence of endometrioma originating in several ways. In the uterus he considers the tumour is nearly always due to direct extension from the endometrium, which seems to be endowed in certain cases with peculiarly invasive faculties. In the ovary, the endometrial tissue, he finds, gains access by (1) extension from the endometrium along the ovarian ligament, (2) implantation of fragments after retrograde passage through the Fallopian tubes, (3) conversion of the tubal epithelium in the abdominal ostium into endometrium, which then invades the ovary, (4) alteration of the capsular epithelium, (5) developmental errors—such as inclusion of part of the Müllerian duct in the ovary. Elsewhere in the pelvis endometriomata are due to extension of endometrium, developmental errors, implantation through the Fallopian tube, or extension from (or rupture of) an endometriomatous tarry cyst. Clinically neither physical signs nor symptoms are characteristic, but the patient is most frequently aged from 30 to 50 and has intra-menstrual dysmenorrhoea. Sterility is very common, and attacks of acute pain are often associated with the ovarian tumour; the presence of a fixed backward uterine displacement, with or without fixed adnexal swellings and tenderness, is suggestive.

303. Treatment of Fibromyomata of the Uterus.

FRANCES A. FORD (*Surg., Gynecol. and Obstet.*, February, 1926, p. 245) has made a comparative study of representative groups of patients treated in the Mayo Clinic for fibromyomata of the uterus, either by operation or by radiotherapy, surgical treatment being employed in 250 cases, while 344 received radiation treatment. The author points out that a small submucous fibromyoma responds usually to a small dose of radium, whereas a large tumour or a pedunculated tumour should receive a combination of radium and x rays or x rays alone. A relatively high percentage of the cases treated by radiotherapy required further treatment, either repeated radiation in 18 per cent., or operation in 13.7 per cent., as compared with 4 per cent. of the surgical group who received a second treatment. This is attributed to injudicious selection of cases or to inadequate dosage. Hard fibromyomata containing extensive calcium deposits cannot be reduced satisfactorily by radiation, and an incarcerated pelvic tumour should be removed surgically because of the inability to exclude adnexal disease. A radiogram may occasionally assist diagnosis by demonstrating calcium deposits within the tumour. The need of extreme care in excluding malignant disease was shown by the fact that in six of the patients treated by radiotherapy a well established malignant process appeared within one year of the treatment. Malignant disease also appeared later in other patients, and the question is raised whether a focus of relatively devitalized tissue, with an altered blood supply, may favour malignant change. The author pleads for careful recording of the history of the subsequent life of all patients treated with radium or x rays, so that more information may be obtained in this respect.

304. L. MARTINDALE (*Journ. Obstet. and Gynaecol. of the British Empire*, Winter No., 1925, p. 690) reports a series of 252 cases of fibromyoma of the uterus treated either by surgical operation or intensive x-ray therapy. Of these cases 111 received x-ray treatment and 141 were treated by hyster-

ectomy or myomectomy. The Freiburg technique of x-ray therapy was employed in the first 51 cases, and the remaining 60 cases were treated by a modification of the Erlangen technique, which allows precision of dosage. Martindale points out that it is dangerous to use intensive x-ray therapy for any case except those in which it is fairly certain that there is no complication and that the diagnosis is clear. X-ray therapy is the ideal treatment in the case of a fibroid uterus well under the size of a six months' pregnancy, the growths being interstitial rather than subperitoneal, and the chief or only symptom being profuse menorrhagia. It is also justifiable in the presence of grave heart disease, when surgical treatment is impossible; the improvement in the general health of such patients is remarkable. In all cases of doubtful diagnosis the possibility of carcinoma of the body of the uterus must be eliminated by dilating the cervix and curetting if necessary. In other doubtful cases, and especially in young women, an exploratory laparotomy, followed by hysterectomy or myomectomy, is the correct treatment. The advantages of x-ray treatment include the elimination of nervous shock, of the inconvenience of an anaesthetic, and of the long convalescence and nursing home expenses. The author adds that the climacteric symptoms have been considerably less troublesome in patients treated by x rays than in those treated by operation. The danger of a severe x-ray burn occurring renders it essential that the treatment should be administered carefully and accurately calibrated installations be employed.

305. Molar Pregnancy and Hysterectomy.

LÉVY-SOLAL and R. DUPONT (*Gynéc. et Obstét.*, January, 1926, p. 46) describe the case of a primipara, aged 18, who was admitted to hospital suffering from intractable vomiting; she was approximately two months pregnant. Twelve days later symptoms suggesting acute appendicitis occurred, and four days afterwards laparotomy was performed. One ovary was as large as an apple and contained a typical leucine cyst; the appendix was long and bent. Vomiting persisted, and the next day a mole was expelled, but this did not arrest the vomiting. The patient grew weaker and was slightly jaundiced. Histological examination of the mole showed signs of malignancy, and total hysterectomy was performed thirty days after admission. Vomiting ceased immediately, and the patient was discharged well a month later. In the mole there were signs of early malignant changes around some of the villi, and at the fundus of the uterus two small yellowish masses were present which showed early invasion of the uterine wall by large mononuclear and polynuclear cells, grouped irregularly between the muscular fibres. The authors observe that the great majority of cases of chorion-epithelioma occur after a molar pregnancy, and they advocate a very careful histological examination of the mole. If cells suggesting malignancy are discovered they urge that total hysterectomy should be performed without delay. They comment also on the absence of records of the histological examination of moles in the voluminous literature dealing with the incidence of chorion-epithelioma following the expulsion of a mole.

305. Treatment of Hyperemesis Gravidarum.

V. J. HARDING and H. B. VAN WYCK (*Amer. Journ. Obstet. and Gynecol.*, January, 1926, p. 1) consider that the successful treatment of hyperemesis gravidarum depends upon the use of fluids, and they describe a routine procedure which has given excellent results during the last four years. This consists in the intravenous injection of 1,000 c.cm. of 1 per cent. saline solution containing 5 per cent. glucose every day until diuresis is obtained, as evidenced by the twenty-four hour output of urine reaching 1,000 c.cm., with a specific gravity of 1010 or less. During treatment the patient is isolated and rectal enemata of 200 c.cm. of 10 per cent. glucose in normal saline solution are given three times a day, with the addition of 30 to 60 grains of sodium bromide in each enema for the first day or two. No solids are given by the mouth, but the patient is encouraged, even if vomiting freely, to drink any liquid she likes, except tea, coffee, milk, or cocoa. The treatment is not continued for more than six days if there is no clinical improvement, but usually this is so marked within three or four days that the patient is able to take food, the average for fourteen cases being 4.1 days from the commencement of treatment to the cessation of vomiting and the taking of food. Briefly, the treatment consists in rest in bed with isolation and the forcing of fluids by all routes, the use of glucose being secondary in importance to the use of fluids. Glucose solutions injected intravenously give rise to no untoward results if proper care as regards sterilization, temperature, and slow rate of administration is taken. While the vomiting of pregnancy is usually not characterized by acidosis, there is always a ketonuria arising partly from the accompanying starvation, but this is not a causative factor of the condition.

Pathology.

307. Diagnostic Value of the Cerebro-spinal Fluid Sugar Content.

W. P. STOWE (*Journ. Lab. and Clin. Med.*, January, 1926, p. 307) has estimated the sugar content of the cerebro-spinal fluid in 122 cases of nervous disease of different types. The technique adopted was the method of Folin and Wu, essentially the same as that employed for blood sugar. Cell counts were made in a Fuchs-Rosenthal chamber. Ten normal fluids gave a range of sugar from 60 to 90 mg. per 100 c.cm., the average value being 83 mg.; this is considerably higher than the amounts that have been considered normal by French workers. In neuro-syphilis fifteen cases gave values of 60 to 91 mg., thus showing no departure from the normal. Of twenty cases of encephalitis lethargica examined only two showed departures from the normal value, in each case in excess. Twenty-one cases of proved tuberculous meningitis had a sugar content of 10 to 50 mg.; fourteen cases of purulent meningitis had values of 0 to 25 mg. These results show that in neuro-syphilis, lethargic encephalitis, and other neurological conditions the deviation of the sugar value from the normal is so slight as to be devoid of diagnostic significance. In tuberculous meningitis the sugar is well below normal, but not so low as in the cases of purulent meningitis, in which it is frequently absent. This reduction or disappearance of sugar in infective meningitis is a valuable aid in differentiation from cases in which the spinal fluid is purulent without being actually infected—as after intraspinal therapy, in brain tumours, and sympathetic meningitis. In these, even though pus cells are often abundant, the sugar content remains normal.

308. The Path of the Rabies Virus in the Nervous System.

E. W. GOODPASTURE (*Amer. Journ. Path.*, November, 1925, p. 547), following his earlier work on herpes, inoculated the virus of rabies into the right masseter muscle of rabbits. Negri bodies were always demonstrable in the right motor nucleus of the fifth cranial nerve, in the left nucleus, and widely in the central nervous system. The most severe lesions were always found in the pons, medulla, and cervical cord, and they were apparently more extensive on the right side. Lesions in the sensory division of the fifth cranial nerve and in the cells of the corresponding Gasserian ganglion suggest an axis-cylinder transmission of the virus. Goodpasture found that the action of the virus upon the cells of the fifth motor nuclei was relatively slow and mild as compared with its effect upon the nerve cells of the Gasserian ganglion. Negri bodies appeared in the fifth motor nuclei, but it was rare to find actual necrosis, though degenerative changes might be marked. In the Gasserian ganglion, however, most of the cells died without the appearance of Negri bodies. This was in striking contrast to the action of the virus of herpes simplex, which rapidly causes necrosis of the ganglion cells first attacked—namely, those of the right fifth motor nucleus following an inoculation into the right masseter muscle. The cells of the brain are apparently more strongly resistant to the virus of rabies than those of the Gasserian ganglion, and the author suggests that this very resistance might be responsible for the development of Negri bodies in greater numbers. The impression he has gained is that the various structural changes observed in ganglion cells, including the appearance of Negri bodies, are the result of the action of the virus upon the cell and the reaction of the cell to the resulting injury. A focal degeneration of neuro-fibrillar material occurs which melts and coagulates or coheres about one or more of the structures which result from mitochondrial degeneration of axis cylinders and nerve cells. He believes that neither the virus itself nor a characteristic structural change which may be regarded as a constant accompaniment of the virus has yet been demonstrated. The hypothesis is advanced that the degenerative changes observed in axis cylinders are the result of the passage of the virus along these processes, and indicate its manner of extension from one focus to another.

309. The Metabolism in Marasmic Infants.

F. F. TISDALL, T. G. H. DRAKE, and A. BROWN (*Amer. Journ. Dis. Child.*, December, 1925, p. 829), as the result of experimental work, report that there is no evidence that the marasmic infant is less able to digest and absorb carbohydrates than the normal infant, providing there is no diarrhoea present. The heat output per kilogram of active metabolic tissue is approximately normal in the marasmic infant. The only abnormality they have been able to find in the carbohydrate metabolism in marasmus is that the average fasting blood sugar content is about 10 per cent. lower than that of the normal child; from this they infer

that the glycogen store of the marasmic infant is below normal, and they conclude that there is probably an increased heat loss in these infants. For this reason, and also to promote the building up of a store of glycogen and fat, they recommend that the feeding should be calculated upon the basis of 70 to 100 calories per lb. of body weight per day, as compared with the 45 calories required by the normal infant. In another article (*ibid.*, p. 837) they state that in infants with diarrhoea, infection, or acute intestinal intoxication there is derangement of the carbohydrate metabolism which is not primarily associated with defective production of insulin.

310. Bacteriology of Goitre.

A. CANTERO (*Surg., Gynecol. and Obstet.*, January, 1926, p. 61) has investigated the bacteriology of chronic colloid or adenomatous goitres. He made cultures of the thyroid tissue in 50 goitres under aseptic conditions immediately after removal of the gland by the surgeon. A large surface of the gland was seared by a hot blade, punctured with a sterile pipette, and some fluid removed. About 1 c.cm. of the tissue was also removed through the seared surface with sterile instruments. The excised tissue was passed rapidly through a flame, washed three times with normal saline solution, and emulsified in a sterile air chamber with normal saline solution and sand. The pipetted fluid and the emulsion were inoculated on various media. In only three cases was there failure to obtain a growth. Organisms of the streptococcal group were isolated in 31 out of the 50 cases, staphylococci in 7, pneumococci in 5, *B. welchii* in 2, and a diphtheroid, *B. pyocyaneus*, and *Micrococcus tetragenus* in one case each. Cantero suggests that organisms of the streptococcal group may be an important factor in the pathogenesis of goitre, especially since enlargement of the thyroid gland and true thyroiditis are often associated with localized streptococcal infections. He refers to the previous work of Rosenow in 1914, who recovered non-haemolytic streptococci from 25 out of 32 cases of goitre in man and from 8 out of 12 cases of goitre in dogs. Cultures of these organisms when injected repeatedly into dogs gave rise to loss of weight, diarrhoea, and thyroid enlargement, while in one case softening and pulsation of the thyroid developed together with marked tachycardia and tremor.

311. Splenomegaly of the Gaucher and Niemann Types.

W. BLOOM (*Amer. Journ. Path.*, November, 1925, p. 595) contributes a study of two cases of the unusual symptom complex associated with large cell splenomegaly described by Gaucher in 1882, and three cases of a condition frequently confounded with Gaucher's disease, and first described by Niemann in 1914. The two cases of the Gaucher type were a Jewish boy, aged 6, and a Jewish woman, aged 42; in both cases the spleen was removed. The clinical signs are marked chronicity, leucopenia, mild secondary anaemia, slight tendency towards bleeding, a peculiar brown-yellow pigmentation of the skin, splenomegaly and cirrhosis of the liver without ascites. Peculiar large pale cells occur in the liver, spleen, lymph nodes, and bone marrow. Numerous observers state that these cells are reticulum cells and possibly certain endothelial cells which have stored large amounts of a substance closely allied to cerebrin. The Gaucher cells with certain stains, especially with Mallory's aniline blue connective tissue stain, show a distinct longitudinal striation of the cytoplasm. They frequently give a positive iron reaction with the Turnbull blue method. There is no typical lipid staining. Both patients improved after splenectomy, and there was no evidence of progression of the disease. The three cases of the Niemann type reported were in Jewish infants, aged 16 months, 14 months, and 7 months respectively. Niemann's disease is characterized clinically by its appearance in infancy, under 2 years, with impairment of growth, by anaemia, leucocytosis, and by a large spleen and liver; there is no evidence of diabetes or lipaemia during life or at necropsy. These cases are also characterized by the presence of large, pale, lipid-containing cells, apparently derived from the reticulo-endothelial system, in the pulp of the spleen and lymph nodes, in the thymus, mucosa of the intestine, and medulla of the adrenals, and by the presence of lipid material in the clasmotocytes of the connective tissue, in the Kupffer cells, and in large cells lying free within the alveoli of the lungs. In sharp contrast to the Gaucher cells, the large pale cells in these cases stain positively for the complex lipoids; they do not contain iron and are markedly vacuolated after treatment with absolute alcohol. Splenectomy was performed in one case; some improvement was noted for two months, when the child began to fail and died later. The author suggests the term "lipoid histiocytosis" for cases of the Niemann type, as tending to convey the idea of a process involving the storing of lipid material by the histiocytes throughout the body.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

312. Epigastric Distress.

A. MCPHEDRAN (*Canadian Med. Assoc. Journ.*, February, 1926, p. 121) discusses in detail the etiology and treatment of gastric discomfort and pain, with or without acidity. He finds that gastric distress is more common in the anxious and energetic type of patient, the usual cause being spasm of the stomach excited by air imprisoned by spasm of the oesophagus and pylorus. The author does not think that high gastric acidity is the primary cause, and attributes the discomfort to irritability of the gastric nerves, or rather to their centres in the spinal cord. The production of acidity is due to vagal stimulation, and the acidity frequently excites the spinal centres and induces gastric spasm. This can be promptly relieved by such antacids as sodium bicarbonate and magnesia. Some cases are due to chronic focal disease within the abdomen, especially of the gall bladder, appendix, stomach, and duodenum, which increases the irritability of the spinal and pneumogastric centres; a searching examination should therefore always be made of these organs, and x rays assist in doubtful cases. Other causes may be eye-strain, or disease of the ear, teeth, or tonsils, the pain being referred to the stomach through the vagal and spinal centres. Cardiac symptoms, such as irregularity of beat and premature ventricular systoles, may occur, and increased salivary secretion is frequent. Stress is laid on dealing with functional causes in obtaining permanent cure. W. Verdon has suggested that oesophageal gastric spasm may sometimes be the exciting cause of angina pectoris; the present author agrees with this, and believes also that angina pectoris may be the cause of the latter condition. Treatment includes the administration of 15 grains of sodium bicarbonate, or more, in half a pint of water, one hour before each meal, to lessen acidity and flush out the stomach contents. A mild laxative is usually required, and attention should be paid to the diet. Strontium bromide and tincture of belladonna have also been found useful.

313. Dieting in Diabetes.

W. D. SANSUM, N. R. BLATHERWICK, and RUTH BOWDEN (*Journ. Amer. Med. Assoc.*, January 16th, 1926, p. 178) have been increasing the amounts of carbohydrate in the diet of diabetic patients, and have obtained good results by giving white bread, potatoes, milk, and fruit, only excluding sugar as a rule. Whereas their former diet contained, in addition to adequate protein, as much as 2 to 2.5 grams of fat to each gram of carbohydrate, the new diet contained 2 or more grams of carbohydrate to each gram of fat. The consequent increase in insulin was not found to add appreciably to the cost of treatment, since the expense of the diet was reduced. Striking improvement in the physical and mental activity of the patients was observed, and there was no trace of the acetone type of acidosis. The patients lost their craving for forbidden foods, and a somewhat lower calorie intake was apparently adequate. Such a diet has been used in the treatment of more than 150 patients, and at no time did any patient pass sugar in the urine, or signs of hypoglycaemia appear. In the milder cases improvement was noted in a few weeks after a change in diet, but in those who had been on the old diet for many years the change occurred more gradually over a period of three to four months.

314. Chronic Ulcerative Colitis.

J. A. BARGEN and A. H. LOGAN (*Arch. Intern. Med.*, December 15th, 1925, p. 818) have isolated in 88 per cent. of a series of cases of chronic ulcerative colitis a Gram-positive lancet-shaped diplococcus, growing in pairs or fours and occasionally with a capsule. It resembles Fränkel's pneumococcus morphologically, but is not bile-soluble and it does not ferment insulin, though it ferments dextrose, lactose, saccharose, maltose, raffinose, salicin, and acidified milk. The diagnostic serums of the pneumococcal types I, II, and III failed to agglutinate a number of typical strains of this organism. On blood agar the diplococcus is haemolytic (alpha) and six strains have shown cross-agglutination. The organism has been obtained in pure culture from the early lesions of ulcerative colitis, from the depths of chronic ulcers, and from distant foci elsewhere in the body. When injected intravenously into rabbits and dogs lesions were produced, especially in the dog, where the ulceration was more chronic in nature and resembled the morbid appearances found in human cases. The authors consider that the finding of this diplococcus in

distant foci and the production of acute lesions in the colon account for the repeated exacerbations of the disease and the pathological picture of layer upon layer of chronic inflammatory tissue displacing the mucosa of the colon. They suggest that the treatment of chronic colitis with ulceration should consist of (1) removal of distant foci of infection, (2) the use of vaccines or other methods of immunization against the disease, (3) local applications and irrigations, (4) the empiric use of iodine in the form of the tincture, which was found valuable by them, (5) the administration of a substance like kaolin by the mouth, (6) a non-irritating but general diet.

315. The Past History in Late Congenital Syphilis.

Y. CHATENET (*Thèse de Paris*, 1925, No. 492) investigated the past history of 75 children, aged from 2 to 15 years, who had been brought to the out-patient department at the Hôpital Trousseau, Paris, for late manifestations of hereditary syphilis. In only 12 was there no history of symptoms suggestive of syphilis in early infancy. In the remaining 63, or in 84 per cent., there was a suggestive history, such as frequent abortions and premature confinements, a high infantile mortality in the same family, hydramnion and placental lesions, melaena neonatorum, convulsions, delayed physical and mental growth, early rickets and craniotabes, convergent strabismus, hypertrophy of the thymus, irreducible unilateral hydrocele, icterus, and Sisto's sign. There was hardly ever a history of an eruption or of obvious signs of congenital syphilis, but the disease assumed the form of ordinary morbid states, such as nervous or digestive troubles, and it was only the association of several of the probable signs enumerated above that indicated the presence of syphilis. Chatenet comes to the conclusion that the discovery of such probable signs in an infant is a bar to suckling by a hired wet-nurse and is an indication for immediate and prolonged treatment of the child without taking any notice of a negative Wassermann reaction.

Surgery.

316. Partial Resection of the Upper Jaw in Malignant Disease of the Nasal Fossa and Sinuses.

S. CITELLI (*Arch. Ital. di Otol., Rinol. e Laringol.*, December, 1925, p. 795) describes a method of resection of the supero-internal portion of the upper jaw in which the essential step is the removal of the ascending process and the neighbouring supero-internal region of the body of the maxilla, as far out as the infraorbital foramen. Portions of the nasal and ethmoid bones are resected to meet the requirements of the case. The incision begins at the supero-internal angle of the orbit and follows the margin of the nose till it ends below the nostril of the same side. A second incision passes horizontally outwards from this at the lower border of the orbit. The bone is then cut through along a line from the lower border of the pyriform fossa to the infraorbital foramen and the whole of the ascending process removed. The aperture can be easily extended by removing the anterior surface of the maxilla or the floor of the frontal sinus, and it gives very liberal access to the nasal passages. This method of approach is used chiefly in tumours of the nasal fossae and the accessory sinuses. Malignant tumours are not often brought to notice in their early stages and are difficult of diagnosis. By the time they are usually seen they have a wide area of attachment and a very liberal supply of blood and lymphatic vessels. It is then often found that a tumour presenting in the nasal fossa has invaded various of the sinuses, chiefly the frontal and sphenoidal, and may have penetrated the orbit or the naso-pharynx. The ethmoid is much less often involved secondarily than primarily, tumour formation usually starting in it and extending into the sinuses. Opacity to transillumination or to x rays in the accessory sinuses does not always indicate malignant extension, but is often a sign of purulent sinusitis only. Citelli's method is applicable to malignant tumours arising in the nasal fossae, accessory sinuses, or in the naso-pharynx. Tumours limited to the anterior portion of the septum or the floor of the nasal fossa can be treated by a much less radical operation. For tumour of the alveolar margin of the maxilla only the lower part of the maxilla is removed and any extension of disease can then be followed up. Except when dealing with a generalized osteosarcoma of the upper maxilla the author does not employ the classical operation of excision of the

boue, but performs the operation described. Moore, Liébault, and Canuyt have described a somewhat similar operation in which a vertical cut is made in the nasal bone, close to the septum; a horizontal cut is made outwards from the anterior naris in the anterior surface of the maxilla; this latter is joined to the orbital margin by a vertical cut immediately internal to the infraorbital foramen. The cut in the nasal bone is joined to the orbit by a horizontal incision and the large surface of bone thus freed is separated from its attachment to the floor of the orbit and removed.

317. Traumatic Adhesion of the Alar Ligaments to the Femur.

N. GRZYWA (*Zentralbl. f. Chir.*, January 23rd, 1926, p. 198) states that this pathological condition of the knee-joint has not been described hitherto. He reports the case of a soldier who injured his right knee, was confined to bed for a week, and afterwards treated on ordinary lines. He returned to duty, and eighteen months later on a long march he was seized with severe pain in the joint which prevented complete extension or flexion. There was no history of venereal disease. The joint was inflated with oxygen, and a skiagram showed no abnormality other than a distinct shadow, broader than normal, of the alar ligament, which entered the intercondylar fossa. The knee condition remained unchanged, and a month later Grzywa opened the joint, by Payr's method, under local anaesthesia. The alar ligament, greatly thickened, formed a dense band, adherent to the upper part of the intercondylar fossa, and covering the crucial ligaments with a red membrane resembling pannus. The band was resected and the subjacent structures were found to be normal. Complete recovery followed.

318. Pre-operative Treatment in Exophthalmic Goitre.

R. S. DINSMORE (*Surg., Gynecol. and Obstet.*, February, 1926, p. 177) discusses the methods which may be adopted for protection of the patient suffering from hyperthyroidism upon whom operation is to be performed. He points out that the conditions contributing to the risk are marked loss of weight within a short period of time, instability of the nervous system, myocardial changes, dehydration, and impending acidosis. The first and second are treated by absolute rest in bed and the administration of sedatives. The cardiac condition with the possibility of auricular fibrillation is countered by giving 30 minims of the tincture of digitalis every four hours for twenty-four hours. The dehydration and impending acidosis, with the attendant diarrhoea and vomiting, are treated by the subcutaneous administration of normal saline solution to which novocain has been added. In the treatment of the delirium which sometimes develops in the course of acute hyperthyroidism Dinsmore has had good results from the transfusion of whole blood. He considers that the best time to perform an operation is on the twelfth day after the commencement of the administration of Lugol's solution for the first time, since in uncomplicated cases the maximum improvement is noted on the eighth day of this treatment, and it is extremely difficult to produce the same condition with successive courses of treatment. Reactions have followed operations undertaken during the period of maximum benefit. For the treatment of post-operative tetany he recommends one or two intramuscular injections of 1 c.cm. of a parathyroid extract prepared by Collip's method.

319. Subperiosteal Fractures with Persistent Displacement of Fragments.

E. MÜLLER (*Zentralbl. f. Chir.*, January 30th, 1926, p. 258) describes twelve cases of subperiosteal fracture of the radius and ulna in children and a similar fracture in a man aged 38. The children's ages ranged from 2 to 15 years. In all these cases skiagrams taken after treatment of the fractures by plaster bandages showed persistent displacement of the fragments. On cutting down to the periosteum at the site of the fractures it was invariably found that the periosteum was intact, and that there was no extravasation of blood in the overlying soft tissues. On incising the periosteum Müller found fluid blood and clots which had apparently prevented reposition of the fragments, since after removal of the clots replacement of the bony fragments was easy. The author also describes the case of a boy aged 8 who sustained a fracture of the left humerus in the middle third of the shaft, with angular displacement. Reduction was effected under an anaesthetic, but a subsequent skiagram showed that the angular displacement had been converted into one of the usual longitudinal type. Müller made an incision over the site of the injury and found a subperiosteal fracture of the humerus. He recommends incision of the periosteum and evacuation of the blood and clots in all cases in which a skiagram shows persistent bony displacement after the application of splints or plaster bandages.

Therapeutics.

320.

Insulin in Surgery.

F. N. G. STARR and A. G. FLETCHER (*Surg., Gynecol. and Obstet.*, February, 1926, p. 194) draw attention to the various ways in which insulin administration is of especial value in surgery and obstetrics. By giving insulin any diet may be prescribed to strengthen a debilitated patient—a point to be remembered in preparing for operation subjects of chronic cardio-vascular disease. Excess of carbohydrate may be given under these conditions, with some apparent protective action on the liver during the course of the anaesthetic and operation. The authors recommend that 20 to 40 grams of glucose or other carbohydrate and 15 units of insulin should be administered three or four hours before the operation. Post-operative treatment should aim at anticipating metabolic disturbances so far as possible, and therefore small doses of insulin, such as 10 units three times a day, may be given as a routine as soon as food is taken. The dose should be based upon the determination of urinary sugar, and, when possible, upon the blood sugar. In major operations some degree of hyperglycaemia is unavoidable, but insulin should be increased in an attempt to control the rising blood sugar level. Ketosis may develop rapidly after an operation, and steps must be taken to re-establish adequate utilization of carbohydrates when there is hyperglycaemia and glycosuria. Increased doses of insulin may suffice for this purpose, but otherwise additional carbohydrates must be supplied. Post-operative nausea and vomiting may occur, aggravated by the ketone intoxication, and marked dehydration may set in. It may be necessary, therefore, to administer the glucose and fluid intravenously, giving 500 c.cm. of a 5 per cent. solution as often as required. In the event of infection or severe toxæmia, the insulin value may be much lowered and the patient require 50 units or more four times a day. Under such conditions the insulin administration must be pushed until it is effective in lowering the blood sugar level. Although insulin has been advocated in the pernicious vomiting of pregnancy the authors doubt its value, since it now appears that the ketonuria is the result of dehydration.

321.

Ultra-violet Rays in Asthma.

P. DUHEM (*Paris Méd.*, February 20th, 1926, p. 190) reports the treatment of 33 cases of infantile asthma with ultra-violet rays during the last year and a half. Complete cure resulted in 17 cases which had previously appeared to be hopeless, 6 were markedly improved, 4 were definitely benefited, in 4 cases no change was produced, and in 2 cases the treatment had to be terminated prematurely owing to return of the symptoms. Duhem considers that the treatment should not be prolonged or intensive, and that intervals without treatment should be interspersed. He starts with an exposure of two minutes, the quartz lamp being placed at a distance of 60 cm., and increases the subsequent exposures by two minutes up to a final total of six minutes. The lamp is brought nearer by 5 cm. at each exposure, until a distance of 45 cm. is reached. Duhem draws attention to the production of ozone by the quartz lamp with irritant effects on the bronchi and the lungs. He therefore emphasizes the need of caution in treating asthma in this way.

322. Stovarsol and Tréparsol in Congenital Syphilis.

R. DUPÉRIÉ, FAYREAU, and CAUTORNÉ (*Gaz. Hebdom. des Sci. Méd. de Bordeaux*, January 31st, 1926, p. 67) report four cases of congenital syphilis treated orally with stovarsol and tréparsol in the form of their soluble alkaline salts. Their toxicity is said to be weak. An infant, aged 2 months, was given stovarsol in daily doses of 0.12 g. four days a week to a total of 6.6 grams. The treatment was well borne and a marked improvement in the weight followed. All mucocutaneous lesions disappeared, but enlargement of the spleen and liver persisted until mercurial inunction was also employed. There was some craniotabes and rickets—the child was artificially fed—which were treated with ultra-violet radiation. Ten months after treatment the Wassermann reaction of the blood was negative, but four months later it was weakly positive. An infant, aged 3 months, was given daily doses of 0.05 g. of tréparsol four days a week, followed by three days of rest, with mercurial inunction. The drug was well tolerated. After two months of treatment all mucocutaneous lesions had disappeared and also a serohaemorrhagic coryza; the weight increased by nearly 1½ lb. in less than a month. The spleen and liver remained large, but three months later the liver was found to have diminished considerably. The treatment was interrupted for a month and then resumed, till in ten months the infant had had about 6 grams of tréparsol. The general condition then was very good and the Wassermann reaction of the blood was negative. Similar results were obtained in the other two

cases, the initial daily doses of tréparsol having been 0.025 and 0.05 cg., and the principle of four successive days' treatment a week with three days' rest being observed. When about 3 grams had been administered there was remission of treatment for a month; then it was resumed till a total of 3.5 to 4 grams had been taken. Symptoms of intolerance were observed in one case—vomiting, colic, and diarrhoea. The dose was lessened during these attacks. Marked general improvement and apparent cure are reported in both cases.

223. The Treatment of Latent Congenital Syphilis.

WHEN an infant presents only signs of presumptive or probable syphilis, without any evidence of active disease, M. LUST (*Le Scalpel*, January 30th, 1926, p. 112) states that mercurial inunction gives excellent results and is all that is necessary. He recommends that the periods of treatment be spaced so as to allow of breaks of twelve days to two months. The mother, however, is apt to interrupt the treatment on the first signs of improvement, as inunction takes time and is messy. He then falls back on the neutral mercury lactate in a solution of 1 in 1,000, the dose being spread over three feeds daily. He quotes Marfan's dosage—namely, up to 3 months, 12 drops per kilogram of body weight; from 3 months to 3 years, 10 drops per kilogram of body weight. It is given fifteen, ten, and seven days a month respectively during the first, second, and third years. It should be interrupted when there is diarrhoea, but if diarrhoea recurs each time the drug is administered recourse should be had to inunctions of mercury.

324. Local Vaccine Treatment of Chancroid.

J. HABABOU-SALA (*Thèse de Paris*, 1925, No. 508), who records seven illustrative cases, employs a specific anti-Ducrey vaccine filtrate for the local treatment of chancroid. Filtration is necessary, as the presence of micro-organisms would cause an intense local reaction. If the bubo has not been opened, as much pus as possible is evacuated by puncture, and then the vaccine filtrate is injected. Cotton-wool or gauze soaked with the filtrate is then applied as a dressing. Open buboes are treated in a similar way. The soft chancre itself is first cleaned with sterile water and then dressed with cotton-wool or gauze soaked in the vaccine filtrate. The dressing is renewed every day, and no other treatment is employed. The vaccine filtrate acts with remarkable rapidity. Within the first twenty-four hours the pain disappears, the pus becomes serous, and by the fourth day the bubo may be regarded as healed.

Laryngology and Otology.

325. Trigeminal Lesions in Mastoiditis.

H. ALOIN (*Rev. de Laryngol., d'Otol. et de Rhinol.*, December 31st, 1925, p. 805) describes certain cases of mastoiditis which are followed by crises which on superficial examination may be mistaken for meningeal symptoms. He mentions two cases, in girls aged 7 and 8 respectively, who suffered from acute otitis media for which paracentesis had been performed; in neither case did this prove sufficient and cortical mastoid operations were performed. In one girl a second and much more extensive operation was required before the inflammatory processes were sufficiently dealt with. In both cases the operations were followed, at some little interval, by crises of great pain, which was referred to the distribution of the inferior maxillary nerve and was associated with a functional inability to open the mouth. These attacks were very severe and continued at the rate of two or more a day for a period of several weeks. The wound showed very little tendency to heal for some time and then repair was very slow. The skin of the scalp was very unhealthy, and in one case a "bedsore" formed over the occipital protuberance. The period between the attacks was entirely free from pain or discomfort, but complete recovery from the attacks had not been attained after more than a year, though they were now slight and infrequent. The author considers that the explanation of these phenomena lies in the fact that the petrous bone is affected by an osteomyelitis which is comparable to that in the long bones. The two petrous bones are affected successively but to an equal extent. All the structures around the apex of the petrous bone are affected and there may be some transient meningeal symptoms. Various cranial nerves may be affected, but the most common is the trigeminal, and of its branches the inferior is more often involved than the others. This may be due to the very close proximity of this division of the nerve to the bone, and it also explains the fact that the motor division is affected equally with the sensory, causing the inability to open the mouth. The anterior portion of the petrous bone is much more cancellous than the posterior, and is affected

to a much greater extent than the posterior. The author has traced the progress of tuberculous disease from the middle ear by an osteomyelitis of the petrous bone to the meninges, and he thinks that, when there is evidence of petrous involvement, the possibility of infection by the tubercle bacillus must not be lost sight of. Treatment should consist of a very early and vigorous excision of the diseased bone, and, given this, there is a fairly good prognosis. The author remarks that the surgeon must guard against being persuaded into further extensive operations at the time when the crises of pain are causing great anxiety.

326. Leptomeningitis due to Nasal Furuncle.

A. LOGAN TURNER and F. ESMOND REYNOLDS (*Journ. of Laryngol. and Otol.*, February, 1926, p. 73) describe the case of a male patient in a mental hospital who developed a boil on the right nostril which burst forty-eight hours later with much purulent discharge. The condition improved, but three days after the onset the patient complained of headache and the following day he vomited. By the fifth day the eyeballs were prominent and vision was dimmed; there was very marked conjunctival chemosis, and the eyeballs became immobile. On the sixth day the temperature, which had been 102°, rose to 106°; the patient was unconscious and died that day. At the necropsy a diffuse leptomeningitis was found and the cavernous sinuses were filled with septic blood clots. A large block of the base of the skull and the orbits was removed and serial sections were cut. It was found that practically all the veins of both orbits were filled with septic clot; the walls of the veins had necrosed, and pus had formed around them. The authors describe at length the anatomical arrangement of the venous channels of the area. They consider that thrombosis started in a venule close to the furuncle and extended into the superior ophthalmic veins, whence an embolus was detached which passed on to the cavernous sinus. Here a septic thrombus formed and spread in a retrograde direction to the veins of both orbits, both sides of the dura mater, the middle meningeal vessels, and the sphenoparietal veins. There was no involvement, either primary or secondary, of the accessory sinuses of the nose. The particular danger associated with furuncles of the face appears to be due, in the first place, to the fact that there is a very intimate association between the skin and the muscles of the face, causing almost incessant movements of the skin and a great tendency to separate off fragments of the septic clot. Secondly, the wide communication of the ophthalmic vessels with those of the intracranial region favours the disposition of the septic clot. In the case described the diploë of the bone was severely infected, its vessels being thrombosed and surrounded by pus. The optic nerve showed purulent infiltration of the subarachnoid space and the pia membrane of that nerve.

327. The Effect of Electric Shocks on the Auditory Apparatus.

U. CALAMIDA (*Arch. Ital. di Otol., Rinol. e Laringol.*, December, 1925, p. 805) records three cases in which he was able to examine the ears of patients who had been struck by lightning or powerful electric charges. In the first a sentry was struck by lightning; the right ear was not injured, but the left ear showed a small perforation of the drum with injection and thickening. Weber's and Rinne's tests indicated a middle-ear deafness, and examination of the posterior labyrinth showed no change. The second case was that of an electrician who was struck by a spark from a current of about 2,000 volts in the region of the right ear. There was some excoriation of the pinna and the drumhead was slightly reddened. Tests of hearing showed a marked internal ear deafness, tuning-forks and the Edelmann-Galton whistle being unheard. Tests of the posterior labyrinth showed a decreased excitability of the semicircular canals but a normal reaction of the otoliths. There was oscillation of the head towards the right; the nervous system showed signs of involvement—namely, uncertainty of movements and thoughts. The third case was also an electrician, who was struck by a current of 13,000 volts. He suffered from a severe bilateral deafness which was shown to be due to lesion of the apparatus of transmission and not of perception. The labyrinth was normal to rotation but hypoeccitable to caloric tests, and the otolith function was normal. Ten years after the accident this patient had markedly retracted but mobile drumheads and still very severe deafness. In these cases it is comparatively rare for the middle ear to be affected to the exclusion of the internal ear, and of the labyrinth it is usually the anterior or cochlear portion that is damaged, and the posterior escapes. This portion is, however, affected in some cases, and there is occasionally a central lesion which gives rise to symptoms such as inco-ordination and oscillation of the head, as described in the second case. It is thought that previous catarrhal changes in the middle ear predispose this part of the organ to injury.

Obstetrics and Gynaecology.

328. Forceps Delivery in Persistent Occipito-posterior Presentations.

H. C. WILLIAMSON (*Amer. Journ. Obstet. and Gynecol.*, January, 1926, p. 37) describes a method of terminating labour in a persistent occipito-posterior presentation: he combines manual rotation of the head to a transverse position with forceps application, the posterior blade in the hollow of the sacrum and the anterior blade under the symphysis. The blades thus face the occiput, so that a second application is unnecessary. In a right presentation the left hand is used to rotate and hold the head, the right hand being similarly employed in a left presentation. The hand is cupped so that the fingers are posterior to the head, with the occiput lying in the palm. Firm pressure may be made with the other hand upon the fundus, thus forcing rotation; by this manoeuvre flexion is secured and the head retained in the pelvis. In a right occipito-posterior position the right blade of the forceps is applied posteriorly, and should be introduced first without withdrawing the hand which has been passed into the uterus. The blade is passed in the mid-line and the handle depressed to avoid the promontory. The hand may now be withdrawn, since the first blade will hold the head in a transverse position; the second blade is then introduced along the side of the pelvis and rotated into position, its placing being facilitated by depressing the handle. Since the right blade was introduced first it will be necessary to cross the handles before they can be locked. In a left occipito-posterior presentation the left blade is introduced first, and the technique is similar to that described for the right occipito-posterior presentation, except that the handles do not have to be crossed. In many cases when the forceps is locked the head instantly rotates to the anterior position, but in cases in which this does not occur only slight rotation is necessary. Rotation must be completed before traction is made, so as to avoid damage to the soft tissues. Williamson reports 100 mid and high forceps cases treated successfully by this procedure.

329. Dangers of Pubiotomy.

NIEDERMAYER (*Zentralbl. f. Gynäk.*, January 23rd, 1926, p. 221) records two cases of pubiotomy in multiparae which were followed respectively by urinary fistula and by a large hernia in the labium majus at the site of rupture of a traumatic vesical fistula. Among other dangers of the operation are bleeding from the cavernous tissue or bone, infection of a haematoma, and injuries of the soft parts leading to prolapse; the formation of a pseudarthrosis and difficulty in walking have also been not very rare sequelae. Although believing that pubiotomy is probably preferable to symphysiotomy, Niedermayer is inclined with increasing experience to limit still further the therapeutic scope of operations on the bony pelvis. He thinks that these are to be regarded as an alternative to perforation rather than to Caesarean section, and are absolutely contraindicated where (1) the true conjugate is less than 7 cm., (2) infection or fever is present or the liquor amnii has drained away, or (3) the foetus is dead. He adds that it is also inadvisable to perform pubiotomy in primiparae, or when the conjugate, although exceeding 7 cm., is less than 8 cm.

330. Retroposition of the Uterus.

J. F. MCGRATH (*Surg., Gynecol. and Obstet.*, February, 1926, p. 241) discusses the incidence, symptomatology, prevention, and treatment of retroposition of the uterus. He believes that retroposition *per se* does not produce symptoms and therefore does not require treatment, but where symptoms are present these are a result of associated lesions, and treatment is then called for. McGrath considers that the displacement can be the cause of the associated lesions. He distinguishes (1) a congenital type, most frequently found in young girls and nulliparous women, and (2) an acquired type which, he says, is more common than the former. He states that little can be done to prevent the congenital lesion, but suggests that careful supervision of the hygiene of the young girl at the age of puberty, combined with the occasional use of gland therapy, may lessen the incidence. Treatment of this type unless the disability is severe is unnecessary, since marriage and pregnancy usually relieve the condition. Proper preventive post-partum treatment, rapid resolution of injuries, rest in a suitable position, and, if necessary, the use of a pessary, may do much to prevent acquired retroposition. Where the condition has been present for less than a year a suitable pessary may cure it. If it has been present for a longer period conservative treatment is hardly likely to cure, but an operation will probably be successful if a pessary relieves the symptoms. Of the various methods of surgical intervention he does not recommend ventrofixation, or the operations of Olshausen and Gilliam, since by these strangulation of the intestines is possible; he prefers a modified

Simpson-Montgomery technique; or, where this is not possible or suitable by reason of prolapse of both adnexa with marked varicose veins of both broad ligaments, he advises the Baldy-Webster operation.

Pathology.

331. Vaccination against Anaerobic Infections.

M. WEINBERG and J. BAROTTE (*C. R. Soc. de Biologie*, February 12th, 1926, p. 312) have attempted to immunize guinea-pigs to some of the anaerobic organisms that are likely to gain access to wounds. The vaccines used were prepared by the addition of 0.3 to 0.5 per cent. formal to a twenty-four hours' glucose broth culture, incubating for a week or a fortnight to kill the organisms, centrifuging, and suspending the deposit in 50 per cent. glycerol. Immediately before use the vaccine was made up to its original bulk with saline. One set of twenty guinea-pigs received two doses of *B. welchii* at fourteen days' interval. Two to four weeks after the second injection they were tested for immunity by the inoculation of virulent bacilli. All of them withstood one lethal dose; the control animals died the same night. Another set of twenty guinea-pigs received two injections of *B. oedematis mallei* vaccine, and forty-six days later they were injected with living bacilli. The controls died during the night; the vaccinated animals either survived or did not die for two days. A third set of guinea-pigs received two injections of a vaccine consisting of equal numbers of these two organisms. Sixty-nine days later they were injected with a mixture of living organisms of both species. The control animals died or recovered slowly after showing serious lesions; the vaccinated animals all survived, though they developed a more or less marked tumefaction of the thigh. These experiments are admittedly not conclusive because many of the vaccinated animals appear to have died from intercurrent epidemic diseases, but they do show that a certain degree of immunity can be attained as the result of the injection of formalized vaccines. The authors suggest the addition to the vaccine of *B. oedematis*. A few experiments made on human volunteers show that the bivalent vaccine at least is well supported in doses of 5 to 10 c.cm.

332. Blood Calcium in Eclampsia.

S. M. FEINBERG and A. F. LASH (*Surg., Gynecol. and Obstet.*, February, 1926, p. 255) have made a pathological investigation of the calcium content of the blood in eclampsia to ascertain whether any etiological significance could be traced. Disturbance of the calcium metabolism has been described in infantile tetany; it is also known that during pregnancy osseous changes, such as softening of the bones and dental decay, may occur, which might be interpreted as evidence of interference with the calcium balance. The blood calcium figures of eleven cases of normal pregnancy were determined shortly before delivery, and twelve cases of pre-eclamptic and eclamptic toxæmias were examined. Although the calcium figures for eclampsia were slightly lower than those for normal pregnancy, the authors conclude that the difference is so slight as to be negligible. Moreover, in cases of uræmia, chronic nephritis, and cavernous sinus thrombosis, still lower figures were obtained. In none of the cases of eclampsia was there any evidence of a disturbed calcium metabolism as suggested by a history of delayed dentition, tetany, or rickets.

333. Inoculation of Herpes Febrilis.

P. REMLINGER and J. BAILLY (*C. R. Soc. de Biologie*, October 30th, 1925, p. 983) describe the various methods employed by them in inoculating the virus of herpes febrilis into rabbits. (1) Intraperitoneal inoculation. Two out of four animals so inoculated developed typical herpetic encephalitis. (2) Inoculation into the tongue muscles, a method which Remlinger had previously described as likely to be useful owing to the close proximity of the nerve centres and the richness of the tongue in nerves and lymphatics. Of two rabbits inoculated in this manner one remained unaffected and the other developed typical herpetic encephalitis. (3) Intratesticular inoculation. A rabbit so inoculated developed paraplegia followed by fatal ascending paralysis. Subdural inoculation of a testicular emulsion produced typical encephalitis in two other rabbits. (4) Inoculation of an emulsion of a herpetic brain into the marginal vein of the orbit caused sudden death of a rabbit ten days later, and passage produced typical encephalitis in four days. (5) Conjunctival instillations of a cerebral emulsion from a rabbit which had died of encephalitis reproduced the disease in another animal. (6) Intranasal inoculation after scarification of the mucous membrane caused progressive cachexia, and passage gave rise to typical encephalitis. (7) Nasal instillations without damage to the mucous membrane had no effect on one rabbit and caused the death of another with symptoms of encephalitis.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

334.

Protein Sensitivity.

I. M. ALLEN (*New Zealand Med. Journ.*, December, 1925, p. 286) reports a consecutive series of 65 patients suffering from such affections as asthma, urticaria, hay fever, eczema, and food idiosyncrasy; in each case some indication of protein sensitivity was detected. He states that this sensitivity is entirely responsible for hay fever and for the majority of cases of asthma, urticaria, eczema, and food idiosyncrasies. In 26 cases the sensitivity was manifest before the age of 5, and 22 patients first noticed their disability between the ages of 20 and 40. In no case was the sensitivity first observed after the age of 45. He distinguishes three types of asthma: (1) that preceded by hay fever—hay asthma; (2) that secondary to bronchitis; and (3) that due to food sensitivity. He considers hay fever, all respiratory infections, and severe respiratory infections in adults as being pre-asthmatic conditions, and stresses the need for early treatment in the pre-asthmatic stage or on the first appearance of asthmatic symptoms. He thinks that this pre-asthmatic condition should be regarded as seriously as the precancerous condition in view of the individual disablement and the economic loss. Treatment should therefore be energetic and include alleviation of symptoms, removal of the irritating substance, specific desensitization, group desensitization, and non-specific desensitization, undertaken in this order. Allen has also investigated cases of idiosyncrasy towards aspirin, and found that these patients were very sensitive to many different proteins; the symptoms in each case were rhinorrhoea, urticaria, and asthma.

335.

Prophylaxis against Tuberculosis.

F. CEVEY (*Journ. Trop. Med. and Hygiene*, February 15th, 1926, p. 53) urges the necessity of a more efficient prophylaxis against tuberculosis by seeking for its earliest signs without waiting until the infection has become a disease. He points out that this can only be attained by the systematic examination of school children. At the earliest sign of undernutrition and diminished resistance, as shown by clinical symptoms, x rays, and von Pirquet's reaction, active immunization, followed by physical training, should be commenced. Periodical examination should follow so that treatment may be repeated if found necessary, and the spread of infection prevented by education and disinfection. By treating any accompanying tuberculous infection at the same time that the undernourishment is being corrected the gain to nutrition has been more than doubled in six classes of children under observation, and Cevey argues that a method which has been found capable in three or four months of providing for tubercle-infected children in cities a state of nutrition two and a half times greater than that found among children living in the country is deserving of attention.

336.

Glandular Fever.

F. MÜNDEL and J. FRANZ (*Monatsschr. f. Kinderheilk.*, February, 1926, p. 544) report an epidemic of eight cases of glandular fever which occurred in the whooping-cough department of the children's clinic at Frankfurt. The following features were common to all: (1) The patients were children aged from 2 to 3 years. (2) They were mainly children of a pasty lymphatic appearance and with active rickets. (3) A sudden onset of fever with a low degree of rhino-pharyngitis, regularly followed within twenty-four to forty-eight hours by swelling of the neck glands. (4) Absence of enlargement of the liver and spleen, which Pfeiffer regards as characteristic of glandular fever. (5) Normal blood picture. In spite of repeated examinations, there was no increase of eosinophils or relative lymphocytosis, to which Samuel attaches considerable diagnostic importance. The authors attribute the glandular enlargement to the child's lymphatic constitution and not to a bacterial infection.

337.

Diphtheria following Tonsillectomy.

A. ZINGHER (*Amer. Journ. Dis. Child.*, January, 1926, p. 72) points out that diphtheria as a complication following tonsillectomy may be overlooked until too late for effective antitoxin treatment. The post-operative slough closely resembles a diphtheritic pseudo-membrane, and consequently may lead to the danger of a superimposed secondary diphtheria being unrecognized. The necessity for routine bacteriological examination of the nose and throat before operations in these regions is emphasized, unless a previous negative

Schick test has been obtained; carriers so discovered may be protected by a prophylactic dose of antitoxin. Zingher gives notes of four cases occurring in children, aged from 3 to 9, in which diphtheritic faucial lesions developed immediately after tonsillectomy. The serious nature of such a superimposed diphtheria lies in the early and rapid absorption of a fatal dose of toxin from an extensive raw surface, and the difficulty in recognizing the disease in the post-operative slough until much time has been lost and the opportunity for effective antitoxin treatment has passed. If cultures are positive a prophylactic dose of 1,500 units should be given unless the patient already shows a definite negative reaction with the Schick test. Zingher recommends the active immunization of all young children with the new toxin-antitoxin mixture or with diphtheria toxoid.

338.

Measles and Poliomyelitis.

D. TRONCONI (*Riv. di Clin. Ped.*, January, 1926, p. 58), imitating the method of treatment of general paralysis and encephalitis by malarial virus, exposed two children, aged 4 and 2 years respectively, after a recent attack of acute poliomyelitis, to the infection of measles. The poliomyelitis had developed five days previously in one child, in whom it had caused flaccid paralysis of the right shoulder girdle, and a week previously in the other, in whom it had produced flaccid paralysis of the lower limbs. One child developed measles in seventeen days, and the other in twenty-three. On subsidence of the fever and disappearance of the rash spontaneous movements occurred in the paralysed limbs, being at first very limited, but subsequently more extensive and energetic, until in twenty days' time one child was able to raise his shoulder girdle, and the other to perform normal flexion and extension of the limbs, which had hitherto been as lifeless as those of a puppet. Tronconi suggests that the virus of poliomyelitis was modified by the action of the measles virus, and that the neurones which had been affected but not destroyed were thereby enabled to make an anatomical and functional recovery.

Surgery.

339. Resection of the Lumbo-sacral Sympathetic in Impending Gangrene of the Leg.

Y. OSAWA and G. USAMI (*Zentralbl. f. Chir.*, February 6th, 1926, p. 326) state that the success of Leriche's and Brünig's periarterial sympathectomy induced them to resect the lumbo-sacral sympathetic trunk in a case in which ligature of the popliteal artery for aneurysm was followed by serious symptoms of impending gangrene. A workman, aged 55, with a syphilitic history and strongly positive Wassermann reaction, noticed a pulsating swelling in the left popliteal space; he was given a short course of antisymphilitic treatment. On admission to hospital six months later the swelling was found to be as large as a child's head and the overlying skin was necrotic. The internal organs were healthy, but the patient was anaemic. The left dorsalis pedis artery could not be felt. Four days later the aneurysmal sac was laid open, clots and necrotic tissue removed, and lateral suture of the artery was performed. After the operation there was distinct pulsation in the small arteries of the foot. Three days later serious secondary haemorrhage occurred and the artery was ligatured above the aneurysm. After the artery had been ligatured and an Esmarch's bandage removed there was very slight bleeding from the distal portion of the popliteal artery. Subsequently the leg became cold and pale, with diminished sensibility for more than three inches above the ankle. In the evening the skin of the limb became wrinkled and the whole foot was colder than the other. Next day the foot and calf were cyanosed and the temperature (between the toes) was two or three degrees lower than that on the right side. On the following day sub-umbilical laparotomy was performed under a general anaesthetic. The three lower lumbar sympathetic ganglia were exposed, the sympathetic trunk was freed from the common iliac vessels and resected together with the three upper sacral sympathetic ganglia; the posterior and anterior layers of the peritoneum were sutured and the abdomen was closed. After the operation the temperature of the left toes rose rapidly; in six hours they were two degrees above those of the right foot, and the left dorsalis pedis artery was pulsating. Cyanosis and pallor were replaced by slight reddening. Twelve hours later the posterior tibial artery was pulsating.

the wrinkled skin had become smooth, and sensation was normal; the necrotic area in the popliteal space showed a line of demarcation and free granulation. No bladder complication occurred, and the patient made a good recovery.

340. Diagnosis of Lateral Sinus Infection.

G. L. TOBEY (*Boston Med. and Surg. Journ.*, January 14th, 1926, p. 53) describes means of detecting lateral sinus thrombosis, and states that, when there is evident sepsis during the course of an aural infection, failure to localize the seat of infection is an indication for ligature of the jugular vein and exploration of the lateral sinus. When thrombosis with complete or incomplete obliteration of the sinus is present it may be demonstrated by observations on the pressure of the cerebro-spinal fluid. His method of conducting this test is as follows. With the patient in the lateral position a lumbar puncture is made and the fluid allowed to run into a glass manometer of 2 mm. bore. The initial pressure is noted, as also are the variations due to the pulse and respiration. Without disturbing the patient pressure is applied to the normal side of the neck between the larynx and the sterno-cleido-mastoid muscle until a strong carotid pulsation is felt. During the compression the height of the column in the manometer rises, to fall again when the pressure is released. This is repeated on the opposite side and then on both sides simultaneously. When lateral sinus thrombosis is present there is no rise, or only a slight rise, when the abnormal side is compressed, and pressure on both sides gives approximately the same reading as when the normal side only is pressed. Tobey has found this test of great value in cases of double mastoiditis with symptoms of lateral sinus thrombosis. He admits the possibility of two dangers: (1) sudden death, from the presence of subdural abscess or tumour, following the lumbar puncture; (2) the precipitation of acute meningitis due to the liberation of organisms from an area of localized infection or from the blood stream. The first may be almost excluded by not performing the test where there is a possibility of these conditions existing. The latter he considers hardly likely to occur, and in a series of eighty-four cases he has not had evidence of ill effects resulting from the use of this test.

341. Etiology of Surgical Tuberculosis.

H. KELLER (*Med. Journ. and Record*, February 3rd, 1926, p. 169), who reports a series of 46 cases of joint tuberculosis, states that tuberculous infection in childhood is responsible for the majority of tuberculosis in all ages; it is therefore important to trace the seat of the primary infection. Bone and joint tuberculosis generally arises from a primary focus elsewhere in the body, and this is most often found in the lymph nodes lying in the mediastinum. This statement, he says, is very well substantiated by x-ray photographs and post-mortem findings, and thereore an x-ray examination of the chest should always be made when there is tuberculous disease of the bones or joints. Moreover, treatment directed solely towards cure of the joint infection is only palliative, and attempts should be made to eradicate the primary focus. For this purpose radiation of the chest should be employed in those cases where enlarged lymph nodes are present in the mediastinum, as by this means the lymphoid cells are destroyed and replaced by fibrous tissue, thus simulating Nature's method of combating tuberculosis. Keller has examined the tonsils in forty children treated for joint tuberculosis, and found them infected in thirty-two cases. Therefore, he adds, the tonsils should always be removed when they are suspected, and further, small buried sclerosed tonsils are often a greater danger than those of normal size, since they may increase the facility for infection because of the wider openings of the crypts and atrophy of the lymphatic tissue.

342. Congenital Displacement of the Scapula.

R. D. SCHROCK (*Journ. of Bone and Joint Surgery*, January, 1926, p. 207) points out that at the ninth week of foetal life the scapula begins to descend from the neck to the thorax. Failure in descent may be due to maldevelopment in bone, cartilage, and muscle, or the movement may be interrupted by abnormal pressure in the uterus. There is still much doubt about the exact cause of this congenital deformity, and its treatment appears on the whole to have been discouraging in the past. In cases where a chondro-osseous bridge was present a simple resection was advised; if the muscles were shortened myotomies were performed. Schrock has obtained far more satisfactory results by a more radical procedure; this consists of radical subperiosteal transplantation of the scapula with osteotomy of the base of the acromion process. After exposure of the scapula the muscles are removed by subperiosteal elevation. Where a chondro-osseous bridge passes from the vertebrae to the upper border of the scapula this is removed freely. If the shoulder cannot then be

brought back, an osteotomy of the base of the acromion is performed; this gives an appreciable downward drop of the shoulder. The lower angle of the scapula is then anchored to the lowermost rib and the muscles are sutured in anatomical layers. This procedure was adopted in two cases with good results, and full details and photographs are given to explain the technique of the operation.

Therapeutics.

343. Prophylactic and Curative Value of Pertussis Vaccine.

HELENE M. BROUWER-FROMMANN (*Nederl. Tijdschr. v. Geneesk.*, January 9th, 1926, p. 142), owing to an outbreak of whooping-cough in a children's home, employed pertussis vaccine in 38 cases. The children, whose ages ranged from 2 months to 3 years, were given subcutaneous injections in doses from 750 million to 3,000 million bacilli. The results were as follows: (1) All the 38 children contracted the disease. (2) The endemic ran a very mild course. The number of the paroxysms was not very great and the paroxysms themselves were not very violent in character. (3) Sudden cessation of the paroxysms after injection of the vaccine did not occur. (4) No complication developed and there was little loss of weight, but rather the reverse. (5) In patients aged from 18 months to 3 years the disease was over in four weeks' time; in children aged from 6 to 18 months it lasted somewhat longer; and in younger children still it lasted six weeks or more. The author's experience thus differs from that of Freeman, Luttinger, Marinucci, Galli, Auricchio, and von Bokay, who obtained good results from prophylactic injection of pertussis vaccine.

344. W. F. ENKLAAR (*ibid.*, January 23rd, 1926, p. 349) treated a hundred cases of whooping-cough in children aged from 0 to 12 years with Bordet-Gengou vaccine, and obtained good results in all but four, in whom the disease was not affected by treatment. The first requirement of a pertussis vaccine is that it should be absolutely pure and contain virulent pertussis bacilli. As a general rule three injections are sufficient, the dosage on each occasion being 3,000 million bacilli. The patients usually showed little or no rise of temperature after injection, unlike what happens after injection of other vaccines, especially antipneumococcal, when a temperature of 104° is frequently observed. No bad effects were noted. The injections were given intramuscularly every other day. Improvement occurred sometimes after the first injection, often after the second, and after the third at latest, and consisted in the cough becoming loose and less frequent, so that the disease could be regarded as cured in nine to ten days. In infants the improvement was shown by disappearance of the almost pathognomonic facial pallor. Pulmonary complications were rarer and milder than usual, and suppurative otitis cleared up completely after paracentesis. Lastly, the good effect of the vaccine treatment was shown by the mortality among the hundred cases being nil. Enklaar concludes that pertussis vaccine is a remedy of great value.

345. Insulin in Exophthalmic Goitre.

O. KLEIN (*Med. Klin.*, February 12th, 1926, p. 248) states that encouraging results have been reported from the treatment of exophthalmic goitre by insulin. The improvement was shown by gain in weight and the relief of tachycardia, mental disturbances, and tremor, as well as by a general improvement in the patients' condition. Klein has had three cases of similar improvement. He suggests that there are several forms of exophthalmic goitre and that insulin is useful only in the pancreatogenous type, but fails in cases of thyroid origin and in those due to primary hypophyseal disease. He adds that confirmation of this view has been provided by other Austrian and German investigators.

346. Treatment of Parkinsonism by Stramonium.

E. JUSTER and R. HUERRE (*Bull. Soc. de Thér.*, January 13th, 1926, p. 11) have treated several cases of Parkinsonism, both of the post-encephalitic variety and paralysis agitans, by stramonium in pills or cachets in progressively increasing doses of 0.05 or 0.10 gram, which were given preferably during meals. They always tried to reach the maximum limit of tolerance, being guided by the following symptoms of intolerance: pain in the stomach, dryness of the mouth, and mydriasis sufficient to interfere with reading. The improvement was most marked in the rigidity, while accessory symptoms, such as salivation, sweating, insomnia, emotionalism, and anxiety, were much attenuated. On the other hand, the tremor was little affected. The action of stramonium on the rigidity was undoubtedly due to the

alkaloids contained in stramonium—namely, atropine and hyoscyamine. Treatment of Parkinsonism by stramonium is merely symptomatic, but in the absence of etiological therapy it is one of the most successful, least toxic, and simplest measures. In order to prevent habituation to the drug the authors administer it for periods of twenty days, followed by an interval of ten days, or alternate it with other drugs, such as arsenical compounds or derivatives of malonylurea or hemlock seeds:

347. Intravenous Injection of Camphor.

G. HOSEMAN (Zentralbl. f. Chir., February 13th, 1926, p. 394) states that he has used camphor injections in over a thousand cases during the last ten years and that the method has also been well tested by a number of leading surgeons. Schröder (Kiel) reports that he has recently abandoned the transfusion of large quantities of blood, as he considers that the intravenous injection of camphor is preferable. Hosemann's solution had the following formula: "Spiritus camphoratus" 3.5 parts, alcohol 2 parts, and sterile distilled water 4.5 parts. The results are said to be more certain than those produced by the injection of sodium chloride, and normal saline, or glucose solutions. This injection of camphor into the blood stream is stated to have remarkable results in cases of severe hæmorrhage and of circulatory failure, whether due to shock or to septic absorption. A patient had had intestinal obstruction for several days; he was pulseless, with cold blue extremities, but after the above treatment he rallied sufficiently to enable laparotomy to be performed. In twelve cases of paralytic ileus, following suppurative appendicitis and peritonitis, the patients' lives were saved by injections of camphor-glucose solutions, and Heidenhain's ileal fistula. The patients rally immediately after the injection and experience a sensation of warmth and of returning strength.

Radiology.

348. Aplastic Anæmia due to X Rays.

J. LANKHOUT (Nederl. Tijdschr. v. Geneesk., December 19th, 1925, p. 2789), who records an illustrative case, states that it is generally known that x rays and radium may cause changes in the blood. Mottram and Clarke (1920) have shown that persons who employ radium for therapeutic purposes may present leucopenia at the end of a fortnight. Mottram (1920) has emphasized the importance of early blood examination in radiologists. Not only did he find in many cases a diminution of the red corpuscles and a high colour index, but he also observed three fatal cases, and Larkins recorded another. In all these cases the disease ran a rapid course, death occurring in a few months. Amundsen (1924) found that the blood in radiologists always differed from the normal. The total number of red corpuscles was often unusually low. The change in the blood picture, however, was most marked in the relation of the polymorphonuclears to the lymphocytes. The hæmoglobin value was usually normal. The effect of radiological work on the blood becomes distinct after one or two months, and may be observed even in the servants attached to a radium institute. The new Coolidge tube is particularly dangerous owing to the remarkably penetrative power of its rays. Lankhout's case was that of a medical practitioner, aged 34, who was director of an x-ray institute, and had been working without any protection against deeply penetrating rays. When he was first seen by Lankhout he was moribund, but he gave a history of weakness, shortness of breath, and pallor of some months' duration. Examination of the blood gave the following results: Hæmoglobin 13 per cent. (Sahl), colour index 1.3, red cells 610,000, leucocytes 900, 52 per cent. of which were polymorphonuclears and 48 per cent. mononuclears. The red cells showed anisocytosis, poikilocytosis, polychromatophilia, basophil stippling, and nucleated forms.

349. Radiological Diagnosis of Gastric Syphilis.

L. T. LEWALD (Radiology, February, 1926, p. 138) maintains that a radiological examination affords the best means of recognizing the existence of syphilis of the stomach, and reports cases with radiograms in illustration. He considers that the characteristic evidence so obtained is as follows. The stomach in syphilis may appear to be diminished in size, and there is always immediate evacuation of most of the stomach contents; compensatory dilatation of the oesophagus is often present. In other cases there may be a fairly symmetrical deformity involving the middle of the stomach and producing a dumbbell-like appearance. When this is found in a young patient or in an older one, without cachexia commensurate with a malignant involvement of the stomach of this extent, syphilis should always be suspected. Some

cases show a remarkably small and tubular stomach; this is far more difficult to distinguish from carcinoma. In another class the x-ray appearances resemble those of carcinoma, there being localized infiltrated areas of the stomach wall. When the syphilitic lesion is situated at the pylorus, producing stenosis and gastric retention, it is always more extensive than the lesion in simple ulcer and may be as marked as in gastric carcinoma. The warning is given that, though a positive Wassermann reaction does not necessarily prove the specific nature of a stomach lesion, yet, on the other hand, a negative Wassermann reaction does not exclude it. In doubtful cases antisyphilitic treatment under radiological supervision should always be employed in cases where there is any doubt as to the diagnosis, or where malignancy is believed to be present and so advanced as to render operation impracticable. A case is cited of syphilitic perforation causing death, no treatment being given, owing to an erroneous diagnosis of advanced malignancy.

350. X Rays in the Diagnosis of Intestinal Tuberculosis.

N. H. BLAKIE and A. T. LAIRD (Minnesota Med., February, 1926, p. 66) believe that with the aid of x rays it is possible to diagnose tuberculous ulceration of the colon near the caecum much earlier than formerly. They consider that every case of pulmonary tuberculosis should be examined with the aid of a barium test meal or enema to demonstrate such evidence of tuberculosis as the too rapid passage of the meal through the inflamed areas (Stierlin's phenomenon). In tuberculous enteritis the barium passes rapidly through the large bowel, evacuation often being completed within twenty-four hours; the caecum and lower colon appear to pass the meal along as soon as it is received. The usual haustral sacculations are lacking and the affected portions are only partially filled, presenting a ragged and irregular appearance. Occasionally the barium is delayed at the ileocaecal valve from spasm (ileal stasis), and these pictures of hypermotility, filling defects, and ileal stasis are regarded as characteristic of ulceration of the caecum and ascending colon.

351. X Rays in Carcinoma of the Breast.

B. J. LEE and N. E. TANNENBAUM (Journ. Amer. Med. Assoc., January 23rd, 1926, p. 250) record 363 cases of recurrent inoperable and metastatic carcinomata of the breast treated by radium and x rays. Of these, 158 were too far advanced to benefit by treatment, thus leaving 205 for whom treatment by irradiation offered a reasonable hope for some regression and control of the disease. Irradiation by low voltage was used in the majority of instances, treatment being repeated over the same areas if regression was insufficient or if the disease remained stationary. This form of therapy was employed for supraclavicular or axillary involvement and for diffuse cutaneous recurrences with striking disappearances of cutaneous nodules. For large, well circumscribed recurrences the radium pack or radium tray was used, while bare tubes of emanation were employed in the smaller superficial recurrent nodules or in axillary nodes. Of the 205 favourable cases 34 (17 per cent.) patients are alive, and the authors are convinced that treatment by irradiation gives a definite prolongation of life with an amelioration of many symptoms and may control the disease for some years. As prophylactics against recurrence they advocate careful selection of patients for operation and pre-operative and post-operative cycles of x-ray treatment.

Obstetrics and Gynaecology.

352. Late Urinary Sequels of Gynaecological Operations.

G. ALBANO (Ann. di Ostet. e Ginecol., December 31st, 1925, p. 861) remarks that in addition to the retention of urine immediately following gynaecological operations, which yields promptly to treatment by urotropine, it is not uncommon to encounter urinary symptoms beginning from three weeks to three months subsequently. These late symptoms have been considered to indicate a bacterial invasion, and the condition has been termed by Grandjean post-operative cystitis; but in addition to cases in which there is clearly an element of infection others exist in which the disturbance is functional; these are often associated with the menopause. The symptoms, arranged in order of prevalence, are: diurnal frequency of micturition, cystalgic pain, pyuria, nocturnal frequency, dysuria, and hæmorrhage at the end of micturition. Albano found that late urinary symptoms occurred after 18 per cent. of gynaecological operations, and were most frequent after operations on the uterus; careful inquiry showed that, as a general rule, the earliest symptoms were experienced within the first thirty days. Prognosis is favourable, and most cases speedily clear up spontaneously or after medical treatment.

353. Evolution of the Graafian Follicle and the Corpus Luteum.

W. SHAW (*Journ. Obstet. and Gynaec. of the British Empire*, Winter No., 1925, p. 679) points out that very little attention has been paid to the Graafian follicles which do not rupture and shed their ova. He describes the results of investigations of young and degenerated corpora lutea, and gives an account of the atretic processes in follicles which do not rupture. The ovaries were obtained from patients who were operated upon for various pelvic conditions. Although a minor degree of follicular ripening frequently occurs before puberty no ovum is shed, and no corpus luteum is produced. The majority of follicles formed before puberty undergo atresia, other primordial follicles maturing in their place. The process of ripening occurs before rupture of the follicle and ovulation ensue. The size of the follicle increases through the distension of the cavity with liquid, and the granulosa cells proliferate and hypertrophy, the most marked change being seen in the cells of the theca interna layer, which increase in bulk and number, assume a brown colour, and their protoplasm becomes granular. Shaw has obtained three specimens of very early corpora lutea, and gives a brief account of their development. He concludes that the large lutein cells are derived from the granulosa layer of the follicles; the paralutein cells develop from the theca interna layer. The corpus luteum becomes converted into a corpus albicans in about eight months. The following atretic structures are derived from the Graafian follicle: the corpus atreticum, the corpus candidum, the corpus fibrosum, and the corpus restiforme.

354. Appendicitis and Pregnancy.

MAORTUA and G. DUARTE (*Arch. de med., cir. y esp.*, February 20th, 1926, p. 337), who record a fatal case in a woman aged 27, illustrate the rarity of appendicitis in pregnancy by the fact that Reeb's case was the only instance of the kind among 5,000 pregnancies in the Strasbourg maternity. The gravity of appendicitis in pregnancy is shown by the following high case mortality reported by various observers: 50 per cent. among 486 cases (Schmid), 59 per cent. (Rosner), 50 per cent. (Heaton), and 53 per cent. (Abraham). In the present case, which the authors regard as an example of recurrent appendicitis, the exciting cause was probably a gastro-intestinal disturbance which occurred two nights before the attack. Operation was performed within twenty hours of the onset. A gangrenous appendix was found with turbid sero-purulent fluid in the peritoneal cavity. Removal of the appendix was followed by posterior colpotomy and drainage. Death from peritonitis occurred forty-eight hours after the operation.

Pathology.**355. Filter-passing Forms of Bacteria.**

P. HAUDUROY (*C. R. Soc. de Biologie*, February 5th, 1926, p. 246) filtered some water containing bacteria through a Chamberland L3 candle that had been carefully tested. The filtrate was divided into two parts, one of which was left untouched, and the other added to peptone water; both parts were incubated at 37° C. After a week small white granules were visible in the culture, forming a slight deposit at the bottom of the tube. Microscopically they consisted of Gram-negative granules of irregular shape, and varying in size between the limits of visibility and the diameter of a staphylococcus. No change occurred in the culture on further incubation, even after several months. Subculture was attended by great difficulty, but after several attempts it proved successful. The description of the appearances on subculture is reserved for a future article, but apparently the growths obtained were of an unusual type. After several subcultures Hauduroy succeeded in demonstrating bodies that morphologically and biochemically were indistinguishable from normal bacteria. In particular he isolated one bacillus closely similar to, if not identical with, *B. typhosus*. In conclusion he affirms that in polluted waters there exist abnormal forms of bacteria which can be isolated by filtration. They pass through a stage in which they are invisible, followed by one in which they assume a granular form, and eventually reach a stage in which they develop into normal bacteria.

356. Mediastino-pulmonary Lymphosarcoma.

C. ROUBIER (*Rev. de méd.*, No. 7, 1925, p. 537), who records three illustrative cases, states that in the large group of intrathoracic cancers a special place must be reserved for a peculiar variety of new growths which originate in the mediastinal glands, and are characterized by a very early invasion of the lung and almost exclusively pulmonary symptoms. The proof of the mediastinal origin of such

tumours is supplied by their morbid anatomy, which reveals the existence of a diffuse cancerous mediastinitis invading one of the lungs by the hilum and penetrating the pulmonary substance along the peribronchial sheaths. Histological study of these growths shows that their structure, like that of malignant tumours of the mediastinum, is that of lymphosarcoma. Unlike cancers of the pulmonary hilum, in which signs of compression predominate, they do not give rise to any pressure symptoms. Mediastinal symptoms are completely absent, and the clinical picture is that of a chronic pulmonary affection, which may be mistaken for pleurisy or tuberculosis. Invasion of the lung may occur in several ways. The growth may attack an upper or lower lobe in which it remains localized (mediastino-lobar cancer), or it may extend along the fissure between the lobes (mediastino-fissural cancer). These lymphosarcomatous tumours are generally of large size and rapid growth, and often give rise to multiple metastases. Sometimes they undergo softening and form cavities full of a puriform fluid which may be mistaken for pulmonary abscesses. The course is rapid and death from progressive cachexia occurs in a few months. Association with pulmonary tuberculosis is not an exceptional occurrence.

357. Action of Mercury Vapour Arc Baths upon the Blood.

R. G. BANNERMAN (*Brit. Journ. of Radiol.*, February, 1926, p. 71) reports the result of an investigation of the effect on the blood of rather heavy single doses of light from the mercury vapour lamp, administered in cases of pseudo-coxalgia and certain orthopaedic deformities, as well as in surgical tuberculosis. In all cases irradiation was followed by a diminution of the number of red corpuscles, but in the absence of blood volume determinations it is not certain whether this is a real or an apparent change. The reduction occurred immediately and persisted for several days, to be succeeded in some cases by a rise above the original level. The total leucocyte count was sometimes, but not always, increased, but a rise in the polymorphonuclear cells occurred, and in many cases there was a reduction in the number of mononuclear cells. Monocytosis followed in some cases, but after a few days the normal number and distribution of the cells returned. Eosinophil cells were markedly diminished, both relatively and absolutely, after the exposure, but then returned to or exceeded the original number. The sedimentation rate increased soon after exposure to the lamp and remained at a high level for some days; it was then reduced to or below the original level. As a rule there was an increase in the ability of the defibrinated blood to destroy staphylococci for some hours after light treatment, but this fell to the original figure in twenty-four hours, and in some cases remained subnormal for some time. Bannerman thinks it significant that these results were not obtained in patients habituated to light treatment and already pigmented, but were associated rather with the stage of erythema, which is a sequel of such massive doses. He draws the conclusion that such excessive dosage is to be avoided.

358. Filterable Forms of Tubercle Bacilli in Apparently Normal Organs.

J. VALTIS (*C. R. Soc. de Biologie*, February 19th, 1926, p. 376), who has already shown that it is sometimes possible to pass a suspension of tuberculous material through a Chamberland filter without depriving it of its infectivity to animals, now reports that the filter-passing forms of the tubercle bacillus may be present in apparently normal organs. Three rabbits were injected intravenously with a bovine strain of tubercle bacillus; a fortnight later they were killed, and their spleens, which appeared quite normal, were ground up in a mortar with sterile sand, suspended in saline, and filtered through a Chamberland L2 candle. Two days later 15 c.cm. of this filtrate was injected subcutaneously into two guinea-pigs, and on the following day 10 c.cm. was injected, the filtrate having been kept on ice in the meantime. One of these animals died three and a half months later, and no local lesion or local adenitis was found, but the spleen was enlarged and showed haemorrhagic points and caseous lesions. The tracheo-bronchial glands were enlarged, and typical tubercles were found in the lungs. In all these lesions the tubercle bacillus was found microscopically. The second animal was killed two days later. No local lesion was present and the spleen appeared healthy, but there were two nodules in the omentum, and the tracheo-bronchial glands were enlarged. In both lesions Koch's bacillus was found. It would appear from these experiments that filterable forms of the tubercle bacillus may be present in the apparently healthy organs of tuberculous animals; that they are virulent, giving rise, on injection into guinea-pigs, to typical tuberculous lesions containing acid-fast bacilli; but that the type of disease they cause is different from that usually observed after subcutaneous inoculation of ordinary tubercle bacilli.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

359. Bronchial Asthma in Children and Young Adults.

A. H. ROWE (*Amer. Journ. Dis. Child.*, January, 1926, p. 51) records his experience of 110 cases of bronchial asthma in children and young adults treated for a minimum period of four months, 77 being under 10 and 33 between 10 and 20 years of age. He considers it to be the most serious of all respiratory disturbances due to allergy. Skin testing with proteins of the organic substances which may cause asthma should, he thinks, always be a routine procedure, and retesting may be necessary when a satisfactory result does not follow a course of treatment. The proteins used were those associated with food reactions—namely, wheat, corn, oats, rice, egg, milk, fish, nuts, meats, fruits, and vegetables—while the animal emanations concerned included those arising from feathers, horse, cat, rabbit, sheep, and silk. Vegetable substances employed were orris root, and tree and spring and autumn pollens. One or more positive reactions were given by 95 per cent. of his patients, 71.7 per cent. reacting to proteins of animal emanations; 58.2 per cent. of these were due to feather proteins, and the use of food and pollen proteins gave rise to many cutaneous reactions. Multiple sensitization was the rule in nearly every instance, and treatment based upon the results of the tests was satisfactory in 91 per cent. of the cases. Rowe regards climatic change as unnecessary, and considers that surgery of the nose and throat is contra-indicated in asthmatic patients, except in so far as it may improve the general health.

350. Hyperthyroidism in Children.

R. S. DINSMORE (*Surg., Gynecol. and Obstet.*, February, 1926, p. 172) states that hyperthyroidism in children is more common than is generally supposed, and suggests that cases will be reported more frequently in the future. The etiology of this complaint is unknown, but in a small percentage of cases the onset appears to follow an acute infection. The commencement is acute, the symptoms being nervousness, followed by enlargement of the thyroid gland, with tachycardia and exophthalmos. Cases of acute hyperthyroidism are rare but may occur. Many of these children show no decrease in weight and their mentality is normal for their age. Dinsmore states that induced hyperthyroidism may follow the prophylactic use of iodine, but the symptoms usually disappear when the drug is discontinued. In the majority of the author's cases the disease was chronic, and in nearly all thyroidectomy was necessary. These children are apt to react seriously to operative procedures, and any operation should be planned so as to require a minimum amount of anaesthetic. Excellent results often follow ligation of the vessels. When other foci of infection are present these should not be removed until the patient has recovered from the thyroidectomy.

361. Measles and Tuberculosis.

W. BEISEN (*Zeit. f. Kinderheilk.*, December 16th, 1925, p. 353) remarks that almost all writers maintain that measles and whooping-cough are the determining causes of tuberculous meningitis in latent or manifest tuberculosis. On the other hand, Noeggerath and Eckstein at the Freiburg children's clinic found that measles and whooping-cough did not cause any general activation of tuberculosis, and their observations were confirmed by S. Meyer and Burghard from examination of 1,064 cases of whooping-cough. In 162 cases of tuberculous meningitis treated in the children's clinic of the Medical Academy at Düsseldorf from 1908 to 1924 Beisen found that 64 had a history of no previous disease, especially measles, and only 56 had actually had measles. This figure, moreover, was considerably reduced by the fact that it included children whose attacks of measles had occurred as long as twelve years before the onset of tuberculous meningitis. Only 40 children had had measles within a period of three years before the meningitis, and it was only during this period that measles could have had any causal influence. Moreover, the curve of observation remained at approximately the same level and bore no relation to the measles mortality, which was subject to considerable fluctuations. There was therefore no justification for regarding tuberculous meningitis as being caused by measles. Attention was also paid to the relation between tuberculous invasion of other organs and a previous attack of measles. In 18 cases of tuberculosis the pulmonary lesions were well marked, in 16 moderate, and in 128 slight. It was

a remarkable fact that in cases with only slight pulmonary lesions the number of measles cases was particularly high (42), whereas only 7 of the severe and 7 of the moderate cases had had a previous attack of measles.

352. Trophic Ulceration following Lethargic Encephalitis.

E. HOFFMANN (*Deut. med. Woch.*, February 5th, 1926, p. 238) states that Büchler (*Klin. Woch.*, No. 31, 1925) has recently described vasomotor trophic symptoms following lethargic encephalitis. In addition to a case of symmetrical gangrene of the hands, Büchler mentions a similar case of Wielig and one of Biernig of gangrene of the leg. Ulceration of the bladder and skin has been reported by Adler, who attributes it to trophic changes. Hoffmann now reports a case of trophic ulceration in a man aged 27, the subject of Parkinsonism, who had had lethargic encephalitis four and a half years previously, and now presented ulceration of the left nasal cavity, hard palate, and buccal mucosa. Tuberculosis, sporotrichosis, syphilis, and diphtheria could be excluded by the appropriate tests. Lumbar puncture showed nothing peculiar in the cerebro-spinal fluid, and therapeutic tests with potassium iodide, salvarsan, and bismuth, as well as animal inoculation, had a negative result. Histological examination showed non-characteristic vascular changes. In the absence of any tendency for the lesions to heal, a diagnosis was made of trophic ulceration favoured by salivation. So far as Hoffmann is aware, no similar cases are on record.

333. The Incidence of Syphilitic Aortitis.

C. BRUHNS (*Med. Klin.*, February 19th, 1926, p. 279) states that although salvarsan has reduced the occurrence of secondary and tertiary lesions of the skin, mucous membranes, and bones, yet late nervous involvement and aortitis appear to be getting more common. There is evidence in the literature that aortitis develops in about 25 per cent. of all cases of syphilis. Bruhns now reports the following figures, derived from 200 patients coming from all classes of society, and mostly in men, the cardiac diagnosis being facilitated by the use of x rays. Aortitis appeared in 23 per cent. of the hospital patients between eight and thirty years after infection, and in 38 per cent. there were grounds for suspicion that the lesion existed. In the case of private patients there was definite aortitis in 27 per cent., and probable in 31 per cent. Bruhns, therefore, recommends that dermatologists and others who are likely to encounter syphilis in its later stages should make a special examination for aortic lesions, since treatment is far more effective when early. Prolonged or repeated courses of antisyphilitic treatment may avert the serious cardiac complication.

Surgery.

364. Subphrenic Abscess.

A. O. WHIPPLE (*Amer. Journ. Surg.*, January, 1926, p. 1) considers subphrenic abscess the most important variety of intra-abdominal abscesses on account of its nature and sequelae, and also because of the difficulty caused by its occurrence as a post-operative complication. When developing as a complication of such severe conditions as a perforating ulcer or appendix, or in gangrenous cholecystitis, the subphrenic abscess does not appear until late in the course of the illness, when sepsis or tumour has greatly enfeebled the patient. It is insidious in onset and course and difficult to distinguish from such thoracic conditions as pulmonary or pleural infections. The irregular drainage from the original focus of disease may distract the surgeon's attention and cause him to overlook for some time the new infection. The mortality of cases in which drainage is provided is 30 per cent. and for undrained cases 80 per cent. A subphrenic abscess may arise from the direct spread of bacterial infection, or from fluid escaping from a leaking or perforated viscus; it may also be due to a distant pyogenic focus. In 1,000 collected cases the foci were: stomach 25 per cent., appendix 21 per cent., biliary tract 16 per cent., and duodenum 5 per cent. Whipple now records 32 cases, the primary foci being as follows: biliary tract 8, stomach 4, duodenum 3, appendix 5, pelvic organs 3, hepatic abscess 2, perforated intestine 2, empyema 2, kidney 2, pneumococcal peritonitis 1, and two undetermined, but associated with tuberculous foci. The colon bacillus was isolated in 13 cases,

streptococci in 9, staphylococci in 5, *B. welchii* in 4, pneumococci in 2, *B. pyocaneus* in 2, tubercle bacilli in 1, and in 7 the etiology was undetermined. With such a variety of organisms concerned it follows that the abscess contents are very variable, but in most cases they are very foul, and contain gas—an important factor in diagnosis. Three clinical types are described. The first is characterized by an abrupt onset, and usually a previous history of some chronic lesion such as ulcer, cholecystitis, salpingitis, or lung abscess. In the second group the abscess develops insidiously, the patient having some obscure lesion, such as carcinoma of the posterior wall of the stomach, or there is a gradual invasion from some thoracic lesion. Such patients are very weak and show no changes in temperature, pulse, weight, or strength. The abscess may not be found until an autopsy. The third group contains the post-operative cases, and the abscess may be due to errors of drainage or technique; in many cases the patient has been very ill with peritonitis, cholangitis, or liver abscess. The author condemns the use of an exploratory needle, unless it can be left in position and immediate operation be performed. A high white cell count is usual and x rays give the greatest help. A bubble of gas is important; it appears whether the patient is in the sitting or lateral position, and there will be the changing level of the fluid. Where upper abdominal drainage has been employed the patient should be turned over on the face two or three times a day for the first week after operation to empty the sub-hepatic space, and the drain should be left long enough for a track to be established. Whipple thinks that the tenth rib in the mid-axillary line gives the best approach, and that either intercostal incision or removal of a segment of rib will supply good exposure and drainage, provided the incision is long enough. Electrically lighted retractors assist in the determination of the site and size of the abscess.

365. Post-operative Parotitis.

T. C. PEIGHTAL (*Amer. Journ. Obstet. and Gynecol.*, January, 1926, p. 88) calls attention to acute pyogenic parotitis as a post-operative complication and gives notes of nine cases. Two were of the mild form, probably due to some temporary duct obstruction rather than to a diffuse glandular inflammation, and they subsided rapidly. In five moderately severe cases the infection involved the whole gland but did not give rise to suppuration or abscess formation, and the characteristic massive induration subsided slowly without incision. In two cases of a severe type suppuration occurred and incision was necessary. The *Staphylococcus aureus* is the most common cause and pneumonia the most frequent complication. Cold applications, mouth washes, and mastication usually suffice by way of treatment in the early stages and in the milder cases, but incision is indicated in the severer cases even before fluctuation is noted, because gangrene may develop rapidly owing to the tough capsule with which the parotid is surrounded. For prevention Peightal urges the systematic examination of the teeth and mouth and the treatment of oral sepsis before operation, and immediate post-operative care of the mouth in emergency operations.

366. The Surgical Treatment of Gall Stones.

K. H. DIGBY (*Annals of Surgery*, January, 1926, p. 47) maintains strongly that whenever a reasonably probable diagnosis of gall stones can be made an operation should be undertaken immediately. He condemns the not infrequent practice of waiting for the attack to subside before operative procedures are commenced. His reasons are as follows. During an attack of gall-stone colic the stone may pass into the common bile duct and give rise to obstructive jaundice from which a biliary type of hepatic cirrhosis may develop. With stones in the gall bladder there is a 2 per cent. surgical mortality, but when they have entered the common bile and common hepatic ducts the mortality rises to 10 per cent. Again, impaction may occur at the ampulla in such a way that the gall bladder forces bile into the pancreatic duct; thus a true biliary colic may be insidiously transformed into an acute haemorrhagic pancreatitis with its high mortality of 75 per cent. or more. The obstruction of the cystic duct may, moreover, lead to such distension that the walls of the gall bladder become devitalized with the sequel of gangrene or perforation. Digby advocates a very free exposure of the biliary tract, using an angled incision such as that of Perthes. The bile duct should be opened just above the duodenum in every case and the main ducts very carefully explored both from within and without. He adds that in most cases it is advisable to remove the gall bladder and cystic duct, the main ducts being protected from accidental injury by a metal T-shaped tube. He recommends that the stem of this tube should be three inches long, the cross piece extending for half an inch on one side and one and a half inches on the other. The long end is passed into the common hepatic duct and the short end into the bile duct, so that the tube is

self-retaining. Various sizes of tube, ranging by sixteenths of an inch from 1/8 to 3/4 inch, are sterilized in advance and the appropriate size used. This mechanism permits the safe removal of the gall bladder from the fundus towards the ducts and moderate traction may be employed with impunity.

Therapeutics.

357. Treatment of Hyperchlorhydria by Sodium Bromide.

F. F. MARTINEZ (*Arch. de med., cir. y esp.*, February 13th, 1926, p. 293) states that Leven was the first to describe the importance of the solar plexus in the production of numerous symptoms in dyspepsia, and to treat this condition by sodium bromide, which has an important action on various painful symptoms, whether these are due to ordinary dyspepsia or to ulcer or cancer. Leven has shown that the drug acts not only on the gastric nerves, but also on the glandular secretion. Martinez, who records twenty-four personal cases of hyperchlorhydria, gastric and duodenal ulcer, and cicatricial pyloric stenosis, has found that sodium bromide checks exaggeration of the motor and secretory functions of the stomach. Improvement is shown within the first few days of its administration by a permanent disappearance of the clinical symptoms, such as pain, vomiting, dyspepsia, sensation of pharyngeal constriction, salivation, and so on. Other symptoms, such as headache, vertigo, and constipation, are also relieved at the same time. The phosphaturia diminishes, the amount of urea in the urine increases, and the proportion of phosphoric acid to urea approaches the normal. There is a simultaneous fall in the quantity of uric acid and chlorides in the urine. The dose of sodium bromide in adults is 2 to 3 grams a day, but it is harmless in doses of 6 to 7 grams, even when continued for some time.

368. Toxic Effects of "Bismuth-Diasporal."

O. FISCHER (*Dermatol. Woch.*, February 20th, 1926, p. 268) describes a case of severe bismuth poisoning after a course of intravenous injections of bismuth-diasporal, a preparation which has been extensively advertised as having a low degree of toxicity. A man, aged 26, who had a subacute polyarthritis, a specific sore throat, and indolent enlarged submaxillary glands, was found to have spirochaetes in the pharyngeal mucus and a strongly positive Wassermann reaction. He had contracted syphilis in 1919, and subsequently received various kinds of antisyphilitic treatment. In 1922 he had syphilitic ulceration of both feet which was cured by a course of mercury and salvarsan. Bismuth-diasporal treatment began with four injections of 50 mg. each in the course of ten days. In the following week, two injections, each of 100 mg., were given, all without toxic symptoms, but after the sixth injection the patient had pain in the lower teeth and a "bismuth line" around the lower incisors. The sore throat had disappeared after the second injection. As the polyarthritis became worse, the patient received ordinary antirheumatic treatment, and the seventh injection was postponed for five days; but immediately after this the patient complained of pain at the site of the injection and the whole arm became stiff, apparently owing to phlebitis. The patient had severe attacks of abdominal pain and diarrhoea, followed by blood-stained, mucous stools. He had also a severe haematuria, and other signs of acute nephritis, such as albuminuria and epithelial casts. The abdomen was very rigid, especially in the left flank. Proctoscopic examination was painful and revealed an extensive ulceration of the mucosa. The enteritis and nephritis improved, and four weeks later the patient was discharged.

369. Cod-liver Oil Spray in Laryngeal and Tracheal Tuberculosis.

LEROUX-ROBERT (*La vie méd.*, February 5th, 1926, p. 189) states that for the last ten years he has used inhalations and sprays of cod-liver oil in the treatment of tuberculosis of the larynx and upper respiratory tract. In cases where the larynx alone is affected the supraglottic method is employed. The practitioner draws out the patient's tongue and passes the syringe as far down as possible in close contact with the posterior wall of the epiglottis, a few drops of oil being injected at each inspiration until 3 to 5 c.cm. in all have been given at each sitting. When both the larynx and upper respiratory tract have to be treated one of two methods may be employed. (1) Tracheal injection: The injection is made with the aid of a laryngoscopic mirror, 10 c.cm. being introduced between the vocal cords. Novocain anaesthesia may be required in patients with a very irritable larynx. The only contraindication to tracheal injection is haemoptysis. (2) Leroux-Robert's method of spraying and inhalation: There is no contraindication to this method, which can be

practised by the patient himself several times a day. A nasal spray is converted into a laryngeal spray by the addition of a glass tube with a curved extremity, which is inserted behind the base of the tongue. When the bulb is squeezed the patient makes an inspiratory movement and thus allows the oil to penetrate into the larynx and upper respiratory tract. Treatment by cod-liver oil is specially indicated in the medical forms of laryngeal tuberculosis. The best results are obtained in the early stage of erythema and congestion, but very marked results are also observed in the stage of extensive infiltration of the vocal cords. Lastly, the pain due to small ulcers may be relieved by this method. The effects differ according to the patient and his environment. In hospital involvement of the larynx is usually secondary to severe pulmonary tuberculosis, while in private practice laryngitis is often observed at the onset of the disease, so that it may be regarded as primary. In conclusion, Leroux-Robert states that, apart from cases of tuberculous cavities and surgical laryngeal tuberculosis, more than a third of 200 hospital patients were relieved, improved, or even cured by this treatment. In private practice the results were much more encouraging, good effects being obtained in more than half the cases.

370. The Value of Artificial Heliotherapy.

G. VIANA (*Raggi Ultravioletti*, December 21st, 1925, p. 354) publishes brief records of six cases of pulmonary affections, showing the great benefit which followed treatment by radiation from a Kromayer quartz lamp. For the last fifteen years the author has treated over a thousand cases of various types of disease by violet rays: 211 pulmonary, 117 sciatica, 139 varicose ulcers, 227 arthritis, and 231 cutaneous diseases. The chief effects noted were slight rise of temperature, euphoria and perspiration, improved blood pressure, increase in the number of red corpuscles, haemoglobin increased from 50 to 72 per cent., diminution in number of leucocytes, and improved general condition. In the six cases recorded either tuberculosis or a positive tuberculous skin reaction was present. It is not suggested that treatment by violet rays is a universal panacea, nor should it replace regular modes of treatment, but as a supplementary aid the author, after his experience, finds it of undoubted value.

371. Calcium Lactate in Migraine.

C. E. RIGGS (*Minnesota Med.*, February, 1926, p. 87) advocates the use of calcium lactate as a preventive in migraine. Notes of six cases are given in which attacks of migraine were aborted by administering 30 grains of calcium lactate at the first warning of the onset. It is not claimed that the drug will cure an attack when once established, but in the majority of cases it prevents their occurrence, and in some instances renders them much milder and less frequent. Riggs suggests that the tablets should always be kept in readiness, and that they should be fresh since age renders them inert.

Anaesthetics.

372. Combined Nitrous Oxide and Local Anaesthesia.

P. K. GILMAN (*Amer. Journ. Surg.*, January, 1926, p. 21) states that the combination of nitrous oxide and novocain in abdominal surgery, together with the avoidance of abrupt surgical manipulations, enables the operation to be performed with a very slight degree of anaesthesia, complete relaxation of the abdominal wall being obtained. Preliminary treatment includes an enema and a liberal diet; an injection of morphine and atropine is given half an hour before the anaesthesia begins. With the patient anaesthetized by a mixture of nitrous oxide and oxygen the final skin preparation is performed, after which the entire abdominal wall on the side of the proposed incision, or of both sides in the case of a mid-line opening, is blocked with novocain from the level of the sixth intercostal above to the anterior superior iliac of the ilium below. Before opening the peritoneum the entire length to be incised is infiltrated with novocain. The utmost gentleness must be used in opening and elevating the incised abdominal wall; pressure and traction on the tissues should be as light as possible, sponging and clamping performed with the greatest care, and care must be taken in closing the abdomen. Shock and Gilman states that it is by no means unusual for the patient to leave the operating table with an unaltered blood pressure. Post-operative nausea and vomiting are rare, and at the most only slight; intestinal paresis seldom occurs. As compared with ether narcosis, this combined form of anaesthesia enables the patient to take fluids earlier after the operation and to recover strength more rapidly; it causes much less general post-operative distress. Gilman maintains also that the relaxation obtained is equal to that produced by deep ether anaesthesia.

Spinal Anaesthesia in Urology.

M. DEVROYE (*Le Scalpel*, February 20th, 1926, p. 177) discusses the difficult problem of anaesthesia in urological operations. Chloroform is particularly dangerous in the case of renal operations, or of enlarged prostate in the elderly in whom the kidneys already show senile changes or are impaired by the chronic urinary retention. Ether, though less toxic than chloroform, is difficult to use without incurring the risk of operative shock. Devroye, therefore, recommends the more frequent use of spinal anaesthesia according to the method of Hannecart, from which very satisfactory results have been obtained. Novocain has been recommended by many for operations on the prostate, but Devroye prefers scurocaine powder (a French modification) administered in a 1 per cent. solution in sterile distilled water. The adult dose of such a solution is given as 175 to 200 c.cm., and a preliminary injection of 1 to 2 cg. of morphine is advised. The spinal anaesthetic should be introduced slowly, especially after the first 100 c.cm. has entered; more rapid injection incurs the risk of convulsive attacks, which, though never serious and very transitory, are nevertheless better avoided. Anaesthesia is said to be obtained in about twenty to thirty minutes, nearly always accompanied or preceded by somnolence, but with a full pulse. In some cases consciousness is retained with loss of sensation. The tendency to sleep may persist for some time after the operation, but there is no operative reaction, such as vomiting or dyspepsia. Devroye has used this method in twenty-one cases, and reports that Hannecart has tried it on 200 occasions without ill results. The chief objection is the length of time before anaesthesia is complete.

Ether in Lung Operations.

M. LIDWILL (*Med. Journ. of Australia*, December 19th, 1925, p. 698) advocates ether administration in operations on the lungs as the safest and best anaesthetic. He considers that the so-called "ether pneumonia" is not a direct result of the anaesthetic, and in no way contraindicates its use. In his opinion most of the post-operative "pneumonias" are not true pneumonias, but are either infarcts due to emboli or thrombosis or collapse of the lung; he believes that when a true pneumonia occurs it is chiefly due to inhalation of foreign matter or to chill from exposure during the operation. His practice is to anaesthetize by the open method until the jaws are completely relaxed, when a Belfast linen catheter can be passed into the trachea and intratracheal anaesthesia commenced. After a few minutes the anaesthesia may be reduced and the patient kept in a state of light anaesthesia throughout the operation and placed in any position desired by the surgeon. When the pleura is reached co-operation between the anaesthetist and the surgeon is most important, since the former has complete control of the inflation of the lung; care must be taken that the vapour is not pumped in at too great a pressure, 25 mm. of mercury generally sufficing. He adds that if it is desired to stitch the parietal and visceral layers of the pleura together these can be brought into apposition by inflating the lungs by placing the hand over the mouth and compressing the nose until the stitching is completed, when removal of the hands will allow the lungs to deflate. Such inflation is necessary when opening a hydatid cyst or when searching for a bronchiectatic cavity, and since 25 mm. of mercury only equals the pressure in the lungs in blowing out a candle or in blowing air through a tube immersed in six inches of water no evil results need be expected from its use.

Obstetrics and Gynaecology.

Treatment of Sterility in Women.

H. CAUFMAN (*Paris Méd.*, February 6th, 1926, p. 135) discusses the effect of small doses of x rays in treating sterility in women, and reports in detail the case of a patient, aged 27, who had suffered from metrorrhagia since the age of 19, and was sterile owing to functional ovarian disturbance. The uterus was small, but there was no evidence of disease or abnormality in any of the pelvic organs. Treatment of the ovaries and spleen by x rays resulted in the cure of the metrorrhagia, and two normal menstrual periods followed. The patient then became pregnant and gave birth to a healthy child. Caufman mentions three explanations of this restoration of lost reproductive power as the result of x rays—namely, stimulation of the ovarian tissue; the cure of some slight ovarian lesion; and destruction of impaired follicles, thus leaving the way open for the development of more robust follicles. He does not favour particularly any of these theories. He has also cured amenorrhoea in a woman by administering x rays for pruritus vulvae, and has had cases of pregnancy following the treatment of fibroids by x rays.

376. Compression of Aorta in Post-partum Haemorrhage.

O. NEUMANN (*Zentralbl. f. Gynäk.*, February 20th, 1926, p. 469) reports favourable results obtained in severe cases of bleeding after labour by application of a clamp designed to compress the abdominal aorta. This consists of a pad placed over the lower part of the spine and joined by an adjustable rigid support to a smaller padded clamp which is applied to the abdomen and is regulated by a screw so as to give the requisite amount of pressure. It has been found effective in controlling haemorrhage, and its use has in general been found free from the dangers attending the application of Momburg's abdominal ligature; nevertheless, it has occasionally been found to injure the viscera. A case of ileus is recorded which followed fifteen minutes' application of the compressing clamp, and allusion is made to a fatal case, mentioned by Schultzeiss, in which the only morbid finding was a haematoma in the root of the mesentery extending to the solar plexus. The author believes that a carefully applied aortic clamp is a valuable instrument for the general practitioner.

377. Corpus Luteum Necrosis in Hyperemesis Gravidarum.

D. BRANNAN and M. COHEN (*Surg., Gynecol. and Obstet.*, February, 1926, p. 228) report two fatal cases of hyperemesis gravidarum occurring in the third month of pregnancy; necrotic changes were found in the corpus luteum. In one case, a primipara, the illness lasted forty-four days, and on post-mortem examination the only gross change found was marked pulmonary oedema. Microscopically there was shown to be considerable coagulative necrosis of the corpus luteum, fatty changes in the liver, and a parenchymatous degeneration of the kidneys. In the other case, a multipara, the disease had lasted only about sixteen days. The macroscopic post-mortem examination showed oedema of the lungs and an adenomatous goitre. Microscopically there was a massive necrosis of the corpus luteum with extensive liquefaction of the lutein cells; there were fatty changes in the hepatic central cells with here and there one or more necrotic cells, and the kidneys showed parenchymatous degeneration. The authors state that the changes occurring in the corpus luteum resulted from the underlying toxæmia, and do not suggest that the necrosis and resulting deficiency in the secretion of the corpus luteum are the cause of hyperemesis gravidarum.

Pathology.

378. The Pathogenesis of Polypl of the Septum.

P. MANGABEIRA-ALBERNAZ of Brazil (*Arch. Internat. de Laryngol., Otol. et Rhinol.*, February, 1926, p. 139) reports three cases of nasal polypl in persons who had suffered from leishmaniasis. In all his cases leishmaniasis had been successfully and rapidly cured by intravenous injections of tartar emetic, leaving the characteristic cicatrices of the disease. From one to two years later the patients presented themselves at the author's clinic suffering from polypl of the septum, and he found that in one case two polypl had formed on the site of former ulcerations due to leishmaniasis. He attributes this occurrence to the fact that the previous lesions were cured by very short courses of tartar emetic, but that the disease remained latent and as a result of later activity gave rise to the polypl. He is of the opinion that if the patients had submitted to a longer course of injections this recurrence would not have taken place. Mangabeira-Albernaz draws attention to the close resemblance between leishmaniasis of the mucosal surfaces and rhinoscleroma. This has also been pointed out by Moraes of Bahia (Argentina); the work of Alvarez of San Salvador shows the two diseases to be intimately connected in that country, while Kubelik (Poland) and Symmers (Prague) have treated rhinoscleroma by injections of tartar emetic with great success.

379. The Prevention of Rickets by Irradiated Cholesterol.

R. FABRE and H. SIMONNET (*C. R. Soc. de Biologie*, February 26th, 1926, p. 455) confirm the results of American workers on the activation of cholesterol by ultra-violet rays, but find that the time necessary for the activation is less than has been supposed. The rats with which these experiments were made were fed on cornflour, butter-fat, egg albumen, calcium carbonate, and sodium chloride. The diagnosis of rickets rested on the macroscopic demonstration of the costo-chondral rosary, the histological and the radiographic examination of the bones and joints, and in some instances on McCollum's line test. The cholesterol, in a 2 per cent. solution in petroleum

ether, was exposed to a mercury vapour lamp running at 115 volts and 3.5 amperes for periods of 15, 45, and 60 minutes. The distance of the solution from the lamp was 30 cm. After irradiation the cholesterol was suspended as a 2 per cent. solution in olive oil, and the ether driven off in a vacuum. Of this solution three drops, corresponding to 1.5 mg. of cholesterol, were given daily to each of the experimental rats; the control animals received non-irradiated cholesterol. After twenty-five days the animals were killed. The controls and the rats that had received the 60-minute irradiated cholesterol showed typical signs of rickets. The animals receiving the cholesterol that had been irradiated for only 15 minutes were absolutely free from rickets, while those receiving the 45-minute irradiated cholesterol showed doubtful signs of rickets. Thus the optimum results were obtained with cholesterol which had been irradiated for 15 minutes. Irradiation in an alcoholic solution was less satisfactory. The observation was made that the irradiated cholesterol was more permeable to light of short wave-length than was the non-irradiated cholesterol.

380. The Effect of Sodium Salts on Blood Pressure.

L. AMBARD and R. CAHN (*Bull. et Mém. Soc. Méd. de Paris*, January 28th, 1926, p. 77) point out that though a salt-free diet is one of the few ways of reducing blood pressure that has stood the test of time, experimental work does not substantiate this. One of the experiments which led them to this conclusion is described in detail. The patient was a nephritic of the azotaemic type, with urine containing about 1 per cent. of albumin. The sodium chloride in his diet was reduced first to 3 and then to 2 grams a day. The blood pressure was measured daily and the amount of sodium chloride excreted each day was calculated. After fourteen days of this regime the blood pressure was unaltered—195/125. Less urine was being excreted daily, and the total amount of chloride lost was 18 grams in excess of that ingested. A normal dietary was then given containing about 15 grams of salt a day. The blood pressure rose in a week to 230/145 and the experiment was then stopped. Another point which the authors mention is that the blood pressure taken morning and evening showed no difference in reading during the salt-free period, but that during the latter part of the experiment the evening reading (after the ingestion of a large meal containing salt) was higher.

381. M. RENAUD (*ibid.*, p. 102), in studying the action of sodium citrate on the blood and on the cardio-vascular system, has found that large doses given daily by the mouth raise the blood pressure. The tests were made on patients with arterio-sclerosis whose pressure was already high, and in every case it rose still higher. It fell again in two or three days after the salt had been stopped. In view of the effect that this salt has on haemorrhages when given intravenously the author suggests that it may have a specific action on the vasomotor centre and that its action when given by the mouth is due to accumulation of the salt. He thinks that in all cases where it is used the dosage should be controlled by the regular use of the sphygmomanometer.

382. Tubercle Bacilli in the Faeces.

C. VERDINA (*Giornale di Batteriologia e Immunologia*, January, 1926, p. 34) has examined the faeces of 40 patients suffering from pulmonary tuberculosis: 50 grams of faeces were ground up in a mortar with saline till a homogeneous suspension was obtained. This was filtered through sterile gauze, mixed with an equal volume of 10 per cent. sulphuric acid, shaken repeatedly for an hour, and centrifuged for fifteen minutes at 3,000 revolutions a minute. The supernatant fluid was decanted, neutralized with sodium hydrate, and the sediment thus obtained was examined microscopically, injected into a guinea-pig, and planted on Petroff's medium. All positive cultures were tested for virulence by injection into guinea-pigs. Of 20 patients whose sputum was found to contain tubercle bacilli on microscopical examination the bacilli were found microscopically in the faeces in 15, by cultural examination in 13, and by guinea-pig injection in 14. It was observed that the injection into guinea-pigs of the pure cultures obtained gave rise nearly always to a disease of low virulence, characterized by small foci limited to the lungs, liver, and glands. Of 20 patients in whose sputum no tubercle bacilli could be demonstrated microscopically bacilli were found in the faeces microscopically in 4, by culture in 3, and by guinea-pig injection in 3. It appears, then, that tubercle bacilli may sometimes be found in the faeces when they are absent from the sputum. This, the author thinks, occurs in those cases in which the pulmonary lesion is closed, but in which tubercle bacilli are occasionally circulating in the blood; excretion occurs by the biliary tract into the intestine.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

383.

"Pleural Epilepsy."

E. LÉCRET and J. CAUSSIMON (*Journ. de Méd. de Bordeaux*, February 25th, 1926, p. 143) describe under the above title certain rare muscular spasms occurring in the course of the production of an artificial pneumothorax. They report four cases personally observed and refer to nine reported by others. The symptoms come on suddenly and do not seem to have any direct relation to the amount of pain. The first thing noticeable is a change of colour and kind of sardonic grin. Usually the symptoms appear after the puncture and not during insufflation. Consciousness may be completely or only partially lost, vasomotor blotches may appear, convulsions are often present but tonic spasm is more common, the reflexes may remain unchanged, and the pulse is sometimes unaltered. Prognosis in the majority of cases is favourable, the attack passing off in three or four hours. In more severe types coma sets in almost at once and death follows. Any attack lasting more than six hours is likely to end fatally. However alarming and serious these attacks are they are fortunately very rarely met with, and then more often in women, but not necessarily neuropathics. The authors do not believe the attacks to be due to gaseous emboli, more especially because they often start before any air has been introduced. In one case it was only at the thirty-fifth insufflation that an attack supervened; it proved fatal. The fourth intercostal space in the axillary line, especially on the right side, appears to be a dangerous area, as more attacks followed puncture in that region than in others. In nearly every case the pleura has been unhealthy, and in the authors' view the cause of the attacks is reflex action from an abnormally sensitive pleura; where the pleura is healthy no trouble has arisen.

384.

Cardiac Extra-systoles in Childhood.

M. H. BASS (*Journ. Amer. Med. Assoc.*, February 6th, 1926, p. 387) points out that extra-systoles—premature and abnormal cardiac contractions—start at some abnormal site in the auricles or ventricles. The extra beat, coming before the heart muscle has had time to recover from the previous contraction, is usually smaller and weaker than the regular beats, and is followed by a compensatory pause, so that the irregularity is easily diagnosed by palpation of the pulse and the apex beat. Extra-systole in childhood may be toxic, idiopathic, or emotional in origin. The toxic variety is due to infectious toxins associated with such conditions as rheumatism, tonsillitis, and diphtheria, or to drug toxins, such as digitalis, and the salicylates. This variety lasts usually for only a short time. The idiopathic type of extra-systole starts without apparent cause and continues for some years. The nervous or emotional type includes cases in which premature beats follow a great mental shock or emotion. The author gives clinical illustrations of the three types, and concludes that extra-systoles are not of very serious import in childhood; the involvement of the heart muscle, though sometimes acute, is not necessarily grave. Medicinal treatment is seldom required. For extra-systoles occurring in acute diseases such as rheumatism or diphtheria, the specific treatment for the infection is alone necessary, but the child should be kept at rest for a prolonged period subsequently. Quinine, quinidine, and digitalis have been shown to diminish the number of extra-systoles, and in some cases to bring about their disappearance, but such a result appears to have been only temporary, and in the author's cases drugs were found to be of no use.

385.

Black Tongue.

J. MONTPELLIER and A. CATANEI (*Ann. de Derm. et de Syph.*, February, 1926, p. 78) report two cases of black tongue, in one of which, despite treatment, the condition had lasted for six months. The troublesome symptoms were slight pharyngeal pain on deglutition, a sense of fullness in the mouth, and salivation. The dorsum of the tongue was evenly furred from two-thirds of an inch to an inch deep, the fur being blackish in the middle and behind. From the fur were removed numerous grains like cooked sago, which at the middle of the tongue were attached by long filiform processes. No swelling of the glands occurred. From the fur were isolated streptococci and the fungus *Monilia*, which resembled in its reactions Castellani's *M. paratropicalis*, isolated from human sputum.

386. Artificial Pneumothorax in Children.

P. F. ARMAND-DELILLE (*Med. Journ. and Record*, January 20th, 1926, p. 113) believes that in every case of unilateral pulmonary tuberculosis in children, with bacilli in the sputum, artificial pneumothorax should be performed. There is no other curative method at the present time that will cause the disappearance of tubercle bacilli in a few weeks with a real improvement in the general health, cessation of fever, increase in weight, and ability to indulge in sports with moderate care. He has performed this operation in 100 cases and has never had a serious accident; in young children a little subcutaneous emphysema was observed if the child cried between or immediately after the injections, but this always disappeared rapidly. Of these cases up to the present he has had only three deaths—two from purulent pleurisy and one from tuberculous meningitis. In performing the operation for the first time the child is previously given scopolamine and morphine, while novocain is used locally; for babies he considers it best to use chloroform because in crying the pressure in the chest is increased. At the first puncture 50 c.cm. of oxygen and then 200 to 300 c.cm. of nitrogen are injected; in the subsequent punctures from 200 to 500 c.cm. are injected, depending on the resorption. In children these refills must be repeated every other week. Armand-Delille has applied this treatment to children as young as 17 months with success.

387. Diabetes Insipidus of Syphilitic Origin.

L. BABONNEIX and J. LHERMITTE (*Ann. de Méd.*, December, 1925, p. 471), who record an illustrative case, state that it has long been recognized that syphilis is one of the most important causes of diabetes insipidus. Whether the condition is due to gummata at the base of the brain, opto-nerve meningitis, or complicated tabes, syphilis should always be sought for in cases of diabetes insipidus in which the etiology is uncertain or obscure. The present case was that of a woman, aged 42, picked up unconscious in the street, in whom the presence of syphilis was associated with a new growth, as was shown by the autopsy. The hypophysis appeared normal to the naked eye, but on histological examination the infundibulum was found to be the site of an infective process which was undoubtedly of syphilitic nature.

Surgery.

388. Arterial Pressure after Cervical Sympathectomy.

R. LERICHE and R. FONTAINE (*Arch. des Mal. du Cœur, des Vaisseaux et du Sang*, January, 1926, p. 21) have divided the lower cervical rami communicantes running to the stellate and intermediate ganglia (when the latter is present) of the cervical sympathetic in fifteen cases during the past year, and have studied the subsequent changes in arterial tension. They state that excision of the cervical sympathetic results in a transient production of a paralytic type of circulation through the arteries involved. Careful observations before and after operation show that the variations of arterial tension are quite temporary, and also that after unilateral ablation of the cervical sympathetic or of its communicating branches such variations occur on both sides of the body. The authors cite the case of a woman, aged 26, who suffered from Raynaud's disease in both arms and legs; after unilateral brachial and femoral sympathectomy all symptoms disappeared. This indicates that the vessels have sensory centripetal fibres running among the centrifugal vasomotor fibres. In 1917 Leriche and Heitz applied Pachon's oscillographs to both forearms prior to performing unilateral peribrachial sympathectomy; both instruments registered the same oscillatory changes. Numerous experiments have shown that if one arm be plunged in cold water the arterial tension in both arms falls; this suggests that there is only one vasomotor centre in the medulla. The authors point out that each organ which is innervated by the sympathetic possesses ascending (centripetal) fibres which carry information to the vasomotor centre concerning the state of the organ; this is analogous to the muscular sense in the skeletal system. Ordinarily we are unconscious of the activities of our organs; but if sensory fibres are exposed to abnormally strong stimulation painful sensations are produced, varying with the organ in question. Strong excitation of the intestinal sensory fibres causes colic or, in the case of the intracardiac sensory fibres, an attack of angina pectoris.

The sensory vascular fibres regulate vascular tone, and their abnormal stimulation furnishes an explanation of the pain endured by most patients who suffer from any arterial constriction.

389. Metastatic Infections of the Prostate with Staphylococci.

L. STROMINGER (*Presse Méd.*, February 20th, 1926, p. 226), from an analysis of the literature, finds that metastatic infections of the prostate may occur in influenza, pyaemia, parotitis, streptococcal angina, pneumonia, typhoid fever, furunculosis, and other diseases. He himself has found them in furunculosis and in anthrax. Reports are given of four fatal cases. The first occurred in a man, aged 65, with a large anthrax pustule on the neck. Some weeks after its incision he was seized with shivering, perineal pain, fever, and frequency of micturition. A prostatic abscess was opened, staphylococci found in the pus, and an autogenous vaccine was given, but the man died a fortnight later. The second case was similar, also following anthrax of the neck; death occurred a month after the opening of the prostatic abscess. The third case was that of a young man with an anthrax-like furuncle of the zygomatic region. Some days after the wound had healed he developed a rigor, high fever, multiple abscesses of the skin, and retention of urine. Surgical treatment was refused, but the prostatic abscess burst after perineal massage, and death followed shortly afterwards. In the fourth case, a man, aged 26, with an anthrax pustule of the neck, pain and haematuria developed five days after the pustule had healed. The prostatic abscess was opened and an autogenous staphylococcal vaccine was given. All went well for a time when, after fever and sudden collapse, he died. At the autopsy the coeliac axis was found to be perforated. Close to it was a metastatic abscess which had destroyed its base. As regards the treatment of these staphylococcal infections the author is in favour of autogenous vaccines—particularly of the local applications devised by Besredka.

390. The Blood Picture in the Diagnosis of Appendicitis.

G. VOLK (*Deut. Zeit. f. Chir.*, January, 1926, p. 367), who reports numerous illustrative cases, states that in acute appendicitis the most exact and reliable information is furnished by the blood picture. If the displacement to the left (modified Arneht formula) does not exceed 15 per cent., leucocytes with rod-shaped nuclei primitive forms are absent, and the number of leucocytes is below 15,000, an expectant policy may be adopted. But if the displacement exceeds 15 per cent. and primitive forms appear there is danger in delay, as the second stage has been reached and abscess formation or gangrene of the appendix has taken place. Advanced lesions of the second stage caused by highly virulent organisms are sometimes not distinguishable haematologically from local or diffuse peritonitis. This, however, is of no practical significance, as immediate operation is required in both cases. An appendicular abscess when completely encapsulated causes only very slight changes in the blood picture. Volk comes to the conclusion that the blood picture is of considerable diagnostic and prognostic value to the surgeon.

391. Bone Dystrophy in Carcinoma of the Breast.

S. LABORDE, H. JOUVEAU-DUBREUIL, and ALICE ROQUES (*Bull. l'Étude du Cancer*, December, 1925, p. 485) record an unusual case of a woman operated on for carcinoma of the breast where the skeleton was affected with multiple and diffuse lesions not typical of metastases. One year after radical removal of the breast the patient suffered from pain in the limbs and the lumbar region. This condition became worse and the pain was very severe. The reflexes were exaggerated and the condition suggested the presence of metastasis in the spinal column, though there was no localized tenderness of the vertebrae. Radiograms showed no definite metastases, but certain diffuse lesions of the lumbar vertebrae, the sacrum, iliac bones, femora, and certain other bones. They appeared as translucent zones resembling vacuoles and suggesting decalcification of the bones. This condition has also been noted in cases of carcinoma of the prostate where the bones have been diffusely affected, as in Paget's disease. These appearances have been regarded as pathognomonic of cancer of the prostate, and a diagnosis has been made on the radiographic appearances. The authors add that the nature of this affection of the skeleton is altogether obscure and is met with in malignant disease of the breast and prostate; in both these diseases metastasis in the bones is not uncommon. It appears that certain types of cancer are able to produce a dystrophy of the bones from some disorder of the calcium metabolism.

392. Gangrene of Scalp due to Hydrogen Peroxide.

K. VON BERDE (*Dermatol. Woch.*, February 20th, 1926, p. 257) reports a case of gangrene of the scalp in a woman, aged 26, who had had her hair bleached by a 30 per cent. solution of hydrogen peroxide. No other chemical was used. Fifteen minutes after the application the hair was partially dried by means of an electrical apparatus, without previous washing. The patient put a tightly fitting felt hat on to her damp hair and arrived home suffering from great pain in the head. She had had a patch of dry scaly eczema on her chin as large as a child's hand for a year previously. Her hair was of a pale golden colour except over a pear-shaped area extending from just behind the vertex to the occipital margin of the scalp; laterally this area reached forwards to both mastoid regions. It was covered by a dirty grey necrotic mass, representing the entire thickness of the scalp down to the aponeurosis, which was visible in places where the necrotic mass had broken down. A probe could be passed for 2 to 3 cm. under the edges of the dead tissues and pus exuded on pressure. The author treated the patient for over two months after the separation of the necrotic tissues, and finally a smooth bare scar measuring 9 by 10 cm. remained. He considers that there were several accessory factors in the production of this condition: the unusual strength of the hydrogen peroxide solution; the chronic eczema of the patient's face and chin; the failure to wash and dry the hair; and finally, the fact that while her hair was still damp with the peroxide solution the patient put on a closely fitting felt hat which interfered with the circulation.

Therapeutics.

393. Treatment of Senile Pruritus by Sodium Silicate.

SCHEFFER, A. SARTORY, and P. PELISSIER (*Progrès méd.*, February 28th, 1926, p. 289), who have several times previously drawn attention to the improvement obtained in arterio-sclerosis by intravenous injection of silicates, and especially sodium silicate, state that F. Luthiler of Vienna, inspired by their work, has employed sodium silicate in senile pruritus. In view of the chemical analysis of K. Schultz, who found 51 mg. of silicic acid in 1,000 grams of skin in young persons and only 38 mg. in elderly subjects, Luthiler concluded that the elasticity and vitality of the skin were due to the presence of silicic acid in sufficient quantities. He had therefore given patients suffering from senile pruritus an intravenous injection of sodium silicate every two or three days, each injection representing 0.01 to 0.02 cg. of pure sodium silicate, and found that after the first injection the pruritus became less and completely disappeared after the sixth injection. The present authors' experience of nine cases of senile pruritus in arterio-sclerotic subjects aged from 59 to 73 fully confirms that of Luthiler. Intravenous injections were given every two or three days, each consisting of two ampoules of 2 or 4 c.cm. of a solution containing 0.005 mg. of sodium silicate per c.cm. The results were as follows. In four cases the itching ceased after the second injection, and completely disappeared after the seventh or eighth. In three cases ten to twelve injections were necessary to produce a complete cure. In the remaining two cases the improvement was very marked, but the pruritus was still present after the twelfth injection. As a local sedative a sponge or lint was applied soaked in a solution containing equal parts of sodium silicate and chloral hydrate. The authors attribute the action of the silicate on the pruritus first to the improvement in the organic exchanges in the tissues, causing a diminution of toxins in the circulating blood, and secondly to an improved flow of blood increasing the vitality of the tissues.

394. Oxygen Treatment in Pneumonia.

A. L. BARACH (*Arch. Intern. Med.*, February 15th, 1926, p. 186) discusses the methods and results of oxygen treatment in pneumonia. He points out that to be of therapeutic value oxygen should form from 30 to 60 per cent. of the inspired air, and that the optimum concentration is usually about 40 per cent., the maximum safe concentration being 70 per cent. Trial of various methods showed that administration with the tube and funnel only gave approximately 24 per cent. of oxygen in the inspired air, and was therefore clinically useless; the nasal catheter method varied in effectiveness, but under special conditions with a flow of 2 litres of oxygen a minute the percentage was raised to about 30. With the rebreathing apparatus and a specially constructed glass nose-piece 1 litre of oxygen a minute gave a percentage of 40; the effectiveness of this method was confirmed by observations upon the arterial blood. A glass mouthpiece was used at times when mouth-breathing was present. In the majority of cases treated the portable oxygen tent was used, and it

secured an oxygen-rich atmosphere capable of regulation to the precise concentration desired. The clinical signs of improvement following inhalation of from 40 to 60 per cent. oxygen were: clearing of cyanosis, relief of dyspnoea, diminution of delirium and restlessness, the promotion of sleep, and a slowing of the respiratory and pulse rates. Barach considers that oxygen treatment is not directly curative, but that it maintains the strength of the patient; in six cases it appeared to prolong life until the immunizing process had become established.

395. Deodorants in Cancer.

L. FREUND (*Med. Klin.*, January 29th, 1926, p. 170) discusses the value of the various antiseptics and escharotics used for the removal of the offensive smell produced by cancerous ulcers. Charcoal and other absorbents are not continuous in their action, but during their active period they have an oxidizing as well as a deodorizing action which is of benefit. The fact, however, that they must be applied dry prevents them gaining access to cavities which are often the most foul. The action of douches of hydrogen peroxide or permanganate solution is very fleeting, and, though effective, must be repeated every four hours. Freund thinks that escharotics are the drugs of choice, and he recommends a liquid preparation containing phenol and naphthol. After douching with boric acid or peroxide solution it is applied on a tampon, which must be secured in position and need only be changed two or three times a day.

396. Diathermy in Acute Gonorrhoeal Epididymitis.

M. E. GREENBERGER and S. LUBASH (*Urol. and Cut. Rev.*, February, 1926, p. 88), who report thirteen illustrative cases, maintain that owing to its sedative effects diathermy is the treatment *par excellence* for acute gonorrhoeal epididymitis. Any diathermy machine capable of producing a high frequency current of from 500 to 1,500 milliamperes at an even flow can be employed. The patient is placed in a recumbent position with the small electrode adapted to the affected testicle, while the large electrode is placed over the internal abdominal ring. Green soap lather is applied to both skin and electrodes. The d'Arsonval current should be slowly advanced to the extent of slight discomfort, and then immediately reduced, the point of tolerance varying with the individual. The average length of time devoted to treatment in hospital practice is twenty-five minutes, and in private practice about an hour.

Radiology.

397. Radiological Treatment of Operable Carcinoma of the Breast.

J. H. D. WEBSTER, J. P. THIÉRENS, and F. G. NICHOLAS (*Brit. Journ. Radiol.*, February, 1926, p. 59) give notes of fifteen cases of operable carcinoma of the breast treated by radium and x rays. While not advocating radiation in preference to operation in such operable cases, they point out that, since radiation has sometimes caused the disappearance of inoperable growths, it is important that radiologists should study the problems of treatment of operable breast cancers with a view to determining the best methods of radium and x-ray therapy to be adopted. From their experience the authors consider that the possibility of radiation treatment should be more freely offered to patients than is at present the case, and that they should not be told that there is no alternative to operation. Eight of the cases now recorded were treated by x rays, two by combined radium insertion and x rays, and five by radium surface applications. Of the fifteen patients, one died from bronchopneumonia not connected with the carcinomatous condition and another from the disease two years after treatment had been discontinued. In one there was an abdominal metastasis, but as recently as two months ago ten of the patients were reported as being well with little or no sign of disease. A comparison of the relative value in this field of radium and deep x rays shows no notable difference. Though the periods of observation are too short for conclusions as to technique and results, the authors think that they warrant radiation being offered to operable patients, to those who refuse operation, and to those patients for whom operation is inadvisable on account of age or some intercurrent affection.

398. Lipiodol in Skiagraphy and Treatment.

M. R. CASTEX, H. CARELLI, and H. GONZALEZ (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, February 18th, 1926, p. 217) refer to the great advances in the skiagraphy of internal organs and structures since the introduction of lipiodol. They have been very successful in studies of the respiratory tract, the nervous system, subphrenic abscess (suppurating hydatid

cyst), and pericarditis with effusion. They find that lipiodol gives perfect contrasts in the skiagrams; it is quite harmless, even in large doses, and the technique is simple. It has been reported also that it has a definite therapeutic value when injected into a purulent pericarditis or an empyema. The authors give details of the case of a man, aged 24, who had a large pericardial effusion in which tubercle bacilli were found. Lipiodol was injected many times at intervals of from five to fifteen days, and skiagrams were taken in various positions. Although lipiodol was well tolerated, it did not retard the progress of the disease in this particular case.

399. M. R. CASTEX, N. ROMANO, and H. GONZALEZ (*ibid.*, p. 222) describe a case of a suppurating hydatid cyst of liver in a man aged 45. The patient suffered from violent burning pains in the stomach and right hypochondrium, vomiting, and recurrent obstructive jaundice. An exploratory puncture yielded very offensive pus and gas, the latter under such tension that it forced back the piston and filled the exploring syringe. A skiagram showed a cavity below the right half of the diaphragm partially filled with fluid, which changed its position with the patient's movements. Lipiodol was injected into this cavity, and by reason of its greater density it gravitated to the lower part of the cyst, producing a deeper shadow than that of the pus, and thus indicating the lower limit of the cyst.

400. A. LEMAIRE (*ibid.*, February 11th, 1926, p. 166) reports the case of a phthisical patient who developed tuberculous pericarditis in March, 1925. On puncture pus was found, which on injection infected a guinea-pig. Two injections of lipiodol were made intrapericardially with an interval of a fortnight between them. The cardiac symptoms improved and the pericardial effusion diminished so that no further paracentesis was necessary. In June, 1925, some cerebral symptoms developed (paralysis of the sixth nerve and slight right-sided hemiparesis). The pericardial condition remained quiescent until October, when a few cubic centimetres of pus were withdrawn from the pericardial sac and 5 c.cm. of lipiodol were then injected. The cerebral symptoms increased and the patient died on October 30th. At the autopsy tuberculous masses were found in the brain; the pericardium was slightly adherent and contained 50 c.cm. of creamy purulent fluid, the pericardium was notably thickened. The cause of death was cerebral tuberculosis. Lemaire considers that if the lipiodol did not cure the pericarditis it certainly delayed its progress.

401. X-Ray Treatment of Glandular Tuberculosis.

P. AMUNDSEN (*Norsk. Mag. f. Lægevid.*, February, 1926, p. 119) make a careful examination of 150 persons who had undergone x-ray treatment for glandular tuberculosis in the Röntgen Institute at Oslo between the years 1915 and 1922 inclusive. The examination was made from two to nine years after termination of the treatment. The cases were divided into three groups. In the first group, which consisted of 32 patients with simple glandular enlargement, 26 (81 per cent.) were cured. In the second group, which comprised 65 patients with glandular enlargement associated with peradenitis, 32 (49 per cent.) were cured. In the third group, which consisted of 53 cases of suppurative adenitis with fistulae, 41 (77.4 per cent.) were cured. The proportion of recoveries in all three groups was thus 66 per cent. Recurrence was noted in 4 per cent., and skin changes, such as atrophy and telangiectases, were observed in 10 per cent. Amundsen is opposed to early x-ray therapy being continued for several years, as such treatment is likely to give rise to cutaneous lesions. Each series of irradiations should be distributed over a period of several days, and there should be an interval of from five to six weeks between the different series.

Obstetrics and Gynaecology.

402. Torsion of the Myomatous Uterus.

ACCORDING to E. HITZANIDIS (*Gynéc. et Obstét.*, 1926, xiii, 2, p. 103) axial torsion of the myomatous uterus has been recorded in 85 cases; it is almost always from left to right, and the twist is most commonly through less than 180 degrees but may be as much as 360 degrees. The term "torsion of the uterus" is usually a misnomer, for it is in reality the upper portion of the tumour-bearing organ which rotates around a softened and lengthened supravaginal cervix. The tumour is usually large and heavy, but, as in a case recorded by the author, its weight may not exceed 1,250 grams. It seems to be about equally common to encounter a uterus of which the torsion is secondary to that of a pediculated myoma and primary torsion of a uterus containing an interstitial myoma. Acute torsion is characterized clinically by

very sudden and violent pain, accompanied by pallor and collapse, with a pulse frequency of 130 to 160 and repeated vomiting; there is, however, little or no rise of temperature. Owing to the strong muscular resistance physical examination is difficult, but exploration of the fornices may serve to exclude haematocoele from ruptured ectopic gestation. Slow torsion with no acute symptoms is not uncommon, and in a case recorded by the author the patient first sought advice on account of supposed pregnancy. In certain cases the torsion produces a haematometria and crises of pain occur at monthly intervals. Suppression of the menses in a young person and the impossibility of passing the uterine sound are important diagnostic signs; the hardness of the tumour may distinguish it from a twisted ovarian cyst, but the rotated myoma may be softened owing to oedema. The mortality is given as 63 per cent. in cases not operated on, and 8 per cent. after operation.

403. Treatment of Puerperal Fever.

A. ABELHEIM (*South African Med. Record*, February 13th, 1926, p. 50) considers that local treatment of early puerperal infection is apt to be harmful and that general infection cannot be prevented by local treatment after infection of the tissues or blood has occurred. Four days after confinement a wall of leucocytes protects all wounds in the genital canal, and careless examination, douching, or curetting may damage such a protection and allow streptococci to penetrate and set up a general infection. He deprecates uterine douching, since it will not wash away what is not loose or destroy organisms in the uterine tissues, and it often causes damage to the protective wall of leucocytes, thereby propagating infection; he also regards curetting as dangerous. He does not consider that there is danger of severe infection arising from the retention of a piece of placenta, and advocates such general lines of treatment as quinine, ergot, and drainage while awaiting spontaneous expulsion. Only in severe haemorrhage is he in favour of plugging the vagina or uterus daily until the temperature has been normal for a week, or until it is possible to remove the piece easily with forceps. Abelheim concludes that the best treatment is to interfere as little as possible, and he regards puerperal fever as affording a comparatively favourable prognosis if local treatment is avoided. As a prophylactic measure he advocates the injection of 50 c.cm. of antistreptococcus serum in all instrumental deliveries or those in which there has been any local manipulation.

404. Mural Salpingitis.

C. DANIEL (*Gynéc. et Obstét.*, 1926, xiii, 2, p. 81) states that the interstitial part of the Fallopian tube is normally 7 or 8 mm. long; it is lined by epithelium consisting of a single layer of ciliated columnar cells surrounded by a connective tissue stroma which is poor in cells. Inflammatory conditions extend to this region both downwards from the free portions of the Fallopian tubes and upwards from the uterus, so that pathological changes recognizable both by the naked eye and the microscope are present in the interstitial tube in 70 per cent. of cases of uterine and adnexal disease. In cases of simple salpingitis inflammatory lesions are recognizable in 95 per cent. of cases; the lumen of the interstitial tube is only very exceptionally obliterated, but a pressure of 200 to 250 mm. of mercury (compared with 60 to 100 mm. normally) is required to inject it from the uterus. In salpingitis the intrauterine opening of the tube is not as a rule discernible by the naked eye. In adnexal tuberculosis the interstitial tube always shows gross alterations, which according to microscopical examination appear to be the result of tuberculous lesions in only one-half of cases. In cases of large uterine myoma the interstitial canal can no longer be traced, microscopically or macroscopically. In cases of ovarian tumour and of cancer of the cervix the interstitial part of the tube is unaltered even in the presence of lesions of the extramural tube.

Pathology.

405. Preparation of Malarial Blood for Treatment of General Paralysis.

O. KAUDERS (*Biochim. e Terapia sperimentale*, January, 1926, p. 33) recommends the following methods for the conservation and transmission of blood taken from malarial patients that is to be used for the treatment of patients suffering from general paralysis. With aseptic precautions 5 c.cm. of the blood is removed from a vein in the arm during or just after the decline of a febrile paroxysm and collected in a sterile test tube containing 0.5 per cent. sodium citrate solution. The tube is covered with a rubber cap rendered airtight with paraffin; it is important that the fluid in the tube should not come into contact with the cap. Another 10 to 15 c.cm. of blood is withdrawn into a small sterile flask containing glass

beads, which are then shaken thoroughly. The defibrinated blood is then poured on to the surface of a blood agar slope, taking care not to allow it to pass above the upper limit of the medium. The tube is capped and paraffined as before. A third amount of 2 c.cm. of blood is taken into a tube containing 10 c.cm. of melted gelatin at a temperature not above 30°C. The mixture is well shaken till the blood is evenly distributed; the gelatin is then allowed to set, either at room temperature or in the ice-chest, capping and paraffining as before. The infectivity of blood so preserved lasts for two days certainly, sometimes for three days, and occasionally for four days; the blood can be transported for long distances without mishap. For infecting the patient it is desirable to inject the three specimens of blood. The citrated blood is injected subcutaneously; the blood in the blood agar tube is decanted into a sterile vessel and injected; the blood in the gelatin tube is likewise injected subcutaneously after the mixture has been melted in a bath at 28°C.

406. Basal Metabolism in Artificial Pneumothorax.

N. SANTANGELO (*Il Morgagni*, February 21st, 1926, p. 225), using Zuntz-Geppert's apparatus with an open circuit, has measured the respiratory exchange and the basal metabolism of patients suffering from pulmonary tuberculosis on whom an artificial pneumothorax had been performed. In the cases that were done well the basal metabolism was found to be about 15 per cent. below normal; in the cases that were doing badly, or in which there was still slight fever or dyspnoea, it was normal or increased. In one case in which a fresh focus of tubercle had appeared, accompanied by fever, cough, and loss of weight, the basal metabolism was increased 15 per cent. above normal. Measurements were made in one patient just before and a quarter of an hour after the induction of artificial pneumothorax; the second figure was 5 per cent. below the first; the absolute measurements were 35 per cent. and 30 per cent. above normal. It is evident that in favourable cases the basal metabolism becomes subnormal. Parisot and Hermann found that the effect of performing artificial pneumothorax on healthy rabbits was to double the respiratory activity, to prevent further growth in young animals, and to lead to a loss of weight in adult animals; this was clearly due to an increase in oxidation. But in human tuberculous patients the reverse is found. The respiratory activity is diminished and the weight increases; oxidation is diminished. The author believes that this difference is explained by the suppression in human patients of the tuberculous focus and the shutting off thus from the circulation of the toxic substances that formerly stimulated katabolism. He concludes that the diminution in basal metabolism in pneumothorax patients is due far more to this factor than to the mechanical decrease of respiratory surface.

407. The Antirachitic Value of Fresh Spinach.

HARRIETTE CHICK and MARGARET H. ROSCOE (*Biochem. Journ.*, 1926, vol. xx, No. 1, p. 137) have investigated the antirachitic value of fresh spinach leaves. Young rats, about 3 weeks old, were placed upon diets devoid of fat-soluble vitamins, but containing adequate contents of calcium and phosphorus salts. Some of these animals received a daily ration of spinach; others received the basal diet without spinach. The increase in weight during the next six weeks was taken as an indication of the amount of vitamin A in the spinach, and the degree of calcification of the bones at the end of this time provided a measure of the calcium-depositing power or vitamin D content of the spinach. The spinach was grown in the open at different times of the year—winter, spring, midsummer, and autumn—to test the effect of the sun's rays on the antirachitic content. The results showed that fresh spinach leaves contain a large quantity of vitamin A, but that, with the exception of spinach grown in midsummer, they contain no detectable vitamin D; the midsummer spinach contained a small but appreciable quantity. On the other hand, spinach that was irradiated for thirty minutes at a distance of 36 cm. from a quartz mercury vapour lamp just prior to consumption was found to be powerfully antirachitic. The authors suggest that in spinach grown in the open the vitamin D may be removed or destroyed shortly after formation, whereas in spinach that has been cut before ultra-violet irradiation no such change can occur. MARGARET A. BOAS (*ibid.*, p. 153) also contributes an article on the antirachitic value of fresh spinach, with particular reference to its effect on the retention of calcium and phosphorus by young rats. The conclusions reached are similar to those of Chick and Roscoe. Fresh spinach was found to contain ample vitamin A but a negligible quantity of vitamin D. Cod-liver oil, on the other hand, contained both the A and the D vitamins. Both cod-liver oil and spinach increased the amount of phosphorus excreted in the urine at the expense of that excreted in the faeces; but it is pointed out that the ability to do this is no measure of the antirachitic power.

Medicine.

408.

Spasmophilia.

G. MOURIQUAND and P. BERTOYE (*Journ. de Méd. de Lyon*, February 20th, 1926, p. 85) define spasmophilia as an increased excitability of the peripheral nervous system causing tonic or, less frequently, clonic convulsions of the muscles and associated with a deficiency of calcium in the system. Of its physical signs, that of Chvostek is very important, though difficult to elicit from infants. Contraction of the muscles supplied by the facial nerve follows percussion of the mid-point of a line joining the zygomatic process and the corresponding angle of the mouth. In infants Lust's sign is useful; percussion a little below the middle of the calf results in the foot jerking upwards and outwards. The clinical picture is that of a tetanic spasm, latent or manifest and occurs often and may be caused by spasmophilia or by rickets, bad hygiene from want of sunshine, or by hypophosphatemia. Heliotherapy and dietary measures are the most essential points in treatment; the authors recommend large doses of calcium chloride combined with cod-liver oil and phosphorus to reduce the spasms. Ultra-violet rays have also been found valuable.

409. W. STOELTZNER (*Med. Klin.*, March 5th, 1926, p. 357), in discussing the etiology of spasmophilia, does not think that epilepsy is to be considered a sequel of this disease, but that mental weakness, showing itself in stammering, tics, and bed-wetting, may follow. Prophylaxis, being the avoidance of rickets, is best secured by breast-feeding. Treatment in doubtful cases consists in reducing the cow's milk in the diet by about one-half; in definite cases cow's milk should be eliminated entirely for at least a fortnight. The child must, however, not be fed only on carbohydrates during this time, but substitutes for the albumin, fats, and minerals must be given in the form of eggs, finely shredded meat, broth, rusks, butter, vegetables, and fruit. This treatment will as a rule clear up the symptoms at once, but it must be remembered that even one drink of milk may bring them on again. In all cases cod-liver oil should be given, with or without phosphorus, and continued for months after the symptoms have disappeared. In obstinate cases accompanied by laryngospasm calcium should be given. The author recommends the subcutaneous injection of magnesium sulphate, 0.2 gram per kilo of body weight in 8 per cent. solution, as being often successful in cases of prolonged spasm. If a child with spasmophilia develops an acute infection meningeal symptoms often follow, and the cerebro-spinal fluid is under pressure. Lumbar puncture gives good results.

410.

Cardiac Asthma.

S. WASSERMANN (*Wien. Arch. f. inn. Med.*, January 5th, 1926) summarizes the literature of cardiac asthma and records a number of original observations. He concludes that asthma may occur in the course of dilatation of either side of the heart; dilatation of the left side produces typical cardiac asthma, while that of the right side causes pseudo-asthmatic attacks. Typical cardiac asthma is an acute paroxysm of dyspnoea, induced by derangement of the general circulation, involving especially the brain and medulla. Dyspnoea may be due to anaemia of the respiratory centre; this in its turn is due to enfeebled contractions of the left ventricle, while cardiac back pressure produces pulmonary congestion. Physiologically, cardiac asthma is the reaction of the central nervous system and especially of the medulla. It is a sudden "defence reaction" produced by anaemia of the respiratory centre, and also by the dyspnoea due to pulmonary congestion. The subjective symptoms result from the mental correlation of the arterio-anaemic dyspnoea, and include a group of centrally perceived symptoms of air-hunger—namely, motor and psychomotor disturbance, restlessness and sudden impulses, with respiratory anxiety and a sensation of suffocation. The objective symptoms include all the results of stimulation of the various bulbo-spinal nerve centres by the cardiac asthmatic dyspnoea—deep, occasionally laboured respiration, the accessory respiratory muscles being called into action. The vegetative nervous system is stimulated and produces somato-visceral symptoms—pulmonary congestion, bronchial spasm, difficult and scanty expectoration, bradycardia, palpitation, pharyngo-oesophageal spasm, nausea, rectal tenesmus, dysuria, and frequent micturition. The blood

pressure sometimes rises rapidly. Cardiac asthma may be induced by aortic valvular incompetence, coronary endarteritis or thrombosis, or an infarct in the left ventricle. The prognosis is extremely grave. Usually there is spontaneous recurrence with exhaustion of the respiratory centre, Cheyne-Stokes respiration, cardiac failure, and pulmonary congestion. The treatment is purely symptomatic, and includes morphine, carbon dioxide, and vaso-dilators, such as trinitrin. In pulmonary circulatory or congestive asthma dyspnoeic attacks occur owing to the increasing failure of the pulmonary circulation, with cyanosis, dyspnoea (orthopnoea), and anasarca. Little or no increase of blood pressure occurs, but the clinical signs are those of mitral disease with progressive heart failure. Treatment includes bleeding, cardiac tonics, such as digitalis, caffeine, morphine (administered very cautiously, in minimal doses) and carbon dioxide. The prognosis is very bad and the condition is usually a terminal manifestation.

411.

Erythema Arthriticum Epidemicum.

E. H. PLACE, L. E. SUTTON, JUN., and O. WILNER (*Boston Med. and Surg. Journ.*, February 18th, 1926, p. 285) issue a preliminary report upon an epidemic, the dominating picture of which was acute sudden onset with fever, vomiting, malaise, and headache. From the first to the third day a blotchy morbilliform eruption appeared, mainly about the joints and extensor surfaces of the extremities, accompanied by a multiple arthritis, often severe in degree. During the latter half of January, 1926, 45 cases were studied. Petechial haemorrhages were frequently noted on the dorsum of the feet, on the toes and soles, many days after the eruption had faded from the arms and hands, and desquamation, occasionally profuse on the backs of the hands and wrists, sometimes followed. Involvement of two or more of the large joints usually appeared on the third day and was often exceedingly painful and crippling, with fluid in the knee-joint in at least six cases. In two cases a slightly flocculent yellow fluid was obtained from the joints from which a Gram-negative rod-shaped organism was cultivated, and a similar organism was isolated from the blood in ten out of twelve cultures. In many cases the throat showed a diffuse dull redness extending over the soft palate. The heart was normal in all the patients except one, who had an old endocarditis; there was never any glandular enlargement, and in only one case was the spleen palpable. The epidemic was confined to a small locality about half a mile in length along the river; though the milk supply was suspected nothing was found to indicate disease in any of the dairies, and samples were bacteriologically negative. The age incidence varied from 8 months to 50 years, the 8 months baby being the only case suggesting contagion and known not to have consumed the milk. The association with the milk supply, the arthritis, eruption, toxic symptoms, and irregular fever closely simulated Malta fever. Further studies upon the organism isolated are to be reported later.

412.

Visceral Leishmaniasis in Spain.

G. PITTALUGA (*Rev. med. de Barcelona*, January, 1925, p. 42) states that since 1912 more than 300 cases of infantile kala-azar or visceral leishmaniasis have been observed in Spain. His personal experience and the data collected by his collaborators and pupils as well as by pediatricists show that an endemic of visceral leishmaniasis exists in Spain and even throughout the Iberian peninsula. The endemic is far from being confined to the sea coast, as more than a hundred autochthonous cases have occurred in the central and western provinces of Spain, such as Madrid, Toledo, and Cáceres. The northern provinces, however, have hitherto escaped. In spite of the predominance of these cases in early life (from a few months to 10 or 12 years of age), a large number have been found in adolescents and adults. The term "visceral leishmaniasis" is therefore preferable to that of "infantile kala-azar." Of 364 cases 43 per cent. occurred in males and 57 per cent. in females. The great majority of the children affected belong to poor families; a fair number of cases, however, are found in well-to-do and even prosperous families. Defective hygienic conditions are all-important factors in the spread of the disease. Until a few years ago only very severe cases of advanced leishmaniasis were seen. Pittaluga, however, has for some time maintained that there are numerous mild cases of infantile kala-azar of slow course, in which the diagnosis can only be made by bacteriological examination of the spleen. The actual prevalence of visceral leishmaniasis

is probably much greater than is supposed, and a certain number at least of the cases of anaemia, pseudo-leukaemia, splenomegalic anaemia, and marasmus which are assigned as causes of infantile mortality are really examples of leishmaniasis. Treatment by preparations of antimony, especially by the double tartrate of antimony, and potassium or sodium is said to be very effective.

413. Combined Schick Test and Diphtheria Prophylactic.

A. T. GLENNY and HILDA WADDINGTON (*Journ. Path. and Bact.*, January, 1926, p. 118) remark that the Schick dose of toxin has a small immunizing effect upon animals already immune, but its antigenic value as a primary stimulus is negligible. A preparation that would give a satisfactory Schick reaction and at the same time act as an immunizing agent would have a distinct advantage as it would reduce the number of subsequent prophylactic injections from three to two. It would also act as the commencement of a second course of immunization in the small number of children who, tested after a first series of inoculations, continue to be Schick-positive. As the result of a number of experiments during the last few years Glenny and Waddington have been able to produce a combined diagnostic and prophylactic agent containing the equivalent of 1/10 L+T.A.M. in 0.2 c.cm.—that is, equivalent to the amount in 1 c.cm. of the ordinary prophylactic toxin-antitoxin mixture, and also corresponding in diagnostic value to a Schick toxin. Tests are as yet incomplete, but the work is being continued. Probably the chief difficulty will be the increased number of pseudo-reactions, but this can be overcome by making the mixtures more dilute. The authors have also been making clinical trials with a combined diphtheria-scarlet fever prophylactic, in which the proportions of the two constituents are so arranged that the amount of scarlet fever toxin does not depress the immunizing efficiency of the diphtheria toxoid present.

414. Koplik's Spots.

G. PETÉNYI (*Monatsschr. f. Kinderheilk.*, February, 1926, p. 533) states that though Koplik's spots are generally regarded as diagnostic of measles, some cases are on record of their occurrence in other diseases. Thus Asa-Falk reported three cases in which they were found in children with influenza, and similar cases were described by Mauasse, Müller, and Widowitz. Petényi now records three cases of exanthema subitum showing Koplik's spots. Measles could be excluded, and in two of the cases had occurred several years previously. He concludes that Koplik's spots are a non-specific phenomenon and may occur in other diseases besides measles.

Surgery.

415. Perineal Prostatectomy.

P. SYMS (*Journ. Amer. Med. Assoc.*, January 23rd, 1926, p. 244) records the result of twenty-five years' experience with his own technique of perineal prostatectomy, which he claims to be simple, without danger to the rectum, and affording ample exposure. Under sacral anaesthesia a Little's lithotomy staff is introduced into the bladder with the patient in the lithotomy position. Through a median incision extending from just behind the bulb to a point just in front of the rectum the membranous urethra is opened to the apex of the prostate with a narrow scalpel in the groove of the staff, and the prostatic urethra is dilated by passing the index finger into the bladder. A Young's tractor having been introduced into the bladder, all the tissues overlying the rectum are pushed back by blunt dissection, exposing the dome-shaped sheath of the prostate, through which a vertical incision is made on each side of the middle line, exposing the prostatic lobes. These are enucleated through the vertical openings, care being taken to work close to the lobes so as not to tear the sheath containing the venous plexus. After exploring the bladder with the finger for intravesical lobes a catheter is introduced through the open urethra and a light gauze packing inserted into the spaces left by the lobes. The catheter is temporarily secured to the upper part of the wound by a silk-worm-gut suture, and a single suture, tied loosely, is placed near the middle of the wound. Syms reports 198 consecutive cases without a death, and claims that the final functional results are as good as, or better than, those following the suprapubic operation, while convalescence is much shorter and more comfortable. The patients are able to get up within forty-eight hours, regaining bladder control, and being able to get about in comfort within a week.

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416. Surgical Treatment of Acute Pericarditis.

M. DUGUET (*Bull. et Mém. Soc. Nat. de Chir.*, January 16th, 1926, p. 4) records the case of a patient with acute pericarditis of about six weeks' duration. Radiographic examination showed marked enlargement of the pericardial shadow. It was decided to open the pericardium and evacuate the fluid. This was accomplished under local anaesthesia after resection of portions of the fifth, sixth, and seventh costal cartilages. The pericardium was incised (it was found roughened with sero-fibrinous exudate) and about half a litre of fluid was evacuated. The wound was then closed in layers without drainage. The patient made satisfactory progress for nine days, when the fluid reappeared in the pericardium and discharged spontaneously through the scar. A fistula resulted which became infected and resulted in the death of the patient. Duguet thinks that the operation was delayed too long, and that for success it should be performed earlier. In view of the risk of infection drainage is strongly contraindicated in such cases. The fluid removed in this case was sterile on culture and showed no tubercle bacilli present; inoculation tests were negative. The author believes that in spite of the absence of organisms the disease was probably tuberculous in origin, as this is the more frequent cause in young subjects. He adds that the case emphasizes the importance of early operation.

417. Recurrent Pain after Operations on the Biliary Tract.

H. FLÖRCKEN (*Deut. Zeit. f. Chir.*, January, 1926, p. 181) states that the primary mortality in 552 operations on the biliary tract at St. Mary's Hospital at Frankfurt was 4.5 per cent., and in uncomplicated cholecystectomies 1.8 per cent. Of 329 patients investigated after their discharge from hospital 72.6 per cent. showed no symptoms, 16.5 per cent. had only slight symptoms, and 8.2 per cent. were not relieved. Of 273 patients with gall stones 75.9 per cent. were freed from all their symptoms, 15 per cent. had only slight symptoms, and 6.5 per cent. were not relieved. The cause of the symptoms was mainly a residual cholangitis. Of 56 patients who had suffered from chronic cholecystitis, pericholecystitis, or congestion of the gall bladder apart from calculi, 58.9 per cent. were completely cured, 23.7 per cent. had only slight symptoms, and 16 per cent. were not relieved. The cause of the symptoms in these cases was usually an ulcer or splachnoplethosis. Many of the milder symptoms which lasted two years after operation subsided spontaneously and complete recovery took place. The best results were obtained in simple cholecystectomy without complications, 80 per cent. of the patients being completely cured of all their symptoms. In 54 cases of choledochoduodenostomy the mortality was 3.7 per cent., the results being very good in 71 per cent. and satisfactory in 17.8 per cent. Successful treatment of the recurrent pain following operation depends on the cause. Residual cholangitis is often improved or cured by repeated duodenal intubation with injection of magnesium sulphate. In cases showing Head's areas paravertebral injection of novocain, tutocain, or dolantin, as recommended by Lauen, is indicated.

418. Nephrectomy for Renal Tuberculosis.

CONDAMIN (*Journ. d'Urol.*, January, 1926, p. 31) points out that the results of removal of the kidney for unilateral renal tuberculosis are extremely good. Statistics show a steady improvement owing to better technique, earlier diagnosis, and estimation of the functional value of the kidneys. The operative mortality has fallen from 25 to 4 or 5 per cent., and continuous series of thirty to forty nephrectomies without a death are recorded. The ultimate results, however, are clouded by a mortality which is usually the result of a tuberculous lesion elsewhere in the body. The late results show a mortality of 31 per cent. in three years and 14 per cent. in seven years. The majority of patients with renal tuberculosis have tuberculous affections elsewhere, either in the lungs, genital tract, or joints, and this ultimately causes their death. When the disease is entirely confined to the kidney Condamin finds that 62 per cent. of patients are finally and completely cured. When there exists in addition an extrarenal focus of tuberculous disease there were only 47 per cent. of ultimate cures. The prognosis is not so good in a patient giving a history of antecedent tuberculosis. Tuberculosis elsewhere in the genital tract rather increases the operative mortality, whereas urinary tuberculosis does not appear to influence the prognosis to any degree. Lesions coexisting in the lungs show the highest mortality and increase the gravity of the ultimate result. Extrarenal tuberculosis, then, appears to influence the prognosis after removal of the kidney, and in some cases may lead to infection of the remaining kidney. Lung infection is the most serious condition, whilst genital tuberculosis may delay recovery.

419. Fractures of the Head and Neck of the Radius.

C. W. CUTLER, JUN. (*Annals of Surgery*, February, 1926, p. 267), points out the importance of these fractures, as they not infrequently cause permanent disablement of the elbow-joint. In fifty collected cases the incidence was about equal in the sexes; they are not common in children. Falls on the elbow were responsible for 40 per cent. of the cases. The degree of injury ranged from a simple crack in the head of the radius to splitting of the head into two or more pieces. Six of the cases were complicated with a dislocation or fracture of the upper end of the ulna. The symptoms were uniformly pain in the elbow and some form of disability. Swelling was present in about two-thirds of the patients. The diagnosis rests on the history of a fall, followed by limitation of movement and pain in the elbow-joint; the x-ray picture is confirmatory. The prognosis depends on the severity of the injury and the question of proper treatment; in simple cases flexion and supination has given satisfactory results. In fragmentation Cutler thinks it is probably wiser to excise the fragments, as full and useful function of the arm is not otherwise obtained. If flexion and supination can be secured union and restoration of function are possible. It appears to be best to treat these cases without operation in the first place unless definite indications for removal of the fragments are present. Recourse can be had to operation later if conservative treatment fails.

420. Parabiliary Stenosis.

UNDER this title N. LAGRAVINESE (*Il Policlinico*, January 15th, 1926, p. 13) reports five cases, with radiograms, illustrating certain changes occurring in the colon and duodenum as a result of operation. These changes are due sometimes to a periduodenitis contracting and deforming the duodenum. One patient was a man who had been operated upon two years previously for gall stones, a cholecystectomy being performed. Two months later he began to suffer severe pain three or four hours after food, which was ascribed to fresh gall stones; but there was no evidence of this, and eventually he was treated as a neurotic and became a morphine addict, passing from one clinic to another. As haematin was found in the faeces, a final diagnosis of duodenal ulcer was made and laparotomy was performed. No trace of ulcer was found, but adhesions and marked periduodenitis was noted; the adhesions were freed and a posterior anastomosis was performed. After this the patient made a rapid recovery and had no more trouble. The four other cases illustrate various types of periduodenitis and serve to draw attention to the condition which is sometimes congenital in origin. The author adds a bibliography of recent literature on the subject.

Therapeutics.**421. Radium Therapy in Tumours of the Naso-pharynx.**

SARGNON (*Arch. Internat. de Laryngol., Otol. et Rhinol.*, January, 1926, p. 38) points out that there occur in the naso-pharynx true fibromas, malignant tumours outwardly resembling fibromas, and diffuse malignant tumours which arise and are restricted to the lateral wall of the naso-pharynx—the peritubal growths. The malignant tumours may be sarcomata or epitheliomata, but only the latter ever cause secondary glandular involvement. Among the objections to surgical measures is the tendency to haemorrhage, which may require a laryngotomy and a primary or a secondary ligature of the external carotid artery. Complete removal of the growth is difficult and the packing of the naso-pharynx is always likely to cause otitic trouble. Secondary haemorrhage is not a rare complication, and is usually very severe. Recurrence is frequent and often causes death from cachexia before there is any appreciable tumour formation. Any second intervention is still more difficult, and the bleeding is even more copious than on the first occasion. For these reasons the author has given up surgical measures and has employed radium. When this substance is used in association with operation through the mouth or nasal passages the tubes are applied by inserting them in the post-nasal packing and removing them together. If the operation has been by the lateral nasal route the tubes are easily placed against the area of detachment of the growth and can be removed at any time by the nasal passages. Radium can be employed before an operation and lessens the amount of haemorrhage at the operation; it may be applied in tubes or in needles. The ideal procedure is to introduce the radium carrier into the tumour itself, but this is often very difficult owing to the hardness of the tumour and its tendency to bleed on handling. The needles are best fixed into the growth through the nose under visual control by posterior rhinoscopy and are then safely retained; if placed in the tumour through the mouth there is risk of their coming loose and being swallowed. The

author introduces a sound through the nose, followed by a thread which passes out through the mouth, and is tied to form an endless thread. On to this he fixes tubes of radium and draws them into position so that one is in the naso-pharynx and the other is in the posterior part of the nasal passage. A little packing is placed in position to steady the tubes and to control any slight haemorrhage. Removal of the radium is not followed by haemorrhage, as the salt has a sclerosing action on the blood vessels. Doses of 50 or 100 millicuries are employed. In cases of epithelioma, and especially where there is glandular enlargement, a collar of radium is applied to the neck and lower part of the face, about twenty tubes being used. The result of this form of treatment is that the patient has no more bleeding and the tumour gradually shrinks, taking several months to disappear. The disagreeable results may be perforation of the palate, which may be closed by a dental plate, and necrosis of the posterior part of the vomer, which causes little inconvenience except a rather fetid discharge.

422. Serum Treatment of Spirochaetosis Icterohaemorrhagica and Acute Poliomyelitis.

A. PETTIT (*Progrès méd.*, February 20th, 1926, p. 279) states that in Japan the mortality from spirochaetosis ictero-haemorrhagica is 95 per cent., as compared with about 5 per cent. in France. The difference in the rates is to be attributed to the fact that only the severe cases are diagnosed in Japan, whereas in France all forms of disease, including a large proportion of mild cases, are diagnosed. In France, therefore, serum treatment has only a limited application in spirochaetosis icterohaemorrhagica, being merely required for severe cases. Its effect is to inhibit the multiplication of the spirochaetes, though it is not so active as could be desired, and the recurrence of the fever is not prevented. The serum also furthers elimination of the spirochaetes and the duration of spirochaeturia is shortened. The jaundice, on the other hand, is hardly at all affected, for the blood corpuscles are destroyed. The haemorrhage, however, is checked, the intoxication is diminished, and the prostration becomes much less. Lastly, the blood pressure rises, headache diminishes, and convalescence takes place much more rapidly than in untreated cases. The administration of the serum is modelled on that of other serums. The serum should be given as soon as possible, the daily dose for an adult of 70 kilograms being 60 c.cm. for three to five days. In poliomyelitis the serum, generally speaking, is indicated only in the acute stage and should be given very early. It should be injected intraspinally in doses of 10 c.cm. after removal of the corresponding amount of cerebro-spinal fluid. If the patient's condition continues to be alarming, a second, third, and even fourth injection will be required. The action of the serum is as follows. It inhibits the advance of poliomyelitis, and in bulbar disturbances the respiration rapidly becomes normal after injection of serum. Moreover, the lesions of the cells are brought to a standstill and convalescence is more rapid than in untreated cases.

423. Treatment of Tuberculosis by Sanocrysin.

V. BIE (*Acta Medica Scandinavica*, February 11th, 1926, p. 220) describes the results of his treatment with sanocrysin of cases of acute febrile tuberculosis. Some patients received in addition intramuscular injections of the special serum, and others intramuscular and intravenous injections. Adult patients were usually given doses of 0.25, 0.50, 0.75 gram, and four doses of 1 gram, at intervals of at least five days, to a total for each series of 5.25 to 5.50 grams. Children received doses, in a similar progression, of 1/2 to 2 cg. per kilogram of body weight. Bie introduced an interval of three to four weeks between the series of injections. Most of his patients vomited after injections of sanocrysin, but not to any serious extent. He considers the exanthem phase an indication for intermitting treatment, but not albuminuria in acute tubercle, since he has found that such albuminuria disappears with the termination of the course. He found that in chronic phthisis albuminuria might be set up with small doses of sanocrysin and was apt to persist; injections of serum neither prevented the appearance of albuminuria nor cured the condition. He records the case of a girl, aged 6, with acute tuberculous pleurisy. After injections of 0.75 and 1 gram of sanocrysin the temperature fell rapidly, and he gave an injection of serum on each occasion from fear of a collapse. With further experience he doubts if the serum was necessary. A second course of injections followed four weeks after the first, but without serum. Nine months after the commencement of treatment radiograms showed no signs of tubercle. A boy, aged 15, with signs of a lobar pneumonia of the right lower lobe and tubercle bacilli in the sputum, received serum injections with the first and third injections of sanocrysin, an intramuscular injection on the following day, and an intravenous injection with the

sancrocrisin. The patient tolerated the second intravenous injection of serum well in spite of the short interval between it and the first injection, and the consequent risk of anaphylaxis. He does not, however, recommend such a procedure as a routine, and notes that his attempts at desensitization have failed. The patient had a full second course of sancrocrisin and a third, both without serum. A short fourth course was given before the patient, nine months after the commencement of treatment, was well enough to be sent to a sanatorium with a normal temperature and slight expectoration, which, however, still contained tubercle bacilli. He quotes three more cases of females, aged 24, 21, and 16 respectively, the first two with tuberculous pleurisy, and the last with pulmonary tuberculosis; all responded well to treatment with sancrocrisin. The last two patients had no serum.

424. Intravenous Sulpharsphenamine in Syphilis.

M. F. LAUTMAN (*Arch. Derm. and Syph.*, February, 1926, p. 234) states that the ill effects and sensations resulting from the injection of neo-arsphenamine and arsphenamine tend to prevent some patients from continuing the course of treatment. He has therefore made use of sulpharsphenamine, which, though not so efficient as the older arsenicals, is less noxious, does not give rise to dermatitis, and produces practically no constitutional reactions. The cases which he selected for treatment were those in which a negative Wassermann reaction had been obtained by previous treatment with other drugs, and therefore a less potent preparation was able to maintain the improved condition. More than four hundred injections of sulpharsphenamine were given by him to eighty-three of these patients, and in all of them the results were fully as good as those obtained by the older arsenicals. The drug was dissolved in 30 c.cm. of distilled water and injected into a vein. It was readily soluble and caused but little irritation if any of the solution leaked into the subcutaneous tissue; no tendency to thrombosis was observed. The first dose given was 0.4 gram, followed by seven subsequent ones of 0.6 gram, given every fourth day. These injections were combined with a similar number of 0.01 to 0.016 gram of mercury oxycyanate. Lautman has found this treatment particularly efficacious in neural syphilis, of which there were twenty-three cases in his series; the results were superior to those usually obtained with the other preparations. In those cases in which severe lancinating pains were present a distinct increase in the severity was observed immediately after an injection; the pain continued for about thirty-six hours and then subsided, becoming less than before the treatment. It is suggested that this increase in pain was due to the selective action on the nerve roots which sulpharsphenamine is said to possess.

Disease in Childhood.

425. Infant Feeding.

H. B. SHEFFIELD (*Med. Journ. and Record*, January 20th, 1926, p. 106), in discussing the difficulties of maternal nursing, states that the common practice of giving food to babies every three or four hours for exactly twenty minutes at a time, and waking the baby for this purpose, is to be condemned. This method only too often leads to painful and cracked nipples, with the possibility of breast abscess, in the mother, and to dyspepsia, insomnia, and excessive irritability in the baby. He suggests that the latter condition may, indeed, act as a primary cause of spasmodic pyloric stenosis, since this affection is more common in breast-fed babies. He proposes that the child should be fed at each breast alternately from five to ten minutes at a time every three or four hours when awake, and should not be awakened at specified times. If the breast milk agrees with the baby it usually suckles for about five to ten minutes and then falls asleep at the breast. Referring to the general opinion that breast-fed babies are more immune to infectious diseases than are bottle-fed babies, Sheffield reports that he has observed more cases of whooping-cough in the newly born and young breast-fed infants than in those who were bottle-fed.

426. Infantile Acetonaemia.

H. MEMBRAT (*Journ. de Méd. de Bordeaux et du Sud-Ouest*, February 10th, 1926, p. 102) states that cyclic, periodic, persistent, and recurrent vomiting, with acetonaemia, form a morbid entity in infants and children. Marfan has described it as an infantile disease characterized by attacks of vomiting, the elimination of acetone and of ketone bodies in the urine and expired air, usually occurring in healthy subjects, lasting for a few hours or days, and ceasing suddenly, to give place to perfect food tolerance. The attacks commence usually

between the ages of 1 and 10 years, but cases occurring within the first year of life have been recorded. The disease is frequently familial and hereditary, and occurs more often in boys and among town-dwellers, particularly among children of the professional classes. It may be induced by dentition, overstudy, dietary faults, and by acute febrile diseases. An attack may occur suddenly, but more frequently it is preceded by headache, lassitude, constipation, and anorexia. During the attack there is an odour of acetone in the breath, the patient is pale and prostrate, the skin dry and parchment-like; it may be followed by jaundice. The prognosis is usually good, but some fatal cases have been recorded; in these there was fatty degeneration of the liver and subacute nephritis. Many theories of the origin of acetonaemia have been advanced, ranging from hysteria to anaphylaxis, but it would appear that the liver is the source of acetone and ketone bodies. Mellanby suggests that acetonaemia is due to intestinal toxæmia. An attack may be ushered in by severe headache and recurrent vomiting of the cerebral type, sometimes followed by epileptiform convulsions, rapid wasting, somnolence, and torpor; obstinate constipation completes the "meningitic tripod." Rigidity of the neck, severe headache, photophobia, and Kernig's sign are seen occasionally; it must not be forgotten that these may be due to cerebro-spinal or tuberculous meningitis. Epidemic encephalitis may be simulated by the lethargic type, although its onset is usually more gradual and the vomiting less severe; acetonaemia is absent. Lumbar puncture may be necessary to distinguish acetonaemia from meningitis. Careful clinical examination is required, especially of the urine for acetone and for diacetic and β -oxybutyric acids. The early appearance of acetonaemia in cases of recurrent vomiting is a valuable aid to differential diagnosis. The majority of French authors state that lymphocytosis is found in acetonaemia, as well as in tuberculous meningitis, epidemic encephalitis, and cerebral syphilis. Finally, examination of the cerebro-spinal fluid for acetone may be required for differential diagnosis. It is probable that a certain number of reported cures of tuberculous meningitis were actually cases of acetonaemia.

427. Acute Nephritis in Children.

R. SOUTHEY and B. L. STANTON (*Med. Journ. of Australia*, January 30th, 1926, p. 127) examined the clinical histories of 103 children suffering from acute nephritis, with special reference to renal efficiency tests. They found that cases with sudden onset, and especially if there was an obvious source of infection, such as tonsillitis, impetigo, pneumonia, and measles, usually ran a short sharp course with complete recovery without any late results, while those with insidious onset without ascertainable cause often ran a protracted course ending in chronic invalidism. The urea concentration test proved to be of considerable value as an aid to prognosis, but the blood urea and urinary diastase estimations were of no assistance. Of 83 patients the urea concentration test indicated an unimpaired renal efficiency in 69, and all of these were found later to be clinically well and the urine free from albumin, casts, and red blood cells. Red blood cells alone are often found in the urine in the early stages, and also when the acute inflammation is subsiding, the casts and other cellular material having disappeared. The authors consider that diet is unimportant in influencing the duration of the illness, but that complete rest is essential. They found that the oedema responded fairly rapidly to pulv. jalapae co. and saline purgatives, or, in more obstinate cases, to potassium citrate, theocin sodium acetate, or Guy's pill, while hot packs and hot baths were valuable aids. Uræmic convulsions responded at once to venesection or lumbar puncture. In their opinion decapsulation is of little use and is rarely if ever justified.

428. Tuberculous Disease of the Wrist in Children.

E. SORREL (*Bull. et Mém. Soc. Nat. de Chir.*, February 6th, 1926, p. 86) states that in localized tuberculosis of the wrist-joint in children recovery may follow, with complete range of movement. He describes the case of a child, aged 10, in which this occurred. Even in the presence of abscess and fistula the condition may completely clear up in children. Six other cases are also mentioned, all of which had a satisfactory termination. This condition is not at all uncommon, and when there has been prolonged suppuration the surgeon may be tempted to excise the wrist-joint. In some cases this may be justifiable, but Sorrel maintains that in the localized form it is never necessary to perform a resection. The localized carpal tuberculosis of early life does not appear in adults, in whom the infection spreads to all the small joints of the carpus, and usually ends in ankylosis; or resection may become necessary. Radiograms and photographs illustrate the good results that have been obtained by conservative treatment in children.

Obstetrics and Gynaecology.

429. The Scar after Cervical Caesarean Section.

M. WETTERWALD (*Zentralbl. f. Gynäk.*, March 6th, 1926, p. 592) thinks that rupture of the scar of a Caesarean section is much less likely to occur in labours following a cervical than a corporeal (classical) Caesarean incision. According to Eardley Holland's collected statistics, the proportion of ruptures of the scar after high Caesarean section is as great as 25 per cent. in subsequent spontaneous births; Wetterwald's statistics from the St. Gallen Kantons-spital show that the proportion after the cervical operation is 3 per cent. If the percentages of rupture are reckoned as following Caesarean operations and not subsequent labours, the figures are from 1 to 4 per cent. for the high and, at the most, 0.28 per cent. for the low operation. Wetterwald has found in the literature records of 3,600 transperitoneal cervical Caesarean sections with only 10 recorded cases of rupture, during labour, of the scar, and 3 records of rupture of the uterus elsewhere. It is to be noted that in some of these 10 cases the accident cannot be attributed certainly or exclusively to diminished resistance in the cervical scar. In some the body also was torn at the time of rupture; in some the incision was lacerated during extraction of the foetus at the first operation; and in several the second pregnancy was accompanied by placenta praevia, in which erosion by chorionic cells possibly contributed to the yielding of the cervical scar. Wetterwald records a personal case—the only one, he thinks, in which the rupture of the uterus has concerned the cervix only with normal placental insertion. The Caesarean operation for persistent mento-posterior presentation was followed by an afebrile convalescence, and the rupture occurred at term (five years later) when the second stage of labour had been almost completed; the patient died after supravaginal hysterectomy. The author's clinic has recorded, after 100 cases of cervical Caesarean section without sterilization, labour in 45 patients, with 40 births *per vias naturales* among 26 women, and only one case of abnormal third stage of labour in the majority of the 13 repeated cervical sections the scar was unrecognizable, and in none were adhesions present. In spite of the favourable expectation in pregnancy following cervical Caesarean section, it is essential that the patient be kept under close medical supervision during both pregnancy and labour.

430. Induction of Labour by Pituitrin.

M. H. G. A. THOLEN (*Nederl. Tijdsch. v. Geneesk.*, February 6th, 1926, p. 526) states that A. Stern in 1920 drew attention to the value of the administration of castor oil by mouth, followed by intramuscular injections of very small quantities of pituitrin, for inducing labour in women at or beyond full term. Tholen employs the following method in his clinic at the Hague. The patient is given two spoonfuls of castor oil and two hours later 0.1 c.cm. of pituitrin intramuscularly. The injections are repeated hourly until labour pains occur regularly; not more than five injections of 0.5 c.cm. are given. Tholen used this method in 48 patients, of whom 17 were primiparae and 31 multiparae. In 3 of the primiparae the membranes were broken and in 14 intact, and of the multiparae 11 had their membranes broken and 20 intact. In 76 per cent. of the primiparae and 77 per cent. of the multiparae a favourable result was obtained. Patients who had not reached full term showed only false pains, and sometimes the uterus did not react at all.

431. Pulmonary Tuberculosis and Pregnancy.

E. W. BRIDGMAN and V. NORWOOD (*Bull. Johns Hopkins Hosp.*, February, 1926, p. 83), having examined 14,000 obstetrical histories, report that among these patients 134 were found to be suffering from pulmonary tuberculosis. They obtained no evidence that pregnancy increased the incidence of tuberculosis, though it seemed probable that gestation and the puerperium might be a final factor in the breakdown of the patient's resistance. The authors point out that when it is remembered that the child-bearing age corresponds with the age period at which pulmonary tuberculosis ordinarily appears, and that the female incidence rate at this age is below the male, except between the ages of 20 and 30, it seems likely that the association of tuberculosis and pregnancy is largely accidental. Of the 134 patients the diagnosis was not finally confirmed in 50, and in 17 pregnancy was associated with definite but inactive pulmonary disease, unilateral in 10 cases. Ten patients were still alive six to twelve years after delivery; one had two recrudescences of the disease (one year and two years after delivery), and one had four subsequent pregnancies within five years, during which her tuberculous lesions remained quiescent, though eleven years later she went to a sanatorium. Another patient

developed active tuberculosis four years after delivery, requiring sanatorium treatment, but two years later she was again in good health. Of the 10 patients 7 were quite well from six months to five years after delivery, and all except 2 of the 17 patients had full-term children. These patients were all in poor circumstances, but the majority were not made worse by pregnancy, nor did they subsequently require treatment. In 31 cases pregnancy was associated with active tuberculosis; the short time between the onset of this disease and the pregnancy excluded 11 from consideration, but of the remaining 20, 2 were improved, 8 unimproved, and 10 had died one year after delivery. These figures, compared with those of tuberculosis in non-pregnant women, indicate a 10 per cent. worse prognosis, and it is not disputed that the occurrence of pregnancy in patients with active tuberculosis is disastrous. In a fourth group of 12 cases pregnancy was associated with tuberculosis, and therapeutic abortion was performed between the second and third months. Three patients could not be traced beyond two weeks subsequently, but of the remaining 9, 2 were living and improved at the end of one year; 2 living, but unimproved; and 5 had died within one year. It is suggested that operative procedures make the prognosis worse. In 19 cases pregnancy and tuberculosis were associated with other diseases, such as syphilis, chronic nephritis, and morbus cordis. The prognosis in such conditions was uniformly bad. The authors add that where the tuberculous lesion is fibroid, and has been quiescent for at least three years previously, the risks of pregnancy are not prohibitive if suitable rest and freedom from household duties are obtained.

432. Complete Post-partum Uterine Inversion.

J. SARF (*Presse Méd.*, February 17th, 1926, p. 212) records a fatal case of this rare complication, which occurs, according to various Continental authorities, once in 180,000 to 400,000 cases. Sarf believes that although it is a rare complication it is encountered more frequently than this. He advises that its possibility should be borne in mind in every abnormal delivery. Sarf's patient was a primipara, aged 19, and labour lasted for about eighteen hours, no instrument being used. Half an hour after the birth of the child the placenta was in the vagina and its delivery was attempted by slight traction on the cord. A bulky tumour, to which the placenta was adherent, appeared suddenly at the vulva. There was severe haemorrhage and alarming symptoms of shock. Half an hour later the placenta was peeled off, the aorta was compressed, and the inversion completely reduced. In spite of subcutaneous injections of camphorated oil and an intravenous administration of 500 c.cm. of physiological serum, the patient failed to rally and died three and a half hours after the birth of the child.

433. Formation of an Artificial Vagina.

R. FRANZ (*Zentralbl. f. Gynäk.*, February 27th, 1926, p. 545) states that between 1904 and 1923 the mortality was one in five among fifty-three operations for the formation of an artificial vagina by the method of Haeberlin, Baldwin, and Mori. In this operation a piece of small intestine is made to serve the purpose of the congenitally absent vagina. An equal number of cases were operated on between 1911 and 1923 by Schubert's method, in which the large intestine is similarly utilized. Cases of congenital absence of the vagina in which more than the rudiments of a uterus are present are rare, and in only four cases has a haematometra been implanted into an artificial vagina derived from the large intestine; of these, two patients died, one had a vagino-colic fistula, while one operation was entirely successful and pregnancy followed. O. S. PARSAMOW (*ibid.*, p. 550) records the case of a married woman, aged 23, in whom an artificial vagina was constructed from a piece of small intestine. Three years later the vagina was found to be 9 cm. long and there was no sign of dyspareunia. The patient in the meantime had married again, and the second husband was unaware that an operation had been performed, or that the patient did not menstruate.

434. Pernicious Anaemia and Pregnancy.

DEVRAIGNE and G. BLUM (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, No. 2, 1926, p. 114) describe a case of pernicious anaemia which proved fatal in the fifth month of gestation. The patient had had an early miscarriage four months after her marriage in August, 1923, but menstruation had since been regular until April, 1925. Pallor and debility came on insidiously, and the patient was admitted to hospital in September, when the blood examination showed a typical picture of pernicious anaemia. The Wassermann reaction was negative. Abortion followed three weeks later. No other pathological condition was found at the necropsy though only four months had elapsed between the onset of the disease and its fatal termination.

Pathology.

535. The Cerebro-spinal Fluid in Encephalitis Lethargica.

A. HANCOCK (*Journ. Ment. Sci.*, January, 1926, p. 58), in an investigation of twenty-three cases in the chronic stage of this disease, the duration varying from five years to four months, found the Wassermann reaction always negative. Pandey's test for globulin was positive in one case of five years' duration, and of the Parkinsonian type; two other cases showed faint reactions, but twenty of the series were negative. Only five cases showed a protein content above 40 per cent. The colloidal gold reaction (Lange) showed some change in ten of the twenty-three fluids examined; these changes were in all cases slight—usually "1" or "2"; in one case only was a change up to "3" shown. The sugar content was estimated in nineteen of the fluids, the method employed being Calvert's blood-sugar method adapted for cerebro-spinal fluid. In 58 per cent. of the cases the sugar present was above 0.05 per cent. (0.04 to 0.06 per cent. being the normal). In no case was the figure lower than 0.05 per cent. Hancock thinks that the importance of these figures lies chiefly in the fact that the sugar does not in any case show a decrease in amount, as is the case in tuberculous meningitis. The chlorides present were estimated in sixteen of the cases. No great variation from the normal 0.70 to 0.76 per cent. was found, as contrasted with tuberculous meningitis, where the figure is usually below 0.60 per cent.

536. Rare Fungus Infections.

L. BELLUCCI (*Arch. Ital. di Otol., Rinol. e Laringol.*, January, 1926, p. 1) reports three cases of mycosis in oto-rhino-laryngology. The first was a case of *Acremonium potronii* infection of the tonsil—an exceedingly rare condition. The patient was a woman, aged 35, who suffered from frequent attacks of peritonsillitis. On examination the right tonsil was found to be much reddened, swollen, and covered with small yellowish-white spots. Some were situated at the mouth of the tonsillar crypt, some in the tissue, but superficially placed; the majority were found on the upper pole of the tonsil. The uvula and the pillars were infiltrated and red, the left tonsil was quite normal. A bacteriological examination revealed the presence of fine filaments, and culture showed a profuse growth with folded surfaces of a transparent pinkish colour which was identified as *Acremonium potronii*. The condition did not respond to treatment with glycerin of iodine and recurred after destruction by the galvano-cautery. It finally yielded to treatment with potassium iodide. In the second case on three separate occasions cultures were made from the crusts of a typical long-standing case of ozaena. The fungi found were numerous colonies of *Penicillium crustaceum*, colonies of other *Penicillia*, *Aspergillus glaucus*, *Sterigmatocystis nigra*, and, on one occasion, *Oospora*. The author remarks that *Penicillium* is difficult to recognize by means of an ordinary microscopic examination, but the presence of *Sterigmatocystis nigra*, which can be easily identified, shows the genus of mycelium to which the infection belongs. The third case was that of a man, aged 25, who complained of pain, tinnitus, and deafness in the left ear following rheumatism. He had treated himself with hydrogen peroxide, which had cured the pain but gave rise to a febrile condition and discharge from the ear. The mastoid was not tender. The external meatus was red and sore to the touch, and there was a perforation of the postero-inferior quadrant of the drum. Small yellowish-white spots were seen on the lining of the meatus. Cultures were therefore made and *Sterigmatocystis nigra* was found. Treatment with potassium iodide was completely successful.

537. Ultra-violet Radiation and the Alkali Reserve of the Blood.

C. DE GHELDERE and M. DE ROOVER (*C. R. Soc. de Biologie*, March 26th, 1926, p. 784) have found that ultra-violet light exerts an influence on the alkali content of the blood. Rabbits, whose backs had been shaved, were exposed in a small cage to a mercury vapour lamp 20 cm. away; the lamp was of the Hewitt pattern, and was running under 120 volts and using 5 amperes. Specimens of blood were taken at intervals from the marginal vein of the ear, liquid paraffin being used to protect them from the air. The blood was centrifuged at high speed for ten minutes; 0.5 c.cm. of the serum was then titrated by the method described by Bouckaert. The animals were kept fasting for some hours prior to the exposure, and were secluded in a dark room so as to avoid the effects of daylight. Neither fasting nor obscurity had any influence on the alkali reserve, as tested by preliminary experiments. The exposure of a rabbit for three hours under the conditions described resulted in a marked fall of the alkali content of the blood. In a typical experiment 0.5 c.cm. of serum before irradiation neutralized

1.37 c.cm. of N/100 sodium bicarbonate solution; after three hours' exposure it neutralized 1.03 c.cm. and an hour later only 0.83 c.cm. Recovery of the normal titre was complete in twelve to forty-eight hours. Control animals, screened from the light by lead or glass, remained unaffected. Ordinary daylight apparently had no action on the alkali reserve. From these facts, and from the circumstance that a fall in voltage deprived the light of its action, the authors conclude that the lowering of the alkali content of the blood is a function of the wave-length employed.

538. Propagation of Foot-and-Mouth Disease.

C. KLING and A. HÖJER (*C. R. Soc. de Biologie*, March 12th, 1926, pp. 613, 615, and 618) have investigated the epidemiology of foot-and-mouth disease in Sweden, with particular reference to its mode of transmission. Since 1875 there have been twelve outbreaks; the last one, which started in November, 1924, is still in progress. Up to May, 1925, no fewer than 4,000 herds of cattle had been attacked. About 90 per cent. of the outbreaks in this last epizootic have commenced in the urban areas—that is, within a radius of 20 kilometres round the eight largest towns. The larger farms have suffered far more frequently than the smaller ones. From careful examination of the available evidence they conclude that infection is not carried by the air, nor by imported foodstuffs, nor, as a rule, by infected cattle, since the movement of animals is severely restricted. The earliest outbreaks have occurred round the four chief centres of population—Helsingborg, Kevlinge, Malmö, and Ystad; and it was shown that twenty-nine of the thirty-three farms that were first attacked had been in relation with these towns immediately preceding the outbreak. This incidence in close connexion with the main centres of traffic leads the authors to conclude that infection is carried by man. The further spread from the primary to the secondary centres is likewise explicable on this hypothesis. The evidence suggests that the virus gains access to the mucosae, on which it can remain viable for some days, man being a healthy carrier of the disease. It seems very unlikely that the virus is capable of being carried on the clothes. Occasionally man is himself a victim of the disease; this possibility has been demonstrated experimentally as well as naturally. After recovery his blood contains virulicidal antibodies, which have been used to prove the nature of the infection. Most of the carrier incidence is thought to be due to the consumption of infected milk, not to contact with infected cattle; but it appears probable that infection may occur from one healthy human carrier to another. These carriers are the chief method by which the disease is spread amongst cattle.

539. The Inheritance of Acquired Immunity.

O. HERRMANN (*Zentralbl. f. Bakt.*, March 1st, 1926, p. 81) has made experiments on the inheritance of acquired immunity to rabies in rabbits. It was found that the young were often immune, even when born as long as three and a half months after the active immunization of the mother had been completed. Such animals resisted the subdural inoculation of street virus; but the number of young that were immune depended on whether one or both of their parents were immune. When the mother alone was immune about 33 per cent. of the young proved to be resistant to the virus. When both father and mother were immune about 88 per cent. of the young were resistant. The experiments from which these results were obtained were, however, not strictly comparable. In the first series pregnancy did not supervene till some time had elapsed since the active immunization of the mother; in the second series pregnancy occurred during the course of immunization. No relation was found between the immunity of the young and the colour of their hair. The results are not sufficiently numerous to determine whether the inheritance of acquired immunity followed the Mendelian law, but the author thinks that they favour this interpretation.

540. A Mycological Test for Sugar in the Urine.

A. CASTELLANI and F. E. TAYLOR (*Journ. Amer. Med. Assoc.*, February 20th, 1926, p. 523), who have previously reported that the classical yeast fermentation test for glucose is not specific, since ordinary samples of yeast will ferment levulose, maltose, galactose, saccharose, lactose, and other carbon compounds as well as glucose, now give further details of the mycological test which they recommend in its place. For the identification of glucose in the urine they suggest using a fungus (*Monilia balcanica*) which only ferments glucose; *Monilia krusei*, which ferments only levulose in addition to glucose, may be used if the former fungus is not obtainable. The mycological test can be used further to differentiate a mixture of carbohydrates in the urine, and a tabular classification of the action in this respect of various fungi and bacteria is given. Reference is made to the authors' article in the *BRITISH MEDICAL JOURNAL* (1917, vol. II, p. 855), which describes the test in detail.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

441. The Mechanism of the Cardiac Rhythm.

E. DONZELOT (*Presse méd.*, February 17th, 1926, p. 211) criticizes the generally accepted theory that cardiac rhythm originates in a single impulse provided by the sino-auricular node situated at the junction of the superior vena cava and the right auricle and the atrio-ventricular node situated in the septum in the auriculo-ventricular region and prolonged as the bundle of His. Donzelot suggests that these septal structures act as an accessory node or centre, and that in cases of injury or disease of the sino-auricular or atrio-ventricular node or the bundle of His, causing interruption of conduction, this accessory centre can initiate rhythmic impulses and thus prevent ventricular paralysis. But this rhythm, peculiar to the ventricles, is itself subject to more or less prolonged blocks which cause serious disturbance arising from ischaemia of the nerve centres (vertigo, syncope, epileptiform crises, resulting in the Stokes-Adams syndrome). Hence appears the necessity for the third hypothesis, which regards the pneumogastric nerve as an important factor in this problem; this nerve contains inhibitory (depressor) fibres which are the conductors of sudden inhibitory impulses resulting in prolonged and quite definite ventricular arrest. Moreover, the pneumogastric fibres pass from auricle to ventricle, following the course of the bundle of His. A fourth hypothesis explains how, if that bundle is severed by a lesion, the inhibitory fibres can still arrest ventricular contraction. It has been found that the nerve fibres are more resistant than the neuro-muscular tissue of the bundle of His, which may be destroyed while the nerve fibres in close proximity still retain their conductivity. The author rejects the theory of a single stimulus; he believes that the cardiac rhythm is produced by two independent stimuli—one auricular, the other ventricular. Further, these two stimuli are normally regulated by certain factors, among which variations in intracardiac pressure play a predominant part. These automatic auricular and ventricular structures are stimulated by variations of intracardiac pressure, playing the part of condensers, and interposed between the intracardiac nervous system and the contractile fibres. Finally, the sensitiveness of these different structures—nervous, connecting, and contractile—is itself regulated by the intensity and rapidity of the exchanges between the cells and the blood in the coronary circulation, and by the tone of the vago-sympathetic system. To sum up, the only direct connexion between the auricular and the ventricular systoles is the stroke of the auricular pump which enables the ventricles to attain, almost instantaneously, the internal pressure which determines the sudden contraction.

442. Sequels of Insulin Treatment.

A. T. B. JACOBSEN (*Ugeskr. f. Læger*, January 21st, 1926, p. 66) has studied the records of some 45 diabetic patients treated in hospital over a period of more than two years. There were 8 deaths, one of which was due to abscesses caused by the insulin, and 3 of which were due to coma. Of the survivors, 7 had been comatose and 4 had been threatened by coma. Yet the survivors were fit for work; only 2 complaining of a much reduced capacity. With regard to the amount of insulin required by the survivors, some still required the original dosage and others could manage on less, but, as a rule, in severe cases it had been found necessary to increase it. In several of the moderately severe cases the patients had become tired of the injections and had discontinued them for months, but had had to return to them, taking about two injections a week. While abscesses were frequent when solid insulin was used, they had become rare since the introduction of liquid insulin. These insulin abscesses increased the concentration of sugar in the blood and provoked glycosuria and acidosis: two patients had to be admitted to hospital with coma resulting from insulin abscesses. In only one case was severe poisoning from an overdose of insulin observed. C. HOLTEX (*ibid.*) has studied the fate of 73 diabetics treated in hospital with insulin before October, 1924. There were 17 deaths, all of which occurred from a few hours to four weeks after the institution of insulin treatment. All were complicated cases, the complications being such conditions as pneumonia and heart disease. Of the 56 patients who were discharged, 10 were able to discontinue the insulin, while 46 had to continue it at home; of these 4 had died and 4 could not be traced. The surviving 38 were still fit for work.

Sea-Sickness.

443. R. RIBOLLA (*Journ. Trop. Med. and Hygiene*, February 15th, 1926, p. 59) discusses the pathogenesis of sea-sickness. He accepts a modification of Nolf's theory, and concludes that the condition is a functional disturbance due to hyperaemia of the vestibular apparatus, produced by the constant changes in the position of the body on the ship in movement (movements which have an opposite direction in pitching and rolling) by which at first the semicircular canals and the endolymph simultaneously follow the movements of the body, but when the movement is in the opposite direction the endolymph continues to be carried in the direction produced by the first impulse and then goes inversely to the movements of the semicircular canals. Thus the endolymph impinges on the ampullae and stimulates the vestibular nerve; the vagus nerve is stimulated reflexly and vertigo results. This does not exclude the view that the automatic centres of equilibration of the body are also concerned in part, sea-sickness being a phenomenon of consciousness, and absent in sleep. On this theory Ribolla advocates the use of vagal sedatives and the introduction into the external ear of tampons to produce local ischaemia.

444. Duration of Infectivity in Measles.

E. REDLICH (*Klin. Woch.*, January 29th, 1926, p. 185) states that the discordant views expressed by various authorities as to the duration of the infectivity of measles has induced him to record his observations at the Lemberg children's clinic on the occasion of prophylactic inoculation of children against measles with Caronia's vaccine. He found that while the prodromal stage was highly contagious, twenty-four hours after appearance of the eruption none of the children exposed to infection developed the disease. The objection that the children were insusceptible owing to a previous attack did not hold good, as they subsequently contracted the disease after exposure to infection by children in the prodromal stage.

Surgery.

445. Osteomyelitis of the Frontal Bone.

A. E. BULSON (*Journ. Amer. Med. Assoc.*, January 23rd, 1926, p. 246) calls attention to osteomyelitis of the frontal bone as a complication of frontal sinusitis. Of 55 cases recorded in the literature 28 occurred as a complication of chronic suppuration, with 21 deaths, and 27 as a complication of acute suppuration, with 16 deaths. Of the 28 complicating chronic suppuration the osteomyelitis was subsequent to operative intervention for the sinusitis in 20 cases, while of the 27 acute cases osteomyelitis was discovered at the operation in 18. Three of the acute cases were fulminating and developed coincidentally with the acute sinusitis; they were all fatal. Pneumococcal and streptococcal infections ran the most violent course, were most difficult to control, and were most liable to end fatally. The disease may extend to the temporal, parietal, and occipital lobes, and, while operation for the removal of the disease focus may sometimes result in complete recovery, the relief is usually only temporary, since fresh foci may appear. The best results followed open treatment, with ventilation and drainage after thorough removal of all diseased bone, and the local use of mercuriochrome. Bulson adds that once the disease has become established radical resection of the whole area of the diseased bone, extending beyond the obvious limits of the disease, affords the only means of cure, and in doubtful areas it is safer to remove bone than to leave it.

446. Fatal Maxillary Necrosis in Chronic Benzol Poisoning.

J. LÖWY (*Med. Klin.*, March 12th, 1926, p. 404) has found records of thirty-one fatal cases of benzol poisoning prior to 1925. The main clinical manifestations are stated to be numerous subcutaneous and submucous haemorrhages resembling those of scurvy, with anaemia, leucopenia, and lymphocytosis. Löwy now reports the case of a motor-tyre repairer, aged 43, who had followed his trade for eighteen years. He used a rubber paste containing benzol and other chemicals as well as carbon disulphide. Two or three weeks before his admission to hospital the patient had had pain and swelling of the right cheek, with tenderness on pressure over the superior maxilla; later symptoms were right amblyopia, vertigo, anorexia, and pyrexia. He had been very pale for two months.

The urine contained albumin, urobilin, and urobilinogen. The pupils were equal and reacted briskly. Over the right superior maxilla there was a definite tender swelling extending to the zygoma and the inferior maxilla, with fluctuation on pressure. The breath was very fetid, the teeth were defective and septic, and three upper molars were loose. Many submucous haemorrhages were present. There was some dullness at the right pulmonary base with generalized râles. The area of cardiac dullness was normal, but a loud apical systolic bruit was heard. The liver was enlarged and tender. A skiagram showed that the outlines of the right antrum were obscured and an ophthalmoscopic examination showed retinal haemorrhages. The viscid sputum contained reddish-brown flakes and many Gram-positive cocci; no tubercle bacilli were found. The blood pressure was 82 mm. Hg. The blood picture showed a great deficiency of erythrocytes and haemoglobin, with leucopenia and a definite leucocytosis. Death occurred from heart failure. The necropsy showed profound anaemia, fatty degeneration of the heart muscle and of the liver, septic osteitis of the right superior maxilla, antral empyema, aspiration pneumonia, pulmonary oedema, and gangrene, with acute splenitis. Löwy points out that this case clearly indicates that maxillary necrosis may occur in benzol workers as well as in those who handle phosphorus and mercury. The septic condition of the teeth greatly aggravated the initial gingivitis set up by the inhalation of the poisonous vapour, and the three loose upper molars were the route by which the septic infection travelled to the maxillary antrum.

347. Splenic Abscess in Typhoid Fever.

C. MOREL, C. DAMBRIN, and J. TAPIE (*Ann. de Mèl.*, January, 1926, p. 5), who report a case in a woman aged 27 successfully treated by operation, state that since the first case recorded by Lemaistre in 1848 only thirty cases of splenic abscess in typhoid fever have been published. The complication is not peculiar to severe forms of typhoid fever, but may occur in moderate or even mild cases. The date of its appearance ranges from the third week to a long time after apparent recovery from the disease. Bacteriological examination of the contents of the abscess has not always been made, but the typhoid bacillus has always been found when it has been carefully looked for. The abscess is usually situated in one of the poles of the organ, and almost always the upper pole. The abscess may be single, but multiple abscesses are not exceptional. The size of the abscess varies from that of a hazel-nut to that of two fists. Pain is a constant symptom, whether spontaneous or caused by palpation only, continuous or paroxysmal. Its violence explains the dyspnoea and immobility of the base of the thorax on one side. Fever may be continuous or intermittent. The abscess may invade the pleura and lungs or give rise to peritonitis or rupture into the colon. As regards the diagnosis, splenic abscess must be distinguished from abscess of the abdominal wall, pyonephrosis, subphrenic abscess, and empyema. Radiological examination will often clear up the diagnosis, but exploratory puncture is not of great value. Of thirteen patients treated by operation only one, reported by Rokitsky, died, a splenectomy having been performed; all the others, treated by splenotomy, recovered.

348. Abscess of the Larynx.

J. C. SCAL (*Med. Journ. and Record*, February 3rd, 1926, p. 182) reports three cases of abscess of the larynx, two of which ruptured spontaneously and the other was cured by incision. He states that the condition is usually idiopathic, though trauma of the larynx, inhalations of noxious vapours, and exposure to wet and cold have also been cited as causes. In children it may be due to infectious diseases and be mistaken for retropharyngeal abscess. The symptoms are a choking sensation, hoarseness, pain on swallowing, dyspnoea, and general malaise. The usual site of the abscess is the anterior surface of the epiglottis, the aryepiglottic folds, or the arytenoid cartilage. Rapid recovery is usual after rupture or opening of the abscess, but the condition must always be considered serious, since it may lead to asphyxia, involvement of the lungs or mediastinum, or septicaemia.

349. Periarterial Sympathectomy.

G. M. GUREWITSCH (*Zentralbl. f. Chir.*, February 27th, 1926, p. 521) refers to the employment of periarterial sympathectomy in tuberculosis of joints, and also in the case of fractures. It has been attempted in epilepsy and migraine, although the etiology and pathology of these diseases are unknown, as are also the anatomical and physiological bases of the operation itself. After reviewing the recent literature, the author describes a theory of segmental vascular innervation, and relates the case of a pale but well built boy, aged 16, who had had chronic ulcers of both legs for more than a year. Leriche's periarterial sympathectomy was performed on both

femoral arteries. At first the ulcers showed rapid improvement, but this was not maintained, and it was subsequently found that at the sites of operation the arteries were surrounded by dense scar tissue, with adhesions to the neighbouring muscles. In other cases more or less extensive necrosis of the arterial wall at the site of operation has occurred. Gurewitsch concludes that periarterial sympathectomy is so uncertain in its ultimate results that it is contraindicated in all diseases.

Therapeutics.

450. Treatment of Acute Chorea.

DEREUX (*La Vie Méd.*, March 5th, 1926, p. 393) observes that chorea is an organic nervous disease with an infectious origin. Three infections may induce an attack—namely, acute articular rheumatism, hereditary syphilis, and lethargic encephalitis. The treatment of acute chorea depends upon the nature of the infection. Most cases in children are due to rheumatism, usually to an acute rheumatic arthritis. These require the administration of large doses of chemically pure sodium salicylate, especially if arthritis or endocarditis is present. Dereux finds that children can take the usual adult doses, intolerance being most frequently due to impurity of the salt; it should be dissolved in alkaline fluids and its elimination in the urine be tested with ferric chloride. If rejected by the stomach, sodium salicylate should be given by the rectum; or, in very serious cases, it may be injected intravenously. The treatment must be continued for some time after apparent cure. Aspirin is sometimes useful, as an alternative, and arsenic has been largely employed, either in the form of arsenious acid (in 1 in 1,000 aqueous solution) or organic arsenical compounds. Arsenious acid should be given in rapidly increasing doses, commencing with the equivalent of 10 mg. and increasing the dose to 25 or 30. Toxic symptoms may occur at this stage, when the doses should be reduced gradually to the initial amount. Hutinel and Babonneix never give arsenic to children under 6 years of age; they never give larger doses than 15 mg. Dereux advises that the child should be under constant medical supervision, confined to bed, and restricted to a milk or milk and vegetable diet. The arsenic may also be given mixed with fresh butter and spread on bread, when it is usually well tolerated. Such organic preparations as sodium cacodylate or methyl arsenate are sometimes useful, and arsenobenzol has been used very successfully; it should be given intravenously, 10 to 20 cg. every six days being the average dose. Antipyrin is sometimes useful, but is contraindicated by renal disease; sedatives recommended include chloral, bromides, and camphor monobromate. Warm baths and wet packs have a sedative effect. Dereux adds that chorea is an obstinate disease, which frequently recurs unless treatment is continued long after apparent cure. Many French authors believe that it may have a syphilitic origin. The chorea of pregnancy is frequently a recurrence of that of childhood, though some cases are due to lethargic encephalitis.

451. Tryparsamide in Neuro-syphilis.

P. A. O'LEARY and S. W. BECKER (*Med. Journ. and Record*, March 3rd, 1926, p. 305) record observations upon 207 cases of neuro-syphilis, 113 of which were treated with at least two full courses, each of ten injections, of tryparsamide. From 1 to 3 grams were administered at weekly intervals in conjunction with potassium bismuth tartrate and 0.2 gram of butyn every five days, or with mercury succinimide, 1/6 to 1/4 grain five times a week for six weeks, or with mercury salicylate, 1 to 2 grains once a week. If the interval between the courses was two months or less no other treatment was given, but if longer, mercurial inunction was used. While the drug appeared to be of value in the treatment of the parietic type of parenchymatous neuro-syphilis, it was not found to be as successful as the treatment of general paresis with malaria, but the authors recommend it for patients unsuitable for the latter treatment. As the result of observations based upon subjective and serological improvement they are of opinion that certain patients with early paresis are markedly benefited by tryparsamide. In seven cases a complete return of the spinal fluid reactions to normal occurred, but without any associated clinical improvement, and it was not possible by clinical and serological criteria to determine beforehand which patients with paresis would improve. The intramuscular injection of bismuth in connexion with tryparsamide appeared to give better results than those obtained by either drug given alone. The authors consider that tryparsamide is a valuable aid in the treatment of early general paresis in view of its low cost, availability, and small percentage of complications and reactions.

452. **Insulin in Suprarenal Insufficiency.**

G. MARAÑÓN (*Arch. de med., cir. y esp.*, January 23rd, 1926, p. 145), who records several illustrative cases, comes to the following conclusions. Suprarenal insufficiency gives rise to a special hypersensitiveness with regard to insulin, severe and even fatal symptoms occurring in subjects of Addison's disease after apparently harmless injections of this drug. This hypersensitiveness bears no relation to the general condition of those suffering from Addison's disease, since it does not occur in other states of cachexia even when the blood pressure and glycaemia are low. Evidence of antagonism between adrenaline and insulin suggests that the deficient secretion of adrenaline is the cause of this hypersensitiveness. The physiological remedy of these symptoms, therefore, appears to be adrenaline. There is a striking clinical resemblance between the syndrome of hypoglycaemia following injection of insulin and certain severe symptoms occurring spontaneously in the last stage of Addison's disease, which suggests that a sudden hypoglycaemia may play a part in the production of the so-called "Addisonian encephalopathy." Recent observations made by Marañón showed that in patients who died of diabetic coma in spite of insulin treatment, which had caused a disappearance of hyperglycaemia and acidosis, there were severe lesions in the suprarenals. This factor, therefore, should be considered in cases in which coma develops after cure of the acidosis, as has been recorded by Campbell, Weinberger, and Marañón himself.

453. **Antimony Trichloride in Lupus.**

J. DARIER (*Bull. de Derm. et de Syph.*, February, 1926, p. 72) recommends for rapid improvement of old-standing but not extensive lupus the use of an elective caustic, and suggests the following formula: Freshly prepared antimony chloride 2 grams, salicylic acid 2 grams, official creosote 4 grams, novocain 4 grams, lanoline 8 grams. This is rather milder than Unna's "green pomade." If the lupus has not already ulcerated, the epidermis should be removed with the galvanocautery or by light curetting. The ointment is applied every other night in a layer as thick as a knife-blade, being washed off in the morning with sterilized water and replaced by zinc ointment. Darier claims that usually fewer than ten applications are needed, and that in thirty years' experience he has had very few relapse cases, although patients have to be watched at first for early recrudescences.

Dermatology.454. **Etiology of Recklinghausen's Disease.**

P. DOTTI (*Bull. del. Sc. Med.*, November-December, 1925, p. 337), who records numerous illustrative cases, maintains that Recklinghausen's disease is much more frequent than the cases published would indicate, as among 170 patients at the hospital for chronic diseases at Bologna he had found ten complete forms (cutaneous pigmentation and neurofibromata) and four cases with neurofibromata only. The theories put forward to explain the pathogenesis of the disease are as follows: (1) Feindel's embryonic theory, which is based on the common ectodermic origin of the nervous system and the skin. According to this theory the coexistence of changes in both these systems is regarded as a developmental anomaly of the ectoderm at a very early stage of embryonic life. In support of this view is the frequent occurrence of hereditary and familial forms. (2) Recklinghausen's infective theory, according to which the disease is due to the action of a micro-organism on the nerve trunks, in the same way that leprosy is caused by Hansen's bacillus. (3) The endocrino-sympathetic theory, according to which the disease is due to affection of some gland of internal secretion, especially the suprarenals, or of the sympathetic, or of both. Dotti's experience supports the embryonic theory, as in five of his cases the disease assumed an hereditary and familial form; in three instances it appeared in three generations, and in two in two generations. Another argument in favour of the embryonic theory was that in one family skeletal malformations and congenital lesions in the form of mitral stenosis, angiomas, and craniofacial asymmetry were present.

455.

Eczema.

H. C. MARTIN (*Med. Journ. of South Africa*, January, 1926, p. 155) calls attention to the psychological factor in the causation of eczema, realising that the possible external irritant there the really eczematous factor, characteristics generally of an anxious and worrying disposition. Another internal factor which may be present is toxic, including such poisons as gout and rheumatism, and others of intestinal origin. Martin describes his own experience as

a sufferer since 1908, with a period of eight years' immunity following x-ray treatment. Recurrence followed a period of worry and anxiety, combined with the injudicious use of antiseptics. The x-ray treatment consisted of a small dose weekly, then fortnightly, and then monthly; at the end of a year the condition was apparently cured, and remained so for eight years. His experience has convinced him of the necessity for early and vigorous treatment, and that in intractable cases remaining unchanged for over a year, in spite of ordinary treatment, recourse should be had to x rays or ultra-violet light. He adds that if the condition is allowed to drift the psychological factor, with its feeling of despair, will diminish the chance of cure. He does not consider any restriction of diet necessary, except as regards pickles, sauces, and salt, which latter he found especially harmful; the prohibition of alcohol in the case of a patient who is moderate and who has been accustomed to it for years he regards as harmful.

456. **Symmetrical Dysmenorrhoeic Dermatitis.**

J. TRAGANT (*Rev. med. de Barcelona*, December, 1925, p. 538), who reports an illustrative case, states that since Matzenauer and Pollard first described this disease in 1912 not many examples of it have been recorded. The first thing noticed by the patient is an intense burning sensation in the part affected. The eruption consists of a moist dermatitis, an articular erythema, or a spontaneous necrosis. Any part of the body may be attacked, but only exceptionally the scalp, as in Tragant's case. Matzenauer and Pollard attribute the disease to passage into the blood of toxic metabolic products due to lesions of the ovarian follicles. Kreibich, on the other hand, believes that the lesions have an angio-neurotic basis. Tragant's patient was a woman, aged 46, who suffered from a mild form of the disease from the age of 14 to 18, but after ovariectomy for bilateral annexitis at the age of 31 she had a more severe attack, which was not affected by ovarian treatment.

457. **Ringworm of Scalp in the Adult.**

H. FOX (*Arch. Derm. and Syph.*, March, 1926, p. 398) reports a case of ringworm of the scalp in an adult, and remarks upon the rarity of this condition; he has been able to collect records of only 53 cases, of which three were in his own practice. He believes that cases may be overlooked by failure to use the laboratory; in his own cases the clinical diagnosis was confirmed by microscopic examination and culture. The case described occurred in a coloured domestic servant, aged 25 years. She gave a history of circinate eruption of the neck two months previously, which had cleared up at once with iodine treatment. A week later, however, the eruption occurred on the occipital region and presented the appearance of a pustular ringworm of the kerion type. Cultures proved the infection to be due to *Microsporon audouinii*, an organism which is not usually pyogenic. The author's two previous cases were also in negroes.

Obstetrics and Gynaecology.458. **Retroversion of the Gravid Uterus.**

LAURENTIE (*La Vie Méd.*, February 19th, 1926, p. 281) states that retroversion may occur under two distinct conditions. In the first of these the uterus is primarily retroverted, and pregnancy is a secondary development. Retroversion of the uterus is not an absolute cause of sterility, especially if it is not associated with congestion or inflammation of the uterus or adnexa, or fibrous degeneration of the uterine wall, or sclero-cystic changes in the ovaries. In the second condition the uterus is primarily in a good position and retroversion is secondary, the large size of the pelvis and looseness of the ligaments being predisposing causes. One of four events may ensue, the first two being common, and the last two exceptional. (1) Retroversion does not give rise to any symptoms apart from some lumbar pain or, less frequently, vomiting of a severe type. Spontaneous rectification occurs in the second or third month, and pregnancy pursues a normal course. After delivery the uterus usually becomes retroverted again. (2) Abortion occurs in the second or third month, with or without retention of the placenta. (3) Incarceration of the uterus may occur after three or four months of pregnancy. The complications then are principally vesical—namely, retention of urine, haemorrhagic, purulent, or gangrenous cystitis, and ascending pyelonephritis. (4) Symptoms of incarceration are absent, and reduction of the uterus apparently takes place owing to enlargement of the anterior wall of the uterus, while the posterior wall remains fixed in the hollow of the sacrum. This is the condition of pseudo-reduction described by Pinard and Segond, Couvelaire and Potocki. As regards treatment,

reduction is not required in every case, but is necessary on the occurrence of persistent sterility or repeated abortions in otherwise healthy women. In most cases the reduction must be operative and consist in removal of adhesions and fixing the uterus in a good position. Expectant treatment includes prolonged rest in the ventral decubitus or genu-pectoral position, and frequent evacuation of the bladder and rectum. Incarceration requires evacuation of the bladder and manual reduction under chloroform. If this fails laparotomy is necessary. In cases of pseudo-reduction Caesarean section is indicated.

459. Suture of the Uterus after Caesarean Section.

W. BLAIR BELL (*Journ. Obstet. and Gynaecol. of the British Empire*, Winter No., 1925, p. 727) refers to his original article on suture of the uterine wound in Caesarean section (*ibid.*, 1921, p. 530), and now reports an improvement in the technique with a view to making uterine sutures sub-peritoneal, so as to avoid post-operative adhesions. He states, however, that uterine adhesions have been found at subsequent sections in very few cases when the operation had been performed according to his previous method. In his more recent procedure a large, slightly curved Reverdin needle is passed through the peritoneum and uterine musculature, half an inch below the angle of the incision in the uterine wall, and as deeply as possible without puncturing the lining membrane of the cavity. A fairly long strand of No. 2 tanned catgut is attached, and the needle is withdrawn. It is then passed through the musculature and peritoneum on either side of the incision from within outwards, perforating the peritoneum at points a quarter of an inch from the apertures through which the suture had first been drawn, and one inch beyond the margin of the incision. The catgut is tied and a mattress suture is then formed, with the knot within the uterine wound. The remainder of the mattress sutures are inserted similarly, a space of three-quarters of an inch being left between them. The deep parts are thus brought into apposition throughout the length of the incision. The last suture is placed in exactly the same way as the first, and includes the portion of the uterine musculature beyond the incision. If required the uterus is washed out before the last suture is tied. The middle and superficial parts of the musculature are now closed by the utilization of the long ends of catgut left after the first layer of sutures has been tied for a future series of more superficial mattress sutures. In this way the whole of the divided musculature is brought together to form a very broad strong ridge. The peritoneum is finally sutured by means of a turning-in stitch. The author believes that rupture of the Caesarean scar is due more often to faulty technique in the closure than to sepsis.

460. Treatment of Cancer of the Cervix.

L. AUBERT (*Rev. méd. Suisse rom.*, February 25th, 1926, p. 65), who records three illustrative cases in women aged 53, 44, and 34, states that the association of radium treatment with operation increases the chances of recovery from cancer of the cervix. In some cases, indeed, which at first sight appear hopeless, it allows a permanent cure to be obtained. In such cases radium by itself may produce so much improvement as to suggest a cure. Operation, however, is indicated since a recurrence is otherwise certain. More or less latent new growth which cannot be entirely sterilized by radium can be removed by hysterectomy. In two of Aubert's cases the carcinoma remained active after applications of radium, and in the third case the growth seemed to have disappeared as the result of radium applications, but subsequent histological examination showed that the recovery was not complete. Hysterectomy, therefore, was performed in all three cases and complete recovery followed.

Pathology.

461. The Phenolsulphonephthalein Test in Renal and Circulatory Diseases.

C. LUNDSGAARD and E. MÖLLER (*Acta Medica Scandinavica*, February 11th, 1926, p. 242) have investigated the renal excretion of phenolsulphonephthalein and of water in different diseases, giving 1 litre of water by the mouth at the same time as they injected 6 mg. of phenolsulphonephthalein intravenously. They have considered an excretion of 70 per cent. of the dye in the first two hours, or of water in the first four hours, after administration as the lowest limit of the normal zone. In most cases of uncomplicated cardiac disease without signs of circulatory insufficiency at rest, the excretion of the dye was below normal. The authors attribute this to a change in the renal circulation. The decrease was still more frequent and marked in heart disease with absolute circulatory insufficiency. There was more often a decreased excretion

of the dye than of water, for which reason the phenolsulphonephthalein test must be regarded as a very sensitive indicator of circulatory insufficiency, both general and renal. In essential hypertension there was a decrease in the phenolsulphonephthalein excretion which was if anything more frequent and greater than in heart disease. The cases of hypertension with absolute circulatory insufficiency showed a still greater decrease, but in 4 cases of cardiac neurosis excretion was normal. Of 18 patients with various kidney diseases the excretion and blood pressure were normal in 8; 4 of them were pure chronic nephrosis cases with only tubular symptoms. Of the 10 with decreased excretion 2 had normal blood pressure but had greatly decreased water excretion; the remaining 8 all had hypertension. Two patients with orthostatic albuminuria had normal excretion when kept in bed and decreased excretion when up. In a series of cases it was shown that phenolsulphonephthalein does not pass over into the ascitic, spinal, hydrothoracic, or subcutaneous oedematous fluids, indicating a fundamental difference between the phenolsulphonephthalein and Strauss's water tests. The authors contest Rowntree and Geraghty's view that the phenolsulphonephthalein test is a specific renal test. Marouliis held that the test registered accurately modifications of cardio-renal equilibrium. The present authors go further and state that the test is only valid for indicating nephritis when circulatory disturbances, including arterial hypertension, can be excluded, and when the water excretion is not too diminished. Later investigations have shown that the liver is concerned also, there being decreased excretion in liver disease.

462. Differentiation of the Streptococcus Group.

N. STOLXGO (*Centralbl. f. Bakt.*, March 1st, 1926, p. 1) draws attention to the difference in behaviour of the pneumococcus and the haemolytic streptococci on heated blood agar, the former term comprising all chain-forming cocci which cause α -haemolysis on fresh blood agar plates (the pneumococci proper and the *Streptococcus viridans* type). Examining 182 cultures of streptococci of different origins from the human body, he found that 159 were able to decolorize chocolate blood agar, and gave α -haemolysis on fresh unheated blood agar; of the remaining 23, 22 gave β -haemolysis on fresh blood agar, but were unable to decolorize chocolate agar. The remaining culture was a completely non-haemolytic strain, which likewise had no action on chocolate agar. By their decolorization of chocolate agar the author thinks that the pneumococci can be certainly distinguished from the haemolytic streptococci. He considers this test even more valuable than the nature of haemolysis on fresh blood agar, for alterations that occur in the ability of strains to haemolyse fresh blood do not seem to be accompanied by any change in their action on heated blood.

463. Calcium Metabolism and Parathyroid Extract.

L. BERMAN (*Journ. Lab. and Clin. Med.*, February, 1926, p. 412) reports that by extracting the parathyroid glands of oxen with acidified water or alcohol, and removing lipins and proteins from the extract, a crystalline substance was obtained. This substance, when dissolved in Ringer's solution and injected into the circulation, was found to increase definitely the calcium content of the blood, thus supporting the theory that the parathyroid glands are concerned in calcium metabolism. When animals from which the parathyroids had been removed were treated with this substance, it was found that certain typical symptoms of parathyroid deficiency—malaise, anorexia, hyperpnoea, tremors, and tetany—were relieved. The animals were kept alive by daily injections, and died when this treatment was stopped. All these animals showed deficiency in the blood calcium content and increased nerve excitability, which was remedied by the use of the crystalline extractive.

464. Heredity and Cancer.

MAUD SLYE (*Paris Méd.*, March 20th, 1926, p. 257), as the result of investigations in mice, concludes that the resistance and susceptibility to cancer are transmitted as simple Mendelian units, as is also the site of occurrence of the lesion, but that these may be modified by selective breeding. Similar conclusions were reached as regards cancerous metastases. She states that susceptibility is the recessive character, resistance acting as a simple dominant. In mice the first cross between dominant and recessive types never produced cancerous offspring. In the mice studied chronic leukaemia sometimes appeared, and then followed the same rules of heredity. In the experimental work cancerous cachexia seemed to be due to necrosis of the growth or to secondary infection, and was not related to the size of the tumour. The growth of cancer in the mammary gland was found to be retarded by uninterrupted pregnancies, in contrast with the infectious diseases studied. No evidence was obtained that cancer is infectious.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

365. The Prophylaxis of Measles.

S. ANDERSEN and F. WULFF (*Ugeskr. f. Læger*, March 4th, 1926, p. 216) reports from the Blegdams Fever Hospital in Copenhagen the results of giving prophylactic injections of the serum of convalescents to 91 children exposed to measles in hospital. There were as many as twenty-five different sources of infection. Only 5 of the 91 contracted measles, and the immunity effected in the remaining 86 cases was the more striking as most of the children were at a very susceptible age: 49 were over the age of 3, 18 were aged between 1 and 3 years, 11 were between 6 and 12 months, and only 13 were less than 6 months of age. The duration of the passive immunity thus conferred was probably quite short, for three of these children subsequently developed measles two and a half, three, and three and one-third months after the injection of serum of convalescents. The dose of this serum found to be most suitable was 5 c.cm. for children under 1 year, 10 c.cm. for children between 1 and 3 years, and 15 c.cm. for children over 3 years. The serum was obtained by venesection of convalescent patients between the seventh and ninth days after the fall of the temperature to normal. The serum was taken and prepared at the State Serum Institute. The author concludes that this procedure is of most value in hospitals where children already admitted for other complaints can be protected from infection with measles by cases admitted by mischance. E. LENSTURP (*ibid.*, p. 218) gives an account of three aborted epidemics of measles in the Queen Louise's Hospital in Denmark. On the first occasion three cases of measles occurred on May 14th, 1925. In the same ward there were seven children who had not had, and four who had had, measles. The seven were treated with the serum of convalescents, from 5 to 10 c.cm. being injected into the muscles of the thigh; none of these seven developed measles. An involuntary control was a boy of 5 who was not given serum because, by mistake, it was assumed that he had already had measles. It transpired, after he developed measles, that this assumption was wrong. On the second occasion a child developed a measles rash in hospital. The eleven children, who had been in contact with her, were treated with serum, and ten did not contract the disease; the remaining child developed it after her return home. On the third occasion a child who developed measles in hospital had evidently been infectious for five or six days before serum was given to the seventeen contacts, twelve of whom were effectively immunized. The disease ran a very mild course in the other five cases. On none of the three occasions referred to were any ill effects from this prophylactic treatment observed.

366. The Significance of Pleurisy.

D. R. HASTINGS (*Minnesota Med.*, March, 1926, p. 114) has examined the case records of 1,182 tuberculous patients in a sanatorium and found a history of fibrinous pleurisy or of pleurisy with effusion in 55.7 per cent. Fibrinous pleurisy, he points out, may be the first symptom of pulmonary tuberculosis, and therefore pleuritic patients should be warned of this danger. He thinks that pleurisy with effusion should be considered clinically as a tuberculous process unless this etiology can be definitely excluded; treatment for tuberculosis should be undertaken at once. Apart from tuberculosis the causes of pleurisy are pneumonia, typhoid fever, nephritis, heart conditions, pyogenic infections, and new growths. In the treatment of effusion it should be remembered that since the process is probably of an immunizing origin the fluid should not be aspirated without some special indication such as the removal of a specimen for laboratory examination, the occurrence of pressure symptoms, or mediastinal displacement, delayed absorption, or the presence of an effusion on both sides of the chest. Hastings adds that empyema occurs more frequently after removal of the fluid, and that the "splitting" of a tuberculous lung by fluid gives some measure of rest to the part and may thus be beneficial to the patient.

367. Occurrence of the Sign of Duroziez.

I. MAHAIM (*Arch. des Mal. du Cœur, des Vaisseaux et du Sang*, February, 1926, p. 86) discusses the occurrence of the sign of Duroziez, an intermittent murmur in the femoral arteries, and describes the case of a workman, aged 54, who had had precordial pain and dyspnoea on effort for two years. The

arteries were tortuous and thickened, the pulse forcible, the area of cardiac dullness normal, but the second aortic sound was accentuated. In the femoral arteries there was a double (systolic and diastolic) bruit. No cardiac bruit could be elicited after exercise, whether the patient sat or lay on his back; there was considerable dyspnoea. A skiagram showed hypertrophy of the left ventricle, and the aorta was very opaque but not dilated. Subsequently Mahaim has examined a large number of patients systematically and has found the sign of Duroziez in fifteen cases. Duroziez recognized the existence of a venous systolic bruit, only present when the femoral artery is compressed lightly; rather more pressure causes this to disappear, while still greater compression produces another arterial bruit. Duroziez also described a diastolic venous bruit, present only in tricuspid regurgitation when the right auricle is dilated and hypertrophied. The sign of Duroziez is not always found in aortic regurgitation. Mahaim states that in searching for this sign it must be established that the vascular diastolic bruit is not of venous origin. Pressure with the stethoscope increases the intensity of the arterial diastolic bruit and rapidly extinguishes a venous bruit coinciding with the diastole. The exaggeration of the diastolic ascent and elevation of the systolic pressure correspond with the production of the femoral double bruit in aortic incompetence. The bruit is absent in rheumatic aortic incompetence when the systolic pressure is only slightly raised, even if the diastolic ascent is exaggerated. The bruit is chiefly heard in arterial incompetence in which both the diastolic ascent and the systolic pressure are raised. Mahaim adds that in the absence of any aortic incompetence, as shown by auscultation, the double femoral bruit is found occasionally; this is the case in hyperpiesis, when the pulse is bounding, the diastolic ascent exaggerated, with aortitis and a hypertrophied left ventricle, and secondary mitral regurgitation. Its presence in such circumstances probably indicates a functional aortic incompetence, as yet unrecognizable clinically.

368. Antityphoid Inoculation.

W. SPÄT (*Med. Klin.*, February 26th, 1926, p. 328) states that in the autumn of 1914 inoculation against cholera and typhoid fever was made compulsory in the Austrian army. About a fortnight after introduction of inoculation against cholera, the epidemic of cholera came to an end. Almost at the same time, however, there was a subsidence of the cholera epidemic in the Russian army, which had not been inoculated. The subsidence of the epidemic, therefore, could not be attributed to inoculation. No inoculations were carried out against dysentery, and its incidence, which had greatly exceeded that of typhoid fever, fell in 1915 to a fifth, and in 1916 to a tenth, of the typhoid fever cases. As regards typhoid fever, although there was a steep fall in the incidence of the disease after the introduction of inoculation, a similar steep fall occurred in the Franco-Prussian war of 1870-71 without inoculation. Similarly in the American war of independence (1860-66) the number of typhoid cases fell from year to year without inoculation. Spät, therefore, concludes that there were no grounds for attributing the decline in the incidence of typhoid fever to inoculation. On the other hand, he brings forward figures to show that inoculation may cause an increased susceptibility to typhoid fever, especially during the first three months following the operation.

Surgery.

369. Sequels of Resection of the Stomach.

M. ASCOLI (*Il Policlinico*, Sez. Chir., March 15th, 1926, p. 117), who had formerly studied the changes in the gastric chemistry after gastro-enterostomy, records his observations on the gastric chemistry of eighteen patients who had been operated on in the surgical clinic of the University of Rome. Seventeen of these had had a gastric or duodenal ulcer, and one an epithelioma of the pyloric region. The operations performed were as follows: (1) Polya-Balfour resection—7 cases, including the case of epithelioma; (2) Billroth I resection—5 cases; (3) medio-gastric resection—5 cases; (4) cuneiform resection of ulcer—1 case. With the exception of one case in which the examination was made five years after the operation, all the patients were examined from twenty to twenty-five days after the operation. The results were as follows. In the Polya-Balfour resection there was

a fall of total acidity and a complete disappearance of hydrochloric acid. These changes were attributed to removal of a certain amount of gastric surface secreting hydrochloric acid and pepsin; to entrance into the stomach of the alkaline duodenal juice as shown by the presence of bile pigment; and to rapid evacuation of the contents of the stomach. In medio-gastric resection no changes worth mentioning were noted. In the Billroth I operation two distinct changes might occur, according as the absence of pyloric alkaline secretion was accompanied or not by an absence of bile and alkaline duodenal juice.

470. A. CIMINATA (*Arch. Ital. di Chir.*, January, 1926, p. 21), having determined experimentally the absorption of fats and proteins in normal dogs, has investigated the absorption in dogs which had undergone the Billroth II gastric resection, and examined the pancreas histologically. He also studied the external secretion of the pancreas after Billroth II resection by means of a permanent pancreatic fistula. The results were as follows: (1) In animals in which the Billroth II resection had been performed the capacity for absorption of fats studied up to two months after the operation was diminished compared with that of normal animals; this diminution, however, was of slight degree. (2) The same animals showed no change in their capacity for absorption of proteins. Glycosuria was never noted. (3) Animals with a permanent pancreatic fistula showed a slight diminution of the external secretion of the pancreas for a few days after Billroth II gastric resection, but subsequently the secretion increased until by the eighteenth day the normal quantity was re-established, while the lipolytic function of the pancreatic juice did not show any change. The only modification noted was that the maximum velocity of secretion was observed from the third to the fifth hour of digestion instead of at the second hour, as is found in the stage before operation and in the normal condition. (4) The histological structure of the pancreas on examination three months after the operation did not show any changes.

471. Insulin in Surgery.

V. ORATOR (*Deut. Zeit. f. Chir.*, March, 1926, p. 57), as the result of his experience of insulin in about eighty cases at the Graz University surgical clinic, comes to the following conclusions. When an operation is indicated in a diabetic patient the urine should be made as free as possible of acetone and sugar by insulin. The operation itself should be performed without a general anaesthetic, and an intravenous injection of glucose and insulin should be given at the same time. By this means the length of the starvation periods can be reduced and post-operative acidosis prevented. Apart from the general treatment of diabetes, insulin in surgery can be employed with advantage in the following conditions: (1) Convalescence from operation in greatly debilitated persons—for example, after gastric resection, prostatectomy, and nephrectomy. (2) As an intravenous injection in association with glucose for the nourishment of cachectic patients, especially when feeding by mouth, should be restricted or stopped entirely, particularly after severe gastric resection, intestinal obstruction, and perforative peritonitis. Similar experiments with insulin in inoperable conditions, such as multiple caries, tumour metastases, and septicæmia, were ineffective. Intravenous injections of insulin and glucose proved of value in acidosis following inanition, shock, and operations. Insulin was of no avail in acidosis following pancreatic diseases and uræmia. Insulin was of value in shortening the period before operation in cases of severe Graves's disease and in hastening recovery after the operation. Orator adds that insulin is not wholly without danger for subjects of severe arterio-sclerosis.

472. Treatment of Pott's Disease in Adults.

L. BÉRARD and J. CREYSSEL (*Lyon Chir.*, January-February, 1926, p. 1) discuss the treatment of spinal caries in adults by Albee's operation and indicate how the best results may be obtained with the least risk to the patient. They advise a lateral or curved incision in preference to the median incision, since thereby pressure on the scar is avoided when the patient lies in bed. A lateral graft has also proved satisfactory in their cases, and they do not consider it necessary to use the bone grafts, one on either side. The bone graft has been taken from the tibia, and this is the strongest and best graft obtainable in their experience. A general anaesthetic was always employed and the operation divided into three stages: First of all the graft is cut with an Albee saw; it should always be of good length. The patient is then placed so that he lies on his abdomen, and the spinal site is prepared to receive the bone graft. Finally, the graft is applied to the denuded bony surface. Where the spinal curvature is very marked the graft is nicked, so that it will bend and adapt itself; it is fixed in position with catgut

sutures. The patient is kept in bed for from six weeks to two months; in bad cases a longer time may be necessary. The chief complications after operation are infection of the wound, while in rare cases the graft may become loose or even fracture. The authors find, however, that most cases have a successful issue, with no untoward result, and it is exceptional to meet with any serious complication after this operation.

Therapeutics.

473. The Treatment of Diphtheria.

H. HECKSCHER (*Ugeskr. f. Læger*, February 18th and 25th, 1926, pp. 149 and 187) analyses the diphtheria statistics of the Blegdams Fever Hospital in Copenhagen during the period 1921-25, in which 4,819 cases were treated. The cases of diphtheria of the larynx without stenosis were included in this analysis, but not the cases of genuine croup. Antitoxin was given to about two-thirds of all the cases. An attempt was made to give the serum by the intravenous route as a general rule, but the choice between the intravenous and the intramuscular routes had, in practice, to depend on the size and position of the veins in the arm, the patient's condition, and the amount of the required dose. When a large dose was required, a little was given by the intravenous route and the rest by an intramuscular injection. The amount of the intravenous doses ranged from 10,300 to 42,500 units, the minimum and maximum intramuscular injections being 27,900 and 193,000 units respectively. In two cases which terminated fatally serum disease proved a dangerous complication. The mortality was the lowest on record. Of the 96 patients who died, 28 succumbed to associated conditions such as pneumonia and tuberculosis. There were 11 other patients who were moribund on admission, and who died within twenty-four hours of it. Thus there remained only 57 deaths which were due to the diphtheria, and which occurred in spite of hospital treatment—a mortality of 1.2 per cent. This low mortality was the more satisfactory as over 10 per cent. of all the cases were most severe. Discussing the possibility of further reducing the mortality, the author advocates closer co-operation between the general practitioner and the hospital, and he suggests that every patient with a pseudo-membranous sore throat and in an alarming general condition should at once be given antitoxin without the delay entailed by waiting for a report on the bacteriological examination. He adds that this rule is the more necessary as the bacteriological examination is not infrequently negative in just those cases of diphtheria which are most serious.

474. Insulin in Skin Diseases.

M. FEROND (*Le Scalpel*, March 6th, 1926, p. 221) maintains that since it has been ascertained that insulin favours, not only the metabolism of carbohydrates, but also that of fats and, probably, of some stable bodies like cholesterol, there has been to some extent a rational indication for its use in dermatology. In 1925 he had to treat six patients whose legs were almost covered by large varicose ulcers. Unexpectedly rapid benefit followed a combination of injections, compresses, and an ointment of insulin, especially in patients who were diabetic or hyperglycaemic. These results were sometimes transitory and the cases tended to relapse if the circulatory conditions were disturbed. Psoriasis is a disorder in which certain patients show a chronic excess of glucose or of cholesterol in the blood; in eighteen cases of the kind the author obtained exceptionally good progress with insulin treatment. In one case the cholesterinaemic figure was reduced from 0.24 per cent. almost to normal (0.16 per cent.).

475. Vaccine Treatment of Typhoid Fever in Children.

N. SPYROPOULOS (*Arch. de Méd. des Enf.*, March, 1926, p. 150) records his observations on 50 cases of typhoid fever in children aged from 2 to 15 years who were treated by intravenous vaccine therapy in the pediatric clinic of Athens University, an autogenous vaccine being used in the majority of cases. The results were as follows: (1) In 32 cases a single intravenous injection yielded an immediate result, shown by a gradual fall of temperature to normal and a remarkable improvement in the general condition. Convalescence was rapid in all. (2) In 12 cases a single intravenous injection produced only an encouraging result, shown by a remarkable improvement in the general condition and a shortening of the course of the disease. (3) In 4 cases the first injection had little effect, but a second injection two to four days later had a decided result. (4) In 2 cases the effect was nil. The author maintains that the reaction produced by an intravenous injection is much better tolerated in the child than in the adult, and that the earlier the vaccine is given the better are the results.

Protein Therapy in Eye Infections.

376. H. F. SHORNEY (*Med. Journ. Australia*, February 13th, 1926, p. 177) discusses the use of protein therapy in eye diseases, and advocates the use of cow's milk injections, especially in the treatment of gonorrhoeal ophthalmia. After boiling the milk for not more than five minutes the injection is made deeply into the gluteal region in doses of 2 c.cm. for a newborn infant, 5 c.cm. for a child of 6, 8 c.cm. for a child of 10, 10 c.cm. over that age, and 15 c.cm. for adults. If there is no good reaction, as evidenced by a rise of temperature from 101° to 102° , the dose is repeated the next day but omitted on the third day, though if necessary 10 to 15 c.cm. may be given on the fourth and fifth days in severe cases. Shorney has found the routine use of milk injections in perforating wounds of the globe very useful in preventing the occurrence of sympathetic ophthalmia, and excellent results were obtained in acute inflammations of any part of the uveal tract. He states that an injection given early in wound infection after cataract extraction may avert a panophthalmitis, but that it is inadvisable to give an injection as a prophylactic after every cataract operation with a view to anticipating infection, because the resulting reaction is not good for elderly people. The injections should be given with the usual aseptic precautions and the milk should not be boiled for more than five minutes; longer boiling coagulates and changes the albumin, interfering with the resulting reaction.

Neurology and Psychology.**477. The Pupils in Somatic and Visceral Disorders.**

J. BYRNE (*Journ. Nerv. and Ment. Dis.*, February, 1926, p. 105) has previously shown that on the afferent side pupil dilatation is effected mainly by the affective (pain-bearing) system of nerves, whereas the mechanism of pupil contraction is activated mainly by the critical (proprioceptive) system. He found experimentally that after lesions of the peripheral somatic nerves such as the sciatic and the brachial plexus, true paradoxical dilatation and pseudo-paradoxical dilatation might be observed in the pupil having the closer functional relations with the injured nerves. He considers the pseudo-paradoxical phenomenon to be more clinically important than the true paradoxical form, which can only be elicited after the injection of adrenaline and a period of incubation of eight to twelve days after lesions below the umbilicus and of five to eight days after lesions above that level. The pseudo-paradoxical phenomenon has no period of incubation and may be seen within twenty-four hours after the lesion; it persists for weeks, although it may diminish or disappear during the period in which the paradoxical dilatation can be elicited. During or immediately after lesions such as moderately crushing one sciatic nerve, the contralateral may be the larger pupil, but a few hours later, when the effects of the stimulus have passed off, the contralateral will be found to be the smaller pupil if the animal be quiet and untouched. On slight excitement, however, the contralateral becomes at once the larger pupil. This is the pseudo-paradoxical phenomenon, which resembles the true paradoxical but which, in its most characteristic part (namely, the dilatation), has a mechanism altogether different from that of true paradoxical dilatation. In the instance given the diminution in size of the contralateral pupil when the animal is quiet is explained by diminished inflow of dilator impulses as the result of functional impairment, in the bodies mostly, of the primary affective neurones (axonal reaction phenomena) more seriously involved in the operative lesion, whereas the dilatation upon excitement results from overdischarge of the less seriously injured (overstimulated) primary affective neurones. In somatic or visceral disease it is often possible to elicit the dilatation component in a quiescent patient by pressure upon the diseased part. Byrne states that, in general, lesions of one lung, kidney, ovary, or testis, and unilateral lesions of such tubular viscera as the heart, great vessels, and gastrointestinal tract, induce the pseudo-paradoxical phenomenon in the homolateral pupil when the organ injured receives its afferent supply through nerves which took origin chiefly from segments above the tenth thoracic level. The phenomenon occurs in the contralateral eye where the affected organ derives its original afferent supply from nerves which mostly left the cord below that level; and this is complementary of the rule found to obtain in somatic lesions. As a localizing sign of visceral disease the pseudo-paradoxical pupil phenomenon is to be taken in conjunction with referred pain and the associated areas of referred hyperalgesia, superficial and deep, the areas of deep hyperalgesia having as much or even more significance than the areas of superficial hyperalgesia. The author instances several cases of the occurrence of this pupil phenomenon. Among the somatic lesions are: (1) Laceration of the fifth,

sixth, and seventh left cervical roots; in the painless intervals the left was the smaller pupil; during paroxysms of pain the left was dilated much more than the right. (2) Bullet wound of the right tibial nerve; the bullet was removed by operation, and for some time after the patient had intense hyperalgesia in the region of the skin distribution of the tibial nerve, during which period the left was usually the larger pupil. Two years later, when the hyperalgesia had cleared up, the left was the smaller pupil and the right foot showed marked sensory impairment. The visceral lesions include: (1) Ulcer of the anterior (left) wall of the stomach; during a paroxysm of pain the left was the larger pupil. (2) Left cystic ovary. During freedom from pain the pupils were equal or the left was slightly the smaller; pressure on the tender ovary caused both pupils to dilate, the left much more so than the right. (3) Right traumatic epididymitis; when the patient was at rest the pupils were equal or the left was slightly the smaller, but on squeezing the right epididymis the left pupil became at once the larger. (4) Cardio-aortic disease with pseudo-angina attacks; in the intervals between attacks the left was the smaller pupil, while during attacks and for a short time thereafter the left was the larger pupil.

478. Pathogenesis and Treatment of Mongolism.

J. VAS (*Jahrb. f. Kinderheilk.*, December, 1925, p. 51) states that in the out-patient department of the Budapest University children's clinic mongolian imbeciles constitute 0.05 per cent. of all the out-patient cases and 22 per cent. of all mental defectives. According to English statistics mongols form 5 per cent. of all mental defectives, and in Dutch statistics the incidence is 5.5 per cent. As, however, the English and Dutch statistics include older children and adults, and Vas's figures apply to young children only, the incidence of mongolian imbecility is probably the same in all three countries. Various causes have been suggested for the occurrence of mongolism. Probably the etiology is not identical in all cases; it embraces factors which not only exclude the development of a healthy foetus *ab ovo*, but also give rise to a number of various abnormalities in the developing organism as well as mongolism, such as congenital heart disease, congenital cataract, congenital dislocation, syndactylia, atresia, and the like. Not infrequently transitional forms are observed in which mongolism is accompanied by myxoedema or an endocrine disturbance, such as infantilism or acromegaly, in the same individual. A closer study of the mongolian syndrome also reveals the presence of endocrine changes. The hypotonus, which not only involves the limb muscles but is also generalized, suggests suprarenal hypofunction, and the hypoplasia of the genitals indicates a hypofunction of the genital glands. As mongolism appears to be associated with endocrine disturbance, various observers have employed opotherapy and reported mental and physical improvement as the result. Pineal gland extract has been used by Dana, Berkeley, Goddard, and Cornet. thyroid preparations by Thurshfield and Stöltzner, thymus extract by Barnes, and a combined extract of pineal gland, thyroid hypophysis, and testes by Berkeley. Vas himself employed a preparation consisting of extracts of thyroid, testes, suprarenal, and pituitary for males, and thyroid, ovary, suprarenal, and pituitary for females, in doses of a half to two tablets weekly. Generally speaking, a certain progress was observed both mentally and physically. As only eight children aged from 6 months to 6 years were treated, the results could not be regarded as conclusive, but seemed sufficiently encouraging to justify a further trial.

479. Juvenile Mental Disorder.

MÖNCKMÖLLER (*Med. Klin.*, February 5th, 1926, p. 202) maintains that mental derangement in the young has increased much in the last decade, owing to the many and diverse evil influences of the war. Premising that all classifications of mental abnormality are rather artificial, he distinguishes three types—the depressive, the manic, and the indolent. Those of the first type are by nature shy children, sensitive to the sad side of life, feeling isolated even in their home circle, intelligent and proficient scholars, fond of solitary meditation. Unready in an emergency, they fail in practical matters, being haunted with the fear that some task will be required of them that they are unable to perform. They do not tend to suicide, however. As these incline to melancholia, so do the manic children to a slight chronic mania. These latter are always in excited motion, have always something to say, want to take part in everything and finish nothing. Lack of power of attention makes them fail at school, and they sleep very poorly. As they grow up they tend to be happy-go-lucky, alcoholic, and sexually uncontrolled. The children of the indolent type are dull, indifferent, and unpopular. They are unmoved by adverse school reports and do not join in games. In later life they come little into conflict with society.

Obstetrics and Gynaecology.

280.

Ovarian Malignancy.

R. F. MATTERS (*Med. Journ. Australia*, February 13th, 1926, p. 181) considers ovarian malignancy with special reference to Krukenberg tumours, and states that carcinoma in this site is generally secondary to carcinoma elsewhere, while sarcoma is usually primary. The type of carcinoma known as the Krukenberg tumour is a pure carcinoma always secondary to carcinoma of the gastro-intestinal tract or of the gall bladder. The ovary is possibly a very receptive medium for invasion of malignant cells, and therefore such cancer cells, falling into the abdominal cavity, may be more liable to produce metastatic growths in the ovaries than elsewhere. These cancer cells, being of the secreting type, are said to continue to produce secretion which distends the cells, pushing the nuclei to one side and so forming the Krukenberg "signet ring" cells. In several cases it has been shown by Sampson Handley that a primary cancer of the breast has produced secondary deposits in the ovary, the cancer cells travelling through the fascial planes to the abdominal cavity. Since it would seem that the ovary must be regarded as a possible site for metastases in abdominal malignant diseases, Matters concludes that before considering an ovarian carcinoma as primary the possibility of its being secondary to a uterine, abdominal, or breast carcinoma must be eliminated.

281.

Insufflation of the Fallopian Tubes.

P. ROMEO (*Riv. d'Ostet. e Ginecol. Prat.*, February, 1926, p. 92) is more favourably impressed with the diagnostic than the therapeutic utility of insufflation of the Fallopian tubes by Rubin's method. He records a series of 241 cases of sterility lasting three years or more after marriage; in 12 per cent. there was a history of gonorrhoea and in 7 per cent. of syphilis. Unilateral tubal obstruction was found in 8 per cent. and bilateral in 3 per cent. Within the seven months following treatment by insufflation 4.8 per cent. of the patients became pregnant, and except in two syphilitic cases went on to term. Of the remaining cases pregnancy followed in 9 per cent. within the seventh to fourteenth months after insufflation—apparently in response to medical treatment, topical applications, minor operative interventions, or opotherapy. Within the ensuing three months another 7 per cent. became pregnant. In testing tubal patency Romeo dispenses with radiographical examination, and instead of relying on locating the pain prefers to draw his diagnostic conclusions from careful bimanual examinations before insufflation and immediately afterwards, the cervix being temporarily occluded in certain cases. With regard to contraindications the author believes that there is greater risk of lighting up old pelvic inflammation in apparently spent streptococcal than in old gonorrhoeal infections.

282. Van den Bergh's Test in Pregnancy Diseases.

H. EUFINGER and C. W. BADER (*Zentralbl. f. Gynäk.*, February 27th, 1926, p. 514) have estimated by van den Bergh's test the bilirubin in the serum of 123 patients during the last months of gestation, labour, and the puerperium. They find that in normal pregnancy a direct prompt reaction is never given, but the indirect test shows somewhat increased amounts of bilirubin, reaching their highest values during labour. Applying the test to cases of pernicious vomiting, they find it to be of great value in distinguishing the organic from the functional components of the disorder. Of 20 cases of hyperemesis gravidarum 8 gave a direct prompt van den Bergh reaction and were characterized by a clinical course of great severity; the other cases quickly responded to ordinary therapeutic measures. In certain cases in which the induction of abortion appeared imperative on clinical grounds a diminution in intensity of the direct reaction was taken as justifying conservative treatment and the favourable expectations were fulfilled. In 10 cases of pregnancy nephropathy a negative reaction was invariably found, but of 15 cases of eclampsia 8 gave a positive direct reaction. All patients of the pre-eclamptic state in whom the direct test was positive were found subsequently to suffer from eclamptic convulsions in spite of treatment by rapid termination of pregnancy or by Stroganoff's method; in the overwhelming majority of other pre-eclamptic cases convulsions were avoided. The authors recommend that the van den Bergh test be performed in all cases of pregnancy toxæmia.

283. Pregnancy, Protein Shock, and Hepatic Colic.

G. PARTURIER (*Rev. de Méd.*, No. 7, 1925, p. 614) states that while pregnancy creates a predisposition for cholecystitis, and especially for cholelithiasis, gall-stone colic is rare until after delivery, when it reaches its greatest frequency in women. Of 26 women who were subject to gall-stone colic only 3, or 11.5 per cent., complained of any symptoms refer-

able to the gall bladder during pregnancy, whereas 23 of the 26 women during their pregnancy lost all symptoms suggestive of gall-stone colic, but had a recurrence of them after full-term delivery or miscarriage. Widal, Abramí, and de Genne have made similar observations in the case of asthma, and Jean Lépine in the case of epilepsy. Since 1907 Wallich has drawn attention to the peculiarly sensitive condition of women at the time of delivery, in contrast with their stability in pregnancy. He was the first to describe the condition of puerperal shock, which is characterized by a sudden onset, transient duration, profound asthenia, cold sweat, pinched expression, anticipation of imminent death, considerable fall of blood pressure, and subnormal temperature. While pregnancy entails a local immunity which prevents the uterine mucosa from undergoing its usual degeneration, as well as a general immunity to certain infections and anaphylactic shocks, gall-stone colic may be regarded as an anaphylactic phenomenon which is rare during the period of ovarian inactivity, but develops as soon as the genital gland resumes its activity after delivery. A fresh analogy is thus found between gall-stone colic and what Widal and his school have described under the name of "protein shock."

Pathology.

284. The Coagulation of Egg-yolk by a Bacterial Diastase.

E. LAGRANGE (*Ann. de l'Inst. Pasteur*, March, 1926, p. 242) relates how eggs exported from China are frequently spoiled by reason of a coagulation of the yolk which occurs on the journey to Europe. The eggs are broken and the whites separated from the yolks. The latter are beaten up and sifted, placed in metal boxes in cold storage, sometimes treated with a salt such as sodium fluoride, sodium benzoate, or sodium borate, and finally packed in barrels for export. On arrival in Europe many of them are found to be completely coagulated and to give out a sour smell. The author has shown that this coagulation is due to the proliferation of an organism which he calls *B. sinicus*. Besides secreting a diastase acting on the yolk, it forms acetic and butyric acids. To test the action of the diastase a 1 in 5 to 1 in 20 emulsion of the yolk in saline is placed in a tube, and a small quantity of a filtered broth culture of the organism is added to it. The homogeneous emulsion first becomes turbid and then commences to flocculate; small particles separate out and either collect into a surface pellicle or sink to the bottom. The liquid that remains is perfectly clear. Heating of the filtrate to 56° C., or the addition of alkali or acid, destroys the diastase or prevents its action. The effect of salts on the process of coagulation has been studied. The coagulation occurs in an oxalated medium in the entire absence of calcium in contrast with the coagulation of blood plasma or of milk. The author proposes to call this enzyme vitelase; the substance it acts on vitellogen; and the coagulated protein vitellin. The diastase acts only as a coagulant; it does not digest the egg-yolk.

285. The Spleen and Basal Metabolism.

G. C. PERACCHIA (*Arch. di Patolog. e Clin. Med.*, February, 1926, p. 53) has studied the effect of removal of the spleen in dogs on their rate of metabolism. Preliminary experiments showed that for dogs of 5 kilograms the heat loss was about 2.1 calories per kg. an hour; the variation in different animals was slight, not exceeding 5.8 per cent. Twenty animals were chosen and divided into two groups: in the first group the animals were young and their spleens were probably in full functional activity; in the second group they were old and their spleens showed signs of atrophy. Twenty days after splenectomy, when the animals had recovered, estimations showed that in the first group the basal metabolism had risen by 20 to 25 per cent.; it persisted at this level for five to six weeks and then fell very slightly. In the second group the basal metabolism rose only about 12 to 16 per cent. A similar rise after splenectomy was found in a child by Leotta. Peracchia deduces from these results that the spleen, especially when young and active, has a controlling influence on metabolism, and suggests that this action is probably due to the production of an internal secretion. It has been held by some authors that the spleen has an antagonistic action on the development of the sexual organs. Splenectomy performed in young persons may result in hypertrophy of the testicles or ovaries. The author has found that the effect of castration in dogs is to lower the basal metabolism to about the same extent as splenectomy raises it. He therefore concludes that the spleen is an endocrine gland, secreting a hormone that depresses basal metabolism and retards the development of the sexual organs.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

486. The Inheritance of Peroneal Atrophy.

MADGE T. MACKLIN and J. T. BOWMAN (*Journ. Amer. Med. Assoc.*, February 27th, 1926, p. 613) report a case of peroneal atrophy, with special reference to the heredity factor. A man, aged 22, presented the characteristic atrophy of the peroneal and calf muscles in contrast with the normal musculature of the trunk, face, and arms. The family history through five generations showed that of 101 persons 21 were so affected, the disease not being transmitted by persons who did not have the disease either manifest or latent. From the chart of the five generations the conclusion is drawn that it is possible for a parent to transmit the disease to offspring and for the parent to die before developing it, though, had he lived long enough, the condition would have become manifest. Thus, persons in whom no signs of the disease have yet shown themselves may procreate offspring to whom they transmit the complaint. The authors state that males and females are equally affected and probably transmit equally; the presence of the disease does not appear to affect longevity. It appears that half the offspring of an affected parent are apt to be affected provided the family is large and lives long enough to develop the disease; this applies to those in whom the disease is present at the time of procreation as well as to those who have not yet developed it but who have the hereditary taint. The condition is apparently dominant to the normal and is not sex-linked. Eugenically it is pointed out that it would be better for those who belong to affected families, whether they themselves are affected or not, to refrain from having children, as this is the only way to eradicate the disease, and the mental burden will be considerably lightened for such by a clear explanation of the disease.

487. The "Fourth Disease" or Scarlatina.

K. HOCHSINGER (*Wien. klin. Woch.*, February 4th, p. 154, and February 11th, 1926, p. 186), who states that he has seen several cases of the "fourth disease," especially during the last three years, draws the following distinctions between it and scarlet fever: (1) The onset of the fourth disease is not accompanied by vomiting or considerable gastric disturbance. (2) The facial erythema in the fourth disease is not diffuse, but consists of bright red or pink papules, which become confluent in a few hours. The circumoral and circumnasal regions are as a rule free of erythema, but are never so sharply marked off from the erythematous areas as in true scarlet fever and never present an icteric tint. (3) The general involvement of the bucco-pharyngeal cavity characteristic of scarlet fever is absent, but there is only a slight redness of the palatal and tonsillar mucosa, and even this is often completely absent. During the first two days the tongue has a greyish coating, but rapidly becomes clean without showing a strawberry appearance or desquamation. Cutaneous desquamation and the characteristic late syndrome of scarlet fever, consisting in pyrexia, cervical adenitis, and nephritis, are completely absent. The eruption is always of a bright pinkish-red colour and consists of minute papules, which become thickly spread over the trunk and extremities in twenty-four to thirty-six hours, and are only of short duration, beginning to fade in forty-eight hours and disappearing completely at the end of four days. The incubation period is about a fortnight. An attack of the fourth disease confers no immunity to scarlet fever. The distinction of the fourth disease from rubella is much easier than from scarlet fever. In the first place, the enlargement of the occipital glands, which is always present in the prodromal stage of rubella, is absent in the fourth disease. Secondly, the initial catarrhal symptoms of rubella, mild as they are, are absent. Thirdly, the morbilliform appearance of the rash is absent. Hochsinger suggests substituting the term "scarlatinella" for "fourth disease" on the analogy of "varicella" and "variola."

488. The Possibility of curing Diabetes.

M. LABBÉ (*Bull. de l'Acad. de Méd.*, April 5th, 1926, p. 336) records twenty-four cases of diabetes treated for two or three years with insulin, and discusses the question whether there is yet any definite evidence that diabetes is curable, and that the islands of Langerhans can be regenerated. Of his twenty-four patients twelve had died at the end of two or three years, but this, as he points out, represents a 50 per cent. improvement on the pre-insulin days, when all such

patients died within a year or two. The deaths in his cases were due to coma in five, to suppuration and infection in three, and to pulmonary tuberculosis in four. Neglect of the insulin treatment after a temporary improvement was the cause of coma and death, particularly in the summer months when supervision of the patients was less easy. Labbé concludes that, though prolonged treatment by insulin does not arrest the progress of grave diabetes, yet it retards it considerably. In three of his cases, however, the disease appeared to be progressively overcome, the patients improved steadily and seemed to be well on the road to complete recovery. Labbé, therefore, considers that there is some indication of the possibility of diabetes being cured; he doubts whether histological regeneration of the pancreas occurs, though he agrees that evidence is accumulating that functional regeneration can be established.

489. The Paraplegic Forms of Epidemic Encephalitis.

C. REBOUL (*Thèse de Montpellier*, 1925, No. 69), who records several illustrative cases, comes to the following conclusions: Epidemic encephalitis, far from being confined to the mid-brain, may show a predilection for the spinal cord, spinal roots and nerves, thus giving rise to spinal and peripheral forms of the disease. Among the spinal forms the following clinical types may be distinguished: those resembling disseminated sclerosis, acute anterior poliomyelitis, spastic paraplegia, Landry's disease, and tabes. Peripheral involvement gives rise to radiculitis or polyneuritis, which may be confined to the lower limbs, involve all four limbs, or take on an ascending course. Lastly, in some cases the virus may act on the muscles and nerve terminals, thus creating a neuro-muscular form of the disease. The commonest forms—or, at least, those of which most examples have been recorded—are the radiculitis and polyneuritis forms. The disease usually ends in complete recovery, even when the attack appears to be particularly violent. The ascending form is the most dangerous.

490. Bradycardia due to Athletic Training.

E. KAUF (*Wien. klin. Woch.*, February 18th, 1926, p. 212) conducted experiments on athletes to ascertain the cause of the bradycardia so often seen in the trained sportsman. He examined 35 men, ranging in age from 19 to 32, who had trained for various sports (football, running, boxing, rowing) over a period of one and a half to five years. After a rest period of five minutes, the pulse frequency was counted during the next five minutes and the average rate determined. The athlete was only then informed that he was to have an injection, and 1 mg. of atropine was given subcutaneously. In 33 cases no definite increase in the pulse frequency was noticed, while the non-trained adult showed an increased frequency from 18 to 46. At a subsequent date 9 of the men were injected with 2 mg. of atropine, and rise in pulse frequency of an average of 25 (5 to 35) was noted. These experiments suggested that the bradycardia was due to increased vagus control, which could only be removed by twice the amount of atropine required to remove the vagus control in the non-trained individual. To ascertain whether the accelerator nerves to the heart played a part in this bradycardia, the author injected 1 mg. of adrenaline subcutaneously in 7 of the cases; this was followed by an increase in the pulse frequency of 5 to 30, which figures are comparable with those occurring in untrained persons. The author therefore concludes that as the accelerator mechanism is normal and that twice the amount of atropine is required to remove the vagal control, in athletes the vago-accelerator ratio is pushed towards the vagal side.

Surgery.

491. Submucous Resection of the Nasal Septum.

C. C. FOX (*Therapeutic Gazette*, January 15th, 1926, p. 6) states that the operation for submucous resection of the nasal septum is comparatively free from complications even though the structures involved are in close proximity to areas very sensitive to injury and infection. Complications may arise before the operation is begun if the patient has an idiosyncrasy towards cocaine. Fox points out that a great number of these patients are very nervous and excited and should therefore be given more consideration than is usually granted them. The incision itself is rarely likely to lead to

complications, but the elevation of the muco-perichondrium or removal of the deflected cartilage or bone requires particular care. He states that it is quite possible to carry the dissection too far back and thus lay bare the cribriform plate of the ethmoid bone, while the elevator may even be carried through the plate. Haemorrhage is almost a negligible factor except where a blood dyscrasia is present. Infection is a more common occurrence, the organisms being carried back into the cranial cavity along the courses of nerves, blood vessels, or lymphatics, and giving rise to meningitis; the organisms most commonly found are pneumococci and streptococci. Septal abscess is not uncommon, and secondary complications of pharyngitis, tonsillitis, and ear affections may arise. In order to minimize the complications he suggests that the field of operation should be prepared by the use of nasal antiseptics for several days previously, the operation being performed under aseptic conditions. Any packing of the cavity should not be too tight or protracted. After the operation, when the packing has been removed, daily treatment with saline and oil solutions will prevent infection and assist healing.

492. Mesenteric Cyst in a Child.

P. MATHIEU (*Bull. et Mem. Soc. Nat. de Chir.*, February 13th, 1926, p. 164) records a case of a mesenteric cyst in a child aged 3 years and 6 months, treated by operation. He points out that lymphatic cysts in the mesentery of children are not uncommon, and that they are probably similar in origin to the lymphatic tumours sometimes seen in the neck. These cysts exhibit the curious characteristic that they may increase in size and then suddenly diminish in volume. Mesenteric cysts are liable to certain complications, the chief being haemorrhage into the cyst. The diagnosis is frequently difficult on account of the associated digestive disturbance, pain, and pyrexia, and if the tumour is not recognized as such a diagnosis of acute appendicitis may be made. In the case recorded the condition was diagnosed as a mesenteric or retroperitoneal cyst. Extirpation of the cyst itself is the ideal treatment, but this is often difficult or impossible because of the blood vessels of the mesentery. If the vessels are accidentally divided a resection of intestine may be inevitable. In such cases it may be safer to "marsupialize" the cyst; this, however, has the disadvantages of delayed convalescence, due to prolonged discharge and suppuration. In recorded cases, however, this appears to be the safer procedure and has a lower mortality than extirpation.

493. Fracture Dislocation of the Cervical Vertebrae.

D. GIORGACOPULO (*Zentralbl. f. Chir.*, February 27th, 1926, p. 533) describes the cases of two young men, aged 25 and 17, who dived head first into the sea and struck their heads on the sandy bottom. The first patient did not go to hospital immediately, but on the next day, as he had persistent pain in his neck, increased by movement, he went to hospital, and a skiagram showed a fracture dislocation of the arches of the fourth and fifth cervical vertebrae. He had no symptoms of compression of the spinal cord. A fixation apparatus was applied and worn for a fortnight, after which he was discharged. The second patient sustained a precisely similar injury. He was stunned at the time, but on recovering consciousness felt no pain in his neck. Next day, however, he went to hospital, where a skiagram showed a similar fracture dislocation. The same treatment was employed as in the first case.

494. Diagnosis of Ulcers of the Leg.

H. GOODMAN (*Amer. Journ. Surg.*, March, 1926, p. 63) brings forward certain points in regard to the localization of ulcers of the leg, and remarks that no attention appears to have been drawn to the importance of noting, as a point in differential diagnosis, whether the right or left limb is involved. With regard to the relations of the veins and arteries of the legs, he points out that the left common iliac vein is compressed against the fifth lumbar vertebra by the right common iliac artery; clinically, thrombophlebitis occurs in 90 per cent. of cases on the left side, while varicocele is also more common on the left. Goodman has carefully investigated a series of 64 cases of ulcer of the leg, and states that a diagnosis of syphilitic ulcer will be correct twice out of three times if the lesion is on the lower right leg alone, and of non-syphilitic ulcer if it is on the left leg alone. In cases of ulcers of both legs the diagnosis is not possible except by a Wassermann test.

495. Early Operation for Club-foot.

H. L. ROCHER (*Gaz. hebdom. des Sci. Méd. de Bordeaux*, February 28th, 1926, p. 140) mentions that in equino-varus of congenital origin he used to prescribe at first massage and corrective manipulations, and fixing in the improved position by flannel bandages, or even by a splint of wood. Only when the infant

was 5 or 6 months old would he perform an operation, by which time all the adduction was already corrected and some of the supination. The operation consisted in dividing the Achilles tendon and putting the foot up in plaster. Latterly, however, it appeared to him that the bandage seemed to lessen the plasticity of the parts, and that as it was necessary to make allowances for negligence in carrying out the preliminary treatment it would be better to operate under a month old if possible. He describes a case of double club-foot in which the operation mentioned was performed on one side at 20 days and a week later on the other; the result was very good.

Therapeutics.

496. Insulin in Infantile Malnutrition.

L. FISCHER and J. L. ROGATZ (*Amer. Journ. Dis. Child.*, March, 1926, p. 363) have investigated the use of insulin in twenty-seven malnourished infants. Three types were considered. Infants with acute atrophy and intoxication and requiring an immediate effect by the quickest possible absorption to save life were treated by injections into the longitudinal sinus through the anterior fontanelle of one-third to one-half ounce of a 20 per cent. glucose solution per pound of body weight, to which had been added 15 units of insulin per 100 c.cm. of solution. In cases of atrophy in which acute intoxication had not yet set in insulin was administered with 15 per cent. glucose intraperitoneally or subcutaneously. Dystrophic babies with stationary weight were treated with insulin subcutaneously or intracutaneously in conjunction with feedings. In 63 per cent. of the cases marked gain in weight and improved nutrition resulted, and of five cases of acute atrophy with intoxication four recovered. No bad effects were observed, and in those cases reported as successful there were no changes in diet or management, other than the use of insulin combined with glucose, to which improvement could have been attributed. The authors add that repeated small doses of insulin appear to be cumulative, culminating in a rise of temperature, anorexia, and loss of weight. They think that the effectiveness of the treatment in properly selected cases in their hands renders it worthy of trial when other methods of feeding and management have failed.

497. The Indications for Acetylorthocresotinic Acid.

G. CARRIÈRE and E. GÉRARD (*Bull. Soc. de Théor.*, March 10th, 1926, p. 77) state that acetylorthocresotinic acid, which is a higher homologue of acetosalicylic acid, presents the advantage over the latter in that it does not cause any gastrointestinal disturbance or pharyngeal pain, and is not affected by the gastric juice, but becomes dissociated on contact with the intestinal juice, setting free a physiologically active orthocresotinic acid. The drug possesses undoubted anti-rheumatic and analgesic properties, and without being a hypnotic properly so called produces sleep. The authors' results were excellent in chronic rheumatism and neuralgia of all kinds, from toothache to sciatica. The drug was very useful in the thoracic pain of tuberculosis. The results were much less definite in the insomnia and general aching of febrile patients. Very favourable effects were obtained in migraine and asthma. The drug was employed in doses of 0.5 gram given in cachets. As a rule the effect produced lasted for seven or eight hours, after which another cachet was required. A dose of 2 grams a day is usually sufficient, but this may be considerably exceeded if necessary; as the drug is only very slightly toxic and is rapidly eliminated from the system.

498. Absorption of Atophan through the Skin.

H. HORSTERS and H. ROTHMANN (*Med. Klin.*, April 9th, 1926, p. 582) report that atophan is effective when given by inunction; they have tried it in chronic rheumatism and lumbago, where it was not tolerated by the stomach. They used two kinds of ointment—one with a salicylate and the other with a camphor base. Three chemical tests of the urine were made at varying periods after the application of the drug. In all cases they found that the drug was excreted three to six hours later, and that a definite improvement in the patients' condition resulted. The authors particularly emphasize the point that the ointment must be rubbed in not only over the affected part but over a considerable area of the body.

499. Colloidal Iodine in Tuberculosis of the Female Genital Organs.

E. TONEFF (*Gynéc. et Obstét.*, 1926, xiii, 3, p. 205) writes favourably of the effects of intramuscular injections of colloidal iodine in cases of abdominal tuberculosis coexisting with tuberculous disease of the female genital organs. This

treatment he believes to be preferable to laparotomy in cases with ascites, and to the performance of more or less radical operations on the adnexa; in any case the iodine treatment deserves, he thinks, trial before operation. In a number of cases reported three to sixteen injections given at two- to five-day intervals have been followed by rapid disappearance of peritoneal effusions, marked reduction in size of adnexal tumours, return of the menses, and speedy restitution of general health. The treatment is said to be contraindicated by the presence of active tuberculosis in the lungs.

500. Ammonium Tartrate in Lime Burns of the Cornea.

E. WOLFF (*Brit. Journ. Ophthalmol.*, April, 1926, p. 196) describes two cases of lime burn of the cornea treated by a 10 per cent. neutral ammonium tartrate solution with very good results. Lime burns of the cornea are usually of grave significance. The caustic effect of the lime destroys the corneal tissue, and the lime combines with the tissue of the cornea, depositing particles of calcium carbonate. It is this second element of the condition which can be so markedly improved by means of neutral ammonium tartrate solution; this converts the insoluble calcium carbonate into the more soluble calcium tartrate, which is washed away. The reaction occurs slowly, so that prolonged treatment is necessary. The cornea is washed with the solution by means of an undine for fifteen minutes daily. This treatment should be continued for some months.

501. Administration of Arsphenamine.

J. H. STOKES (*Journ. Amer. Med. Assoc.*, March 20th, 1926, p. 840) refers to the complaints made by patients receiving intravenous injections of arsphenamine and its derivatives of an unpleasant taste of garlic or an odour of ether. In some cases the discomfort amounts to pronounced nausea and precedes gastro-intestinal reaction. He has found that by allowing a wafer impregnated with oil of wintergreen or a clove to dissolve on the tongue during the injection of the drug complete relief from this symptom is obtained without unfavourable results. He suggests the use of such wafers as a routine, though he is uncertain whether the effect is due to the volatile essence or merely to the diversion of the attention of nervous patients.

Ophthalmology.

502. Cerebral Aneurysm causing Ocular Symptoms.

J. A. CONWAY (*Brit. Journ. Ophthalmol.*, February, 1926, p. 78) describes two cases of this condition; he points out that it is not so very uncommon and that it occurs quite frequently in youth. Cases of cerebral aneurysm can be divided into three groups: (1) Those in which death ensues suddenly from an apoplectic seizure without any preceding symptoms. (2) Those presenting symptoms of cerebral disturbance, which are often very slight and equivocal but are followed by an apoplectic seizure. (3) Cases in which the aneurysm was an accidental finding at a necropsy. The cases he describes were of the second group, and the ocular symptoms consisted in disturbances in the visual field. In one of the cases after great loss of field a considerable degree of recovery followed and was thought to be due to thrombosing of the aneurysm. The field losses were of the hemianopic type, though differing in the two eyes and varying from time to time. Conway adds that cerebral aneurysm is almost impossible to diagnose with certainty, and the occasional intermittent character of the symptoms is probably the most suggestive feature.

503. Retinal Haemorrhage Synchronous with Onset of Menstrual Period.

E. N. NEULEN (*Amer. Journ. Ophthalmol.*, February, 1926, p. 85) describes the case of a woman who had a central retinal haemorrhage which occurred at the onset of the menstrual period. A week previously her eyes had been examined for glasses and both fundi were found normal. The haemorrhage in the right eye eventually cleared up completely and vision was at the last examination G/9. A few months after the occurrence of the retinal haemorrhage she suffered from an attack of scleritis in the left eye. Frequent attacks of scleritis occurred subsequently and an exacerbation in the scleritis was usually noticed at the menstrual period. Further examination revealed evidence of tuberculosis, and she was treated with tuberculin. The left eye slowly deteriorated during the period in which she was under observation and the cornea became nebulous. The right eye, however, remained unaffected and no further retinal haemorrhage occurred.

504. Exostosis of the Orbit.

A. KNAPP (*Arch. Ophthalmol.*, March, 1926, p. 128) describes a case of this condition in which he successfully removed the growth. It is important to distinguish between an encapsulated osteoma, which is a tumour occurring in an accessory nasal cavity and secondarily extending into the orbit, and an exostosis, which is a circumscribed new bone formation arising from the surface of the orbit. The osteoma tends to grow towards the brain, and may cause cerebral symptoms complicated by a sinusitis. An exostosis usually arises from the upper and inner orbital walls and extends outwards, displacing the eyeball. It grows slowly, and there is frequently a history of trauma; by reason of its growing outwards the prognosis for life is good. X rays afford the most definite method of diagnosis. Surgical operation is the only treatment. If the attachment is broad and hard it may be necessary to drill holes and saw the intervening parts, or to divide the normal bone around the attachment of the tumour.

505. Anomalous Duct of Lacrymal Gland.

W. P. LING (*Amer. Journ. Ophthalmol.*, January, 1926, p. 1) describes a case of anomalous duct of the lacrymal gland occurring in a Chinese boy. This boy was somewhat underdeveloped and showed some asymmetry of his face, the right side being smaller than the left. There were some pedunculated masses in front of the tragus of the right ear, and the lids of the right eye were separated at the outer canthus, the resulting intervening space being covered with skin. Immediately external to the malformed external canthus there was an oblique opening through which tears dropped. The vision of both eyes was fully normal and the conjunctiva and cornea of the right eye were unaffected in any way. This anomalous duct was excised under local anaesthesia, a complete cure of the condition resulting. Microscopically the duct was found to be lined by stratified squamous epithelium.

Obstetrics and Gynaecology.

506. Vesticular Mole and Chorion-epithelioma.

R. HUGUENIN (*Bull. Soc. d'Obstét. et de Gynéc.*, No. 2, 1926, p. 109) discusses the questions whether there is any criterion of the malignity of a mole and whether a mole can lead to a fatal chorion-epithelioma. He points out that histologically there are two distinct types—the common form and the mole which is filled with large islets without stroma and ill defined cells with large irregular multilobular nuclei, having mitotic figures; this type appears to be definitely malignant. L. DEVERAIGNE and R. A. SUZOR (*ibid.*, p. 111) report two cases of patients, aged respectively 32 and 29, in whom the histological findings were regarded as definitely malignant. In the first case hysterectomy was refused by the patient, and under local expectant treatment the menorrhagia ceased and the uterus returned to its normal size. Subsequent menstruation was regular and the general health remained excellent. In the second case curetting was followed by apparent recovery; but hysterectomy was subsequently necessary for cancer of the body of the uterus. BRINDEAU (*ibid.*, p. 113) thinks that the gravity of a mole has been greatly exaggerated. Many patients subsequently became pregnant. He adds that it is often very difficult to base prognosis on histological examination. Couvelaire has reported a case in which the histological appearance of an expelled mole, together with the uterine hypertrophy and menorrhagia, led to a diagnosis of chorion-epithelioma. Hysterectomy was performed, but the tumour did not extend beyond the mucosa and there was no ulceration or sign of any metastases. Though morphologically malignant, the mole was benign in its clinical development.

507. Chronic Gonorrhoea in Women.

F. MONTUORO (*Riv. d'Obstet. e Ginecol. Prat.*, February, 1926, p. 110) points out that the diagnosis of chronic gonorrhoea in the female is difficult, yet of great importance. The history is often fallacious: frequently an acute attack is experienced without being recognized by the patient, for the prethra may escape infection, so that dysuria is lacking. The first symptom to attract attention may be leucorrhoea, but excessive vaginal discharge may pass unnoticed in a person habituated to a daily douche. Nevertheless, in every gynaecological examination the presence of latent gonorrhoea should be borne in mind. It is important that micturition should not immediately precede the examination lest a purulent urethral discharge should escape observation. The important signs are: (1) the presence of such a discharge; (2) redness around the urethral opening, possibly accompanied by small condylomata; (3) purulent secretion from Skene's tubules and Bartholin's glands; (4) the presence of Sanger's macules near the

openings of Bartholin's ducts; (5) the association of some or all of these signs with the presence of adnexal inflammation. Microscopical detection of gonococci will clinch the diagnosis, but their absence in smears is far from conclusive. Montuoro points out that minor operative interventions in the genital organs of patients suffering from chronic gonorrhoea which has not been recognized are very apt to be followed by acute and serious pelvic inflammatory conditions which may entail prolonged illness and necessitate very careful treatment.

508.

Chorea Gravidarum.

K. V. LEHOCZKY-SEMMELWEIS (*Zentralbl. f. Gynäk.*, March 6th, 1926, p. 608) states that the prognosis of chorea in pregnancy is considerably worse than that of chorea minor, the mortality being from 17 to 25 per cent. Its origin has been described to a pregnancy toxæmia, to reflex nervous influences, and, owing to its not infrequent association with polyarthritis and endocarditis, to infection. This last view is supported by the necropsy findings reported by Schuster—namely, recent endocarditis with thrombi and hæmorrhages in the central and frontal gyrus. In this case *Staphylococcus pyogenes aureus* had been found in the blood before death. A case recorded by the author is taken as supporting the infective rather than the toxic origin of chorea of pregnancy. The patient, a 2-para aged 23, suffered in the seventh month of pregnancy from severe chorea in association with fever and polyarthritis; she died two days after induction of labour, and the necropsy showed well marked perivascular infiltration (chiefly with lymphocytes and plasma cells) in the corpus striatum, optic thalamus, and substantia nigra, as well as degenerative changes in the putamen and globus pallidus, with considerable proliferation there of the neuroglia.

509.

Treatment of Carcinoma of Cervix.

H. H. BOWING (*Amer. Journ. Obstet. and Gynecol.*, March, 1926, p. 400) states that the combination of surgery, radium, and x rays in the treatment of carcinoma of the cervix is usually very effective provided that the disease is recognized sufficiently early, since at least six or eight weeks are required for the tissues to respond effectively to treatment by radium. The response to treatment is subject to individual variations, and the correct dosage can therefore only be established by experiments. He thinks that radium should be applied by the broken or fractional method rather than by the use of the destructive single dose, since the former enables the treatment to be modified according to the patient's response. With the patient in the knee-chest position and the employment of a Sims speculum and direct illumination, a silver tube applicator, containing 50 mg. of radium element, is inserted into the substance of the tumour, or into the cervical and uterine canal, and allowed to remain in position for from fourteen to twenty hours. The treatments are given about twice a week for from three to six weeks, the aim being to employ about a total of 3,000 mg. hours of radium for each 2.5 cm. depth of involved tissue. These radium treatments may be supplemented by x-ray treatments, using high voltage, with copper and aluminium filtration over the anterior, posterior, and lateral areas, one area being exposed each day until all have been treated. Bowing classifies cases into five groups, according to the location and extent of the disease. In the first group are cases with early or operable lesions in the cervix, and in the second group border-line cases with the disease limited to its vaginal surface. The third group contains the inoperable cases with the disease involving the vaginal walls, broad ligaments, and lymphatic glands, with some degree of fixation, and the fourth group includes recurrences. The fifth group is made up of cases in which previous treatment was incomplete, the disease being modified but not eradicated. The therapeutic procedures adopted vary in the different groups.

510.

Basal Metabolism during Pregnancy.

GARIPUY, LASSALLE, and SENDRAIL (*Gynéc. et Obstét.*, 1926, xiii, 3, p. 172) remark that the augmentation of basal metabolism which is well known to occur during pregnancy, attaining a maximum of about 35 per cent. towards the thirty-eighth week, has been frequently explained as due to increased activity of the thyroid gland. That it is in reality due to influences from the foetus is suggested, however, by its notable augmentation in multiple pregnancy and by its return to normal after death of the foetus in the uterus. The latter view is supported by their observations on fifteen pregnant patients showing no clinical signs of increased thyroid activity. In these the oculo-cardiac reflex was almost invariably of normal type. Little or no acceleration of the pulse occurred after intramuscular injection of 1 mg. of adrenaline, and slowing of the pulse after the intramuscular injection of 1 c.cm. of pituitary extract was exceptional.

Pathology.

511.

Bacteriology of the Common Cold.

G. S. SHIBLEY, F. M. HANGER, A. R. DOCHÉZ, and KATHERINE C. MILLS (*Journ. Exper. Med.*, March, 1926, p. 415) have studied the flora of the nose and throat of thirteen patients over periods of five to nine months, noting changes in the numbers and nature of the bacteria in health and during catarrhal and throat infections. They found that in healthy nostrils *Staphylococcus albus* and diphtheroids were almost invariably present in some patients, while in others *Staphylococcus albus* and *citreus* were the characteristic organisms. From time to time Gram-negative cocci and non-hæmolytic streptococci made their appearance. In the throat Gram-negative cocci and non-hæmolytic streptococci were regularly present, and in some cases large Gram-positive cocci, *B. influenzae*, and diphtheroids. Transient organisms were *Staphylococcus citreus*, *aureus*, and *albus*, pneumococci, and hæmolytic streptococci. In the early stages of nasal catarrh no bacteria were found which seemed to be definitely causative; during colds the bacterial content of the nose was often reduced in the early stages, and the throat also showed reduction of numbers or change in predominance of the normal flora. Certain organisms prominent in colds but usually appearing late were *Staphylococcus aureus*, hæmolytic streptococci, and *B. influenzae*; pneumococcal infections were not found in any case. Inflamed throats showed a striking incidence of streptococci of the hæmolytic type, which replaced the Gram-negative cocci present in health.

512. Filterable Forms of B. typhosus in the Stools of Convalescents.

P. HAUDUROY has stated that he had found organisms closely resembling *B. typhosus* existing in water in the form of invisible filterable bodies, which, on frequent subculture, developed into the usual bacillary forms (*Epitome*, March 27th, 1926, para. 355). Arguing from this that it must have gained access to the water from the faeces of patients suffering from typhoid fever, he now reports (*C. R. Soc. de Biologie*, March 19th, 1926, p. 661) the result of examining the stools of convalescent patients after typhoid fever. A small portion of faeces was incubated in ordinary broth for twenty-four hours, filtered through a Chamberland L3 candle, and the filtrate itself incubated. At the end of two or three days as a rule the filtrate became opalescent, or sometimes showed the presence of granules. Subculture into liquid media was successful, but on solid media growth did not occur for some time. After several subcultures the colonies on solid media became more and more normal, and the organisms of which they were composed passed from a granular to a typical bacillary form. The stools of three convalescent patients from typhoid were examined in this way. From one an enterococcus was obtained, from another a Gram-negative vibrio, and from the third a bacillus that was culturally indistinguishable from *B. typhosus*, though it failed to agglutinate with specific serum. From these observations the author concludes that filter-passing forms of typhoid bacilli may be found in the stools of patients and convalescents, and that these may gain access to water, by which they may be conveyed anew to man. It is possible, therefore, that they are concerned in the etiology and the epidemiology of typhoid fever.

513.

A Test for Metabolic Variations.

R. PORAK (*Rev. de Méd.*, 1925, No. 8, p. 753) has devised a simple test to indicate changes in metabolism. The patient lives as he likes and is submitted to no restraints, but he is told to enter in a notebook everything that he does during the day. He micturates when he feels the need, and records the times of successive micturitions together with the amounts of urine. With these data a curve is constructed from which the amount of urine excreted a minute can be calculated. The method is designed to give the same information as that obtained by ureteral catheterization. Having worked out the normal curve for the patient, the author then studied the effect of alterations in diet, in drink, in exercise, in exhaustion, and in other factors on the curve. In this way he was able to form an opinion on the extent to which the liver in particular was performing its work. He found that nervous exhaustion lowered the quantity of urine secreted very considerably. The effect of walking was first to increase the rate of excretion, and then to lower it. After a period of rest excretion rose again, but if the walk was such as to cause exhaustion the excretion remained low for some time, and did not regain its normal amount till after a thorough rest. If a large quantity of beer was drunk during the course of a heavy dinner the post-prandial diuresis was lowered; this the author considers to be due to retention of water in the liver. Sleep came only with difficulty, and diuresis did not set in till the early morning hours.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

514.

Fatal Asthma.

F. M. RACKEMANN (*Boston Med. and Surg. Journ.*, March 25th, 1926, p. 531) reports a fatal case of true spasmodic asthma with the necropsy findings. The patient was a woman, aged 43, otherwise apparently in good general health; there was a previous history of attacks of hay fever between the ages of 14 and 31. Positive skin reactions were obtained to timothy grass and ragweed. After the hay fever ceased she began to have attacks of asthma, at first with long intervals between them; they subsequently increased in frequency and in severity. Death occurred during a paroxysm. Although the cutaneous tests were positive, no extrinsic cause of the asthma was determined, and seasonal variations or changes in environment did not affect the course of the malady. Clinical evidence suggested no cause of death other than asthma, and at the necropsy only acute dilatation of the right ventricle was found, with emphysematous changes in the lungs. The author refers to six deaths in asthma patients reported by Huber and Koessler, and to another fatal issue described by Lennier. Rackemann has seen five other fatal cases of asthma, but necropsies were not performed. He adds that a bad prognosis must be given in the case of severe asthmatic attacks commencing in well nourished women more than 30 years of age if the evidence of specific sensitiveness to foreign substances is small and the condition does not respond to general treatment.

515.

Acute Aseptic Meningitis.

A. WALLGREN (*Wien. Arch. f. inn. Med.*, February 10th, 1926, p. 297) states that in the large group of diseases constituting acute meningitis a syndrome may be isolated characterized by an acute onset, definite meningeal symptoms, a sterile cerebro-spinal fluid usually showing lymphocytosis, short duration, and favourable course without any sequelae. Its occurrence is sporadic as a rule, but the presence of several cases in one place makes it probable that it is an infectious disease. As far as is known, the first epidemic of the kind occurred in France in 1910-13, and the next appearance of the disease was in Scandinavia in 1922-24. Sporadic cases have occurred in most European countries, but no examples have yet been reported from England, Germany, or the east of Europe. It appears certain that the disease of 1910-13 was identical with that of 1922-24, and as it is neither clinically nor epidemiologically possible to identify it with any known infectious disease it is most probable that these cases of meningitis were examples of a hitherto unobserved disease of the central nervous system. Whether this view is correct or otherwise will be determined by subsequent outbreaks of the disease, and the experiments on animals now in progress will contribute to the solution of the problem.

516.

Carbon Monoxide Poisoning.

D. C. WALTON, W. A. ELDRIDGE, M. S. ALLEN, and M. G. WITHERSPOON (*Arch. Intern. Med.*, March 15th, 1926, p. 398) have endeavoured to determine the relative value of the present methods of treatment of carbon monoxide poisoning. From dogs treated with pure carbon monoxide samples of blood were taken at intervals of ten minutes and the percentage of haemoglobin saturated with carbon monoxide estimated. Controls were allowed to breathe ordinary air and the others were treated through a face mask connected with rubber balloons attached to large cylinders containing the different remedial mixtures to be tested. The rate of elimination under treatment was noted for (1) oxygen only; (2) oxygen and 5 per cent. carbon dioxide; (3) oxygen and 10 per cent. carbon dioxide; (4) air and 5 per cent. carbon dioxide; and (5) air and 10 per cent. carbon dioxide. Since the period of danger in carbon monoxide asphyxia is reached when the saturation of the blood is over 30 per cent., it is necessary that the treatment used shall be capable of reducing such saturation to 25 per cent. with the greatest safety and rapidity. It was found that the rapidity of reduction by the above methods occurred in the following order: oxygen and 10 per cent. carbon dioxide; oxygen and 5 per cent. carbon dioxide; oxygen alone; air and 10 per cent. carbon dioxide; and air and 5 per cent. carbon dioxide. The first and fourth mixtures are dangerous for practical use owing to the possible overtaxing of a weakened heart by the violent respiratory efforts induced, and while there is but little difference between treatment by oxygen alone or combined with 5 per cent. carbon dioxide these are much superior

to treatment by air with 5 per cent. carbon dioxide. Since oxygen treatment is more readily available its use is advised especially where transportation is difficult, though for rescue in inaccessible mines, or in military operations, treatment by air and 5 per cent. carbon dioxide should be of value.

517.

Hilum Tuberculosis.

D. ZACKS (*Journ. Amer. Med. Assoc.*, February 27th, 1926, p. 598) discusses the relative value of symptoms, physical signs, and x-ray findings in the diagnosis of bronchial gland tuberculosis based on a study of 2,285 school children, of whom 1,176 gave a positive Pirquet reaction, 1,109 being negative. Underweight for age and height was found to be the most important symptom, others being a tendency to tire easily, nervous irritability, frequent "colds," sweating, night terrors, cough, and hoarseness. In 70 per cent. of the suspected cases interscapular dullness and a feeling of resistance were present, elicited best by light percussion over comparable areas. X rays usually showed a moderately thickened hilum with shadows within this thickened area which are interpreted as being bronchial or mediastinal glands. Linear markings or beading running from the hilum into the deep parenchyma and circumscribed discrete areas of density in the lung parenchyma, interpreted as calcified or fibroid tubercle, are said to be of special significance. Zacks believes that diagnosis of hilum tuberculosis rests upon a conservative evaluation of symptoms and physical signs controlled by x-ray examination and the tuberculin test. He holds that in the presence of a positive reaction appropriate dietetic and hygienic treatment should be instituted so as to prevent the development of tuberculosis in later life. The highest percentage of reactions to the Pirquet test occurs in patients who are under weight, being 29.2 per cent. as compared with 14 per cent. when the test was applied to the whole school population of a small town. Of other signs, rales were found twice as often in the non-reactor as in the reactor group, and the same applied to cardiac murmurs.

Surgery.

518.

Total Gastrectomy.

E. SCHWARZ (*Zentralbl. f. Chir.*, March 6th, 1925, p. 578) records two cases in which this operation was performed in the Rostock University surgical clinic in 1925. (1) A woman, aged 44, had carcinomatous infiltration of the stomach, with a secondary growth in the gastro-splenic omentum. Total gastrectomy and splenectomy was performed in March. The pyloric end of the duodenum was closed and the lower end of the oesophagus fixed laterally in the jejunum by means of a triple row of sutures behind the colon. The patient's temperature fluctuated for some time and a left subphrenic abscess formed. The patient lost weight and left hospital three months after the operation. In September she was very emaciated and many intra-abdominal metastases were found. (2) A man, aged 51, had multiple carcinomatous growths in the stomach and one near the cardiac end could be palpated; there was no evidence of metastasis. Total gastrectomy was performed with closure of the pyloric end of the duodenum, and retrocolic junction of the lower end of the oesophagus with the jejunum by end-to-side anastomosis. Three rows of sutures were inserted. There was an initial loss of weight of 20 lb., but subsequently this was regained and the patient was discharged two months later. Three months subsequently his condition was still satisfactory. Schwarz estimates that in those patients who survive the operation there is a retardation of digestion of approximately 40 per cent. He has found 55 recorded cases of total gastrectomy; the immediate mortality in these was 50 per cent., but he thinks this estimate too low; it was probably nearer 70 to 80 per cent. He points out that Wrede and Ribera had a patient who lived for four years, and Moynihan's patient lived for three and a half years after the operation; a larger number were alive one year or more after total gastrectomy. Schwarz agrees that his own case is too recent for a definite conclusion, but he considers that since these patients are suffering from an inevitably fatal and frequently painful disease total gastrectomy is justifiable in suitable cases.

519.

Colonic Polyposis.

R. C. COFFEY (*Annals of Surgery*, March, 1926, p. 364) states that in no benign process is there a higher incidence of malignancy than in colonic polyposis, which results from

an antecedent inflammatory or ulcerative condition of the mucous membrane of the colon. Treatment is necessary for the haemorrhage, diarrhoea, and because of the danger of malignancy. It may be conservative, consisting in caecostomy, irrigations, or radium, or radical, which involves excision of the polyp-bearing area. A case is recorded in which excision of the colon and rectum was performed. Coffey states that in this operation it may be advisable to perform the ileostomy first as a preliminary operation and the colectomy at a later date. He finds ileostomy a satisfactory procedure and more comfortable to the patient than a colostomy. The colon is not essential to the perpetuation of life, and in the case recorded satisfactory recovery ensued.

520.

Prostatectomy.

G. CATTANEO (*Arch. Ital. di Urol.*, March, 1926, p. 293) records his observations on a hundred cases of Freyer's prostatectomy. The ages of the patients ranged from 47 to 80, the great majority being between 61 and 70. Only one case ended fatally. The clinical forms were as follows: complete retention, acute or chronic, septic or aseptic, 34 cases; chronic incomplete retention, septic or aseptic, 60 cases; incomplete septic retention with distension and ischuria paradoxa, 6 cases. In only 18 cases was the urine aseptic. In all the others the bladder was infected and several had haemorrhage due to dirty catheters, large adenomata, calculi, papillomata, or vesical diverticula. The weight of the prostates removed ranged from 5 to 60 grams and over. Cattaneo's conclusions are as follows: (1) Retention of urine is the chief indication for prostatectomy; if it is aseptic waiting is justifiable, especially if the patient can be examined periodically to determine if the retention tends to increase. (2) Septic retention, even though not severe, is an indication for operation, because no palliative treatment can cure vesical sepsis when once it is established. (3) The formal indications for prostatectomy are repeated haematuria, suspected cancerous degeneration, primary or secondary calculus formation, papillomatous growths, and diverticula of the bladder. (4) Prostatectomy should not be regarded as an emergency operation like epicystotomy, which may be performed in rare instances for checking prostatic haemorrhage. (5) The study of renal function, examination of the urine, determination of Ambard's constant, and the phenosulphonephthalein test supply important data for judging of the patient's improvement, but the estimation of the physical resistance of the individual patient from a study of the general and local conditions in each case is of greater value still. (6) Prostatectomy in most cases should be performed in two stages. The operation in one stage should be reserved for small prostates, deformity of the neck of the bladder, and lesions of the musculo-fibrous part of the prostate rather than of the adenomatous elements. (7) Injection of calcium chloride is useful for checking post-operative haemorrhage, and in about half the cases renders plugging the prostate unnecessary. (8) Anaesthesia should be local in the case of epicystotomy and epidural in prostatectomy; complete avoidance of general anaesthesia has considerably improved the statistics of operation.

521. Spontaneous Rupture of the Oesophagus.

T. H. WILLIAMS and W. BOYD (*Surg., Gynecol. and Obstet.*, January, 1926, p. 57), who report a personal case, illustrate the rarity of this condition by the fact that only thirty-three examples have been recorded since Boerhaave reported the first case in Admiral Baron Wassenaar in 1724. Fitz states that with the exception of two cases reported by Meyer and Allan and by Grammatzki no cases have been definitely established of death having been caused by this condition. It is generally agreed that death seldom occurs apart from the condition known as oesophago-malacia, sometimes known as alcoholic oesophagitis. The present authors' patient was an alcohol addict who about six or eight years previously began to have gastric trouble. Death occurred a little less than twenty hours after the onset of an attack, which started with vomiting and intense pain in the upper part of the abdomen just below the lower end of the sternum. The necropsy, twenty-four hours after death, showed a perforation 1 inch in diameter about an inch above the diaphragm in the left side of the oesophagus leading directly into the pleural cavity, which was filled in with a dark reddish-brown fluid containing numerous particles of meat and other solid food. Histological examination of the lesion showed such extensive destruction and disintegration of the oesophageal wall that it was impossible to be certain which was the inner and which the outer coat. Experiments conducted by the authors on dogs indicated that when perforation of the oesophagus was produced in a healthy animal by a Maisonneuve urethrotome these changes did not occur. The authors conclude that spontaneous rupture of the

oesophagus is preceded by some inflammatory process which weakens the oesophageal wall, and suggest that when the diagnosis of spontaneous rupture of the oesophagus is made pleural puncture and aspiration of the exudate should be performed and followed by drainage of the infected cavity.

Therapeutics.

522.

The Use of Diuretics.

P.-E. MORHART (*La Vie Méd.*, February 12th, 1926, p. 239) states that the relative proportion of water, crystalloids, and colloids in the system is regulated not only by the kidneys, skin, and lungs, but also by the central nervous system, the endocrine system, the liver, and the tissues generally. Rest in bed promotes diuresis by hastening the excretion of water. Carbohydrates increase the retention of water, while fats diminish thirst. If no salt is added to the food the body loses 15 to 25 grams of sodium chloride and $1\frac{1}{2}$ to 2½ kilograms of water; a saltless dietary is therefore itself diuretic. Generally speaking, the intake of water and salt increases the quantity of water taken up by the tissues, and consequently may cause oedema. Potassium, calcium, magnesium, and strontium have a diuretic action when combined with phosphoric or sulphuric acid, though their chlorides have the reverse. The tissue reaction is similarly concerned, acidosis producing diuresis while alkalosis inhibits it. The diuretic action of theobromine is aided by simultaneous administration of stable acids and inhibited by alkalis. Large doses of the chlorides of calcium and ammonium are diuretic because they acidify the plasma, and conversely the unstable citric and malic acids have a considerable alkalinizing power. Potassium salts, especially the acetate, bitartrate, and bicarbonate, have long been employed as diuretics. Among the endocrine glands, the thyroid has a powerful diuretic action, not only in myxoedema, but also in various types of oedema. Diminished activity of the posterior lobe of the pituitary produces excessive diuresis (diabetes insipidus), while increased activity causes retention of water. The ovaries have a similar action, and during menstruation there is usually retention of water in the system. The liver is a potent factor in diuresis, its pneumogastric nerve branches inhibiting the excretion of water in the same way as follows the injection of histamine, peptone, and hypophyseal extracts, while stimulation of its sympathetic supply has a diuretic action, similar to that of caffeine, diuretin, and hypertonic solutions. It is very probable that the diuretic action of mercury depends upon its stimulating action on the liver. The nervous centres—cortical, mesencephalic, and medullary—also play a part in diuresis. Morhart states that the part played by the kidney is now considered generally to be subordinate to that of the tissues, although most diuretics have a definite action on the kidney. The effects of calomel are usually immediate, while those of thyroid extract are delayed. The author recommends massive doses, although he states that mercury is contraindicated in cachexia and in inflammatory conditions of the alimentary canal and of the kidneys. Purin bodies, theobromine, diuretin, and also urea, are powerfully diuretic. A high blood urea concentration does not contraindicate the administration of urea, nor are renal lesions likely to be aggravated by it as by mercury. Urea gives as good results in pleuritic effusions and tuberculous peritonitis as in portal ascites, but it may produce nausea, dyspepsia, and diarrhoea, unless given in marmalade or coffee. The author recommends that diuretic treatment should include days of abstinence from food; on certain days fluids should be withheld, and on other days sugar be given.

523.

Intravenous Administration of Emetine.

V. N. DEUSKAR (*Indian Med. Gazette*, April, 1926, p. 165) reports the results of treating seventy cases of amoebiasis with intravenous injections of emetine in 1-grain doses, for nine consecutive days, followed by an interval of about six days, during which only a morning saline aperient was given; the emetine course was then repeated. In some cases intensive bismuth medication was combined with the emetine. The case mortality was about 12.5 per cent., and the series included patients with as low a weight as 5 st. 13 lb. and as low a haemoglobin percentage as 40. Tolerance was fairly satisfactory, and no toxic symptoms occurred. The author states that if rest in bed could be rigidly enforced during treatment, this method could be safely extended to patients in private practice. He adds, as the result of necropsy findings, and in view of the fact that relapses occur in some cases, that it appears that the treatment of chronic cases by this method is no more effective than when emetine is given by other routes.

524. The Treatment of Infantile Bronchopneumonia.

L. RIBADEAU-DUMAS and J. CATHALA (*Paris Méd.*, February 20th, 1926, p. 170) consider that the principal group of bronchopneumonias in infants is of the anaemic type, and treatment should be directed to the anaemia with its attendant dyspnoea and cyanosis. They recommend as stimulants the hypodermic injection of 1/10 mg. of strychnine sulphate in 1/10 c.cm. of sterilized oil, to which may be added 1 cg. of sparteine sulphate twice a day; deep injections of 1 c.cm. of ether two, three, or four times a day are also advocated, and digitalis as a cardiac tonic. Counterirritants, such as hot baths every three or four hours, fomentations, or mustard poultices are of value. In the event of hyperpyrexia tepid baths of 95° are indicated. Wet capping is recommended to relieve pulmonary congestion, especially when the temperature is 103° or 104° F. in infants of 18 months or over who are not debilitated. Intensive oxygenation is obtained by oxygen inhalation, in a special room or otherwise, the percentage of oxygen in such a chamber being raised from the atmospheric 21 per cent. first to 40 and then to 60 per cent. The subcutaneous injection of 150 to 300 c.cm. of pure filtered oxygen has also been found useful, and intraperitoneal injection in which the absorption of oxygen is more rapid. In another group of cases, marked by a toxic syndrome with profound asthenia, stimulants such as strychnine or ether are indicated, and the need for rehydration of the body is urgent. Transfusion from a suitable donor is said to be the best method, but failing this the repeated subcutaneous injection of 10 c.cm. of blood is recommended. Other measures include the hypodermic or intraperitoneal injection of isotonic artificial serum, glucose, Ringer's solution, or antipneumococcal serum. Weil and Dufourt have reported encouraging results from the use of a polyvalent vaccine consisting of pneumococci of types I, II, and III, and of various strains of enterococci, with *M. tetragenes* and staphylococci. The present authors inject large doses of antipneumococcal serum—40 to 80 c.cm. a day over several days—but they regard it rather as a rehydrating than as a specific agent. They add that ethylhydrocuprein (optochin) has been proved experimentally to have a remarkable selective action on the pneumococcus, but against its clinical application is its toxicity, amblyopia and amaurosis having followed its use. At present, therefore, its value is limited to those cases in which a weak solution can be brought into direct contact with the infecting organism—as, for example, in purulent pleurisy, pneumococcal conjunctivitis, and perhaps meningitis.

525. Treatment of Amoebic Dysentery.

P. MÜHLENS (*Arch. f. Schiffu. u. Tropen-Hyg.*, Bd. 29, 1925, p. 491) states that hitherto emetine, like quinine in malaria, has been regarded as the only specific for amoebic dysentery. He was at first inclined to regard yatren (a preparation of iodo-oxy-quinoline-sulphonic acid) merely as an adjuvant, but he now considers it to be the best remedy at the present time for chronic amoebic dysentery. He thinks, moreover, that in acute amoebic dysentery yatren is at least as effective as emetine, and finds that most cases of bacillary dysentery react promptly to it. In acute cases, of both amoebic and bacillary dysentery, the drug should be given only by mouth in doses of 0.5 or 0.8 gram four to six times a day, commencing with 0.05 or 0.1 gram. In chronic cases internal treatment is usually sufficient without employing emetine. Rectal injection is chiefly required in chronic cases in which ulcers can be found on rectal examination. A combination of internal treatment and rectal injections in doses of 1 to 2 grains by the mouth and 3 to 5 grams by the rectum is particularly efficient in old-standing amoebic dysentery. Many observers have found that a single course of treatment extending over six to ten successive days is sufficient. Most writers, however, recommend two to five subsequent courses lasting from three to six days after a week's interval between each. A strict diet is not necessary during the treatment. Another advantage of yatren is that the simplicity of its application renders it suitable for out-patient practice.

Laryngology and Otology.

526.

Peroral Endoscopy.

L. H. CLERF (*Arch. of Otolaryngol.*, March, 1926, p. 265) comments on the recent great advances in peroral endoscopy. Bronchoscopy has been found to be of great value in the treatment of lung abscess following operation. Chevalier Jackson thinks that its efficiency is due to good drainage through the mouth by bronchoscopic aspiration rather than to medication. Bronchoscopy has also been found by Lukens and Moore to be of value in the treatment of asthma with pathological changes of the trachea and bronchi. Removal

of the secretion results in improved ciliary action, which is necessary for permanent improvement. Bronchoscopic instillation of Iliodol for the x-ray examination of the lung is considered to be the best method of introduction. Of great importance are the observations by Jackson and Lee of treatment of post-operative massive collapse of the lung. In one case thick tenacious mucus was found in the right main bronchus and the middle lobe bronchus with complete plugging of the lower lobe bronchus. The material was removed with a bronchoscopic aspiration tube and the patient made a rapid and uneventful recovery. Early diagnosis of malignant disease of the lung is necessary if there is to be any chance of cure by lobectomy, and bronchoscopy supplies the only means of diagnosis in the early stages. It enables the endoscopist to observe the typical appearance of the infiltrative type of new growth, or in an endobronchial growth tissue can be removed by bronchoscopy for pathological examination. Oesophagoscopy, the one exact diagnostic method in disease of the oesophagus, should be used in all doubtful cases; it enables the source of blood in haematemesis to be localized and facilitates early diagnosis of malignant disease. Operative treatment can be undertaken with some chance of success if the disease is discovered in time. Chevalier Jackson (*JOURNAL*, October 17th, 1925, pp. 686 and 699) has drawn attention to the value of bronchoscopy in connexion with the possible presence of foreign bodies in the air and food passages. They frequently give rise to symptoms simulating such common diseases as pneumonia, bronchitis, bronchopneumonia, empyema, abscess, bronchiectasis, tuberculosis, and asthma; x rays should always be combined with careful and repeated physical examination. A loud asthmatic wheeze is frequently present, and of great diagnostic importance in certain tracheo-bronchial foreign bodies. For the diagnosis of non-opaque foreign bodies in the trachea an elaborate x-ray technique has been devised by Manges.

527. Hearing after the Radical Mastoid Operation.

J. A. KEEN (*Journ. of Laryngol. and Otol.*, March, 1926, p. 145) has studied 60 cases of radical mastoid operation. Hearing tests were made as soon as the ear was dry after operation and again after an interval of twelve months to ascertain whether, after successful operation, the hearing remained the same. Only those cases were tested in which the cavity was completely healed and dry at the time of the first test and remained so for twelve months afterwards. The author concludes that the degree of hearing which remains is quite independent of the duration of otorrhoea prior to the operation, provided that the bone conduction remains good. Hearing tests before operation afford no indication of the extent of post-operative hearing. With the possible exception of cholesteatoma the state of the ear at the time of operation has no bearing on the final hearing capacity. The best type of operation cavity from the point of view of hearing is a large, or moderately large, cavity lined with epithelium. Of the 60 patients of the author's series one-third heard better after a year and two-thirds heard worse; improvement probably depends upon use. In the most striking case of improvement the deaf ear had been systematically used in preference to the sound ear. The bone conduction tests varied very little, while the voice and watch tests varied within wide limits. Keen thinks that the sound of a tuning-fork placed on the mastoid reaches the cochlea by true molecular transmission through bone and that the osteo-tympanic explanation of bone conduction is not satisfactory. He adds that Helmholtz's classical explanation of sound conduction does not appear to be entirely satisfactory as it does not take into account the possibility of hearing in the absence of drum and ossicles. But it has been proved that sound vibrations reach the cochlea by other ways and in exceptional cases these unusual channels are so developed that hearing is excellent.

528.

Rhino-scleroma of the Pharynx.

ARGUARD and LAVAL (*Arch. Internat. de Laryngol., Otol. et Rhinol.*, December, 1925, p. 1164) describe a case of rhino-scleroma occurring in the pharynx. In the cases previously reported most of the patients had lived out of Europe and particularly in Central and South America, but the cases in Austria, Hungary, Poland, and Russia may almost be classed as endemic. A man, aged 68, had, forty years ago, spent four years in the Philippine Islands. In 1923 he complained of discomfort in the throat, especially on eating or speaking, and even during quiet respiration. He had a hypertrophic and deeply ulcerated condition of the right tonsil which very closely resembled Vincent's angina; the ulceration spread on to the base of the tongue. The condition improved under local treatment. Seven months later there was a distinct relapse. The tonsil, back of the tongue, and the lingual tonsil were very swollen. The lingual tonsil and the right palatine

tonsil were removed and the fragments showed a practically normal epithelium with an abundant submucosa, beneath which was a large mass of cells. In some cases the deeper epithelial cells and the underlying mass were intermingled, and it was very difficult to say where the epithelium ceased. The main mass of cells are described as plasma cells, and among them were found certain distinctive cells. One type of these special cells (cells of Russell) appears to consist of a globule of "hyaline," probably due to degeneration of the plasma cells. A second type (cells of Mikulicz) consists of cells in which the degeneration has produced a bilocular or trilocular cell with the loculi filled with "hyaline" and the nucleus centrally placed between the loculi. These cells are epithelial cells in contrast with those of Russell. Diagnosis depends on the recognition of these special cells.

Obstetrics and Gynaecology.

529. Pseudo-neoplastic Tuberculosis of the Body of the Uterus.

ACCORDING to A. A. BABES (*La Gynéc.*, January, 1926, p. 4), tuberculous disease affects the body of the uterus not only in a miliary form, and an ulcero-caseous form having its primary site in the mucous membrane, but also in a hypertrophic or pseudo-neoplastic form. The last named, although well known in the cervix, has been much more rarely reported as occurring in the body of the uterus. In a case described by Babes a 6-para aged 50, who complained three years after the menopause of abdominal pain and copious fetid vaginal discharge which was sometimes haemorrhagic, was suspected to have cancer of the body of the uterus: a biopsy led, however, to the diagnosis of interstitial metritis of the body of the uterus with considerable glandular but no atypical proliferation in the endometrium. After operation the uterine enlargement was found to be due to a tumour, the size of an apple, in the posterior wall of the uterus, causing a projection within the cavity, over which the endometrium was thickened and irregular and showed numerous small vegetations. On section the myometrium was found to contain several small cavities filled with pus, and numerous caseous masses were also present; the endometrium was almost entirely replaced by well preserved tuberculous granulation tissue. In other recorded cases hyperplastic tuberculous disease of the corpus uteri has caused subperitoneal tumours simulating myomata. Babes is satisfied that the condition described originates in the myometrium.

530. Pituitary Extract in Induction of Labour.

H. HOELAND (*Zentralbl. f. Gynäk.*, March 13th, 1926, p. 662) states that in 65 per cent. of cases Stein was successful in inducing labour, which terminated usually within eighteen hours, by administering in the morning a tablespoonful of castor oil and injecting intramuscularly at hourly intervals two drops of pituitrin. Eversmann, using a similar method, has been able to reduce the average duration of labour by over 50 per cent. Calmann also has had good results, but in addition administers ether in order to diminish the painfulness of the strong uterine contractions. In about 60 per cent. of cases Hoeland has succeeded in materially shortening the second stage of labour by intramuscular injection of two drops of pituitrin at hourly intervals; English preparations are said to be more effective than German ones. In a few cases he has been able to induce labour at term by injections of pituitary extract, combined if necessary with those of quinine.

531. Elephantiasis Vulvae.

J. A. VAN DONGEN (*Nederl. Tijdschr. v. Geneesk.*, March 27th, 1926, p. 1233), who records an illustrative case in a Dutch girl, aged 13, states that elephantiasis vulvae, which is frequent in tropical countries, is extremely rare in Europe. It is an affection which occupies an intermediate position between an infection and a new growth. In some cases the surface is smooth (elephantiasis glabra), and in others, as in van Dongen's patient, it is irregular and nodular (elephantiasis tuberosa). In some the growth is of firm consistence, and in others, as in van Dongen's case, soft. The surface may be affected by suppuration, rhagades, or fissures discharging lymph, or show vesicles filled with lymph, as in the present case. The growth may reach a considerable size. On histological examination oedema of the subcutaneous tissue is usually found as well as dilated lymphatics, with or without lymphangitis or perilymphangitis. Evidence of infection may be found in the subcutaneous tissue in the form of infiltration of leucocytes. The epidermis may be thickened or thinned or even absent altogether. Giant cells and plasma

cells may be present. Elephantiasis vulvae is almost confined to adults, so that van Dongen's case is a remarkable exception. Traña and Marconi have also reported an example in a child. The cause of the condition is not always the same. Sometimes elephantiasis vulvae is due to a disturbance of the circulation of blood or lymph caused by scars, thrombosis, or enlargement of the inguinal lymphatic glands. In the tropics the condition is due to obstruction of the lymphatics by *Filaria bancrofti*. Some writers, such as Tschlenov and Veit, attribute the elephantiasis to syphilis, whereas Fergue and Massabian incriminate tuberculous. In van Dongen's case both these causes could be excluded. The lesion was probably caused by friction of the clothing giving rise to an epithelial defect which served as a portal of entry for infection. Complete recovery followed amputation of the labia.

Pathology.

532. Interaction of Tuberculosis and Cancer.

L. CENTANNI and F. REZZESI (*Rif. Med.*, March 1st, 1926, p. 195) have performed a series of experiments on mice with a view to determining the relation between tuberculosis and cancer; the cancerous material was taken from adenocarcinomata. On the whole it appeared that the two diseases were antagonistic, and that if one was well established the other failed to develop. If a mixture of the tumour and living bacilli was used for an injection the tumour cells were injured and the implanted cells failed to develop. When living bacilli and the cell emulsion were given simultaneously, but in different parts of the body (skin and peritoneum), the tumour usually failed to develop so long as the tuberculous process was active, but sometimes started when the effect of the tuberculous injections had passed off. Living bacilli injected into the substance of a tumour already established caused some necrosis, but did not prevent the death of the animal from relapse or absorption of disintegrated products. Experiments with the injection of dead bacilli showed that they did not cause any appreciable change in the tumour. This fact suggests that the influence of the living bacilli may be due to the state of allergy which active tuberculosis excites.

533. Cholesterol Content of the Cerebro-spinal Fluid in Mental Diseases.

E. G. T. POYNTER and J. RUSSELL (*Journ. Ment. Sci.*, January, 1926, p. 62) publish the results of experiments to find out whether the amount of cholesterol found in certain mental diseases bears any relation to the destruction of brain tissue, or to changes, probably of an inflammatory nature, in the meninges. The Wassermann test and Pandey's test for proteins were performed on all the cerebro-spinal fluids, any fluids which were found to contain blood corpuscles after centrifugalization being eliminated. Using alcohol as a protein precipitant, they found that only traces of cholesterol were demonstrable in the albumin-free filtrate in cases of general paralysis showing a positive Wassermann reaction. But on extracting the protein precipitate with chloroform cholesterol was found in measurable quantities in thirty of these cases, a trace was present in six cases, and none in two. There appeared to be no relation between the amount of cholesterol present and the intensity of the Wassermann reaction, nor could any relation be discovered between the amount of cholesterol and the clinical state. No measurable amounts of cholesterol were found in the cerebro-spinal fluids in cases of dementia simplex, dementia praecox, or epilepsy with insanity.

534. The Reactions of Typhoid Vaccination.

H. J. NICHOLS and A. P. HITCHENS (*Journ. Lab. and Clin. Med.*, March, 1926, p. 517) attempt to explain why recent progress in the active immunization to diphtheria and scarlet fever has not been paralleled in the case of typhoid fever and why it is not yet possible by skin or other tests to distinguish susceptible persons from the immune. The agglutination titre of the blood is not the measure of the degree of immunity in all cases, and no true toxins have yet been isolated. The authors tabulate severe vaccination reactions under two headings—namely, immediate or anaphylactic, and late or toxic; which suggests the possibility of there being two factors in a reaction—the bacterial or allergic, and the toxic. They think that there is also a considerable non-specific element which renders the problem more difficult, but they have noted in some instances that severe reactions may be foretold by immediate skin reactions. They suggest that fractional chemical investigation of the bacilli and their derivatives, together with the experimental use of these fractions in skin tests, may be a fruitful line of research, and also that a more careful classification of the clinical reactions to typhoid vaccination is required.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

535. Pulmonary Tuberculosis following Surgical Operations.

F. BEZANÇON and A. JAQUELIN (*Paris Méd.*, March 27th, 1926, p. 233) state that adult pulmonary tuberculosis may occasionally follow an infantile infection which has been reactivated by some surgical operation. Several French writers since Vernouil (1883) have recorded cases of pulmonary tuberculosis following an operation on an old tuberculous lesion, but the present authors have seen seven cases following operations (hysterectomy, appendicectomy, or herniotomy) upon organs entirely free from tuberculous lesions. The gravity of surgical procedures in cases of active tuberculosis is generally recognized, but it is less well known that patients who are free from all signs of active tuberculosis may develop a serious or fatal attack after an ordinary surgical operation. These seven cases within the last two years show that such occurrences are not rare, although the authors have been unable to find any reference to similar cases in any recent works. They believe that some anaesthetics are more toxic than others, that administration of those which have a toxic action on the liver is most likely to be followed by pulmonary tuberculosis, and finally that systematic cut-reactions among convalescents from operations show, not infrequently, a true post-operative anergy. The authors mention 4 male patients whose ages ranged from 24 to 38; of these, 2 died shortly after operations for gunshot wounds, and the other 2 patients were still living but showed signs of advanced pulmonary tuberculosis. Of the 3 female patients (aged 19, 32, and 35 respectively) 1 died of pulmonary tuberculosis a year after a double ovariectomy and 1 died of the same disease six weeks after hysterectomy. The authors conclude that both ether and chloroform anaesthesia may be followed by pulmonary tuberculosis and that nitrous oxide is free from that risk. Spinal anaesthesia is also said to be quite safe in this respect. Ether was the anaesthetic used in 4 cases and chloroform in 3 cases.

536. The Protein Content of Toxin-Antitoxin.

E. L. BAUER and H. B. WILMER (*Journ. Amer. Med. Assoc.*, March 27th, 1926, p. 942) find that the toxin-antitoxin made in accordance with Park's technique is remarkably free from the protein element both from the clinical and from the laboratory standpoint. In a series of 100,000 children twelve contracted diphtheria either during or shortly after administration of toxin-antitoxin, and were given antitoxin with no evidence of hypersensitiveness. The same was true of a hundred diphtheria contacts who had not had time to develop immunity. Bauer has kept under observation for a period of from one to five years 150,000 children, most of whom had been fully immunized with toxin-antitoxin, and found that none of them gave any marked reaction with toxin-antitoxin or showed any tendency to protein sensitivity by test six months after the injections. The authors are therefore convinced that in the use of a properly made toxin-antitoxin mixture no hypersensitivity to horse protein is developed, and that it is safe and wise to give toxin-antitoxin in asthmatic persons known to be susceptible to diphtheria. To assume that hypersensitivity is developed by toxin-antitoxin it must first be proved that hypersensitivity was not present before the administration of toxin-antitoxin, since those hypersensitive to horse protein do not react to the infinitesimal amounts of protein present in the toxin-antitoxin mixture.

537. Blister Fluid in the Serum Prophylaxis of Measles.

P. MODINOS (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, March 18th, 1926, p. 404) states that since the first introduction of serum prophylaxis in measles the method has presented the following drawbacks: (1) the difficulty in obtaining convalescents' serum, (2) the uncertainty as to whether tuberculosis, syphilis, and malaria were present in the donor or not. Modinos has recently employed blister fluid from measles convalescents in doses of 3 to 5 c.cm., as it presents the following advantages: (1) It is much easier to obtain 10 to 15 grams of serum by a blister applied to a child of 6 to 10 years of age than the same quantity by puncture of a vein. (2) Therefore anyone will submit to the application of a blister, and removal of the fluid, whereas few children readily submit to removal of a much larger quantity of whole blood. (3) The transmission of malaria is excluded, as the

plasmodium is not found in blister fluid, even during severe attacks of malaria. As regards tuberculosis and syphilis, these diseases are not only more common above the age of 20, but when occurring in children are so obvious that such subjects can be excluded at once from acting as donors.

538.

Rheumatic Aortitis.

F. BEZANÇON and M.-P. WEIL (*Ann. de Méd.*, February, 1926, p. 174) review the literature and record a personal case in a girl, aged 21, who developed her first attack of acute rheumatism at the age of 14, when the heart was not affected. The following year she had a second attack, when the existence of rheumatic endocarditis was detected. The third attack, which occurred five years later, was subacute in character, almost entirely apyrexial, and principally involved the aorta. The first part of the vessel was affected not only in the valves but in the trunk as well. The ascending portion was found on x-ray examination to be the seat of a cylindrical dilatation which was revealed clinically by a thrill and a pulsation which was most prominent in the right presteral region. There was a loud systolic murmur at the base of the heart conducted towards the outer half of the right clavicle, and a less intense diastolic murmur conducted towards the xiphoid process. The aortitis was in no way affected by salicylate treatment. Two subsequent radioscopic examinations at intervals of twenty months showed the progressive character of the aortic lesions, which were accompanied by slight though persistent pains in the joints as well as by deformities of the fingers and marked amyotrophy of the small muscles of the hands.

Surgery.

539. Median Sternotomy in Mediastinal Tumours.

H. GAUDIER (*Bull. et Mém. Soc. Nat. de Chir.*, March 6th, 1926, p. 245) has recently had occasion to try the effect of median sternotomy to relieve the pressure effects in a case of a malignant tumour arising in the mediastinum. The patient had been operated on eleven years previously for carcinoma of the breast; this was followed by a recurrence in the mediastinal glands. There was much swelling of the arm on the affected side, which presented the appearance of elephantiasis; trophic ulcers developed on the fingers, and there was also severe pain. Radiographic examination showed the presence of a large mass, probably arising in the glands in the mediastinum. Treatment by deep therapy appeared to aggravate the symptoms by giving rise to pressure effects. As the conditions were becoming intolerable it was decided to attempt a decompression operation on the mediastinum. Laryngoscopy and oesophagoscopy brought to light no paralysis or obstruction, although the patient could only swallow with difficulty. The sternum was divided in the mid-line under local anaesthesia and without difficulty. A separation of 3 cm. was obtained and the symptoms were immediately relieved. The wound was closed with drainage. The condition of the patient was much improved and she could swallow and sleep with much comfort. Deep x-ray therapy was started again and caused no trouble. The operation appears one which has definite indications in such cases and there is little risk in its performance.

540.

Gaucher's Disease.

E. H. CUSHING and A. P. STOUT (*Arch. of Surg.*, February, 1926, p. 539) remark that although Gaucher's splenomegaly has striking clinical characteristics the diagnosis has rarely been made except by the microscope. The only treatment that has found favour has been splenectomy, but little is known about the late results of this operation. In forty-nine cases which have been analysed the authors find that the symptoms usually appear in childhood; sixteen patients were over 30 years of age, and females are more often affected than males. There is marked splenic hypertrophy. One of the most striking signs is the discoloration of the skin, which becomes bronze or brownish-yellow. The blood picture shows anemia and consistent leucopenia; no abnormal cells are present, and the coagulation time appears normal. There is also a peculiar wedge-shaped thickening of the conjunctiva yellowish in colour. The liver also enlarges and there is a definite haemorrhagic diathesis. The lymph glands are not enlarged and ascites is rare. There may be destruction of the bones and an osteoarthritis with subsequent formation

of a sequestrum. The usual medical treatment for anaemia is given; transfusions and radiotherapy have failed to arrest the disease. The authors add that enough evidence is not available as yet to show that splenectomy actually prolongs life. The general health after this operation is, however, improved and the tendency to bleed is diminished. The etiology of the disease is at present unknown.

541. Myxochondrosarcoma of the Knee.

F. FEDELI (*La Chirurgia degli Organi di Movimento*, February, 1926, p. 209) publishes a case of myxochondrosarcoma of the capsule of the knee-joint in a man aged 20; the symptoms had lasted two years. The starting-point of the disease was an injury, after which the knee slowly increased in size. There was a family history of tuberculosis, and the patient himself showed signs of a chronic affection at the left apex, probably tuberculous. The skin reaction was feebly positive. The knee was painful after prolonged standing or exercise and became swollen. There was some fluid in the joint, which was slightly flexed, and movement was very limited and painful: there was some hypertrophy of the thigh muscles on the affected side. Radiography showed some rarefaction in the femoral epiphysis. The Wassermann test was negative. The temperature of the skin over the knee was not raised, but the superficial veins were visible and dilated. There were no sinuses, and the general condition of the patient was good. The thigh was amputated in the upper third and a myxochondrosarcoma was found invading the knee-joint and destroying the articular cartilage.

542. Surgery in Diabetes.

E. S. JUDD, R. M. WILDER, and S. F. ADAMS (*Journ. Amer. Med. Assoc.*, April 10th, 1926, p. 1107) report the results of four years' experience in endeavouring to minimize the mortality rate of surgery in the presence of diabetes. Insulin was given to control glycosuria, and four days before operation a diet was prescribed containing 140 grams of carbohydrate in order to build up a reserve of glycogen and thus prevent post-operative acidosis. After the operation treatment consisted in the administration of glucose by proctoclysis until post-anaesthetic nausea had disappeared; it was then continued in the form of fruit juices and ginger ale by mouth, sufficient insulin being given in repeated doses so that at least 75 grams of glucose was metabolized every twenty-four hours, the slightest clinical evidence of acidosis being the signal for active treatment. By placing all diabetics under one service in hospital no opportunity was given for any interruptions in precise dietetic and insulin treatment both before and after operation, the purely surgical problems and the choice of anaesthetic being left to the surgeon. Ether was used in the majority of cases, but the authors think that local anaesthesia is desirable provided that it does not entail any undue prolongation of the operation. It was found that the delay in the healing of operation wounds was not greater than usual provided that the diabetes was controlled; the healing of chronic ulcers may possibly be stimulated by the direct application of insulin to the wound. The authors suggest also that diabetic patients should be referred for operation to hospitals where surgeons may be able to co-operate with physicians experienced in the treatment of diabetes.

543. Strangulated Hernia.

A. J. BELLER and R. COLP (*Arch. of Surg.*, April, 1926, p. 901) discuss the viability of the intestines in the sac in cases of strangulated hernia. In two recent cases the contents of the sac were thought viable and were replaced in the abdomen; subsequent necropsies, however, showed gangrene and peritonitis. The majority of cases of strangulation occur in the fourth to the sixth decade; this is probably due to greater straining and coughing. There is usually sharp pain and vomiting and often constipation. The authors state that operation is the only treatment and that taxis is an inheritance of preaseptic surgery. Local anaesthesia is preferable. The viability of the intestine is of prime importance. In 47 doubtful cases 14 patients subsequently died from intestinal obstruction or peritonitis. The intestines appeared viable at operation, yet there was progressive destruction of the bowel wall leading to gangrene. The patients were usually over 50 years of age, and there was sclerosis of the vessel walls. In doubtful cases most surgeons are unwilling to resect, yet in such cases the mortality might be lowered by the more radical operation. Resection need not necessarily be performed in doubtful cases; the gut can be left exposed in the wound for six to eight hours before deciding its fate. Where it is gangrenous resection and anastomosis is to be preferred to enterostomy. If obstruction has been present for some time a jejunostomy may be advisable to drain the higher bowel, and this lessens toxæmia. Early operation and local anaesthesia will lower the mortality. Jejunostomy may be useful when strangulation has lasted for more than twelve hours.

Therapeutics.

544. Atophanyl in Rheumatism.

M. BOSTLUND (*Ugeskr. f. Læger*, February 11th, 1926, p. 130) has found various rheumatic conditions, including lumbago, torticollis, and neuralgia, to react very satisfactorily to atophanyl, which is a mixture of equal parts of atophan and sodium salicylate. Each ampoule, prepared by Schering of Berlin, contains 0.5 gram of each drug, a small quantity of novocain being added. During the past eighteen months the author has given more than a hundred intravenous injections to about thirty patients with uniformly good results, which in some cases are quite dramatic. In rheumatic fever this treatment not only relieved pain, but reduced the temperature. In chronic arthritis and severe forms of sciatica he had to admit that the beneficial action of this treatment was only transitory. In only one case did he give more than one injection a day, and he found the intramuscular route too painful. The intravenous injections were, as a rule, painless; when pain did occur it passed off in a minute or two after the arm was raised. The intravenous injection should be undertaken slowly, and it is well to aspirate 5 c.cm. of blood into the syringe so as to mix it with the solution before this is introduced. L. PETERSEN (*ibid.*) recommends the intravenous injection once a day of atophanyl for various rheumatic conditions, and he supplements this treatment by giving 0.25 gram of potassium iodide and 0.25 gram of urotropine by the mouth three times a day. Under atophanyl treatment pain in the joints rapidly diminishes, tophi disappear, and the excretion of uric acid is much increased. After a daily injection has been given for five days, it is discontinued for eight days, during which massage and the administration of potassium iodide and urotropine is continued. The intravenous injections of atophanyl are then repeated, five being given, one every other day. Meanwhile the massage and the exhibition of potassium iodide and urotropine are continued. More than twenty injections should not be given. The action of the atophanyl is lasting and, in the author's opinion, is much more certain than that of colchicin preparations, the toxic effects of which are not provoked by atophanyl.

545. Acriflavine in the Treatment of Gonorrhoea.

L. FERRON and COSNIER (*Gaz. Hebdom. des Sci. Méd. de Bordeaux*, April 25th, 1926, p. 260) find that diamino-methyl-acridine hydrochlorate, termed variously trypaflavine, acriflavine, and gonacrine, is a most efficient urethral antiseptic. Whereas protargol fails to arrest the growth of cultures of the gonococcus in 1 in 500 solutions, acriflavine arrests development of cultures *in vitro* when diluted to 1 in 300,000. The authors have adopted Jansson and Diot's intravenous method of administering acriflavine, the usual dose being 5 c.cm. of a 1 in 50 dilution every second day. It is claimed that the drug is carried by the blood stream to the epithelium of the various periurethral glands which is inaccessible to ordinary injections. Usually there is no local or general reaction, but some patients complain of a bitter taste, constriction of the throat, and flushing of the face; transient palpitation sometimes occurs, and even vomiting. Acriflavine appears in the urine within an hour after its intravenous injection, and it continues to be eliminated for twenty-four hours. The authors give details of nine cases of urethritis; of these, one had received previous injections of silver nitrate and others had had urotropine, alkalis, and potassium permanganate injections. These patients received from nine to fifteen injections of acriflavine, the average being 12.25. The average duration of treatment was twenty-six days. Eight patients were cured; in one, after fifteen injections gonococci were still present in the pus. In addition, two patients who had severe gonococcal cystitis were cured after five injections given on alternate days. One patient with gonorrhoeal arthritis of two months' duration had had hot-air baths and the actual cautery without benefit. He received eight injections of gonacrine during a period of fourteen days. After the fifth injection the pain disappeared and the swelling was diminished; the patient was able to get up and walk. After eight injections he was discharged, cured. The authors state that after more than twenty years' experience of many methods they are convinced that no other treatment can yield such excellent results.

546. Insulin-Glucose Treatment in Post-operative Vomiting.

CLAUDIA POTTER (*Anesthesia and Analgesia*, April, 1926, p. 63) reports 185 operation cases in which insulin-glucose was given as a routine measure for the purpose of estimating its value in the prevention of post-anaesthetic vomiting. From this experience, as well as from its trial in selected cases in which acidosis or surgical shock might be anticipated, and in very toxic cases, she concludes that this combination appears to

be a very potent remedy in post-anaesthetic vomiting, the best results having been obtained in cases of acidosis and toxæmia. More caution in the administration of insulin is needed in the non-diabetic than in the diabetic patient, and, absorption of glucose by the rectum being uncertain, the effect of insulin requires closely watching. The glucose was given by the mouth or rectum thirty to forty minutes before operation, allowing at least 2 grams of sugar for each unit of insulin when given by the mouth and 3 grams when given by the rectum. Five units of insulin were injected hypodermically twenty to thirty minutes after giving glucose by mouth, and forty to fifty minutes when given by rectum. In severe cases needing glucose intravenously 10 units of insulin were given about ten minutes later, but it is stated that this method is not advisable unless vomiting is persistent and fails to yield to the use of insulin with glucose by mouth or rectum.

Anaesthetics.

537. Anaesthesia for Upper Abdominal Operations.

J. T. MASON (*Annals of Surg.*, April, 1926, p. 453) compares the post-operative conditions following local and general anaesthesia in 100 consecutive upper abdominal operations, 50 being performed under ether and 50 under local or local and gas anaesthesia; all were performed by the same surgeon in the same hospital and with the same surgical and nursing staffs. It was found that general anaesthesia produced considerably more effect upon the kidney, liver, and lung tissues than was the case with local anaesthesia. General anaesthesia was induced by nitrous oxide gas and oxygen and continued with open ether; local anaesthesia was induced by infiltrating the anterior abdominal wall, followed by anterior splanchnic block, with a 0.5 per cent. solution of procaine in 0.5 per cent. sodium chloride with nine drops of adrenaline chloride added to each 100 c.cm. Mason states that individual sensitiveness to pain and apprehension are important factors in determining the success or otherwise of a local anaesthetic and that it is important to ensure rest, sleep, and a high glycogen reserve; a narcotic should be administered one hour before operation. Under local anaesthesia the average duration of operations was eight minutes longer than for those under general anaesthesia, but the temperature remained lower and the average stay in hospital was three days less. Vomiting occurred in 18 of the local anaesthetic cases as against 33 under general anaesthetics; in the latter it was more marked and persistent. In no case of local anaesthesia was there any sign of shock.

538. Ethylene as an Anaesthetic.

C. L. HEWER (*Brit. Journ. Anaesthesia*, April, 1926, p. 174) reviews the present position of ethylene as an anaesthetic, and concludes that it possesses advantages in certain cases and especially for operations of medium severity lasting for a considerable time. A satisfactory degree of anaesthesia can usually be obtained with a mixture of 80 per cent. ethylene and 20 per cent. oxygen, and, provided the oxygen is not cut down unduly, the changes in blood pressure, pulse rate, and respiration are negligible. Since more oxygen can be given with it than with nitrous oxide it is useful in quite young children and patients classed as "bad risks"; the ethylene-oxygen combination appears to have less effect upon the blood sugar than any other of the general anaesthetics except the mixture of pure nitrous oxide and oxygen. Its elimination is rapid and it is rare for the patient to vomit more than once, while post-anaesthetic acidosis and pulmonary complications are not greater than those following local anaesthesia. It is contraindicated in operations involving the use of naked flames or the cautery near the face, and in x-ray examinations on account of its explosiveness when mixed with more than 40 per cent. oxygen or between 75 and 95 per cent. air; among its drawbacks are its odour and the impossibility of obtaining absolute muscular relaxation; but in an average case it affords a method of rapid and pleasant induction with moderate relaxation without cyanosis, and a quick recovery with few after-effects. Hower considers that its advantages in certain cases are not possessed by any other anaesthetic agent.

539. Nitrous Oxide Anaesthesia.

E. DESMAREST (*Presse Méd.*, April 14th, 1926, p. 465) recommends nitrous oxide as the safest anaesthetic in serious cases, such as in anaemia, diabetes, severe infections, or toxæmia, as well as for patients suffering from chronic bronchitis and emphysema, with or without cardiac dilatation. The author has employed nitrous oxide in excision of the rectum and Wertheim's operation, as well as in less severe intraperitoneal operations, with complete success and without any subsequent ill effect. Desmarest employs ether in conjunction with

nitrous oxide in many abdominal operations in order to lessen the forcible and deep inspirations which the latter induces. On account of its safety and absence of after-effects it is particularly suitable for relief of pain during the removal of gauze drains in such conditions as cholecystotomy and vaginal drainage. Anaesthesia is rapidly induced and the gauze can then be removed quite painlessly, even when very adherent; similarly, it is of great assistance in the dressing of painful wounds and burns. Although nitrous oxide is the safest anaesthetic it requires special skill in the anaesthetist and great patience in the surgeon. The deep and forcible respiration often inconveniences the operator, while the partial asphyxiation increases the bleeding from the wound; consequently a larger number of bleeding vessels have to be secured than is usual under other anaesthetics. Desmarest has discovered that during nitrous oxide anaesthesia and for half an hour afterwards the coagulability of the blood is almost abolished; post-operative haematoma is therefore not uncommon. Post-anaesthetic vomiting is not uncommon after nitrous oxide, but it is usually controlled by ordinary methods. Desmarest has had only one death. During the performance of a gastro-enterostomy for duodenal ulcer in a man, aged 45, there was practically no bleeding from the incisions, and the author thinks that this exsanguine condition should have warned him of the impending heart failure. This was probably due to myocardial degeneration following an attack of enteric fever two years previously.

550. De-etherization with Carbon Dioxide.

ETHEL RIGHETTI (*Anesthesia and Analgesia*, February, 1926, p. 8) states that the normal carbon dioxide tension in the blood is about 40 mm. Hg; any increase produces hyperpnoea and a decrease produces apnoea. The inhalation of this gas combats respiratory depression, especially when due to anaesthesia. It has been found that after ether anaesthesia 50 per cent. of the ether content of the blood is eliminated in the first half-hour and the bulk of the remainder in from one to two hours, although traces may remain in the blood for two or three days. Even light anaesthesia usually depresses the respiration, especially if a preliminary hypodermic injection of morphine has been given. The elimination of ether from the blood can be accelerated by inhalation of carbon dioxide, which increases the respiratory rate and volume. Consciousness is usually restored in a few minutes after the cessation of the anaesthetic by administration of the gas, which is given usually for five minutes; stimulation is almost instantaneous, the face flushes, and respiration becomes deep and rapid. The author has used it in forty-six cases, and adds that the rapid return to consciousness relieves depression and lessens nausea and vomiting. She thinks that it undoubtedly prevents inhalation pneumonia by relieving the partial atelectasis of the lower lobes, which occurs in prolonged abdominal operations, and suggests that an emergency supply of carbon dioxide in the operating theatre is of more value than a cylinder of oxygen.

Obstetrics and Gynaecology.

551. Intraperitoneal Bleeding from Uterine Chorion-Epithelioma.

W. L. BUTOMO (*Zentralbl. f. Gynäk.*, April 10th, 1926, p. 1034) records the case of a woman aged 23 who, after curetting of a two months' abortion, suffered from menorrhagia with gradually increasing haemorrhage, which became continuous six months later. The bleeding was arrested by a second curetting, but the patient had repeated syncopal crises and became extremely anaemic. Examination showed a retro-uterine haematocoele, and an operation was performed for a supposed ruptured ectopic gestation. The haemorrhage was found to have come from a small tear in the posterior wall of the fundus, which was almost entirely replaced by a new growth, shown microscopically to be a chorion-epithelioma and containing abundant syncytial tissue but few Langhans's cells. The author has collected nine cases of intraperitoneal bleeding due to a similar cause: the pre-operative diagnosis was invariably ectopic pregnancy. One patient died before, and three (as also the author's patient) immediately after, the operation. In three cases, although very extensive new growth was present, the intraperitoneal bleeding was the sole symptom.

552. Functional Uterine Haemorrhage.

E. NOVAK (*Journ. Amer. Med. Assoc.*, April 10th, 1926, p. 1105) urges the importance of diagnostic curettage in the treatment of functional uterine haemorrhage of sufficient severity to cause concern, as in no other way can its cause be ascertained and uterine carcinoma excluded. In many cases curettage affords a permanent cure, though in more than half the

symptoms may recur. Daily injections of 1 c.cm. posterior pituitary extract appear to give better results than the administration of thyroid or ovarian extract, though this may be due to its action on the uterine muscle rather than to any endocrine effects. When bleeding recurs even after thorough curettage repetition of this procedure at intervals may be the best treatment in young women, since the possibility of future child-bearing has to be considered. Though careful radiotherapy will generally relieve the symptoms without any ill effects, it has to be borne in mind that there is some attendant risk to the ovaries, and many gynaecologists hesitate to resort to its use unless other measures fail. Novak advises placing the facts before the patient and her friends, and his experience is that most young women will select repetition of curettage rather than the slight uncertainty of the results of radium. In uncomplicated cases about the menopause radium therapy is, he thinks, the ideal course to adopt, hysterectomy being reserved for those cases in which there is some associated lesion necessitating laparotomy.

553. Axillary Prolongation of the Breast.

C. H. FOUCHÉ (*South African Med. Record*, April 10th, 1926, p. 154) describes the occurrence of an abnormally large "axillary tail" of the breast in a primipara, aged 22. Three days after delivery a painful lump appeared in the right axilla, concurrently with engorgement and pain in both breasts. On the next day the lump increased in size and a second swelling appeared between it and the upper lateral quadrant of the breast. With the establishment of the secretion of milk on the next day both swellings became less painful and softer. It was then possible to trace a broad, mobile, flattened band of breast tissue, extending from the upper lateral quadrant of the breast along the lower and outer margin of the pectoralis major into the axilla; it was incorporated with both swellings, which had the feel and consistency of breast tissue. A much smaller lump was found in connexion with the breast of the opposite side, but this caused no pain or discomfort. The author comments on this condition, termed the "axillary tail of Spence," and indicates the lines of differential diagnosis. He draws attention to the theoretical possibility of such an abnormally situated portion of mammary tissue becoming malignant, and raises the question of the desirability of its excision.

554. Pelvic Examination during Labour.

P. BAUMM (*Zentralbl. f. Gynäk.*, April 3rd, 1926, p. 846), as the result of an analysis of 854 consecutive cases of labour, finds that a vaginal or rectal examination is required in only 8 per cent. It is necessary, however, when the head fails to become engaged at the pelvic brim and there is reason to fear prolapse of the cord, when the presentation is uncertain, when the pelvic diameters and anatomical relations have not been determined previously, when the foetal heart sounds are feeble, in haemorrhage, and in abortion between the sixth and seventh months. Among forty-one cases in which the head was unduly mobile prolapse of the cord occurred seven times. Twice this accident was recognized by rectal examination, in the remaining five cases by subsequent vaginal examination. In nineteen cases the presentation could not be determined by external examination; the presentations were either of the head or breech in the majority of cases. In eight of these rectal examination sufficed, but in the remaining eleven cases subsequent vaginal examination was required. Rectal examination was sufficient in two cases that required pelvic exploration; in a third case subsequent vaginal examination was necessary. In eight cases of haemorrhage due to placenta praevia rectal examination failed; it also proved useless in the two cases of abortion. Baumm adds that rectal examination yielded negative or incorrect results in 26.7 per cent. of all cases. The results were incomplete and somewhat misleading in 55 per cent., and in only 17.7 per cent. was a correct diagnosis made after rectal examination alone.

Pathology.

555. Filterable Forms of Tubercle Bacilli.

A. FESSLER (*Centralbl. f. Bakt.*, April 1st, 1926, p. 148) has examined the evidence on which French workers have concluded that there exist filterable forms of tubercle bacilli, and has made a series of experiments himself in an endeavour to confirm their results. He used eleven strains of tubercle bacilli of human, bovine, and avian varieties. Cultures varying from one to four months old were ground up thoroughly in broth and filtered through a Chamberland L3 candle. The filtrate was mixed with a liquid medium, such as glycerin broth or potato broth, and incubated at 38°C. In two cases there appeared a turbidity in the tubes after three

weeks, and on microscopical examination a number of threads were found, dotted with small granules; none, however, were acid-fast. The conclusion that these threads were bacterial forms was falsified by the discovery that a turbidity was also present in uninoculated tubes of medium which had stood in the incubator for some weeks; microscopical examination showed similar thread forms. It appeared, therefore, that these bodies were the result of precipitation of the peptone. Animals inoculated with them remained well. Further experiments were undertaken to ascertain if the filtrates of cultures of tubercle bacilli or of tuberculous pus were pathogenic to animals; with one exception all the results were negative. In the isolated instance one guinea-pig which had been injected intraperitoneally with the filtrate of a human culture died about three months later, and at autopsy a tuberculous condition of the lungs and tracheo-bronchial glands was found. That this had nothing to do with the injection but was due to an aerogenic infection was evident from the distribution of the lesions and from the fact that another guinea-pig injected intravenously with the same filtrate remained perfectly well. Fessler's general conclusions are that the evidence in favour of there being filterable forms of tubercle bacilli is so far quite insufficient and that the results of the French workers are perhaps due to faulty technique.

556. Sedimentation Rate of Red Blood Cells.

H. N. COOPER (*Journ. Lab. and Clin. Med.*, April, 1926, p. 615) has studied the rate of sedimentation of the red blood cells in a number of different diseases. The method he uses is to withdraw about 10 c.cm. of the patient's blood, mix it in a bottle with the residue left by the evaporation of three drops of 20 per cent. potassium oxalate solution, and to deliver 5 c.cm. into a graduated test tube. The tube is placed in a rack, and readings are taken of the level to which the cells have settled after periods of 5, 10, 15, 30, 45, and 60 minutes. The results are plotted on a graph in which the ordinates represent the height of the column of cells and the abscissae the time in minutes. In the normal person the height of the cell column after one hour varies from 2.5 to 4.5 cm. In acute inflammation there is an acceleration in the rate of deposit, apparently coincident with the rise in the number of leucocytes. A rapid rate of deposit therefore signifies a high leucocytosis and is of good prognosis. In tuberculosis, both pulmonary and non-pulmonary, the rate of sedimentation varies with the activity of the disease and the general condition of the patient. In the early stages the rate is little altered; later on it increases. The worse the involvement, the faster is the fall in the level of the cells. Cases that are recovering show a normal rate. In pregnancy the rate of sedimentation increases; the test has been used to distinguish this condition from myomata of the uterus. In one case examined by the author in which pregnancy was associated with eclampsia and acute nephritis the fall of the cells was extremely rapid. The sedimentation rate, however, diminished a week before her non-protein nitrogen began to fall, and was thus of prognostic value in her recovery. Lastly, in malignant conditions the rate of sedimentation is increased, apparently in relation to the degree at which the tumour is advancing. It will be seen that the sedimentation rate is increased in diseases attended by tissue degeneration and destruction. The increased rate is said to be dependent on an increase of cholesterol, globulin, and fibrinogen in the blood.

557. Liver Function Tests.

S. S. BERGER, M. B. COHEN, and J. J. SELMAN (*Journ. Amer. Med. Assoc.*, April 10th, 1926, p. 1114) report the results of a comparative study of five methods of testing the liver function in a hundred clinical cases. The tests, performed simultaneously or within forty-eight hours of each other, were the van den Bergh test, the Widal test (haemoclastic crisis), Rosenthal's test, the examination of the urine for urobilin (Schlesinger's method) and urobilinogen (Ehrlich's reagent), and the Hay test for bile salts. The authors state that since these tests represent different liver functions, any one of which may be impaired, they do not give parallel results. It was found that when all the tests were positive liver disease of a clinically severe type with toxic jaundice was indicated; when four were positive and one negative clinical liver disease of a chronic type, such as that in Banti's disease, pernicious anaemia, or cirrhosis was present. In every case in which all the tests, except the Widal, were positive there was obstructive jaundice due to tumour, a finding of considerable value in differential diagnosis. When only three of the tests were positive it was impossible to correlate the findings with the clinical picture. The authors consider that the tests are of value chiefly in differential diagnosis, and in following the progress of a given case; they afford the greatest amount of information when they are all performed simultaneously and repeated often.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

558. Measles complicated by Gangrene of the Legs.

D. J. HISHON and J. D. ROLLESTON (*Brit. Journ. Child. Dis.*, January-March, 1926, p. 47) report the case of a male infant, aged 16 months, suffering from measles complicated by bronchopneumonia, who developed dry gangrene of both legs ten days after the onset. Death occurred five days later. At the necropsy both superficial femoral and popliteal arteries were found to contain ante-mortem blood-clots throughout their entire length. An infarct was present in the left kidney and a larger vegetation occupied the upper surface of the anterior aortic valve. Rolleston, who has collected eleven other cases from the literature, remarks that gangrene of one or more limbs, which is a very rare complication of an acute infectious disease, is one of the most interesting, as it appeals alike to the physician, surgeon, and medical historian. Gangrene of the limbs occurring in fevers is mentioned by Hippocrates, and recovery of patients in the Plague of Athens, after loss of their hands, feet, and genitals, is recorded by Thucydides. Of the twelve cases of gangrene of the limbs following measles, all but two occurred in children aged from 11 months to 13 years. Six were males, five were females, and in one the sex was not recorded. In all but Munk's case, in which the hand was involved, one or both lower extremities were affected. Five recovered, five died, and in two the issue is not recorded. Operation was performed in six cases, four of which recovered, one died, and in one the result is not stated. The attack of measles was severe in all, and in five the presence of bronchopneumonia was noted. Although gangrene of the extremities as a sequel of an acute infectious disease is usually attributed to an autochthonous thrombosis due to acute arteritis, in the present case the origin of the gangrene was undoubtedly embolic, in view of the definite cardiac lesion and the infarct in the kidney.

559. Anaphylaxis following Administration of Serum.

C. A. STEWART (*Journ. Amer. Med. Assoc.*, January 9th, 1926, p. 113) has recently met with seven instances of anaphylactic reactions after administration of serum in children who had previously been immunized by toxin-antitoxin against diphtheria. The first case occurred after prophylactic injection of tetanus antitoxin in a child who had been given toxin-antitoxin one year previously, five others followed prophylactic injection of scarlet fever anti-streptococcus serum in children who had been immunized from eight to eleven months previously, and the seventh followed therapeutic injection of diphtheria antitoxin in a child who had received toxin-antitoxin three months previously. Although no deaths occurred, Stewart considers that the reactions should serve as a warning to use care in the administration of serums derived from horses in children who have been previously sensitized by injection of toxin-antitoxin. Larson has recently introduced a method of immunization against diphtheria without serum (*Epitome*, October 31st, 1925, parn. 382), and Stewart thinks that the perfection and standardization of this method will prove a distinct contribution to medical science.

560. Alcohol and the Expectation of Life.

K. A. HEIBERG (*Ugeskr. f. Læger*, March 11th, 1926, p. 251) traces the influence of alcohol restrictions, adopted in Denmark during the war, on the death rate in Copenhagen, and states that in 1917 the death rate among men in the ten-year age group 45 to 54 was only 14 per 1,000, whereas in the period 1910-14 it was 19 per 1,000 in the same age group. With regard to the objection that this decline in the death rate might largely be due to abstemiousness in feeding enforced by the war, he explains that the food rationing implied a change rather than a reduction in the dietary of the Dane, and that in the same period and age group there was no decline in the death rate for women, who, on the other hand, were not so addicted to alcohol as the men. Statistics are also quoted by the author showing that, whereas the death rate is considerably higher in the males than in the females of most age groups, this difference has been greatly reduced of late within certain age groups. Thus, in the period 1903-07, the death rate for the age group 26 to 35 was 39 per cent. higher for males than for females. In the period 1923-24 this difference was completely wiped out for the same age group. Again, in the next ten-year age group, 36 to 45, the excess of the male over the female death

rate declined from 61 to 16 per cent. In the third ten-year age group, 46 to 55, there was a fall from 80 to 11 per cent. In the excess of the male over the female death rate. It is pointed out that the age group under review—that is, 26 to 55—is the one in which indulgence in alcohol by men is most common.

561. Spirochaetosis Icterohaemorrhagica and Paratyphoid Bacillaemia.

F. WIDAL and R. J. WEISSENBACH (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, March 18th, 1926, p. 434) report a case, in a boy aged 15, who developed a febrile jaundice of sudden onset with slight epistaxis, but no other haemorrhages. On the fifteenth day the temperature, which had been normal for over a week, rose again suddenly to 104°, and the patient complained of violent headache, without, however, showing any other meningeal signs. There were two subsequent recurrences of fever. The case was therefore a typical one of relapsing jaundice with a well developed febrile infective syndrome and abortive haemorrhagic manifestations. Laboratory examination showed the spirochaetal origin of the jaundice, and examination of the blood and urine showed the coexistence of an organism somewhat resembling *B. paratyphosus* A, but more closely allied to *B. paratyphosus* B. The presence of this organism did not aggravate the disease, as there was no typhoid state, and no rose spots, diarrhoea, or intestinal symptoms.

Surgery.

562. Tuberculosis of the Caecum.

J. W. LARIMORE and A. O. FISHER (*Annals of Surgery*, April, 1926, p. 496) find that primary tuberculosis of the intestine in the adult is comparatively rare; secondary to lung infection it is found in 60 to 90 per cent. of cases ending fatally. The ileo-caecal segment is the usual portion of the intestine affected. Caecal tuberculosis occurs in three pathological forms—fibrous, ulcerative, and hyperplastic. The clinical symptoms of the primary type are not conclusive at first, but are chiefly those of partial obstruction. Tenderness and a palpable mass are usually late occurrences, as is also diarrhoea. Early diagnosis is essential for surgical treatment, and x-ray observations show alterations of the intestinal contour by filling defects, spasms, and disturbances of alimentary motility. In the secondary form an unfavourable prognosis is usually given. There appears to be no better treatment than the surgical. The authors report five cases operated on with four deaths. Surgical treatment in the hyperplastic form of intestinal tuberculosis is usually favourable, in contrast with the ulcerative type; this differs markedly from the secondary type associated with pulmonary lesions. In cases of resection the lower three or four inches of the ileum are included and after mobilization the part is brought out of the abdomen; the ileum is usually anastomosed to the transverse colon. The cases with extensive pulmonary disease were relieved; without operation their condition would have been hopeless. The authors conclude that in selected cases surgery is justifiable; with x-ray examinations such cases may be detected and the extent of the lesion determined.

563. Infectious Muscular Erosion.

M. WOLFSON and LL. BRYAN (*Boston Med. and Surg. Journ.*, April 1st, 1926, p. 586) record a case of infectious muscular erosion causing hernia of the large bowel in the lumbar region, and remark that the case is instructive, showing to what an undiagnosed appendix abscess may lead. A married woman, aged 38, was admitted to hospital complaining of pain in the right lower abdomen accompanied by a low-grade septic temperature. There was a history of Caesarean section seven years previously, and successful haemorrhoidectomy, trachelorrhaphy, and anterior and posterior colpoplasty a month ago. The x-ray examination and blood and urine analyses were negative, and she was discharged on a diagnosis of hysteria with post-operative adhesions. On two subsequent occasions she was readmitted with practically the same symptoms, together with a pain over the lower right lumbar region and an extremely hypersensitive area over the right iliac crest. Nine months later a tender swollen mass was detected in the right lumbar region extending from the right mid-axillary line to the spine, and a deep-seated abscess in

the lumbar muscles and under the iliac crest was opened, the discharge from which contained Gram-negative intercellular diplococci. Two months later an x-ray examination of the spine and pelvis was negative. The abscess recurred three times during the following nine months and for the next three years the patient was in poor health, and stated that the mass over the right hip frequently became prominent and subsided without treatment. On palpation slight pressure would cause it to disappear, only to return immediately on release and especially on coughing or straining. On x-ray examination with an opaque meal the ascending colon and caecum were found to extend through the lumbar muscles posteriorly into a large hernial sac, which was found at operation covered by a flap of fascia which had been eroded through by the old abscess. The sac was dissected down to the hernial opening over the right iliac crest, where the remains of an old perforated retrocaecal appendix were found, at the tip of which was a walled-off abscess the size of a walnut. The hernial opening was closed and the patient made an uneventful recovery.

554. Restoration of Ruptured Anterior Crucial Ligament.

G. PERTHES (*Zentralbl. f. Chir.*, April 3rd, 1926, p. 866) describes the various methods that have been employed for the repair of the anterior crucial ligament. In the period 1913-25 there have been 8 cases of rupture of the crucial ligaments admitted to the Tübingen Klinik; all were verified by operation. In 6 of these cases the anterior crucial ligament was involved; in 1 case the posterior ligament, and in 1 case both ligaments were ruptured. Perthes uses a vortical curved incision, commencing in the mid-line, 3 inches above the patella, carried outwards over the external femoral condyle, and then downwards and inwards to the tibial tuberosity; the quadriceps tendon, patella, and ligamentum patellae are all divided vertically. By this method the intercondylar fossa is fully exposed. The torn ends of the ligament are freshened and approximated by means of a thin aluminium-bronze wire passed transversely through the tibial portion of the ligament, and then through two canals bored through the external condyle at the site of the insertion of the anterior crucial ligament, the lower openings of these canals being 1 cm. apart. The two ends of the wire are drawn taut, thus approximating the freshened surfaces of the ruptured ligament, and are then twisted together over the outer surface of the external femoral condyle. The synovial sac is closed with catgut sutures and the two halves of the patella are approximated with tendon and silk sutures, the soft tissues are sutured in layers, and the joint immobilized in plaster splints for three weeks. Perthes has also performed Groves's operation—passing a strip of the ilio-tibial band through canals traversing the external condyle and the head of the tibia. The patient was a woman, aged 22; she had ruptured the right anterior crucial ligament four years previously. The operation was quite successful, but four months later she felt severe pains in her right knee, and the abnormal mobility of the joint returned. Perthes believes that the recurrence was due to atrophy and partial absorption of the fascial strip.

555. The Diagnosis of Lipomata.

AUVRAY (*Bull. et Mém. Soc. Nat. de Chir.*, March 27th, 1926, p. 328), in describing a somewhat rare case of lipoma of the palm of the hand, emphasizes the difficulty of diagnosis from tuberculous teno-synovitis, a condition which is comparatively common. Fluctuating tumours also closely simulate lipomata in some situations and their diagnosis may be difficult. When a bag of ice is placed over a lipoma the tumour hardens under the effect of the cold; it is the only tumour which is so affected. In a case Auvray demonstrated, of a patient with a tumour in the thigh, all who examined it thought it was a lipoma. It did not harden after the application of cold, and an operation showed it to be a tuberculous abscess, thus confirming the test. The cooling brought about by the evaporation of ether over a lipoma produces a similar effect. This procedure, which is extremely simple and little known, is said to be a sure means of diagnosis when any uncertainty exists.

556. Periarterial Sympathectomy in Surgical Tuberculosis.

G. ICHOK (*Presse Méd.*, April 7th, 1926, p. 435) collates recent reports on the treatment of tuberculosis of the bones and joints by periarterial sympathectomy, which causes dilatation of the vessels and a local hyperaemia as in the Bier treatment. Favourable reports have been reported by Gundermann, Löwen, and Cotte, but Peitri and Sebestyén have not obtained any benefit by treating the nerve. Ichok thinks that the reports published so far indicate that the method has been useful in some cases and is worth further trial.

Therapeutics.

557. Treatment of Pelvic Inflammation.

J. A. MCGILNN (*Therapeutic Gazette*, April 15th, 1926, p. 229) condemns all major surgical operations during the acute stage of pelvic inflammation, especially salpingectomy and the ligaturing of veins in infective thrombo-phlebitis. Diagnosis should, he states, be made on clinical evidence since it is dangerous to await a positive blood culture report. He advocates serotherapy, chemotherapy, and general treatment. He uses large intravenous doses of polyvalent antistreptococcus serum since small doses given intramuscularly or subcutaneously are useless. In two cases the intravenous injection of mercurochrome was so effective that McGilnn employs it in all severe cases. Nephritis, severe stomatitis, and other toxic sequels have been encountered, but without fatal results. He has never found benefit result unless there was a severe reaction following the intravenous injection of any germicide. He considers that general tonic treatment is the most valuable aid to recovery—sunlight and pure air, morphine to secure rest, and alcohol when indicated. When anaemia is severe small and repeated blood transfusions are often useful, but may cause "protein shock reactions." Localized pelvic inflammation requires rest in bed and purely expectant treatment for the relief of pain and anaemia. The author cites numerous cases indicating that inflammatory exudates and adhesions often disappear completely. He strongly recommends non-specific protein treatment and uses pasteurized or, preferably, boiled milk. In the case of out-patients he uses one of the sterilized milk or casein products supplied in ampoules. These were found to produce milder reactions than did pasteurized or boiled milk. The severity of the reaction, however, appears rather beneficial than otherwise; it occurs from three to six hours after injection, and there may be a severe rigor followed by a temperature of 104° or even 106°, but this falls quickly with profuse sweating. Daily blood counts may show also a definite leucocytosis, persisting for several days; there is sudden relief from pain and a sense of well-being, and consequently the patients submit willingly to a repetition of the injection. He finds that previous protein tests are unnecessary and that anaphylaxis does not occur. The first injection was usually 5 c.cm., the next, given in five or seven days, was 10 c.cm. The number given depended on the extent and chronicity of the lesions; the maximum number was usually six injections. In cervical gonorrhoea there was usually a local reaction in the form of a profuse gonococcal discharge after the injections. The author now uses this treatment in all cases before resorting to surgery except for the evacuation and drainage of localized abscesses.

558. Vaccine Treatment of Chronic Gonorrhoea.

F. WOLFF (*Zentralbl. f. Gynäk.*, April 17th, 1926, p. 1069) publishes conclusions derived from treating resistant cases of chronic gonorrhoea by administration of (1) stock vaccines, (2) freshly prepared but not necessarily autogenous vaccines, and (3) living vaccines. He finds that stock vaccines supplied by manufacturing chemists are to a certain extent useful as an adjuvant to local treatment, are helpful in cases of adnexal inflammation, and may serve by provocation to make a latent gonorrhoea manifest; nevertheless they are not therapeutically effective in the absence of local treatment. Freshly prepared vaccines were found superior to all stock preparations. The author states that they should be prepared from a clinically virulent case of acute gonorrhoea or an acute complication (such as prostatitis or epididymitis) in an old-standing case, and should be given in high doses of from 500 million upwards twice a week. They speedily lose their efficacy with keeping and should be discarded after a few weeks. Focal and general reactions are said to occur much less frequently after injections of fresh than of stock vaccines, possibly because the latter are apt to contain liberated endotoxin. In cases in which acute and subacute symptoms and signs have subsided and in which after two or three months there is no tendency towards cure, Wolff has had excellent results from the subcutaneous injection of living gonococci, preferably derived from another patient, on one or if necessary two occasions. A culture not more than one week old from a virulent strain is used; three or four injections at a time of 0.1 to 0.2 c.cm. of a well shaken emulsion of a culture in 2 c.cm. of distilled water being given, the sites of infection being about 6 cm. apart. A painful phlegmon develops and sometimes an abscess; the second injection must not be given until these have almost subsided. No metastatic abscesses have been noted, nor signs of arthritis or endocarditis. This vaccine treatment alone sufficed in many cases to cure chronic uterine gonorrhoea; it did not appear to affect gonorrhoea of the mucous membranes such as urethritis, in which cases local treatment was also required.

569. Insulin in Diabetic Tuberculosis.

V. CORDIER and P. SÉDALLIAN (*Journ. de Méd. de Lyon*, April 20th, 1926, p. 205) state that there is still much divergence of opinion as to whether insulin should be employed in cases of diabetes complicated by tuberculosis. Some authorities assert that the administration of insulin lights up a quiescent tuberculous focus in a diabetic. Others, while agreeing that insulin has no directly beneficial effect on the tuberculosis, claim that the abolition of acidosis and the rapid improvement in the patient's nutrition which usually follows insulin treatment must increase the patient's power of resistance. The present authors, though agreeing that the number of recorded cases is too small to justify a dogmatic statement, consider that, in view of the uniformly fatal result in cases of post-diabetic tuberculosis, insulin should be given a more extensive and prolonged trial. Fibrous and progressive disease, however, constitutes an absolute contraindication. They give details of four cases in which the treatment proved beneficial, though death was not prevented.

570. Treatment of Gastric Dyspepsia.

F. L. APPERLY (*Med. Journ. of Australia*, March 27th, 1926, p. 354) has been investigating the conditions which interfere with the passage of food from the stomach into the intestine, and finds that before the intestine will accept chyme a certain salt concentration or osmotic value must have been reached. Any value above or below this causes rejection by the intestine of the food back into the stomach, where it remains until concentration is correct. The chyme should be about isotonic with sodium chloride in the blood. The administration of hydrochloric acid, sodium bicarbonate, or sodium chloride was found to have the effect of raising the salt strength of the food more rapidly to the required value, with the result that regurgitation of duodenal fluid was diminished, acidity was raised, and the stomach emptied more rapidly. The author believes that this explains why the use of sodium bicarbonate is valuable in some cases of achlorhydria with dyspepsia, and is followed by relief of pain and discomfort, while in others no benefit is obtained. The usual dose of sodium bicarbonate is from 15 grains to 1 ounce, given in about one ounce of fluid. In other cases hydrochloric acid was found more useful.

Radiology.

571. Radiological Diagnosis of Pulmonary Tuberculosis.

R. T. MONROE and E. S. EMERY, JUN. (*Boston Med. and Surg. Journ.*, April, 1926, p. 619) suggest that patients with vague symptoms of malaise, tendency to fatigue, and other possible indications of pulmonary tuberculosis may have the presence or absence of this disease definitely established by x-ray photographs, and that the inconvenience and expense of examining a large number of suspects fruitlessly may be avoided by a careful study of the symptoms rather than of the physical signs. The symptoms, signs, and x-ray findings of 107 patients were tabulated and examined statistically, and a comparison was made with another series of 500 patients of whom similar details were available. Considerable discrepancies between the physical signs and the x-ray picture were manifest in several cases; thus cavities were found present by x-rays in patients in whom the physical signs did not suggest their presence, and vice versa. In the 107 cases faulty diagnosis in 21 was attributable to the physical signs. Monroe and Emery therefore advise routine x-ray examination of the chest whenever the symptoms point to tuberculosis, irrespective of the indications afforded by the physical signs. Frequent examinations of the sputum, pulse, and temperature should not, however, be neglected, since a negative x-ray examination does not necessarily exclude tuberculosis. The authors mention that seven cases with negative x-ray findings had tubercle bacilli in the sputum.

572. X-Ray Treatment of Laryngeal Tuberculosis.

J. J. DEBICKI (*Journ. de Radiol. et d'Electrol.*, March, 1926, p. 120) reports most encouraging results following the x-ray treatment of laryngeal tuberculosis. He quotes a number of authors who have obtained similar results, particularly during the last five years; they all emphasize the anaesthetic effect of the treatment. Since 1921 Debicki has treated 33 patients with laryngeal tuberculosis, of whom 26 were completely cured. He employs a spark of 0.27 cm. and the filter is made of 4 mm. aluminium and 5 mm. cardboard or wood; the anticathode is placed at a distance of 0.23 cm. from the skin. The larynx is irradiated every week, alternately on either side. The treatment is repeated after an interval of four to six weeks according to the progress of the disease. The

author does not agree with those who consider that destructive lesions contraindicate x-ray treatment. Three of his patients were 52 to 62 years of age. Two patients were completely cured after treatment lasting for more than a year; in the other case a recurrence occurred after six months. The author states that while the most favourable results are obtained in early cases, serious destructive forms may be equally treated with success. The optimum dose is 5 Holzknecht units applied every week to each side alternately, and repeated after an interval of four to six weeks between each course. Apparent aggravations occurring during the course of treatment are not held to contraindicate its continuance. The treatment should be continued for some time after the disappearance of all symptoms.

573. X-Ray Treatment of Enlarged Prostate.

C. GUILBERT and R. D. GAVILLARD (*Urol. and Cut. Rev.*, March, 1926, p. 150) record their experience of x-ray treatment of 45 cases of enlargement of the prostate during the last four years. The results were as follows: 34 were cured by one treatment and 6 by two treatments. In 1 patient who refused a second treatment no good effect was obtained, 3 were subsequently operated on, and 1 showed a relapse during treatment. On conclusion of the treatment some patients developed bladder trouble owing to infection or deficiency of the bladder muscles, but these symptoms were independent of x-ray treatment. The authors maintain that irradiation of the prostate is a very mild procedure which does not exert any dangerous influence on the organ or interfere with surgical measures if these are required subsequently. It is important that irradiation should be instituted as early as possible, as a commencing hypertrophy is less sclerotic and more sensitive to x-rays and the vesical troubles are transitory and more curable. In order to avoid relapses the portal and general tension should be lowered in plethoric cases, and in infected cases the infection should be cured by vesical irrigation and vaccines.

574. Vesical Lesions Produced by Sodium Bromide Solutions.

ACCORDING to B. OTTOW (*Zentralbl. f. gynäk.*, May 1st, 1926, p. 1199) a 25 per cent. sodium bromide solution has now replaced collargol as a "contrast medium" in cysto-radiography, as it gives better images; but several writers have reported the occurrence of haematuria and of renal and vesical lesions following its employment. The author describes two cases of severe cystitis following intravesical injection of 200 c.cm. of a 25 per cent. solution of sodium bromide. The first patient, aged 41, had uterine myomata. Immediately after cysto-radiography she had dysuria and scanty urine, which persisted for four days. The vesical mucosa was partially detached and the trigone was deeply congested and of a dull blood-red colour. In the second case the bladder was anaesthetized with 50 c.cm. of a 2 per cent. alypin solution prior to the injection of 250 c.cm. of sodium bromide solution, which was followed by a sensation of burning and pressure. Two days later the patient had similar symptoms to the former. Cystoscopic examination two days later showed much damage to the vesical mucosa, ulceration, and bullous oedema. The author recommends that immediately after the skiagraphy the bladder should be emptied and it should then be irrigated with boric lotion. Since this procedure has been adopted he has not seen any similar injuries to the bladder wall.

Obstetrics and Gynaecology.

575. Persistent Occipito-posterior Presentations.

F. B. CRAIG (*Med. Journ. of Australia*, March 27th, 1926, p. 352) discusses the diagnosis and management of persistent occipito-posterior presentation. By abdominal palpation a correct diagnosis of the position of the foetus should be made after the thirty-sixth week, in time to correct malpositions. In occipito-posterior positions the breech occupies the fundus and foetal limbs can be palpated in the front of the uterus about the umbilicus. In the right occipito-posterior position the sinciput is easily felt above the pelvic brim, near the left ilio-pectineal eminence, and usually at a higher level than the occiput, which lies more deeply in the right side of the pelvis. In the left occipito-posterior position the sinciput is to the right in front and the occiput deeply placed to the left. By palpating these two points of the head it can be ascertained whether the head is movable or fixed in the brim. The foetal heart sounds are usually heard at their maximum above and lateral to the anterior shoulder, though a loud uterine souffle may interfere with their clearness. When the foetal spine has become slightly extended over the convexity

of the lower lumbar and upper sacral vertebrae of the mother, the foetal chest comes to lie close to the surface in the hypogastrum; the sounds will then be heard distinctly also near the middle line or even across it in the opposite iliac fossa, which may lead to a wrong diagnosis. During labour the foetal parts may be recognized between the pains, and the progress of the head estimated. When posterior positions are recognized before labour has started the head can be rotated into an anterior position by Buist's method. After the onset of labour it is unnecessary to interfere if the head is lying in the oblique diameter and is descending, provided that the condition of the mother and foetus is good. The mother should lie on the side to which the occiput points so that the breech may be dragged further over to the same side, the foetal spine being thus straightened, the occiput forced down, and its rotation to the front encouraged. Craig mentions four ways of dealing with arrested descent or backward rotation of the occiput. In multiparae manual flexion may be tried by pushing up the sinciput during a pain, but is seldom effective. When dilatation is complete the head may be rotated by the whole hand in the vagina after being pushed up to disengage it slightly. For this the patient is anaesthetized, placed in the left lateral position, and the right knee supported. In multiparae this may be all that is required when the pains are strong, but in most cases it is recommended that forceps be applied as soon as the head is in the correct position. A third method is rotation by forceps, with the minimum of force, the tissues being handled very gently. The fourth method, craniotomy, is usually only necessary when the outlet of the pelvis is contracted. Such a degree of deformity should, however, have been detected by an ante-natal examination and preparations made for Caesarean section.

576. Treatment of Repeated Abortion.

J. NOVAK (*Zentralbl. f. Gynäk.*, April 10th, 1926, p. 1003) records two cases in which healthy women, having (like their husbands) negative Wassermann reactions, had had five or six pregnancies in succession terminated by spontaneous abortion in the early months. In the ensuing pregnancy they were given small doses, about 20 drops, of a 0.05 per cent. potassium iodide solution daily, together with three Bland's pills. Healthy infants were born at term, as was the case also in two other patients who received similar treatment; one of these had previously given birth to a macerated foetus in the seventh month, and the other had suffered from recurrent pregnancy nephropathy with death of the foetus. In these patients also the Wassermann test was negative. The treatment was originally thought to be effective by reason of its action against a latent syphilis; Novak, however, regards it as probably affecting the endocrine glands, especially the thyroid.

577. Fibroma of the Cervix.

J. VANVERTS (*Bull. Soc. d'Obstét. et de Gynéc. de Paris*, April, 1926, p. 242) reports a case of the rare condition of fibroma of the cervix, the only one he has encountered in the course of practice during thirty years. The fibroma was as large as a small mandarin orange and had developed in the anterior wall of the cervix. It was sessile, and on section presented the characteristic structure. The body of the uterus contained a small interstitial fibroma in the posterior wall. The patient, aged 47, had had three confinements, the last three years previously. For some months the periods, which had been normal, increased until there was an almost continual loss of blood; considerable pain and tenderness followed. Abdominal hysterectomy was performed without difficulty, and the only other abnormal conditions found were that both abdominal openings of the Fallopian tubes were closed, their walls were thickened, and both ovaries contained numerous small cysts, of which some were haemorrhagic.

Pathology.

578. The Spirochaete of Tuberculous Haemoptysis.

F. BEZANÇON and E. ETCHÉGOIN (*C. R. Soc. de Biologie*, April 30th, 1926, p. 1056) have been studying the spirochaete that was first described in 1923 by Etchégoïn, who found it in the sputum of tuberculous patients suffering from haemoptysis. Attempts to cultivate it have at last been successful, though its isolation in pure culture has not yet been accomplished. The medium used consists of a mixture of horse serum, saline solution, and peptone water, covered with sterile oil, and heated for half an hour on three successive days at 56°C. Growth occurs best at 37°C., slightly at 29°C., and not at all at room temperature. The spirochaete is described as being a filamentous organism with four to nine

fairly sharp but irregular curves; the length of each individual spiral is 2.5 to 3 μ , and the length of the whole filament about 7 to 13 μ . The movements of the organism are very regular but not lively.

579. Immunization by Tetanus Bacilli in the Digestive Tract.

C. TENBROECK and J. H. BAUER (*Journ. Exper. Med.*, March, 1926, p. 361) find that tetanus spores are present in the stools of about one-third of the population of Peking; the disease, however, is relatively rare. The blood of these carriers was found to contain an appreciable amount of antitoxin, and it was assumed that it was this antitoxin that was responsible for immunity. To test this guinea-pigs were inoculated with about 1,000 spores in the muscles of the hind leg. The animals showed symptoms of the disease in four or five days, and succumbed on the seventh to the tenth day. Guinea-pigs without tetanus bacilli in the faeces were fed with old broth cultures; some were given Type 1, others Type 3, and others Type 5 bacilli; specific agglutinins appeared in the blood serum, and later an antitoxin was detached. After six months the amount of antitoxin was equivalent to 0.05 U.S.A. unit per c.cm. These animals were then injected with tetanus spores of different types. The results were unexpected. It is known that agglutinins are specific for each serological type of bacillus, but that the antitoxin is common to all types. It was assumed, therefore, that guinea-pigs with antitoxin in the serum would be resistant to all types of bacilli, but it was found that they resisted only that type with which they had been fed. Thus, a guinea-pig with a considerable quantity of antitoxin was still susceptible to infection with tetanus spores of a type different from the ones used for immunization. When animals were fed with several types they became immune to these types. But though guinea-pigs which were carrying tetanus bacilli in the alimentary tract contained antitoxin in their serum, and were resistant to the injection of tetanus spores, they succumbed to the injection of tetanus toxin. Since there is apparently no relation between the amount of antitoxin in the blood and immunity to tetanus, the authors conclude that acquired immunity must be due to some other type-specific bodies which are elaborated.

580. The Cuti-Reaction and Vaccination.

L. RICCIARDI (*La Pediatria*, April 15th, 1926, p. 421) found that among 50 children whose cuti-reaction to tuberculin was intensely positive before vaccination the second reaction performed shortly after vaccination showed in 18 cases a distinct attenuation and in 3 cases was entirely absent. A third cuti-reaction performed a month later showed a return of the cuti-reaction to its original intensity. Ricciardi considers that this diminution or absence of reaction in vaccinated children is an indication that greater caution is required in performing vaccination on subjects who are living under unfavourable organic conditions or who are likely to be suffering from tuberculous infection, owing to the susceptibility of recently vaccinated children to tuberculous infection.

581. The Significance of Reticulation in the Red Corpuscles.

W. DAMESHEK (*Boston Med. and Surg. Journ.*, April 29th, 1926, p. 759) has made a careful examination during the last five years of the appearance of reticulated red corpuscles in the blood, using brilliant cresyl blue for his stain. One drop of 0.3 per cent. solution of the stain is placed at one end of a slide and allowed to dry; a drop of blood on a cover-slip is inverted on to the dye and the two allowed to mix for three or four minutes. Dameshek believes that the number of reticulated cells present indicates the degree of bone-marrow activity, and states that before and at the beginning of any remission or permanent rise in the red cell count the reticulated count exceeds 6 per cent. As the culmination of the rise is reached the count gradually falls again to the normal, which is 0.5 to 1 per cent. With bone-marrow aplasia the reticulated count was extremely low. He uses this count as a guide to prognosis in pernicious anaemia and believes that an elevation of the count up to 5 per cent. represents probably a process of regeneration coexisting with a greater extent of destruction, while a sudden rise in the count to above 6 per cent. foretells a coming remission. Continued low counts are said to be of very grave prognosis. The author considers that the relapse in pernicious anaemia is closely related to aplastic anaemia, which, with its evident bone-marrow failure, has an almost total absence of reticulated corpuscles. In purpura haemorrhagica the count increased before recovery and remained low when death from haemorrhage was pending. Dameshek adds that the marked reticulation in congenital haemolytic anaemia is of pathognomonic importance, distinguishing it from all other anaemias with large spleens.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

582. Ventricular Bradyrhythmia due to Septal Necrosis.
E. GERAUDEL, R. BÉNARD, and P. HILLEMANT (*Arch. des Mal. du Cœur, des Vaisseaux et du Sang*, May, 1926, p. 281) describe a case of ventricular bradycardia and sudden death, which were not due to a lesion of the bundle of His, in a man, aged 67, who had oedema of the ankles, commencing orthopnoea, and cardiac asthma. The heart was dilated and there were general symptoms of cardiac failure—anasarca, ascites, pleuritic effusion, and albuminuria. The pulse varied from 36 to 24 a minute. After a transient improvement the patient died suddenly about three months after admission. Serial sections of the left ventricular wall showed an area of necrosis caused by endarteritis, blocking the branch of the right coronary artery which supplies the auriculo-ventricular node of Tawara and the bundle of His. The main trunk of the bundle of His was not involved, nor was the main trunk of the coronary artery, but this circulatory failure in the branch was the cause of the permanent ventricular bradyrhythmia. There was a second necrotic area in the fibrous interventricular septum. The authors conclude that bradyrhythmia, which is an important element in the Stokes-Adams syndrome, is due to a deficient blood supply in this artery; hitherto the Stokes-Adams syndrome has been regarded as being due to a destructive lesion of the bundle of His, such as a gumma or neoplasm of the interventricular septum.

583. Syphilitic Reinfection in Tabes.
POIRIER (*Bulletin Méd.*, April 4th, 1926, p. 665) reports a case of syphilitic reinfection of a tabetic patient. A man, aged 44, had had a chancre in 1903, and in 1916 complained of visual troubles, which proved to be due to optic atrophy. His Wassermann reaction was positive and he was treated with mercury intramuscularly; three years later the reaction was negative. In 1926, two weeks after coitus, a small ulcer appeared on the corona in the centre of a zone of cartilaginous hardness; the inguinal glands were enlarged. Poirier concluded that the lesion was a primary sore, and the first of a course of quinine iodobismuthate injections produced a typical roseola. The Wassermann reaction was found to be strongly positive. The patient had an old-standing tabetic optic atrophy; the pupillary light reaction was slow and feeble, and the accommodation reflex normal. The patient had been taking vesperal and adalin frequently, which may have affected the pupil reaction; the deep reflexes were present. Poirier suggests that this patient's first infection was due to the neurotropic type of syphilitic virus, and the second to the dermatotropic type, if such exist. Bismuth was used owing to its almost selective effect on neuro-syphilis, arsenical compounds being avoided on account of their effect on the optic nerve.

584. Bilateral Popliteal Aneurysms.
A. W. HOYT (*Scientific Therapy and Practical Research*, February, 1926) reports a case of a man, aged 55, in whom fusiform popliteal aneurysms were found in both legs in the spring of 1922. Four Wassermann tests were negative and intensive specific medication was given without effect on the pain or the aneurysms. In December each aneurysm was 3½ inches long, and symptoms of intermittent claudication were very pronounced. Injections of 3 c.cm. of a 1 in 1,000,000 solution of the patient's whole blood in distilled water were given weekly. Four days after the first intravenous injection all symptoms of intermittent claudication had completely disappeared in both legs. A month later there was total absence of pulsation in the right popliteal aneurysm, and the right foot was warm, a satisfactory collateral circulation having been established on the day when the symptoms disappeared. Five months later the patient could walk without pain, but the right popliteal artery was pulseless and the left was pulsating strongly. Ten months subsequently the patient reported that he had been able to engage in strenuous exercise, including dancing, but he had recently had some pain over the left sciatic nerve, which suggested the existence of a deep thrombus. The skin over the first three toes of the left foot became yellow and dry gangrene subsequently occurred with severe pain. The gangrenous areas separated, leaving a healed surface. Six months later acute pain recurred in the left leg and foot, which were pulseless, and an area over the left patella became dusky. Dry gangrene appeared above

the left big toe, which separated from the foot, leaving a healed area. Three months later all pulsation in the left aneurysm had ceased, weekly intravenous injections of 2 to 4 c.cm. of the solution of blood in distilled water having been given during the attacks, and at three and four week intervals subsequently. In addition to these injections electric heat was used, a partial antidiabetic diet given, and the leg kept horizontal during the establishment of the collateral circulation, which was hastened by frequent massage. Complete recovery followed. Hoyt discusses the assumption of spontaneous cure in this case, as against the possibility that some undetermined part of the treatment was responsible for the favourable result. He draws attention to the age of the patient as an argument against the cure being spontaneous.

585. Aneurysm of the Heart.
H. NISHIDA (*Journ. of Oriental Medicine*, March, 1926, p. 60) suggests that aneurysm of the heart is not so rare as has been supposed; in the majority of cases clinical diagnosis is impossible. He has found records of about 120 cases observed since 1890 in Europe and America; only 4 cases have been recorded in Japan. He now reports the case of a woman, aged 58, who had had for ten months oedema of the face and legs, cough, dyspnoea, and slight pain in the chest. She was anaemic, the pulse was rapid but regular, the blood pressure was 100 to 160 mm., the Wassermann reaction was negative, and there was general anasarca. No obvious dilatation of the heart was present, but there was an apical systolic bruit and the second aortic sound was accentuated. Rhonchi were heard at both bases. The liver was somewhat enlarged and ascites was present. The urine contained albumin, indican, hyaline casts, and leucocytes. Three months later her appetite failed, her condition became worse, and she died a month later. The heart was generally dilated but the valves were normal; there was advanced atheroma of the aorta and of the coronary arteries. In the left ventricle, behind the mitral wall, there was a thin-walled aneurysm as large as a walnut. Nishida thinks that the aneurysm was caused by the interference with the nutrition of the wall of the left ventricle, due to the advanced atheroma of the coronary artery.

Surgery.

586. Cancer of the Skin.
J. J. MORTON (*Arch. of Surg.*, March, 1926, p. 653) finds that squamous-cell cancer of the skin occurs usually in patients aged 45 to 70. It is more common in men, since lip cancer is usually found in males, and there is the greater frequency of exposure to hazardous occupations. Anything that causes repeated injuries, such as a ragged tooth, may cause cancer, while it may arise in any of the common dermatoses. It may develop in scars and ulcers, while the various types of occupational cancer are due to chemical substances which set up irritation, as in tar and paraffin workers. An interesting group of this variety occurs in mule-spinners, due to irritation of the scrotum by mineral oil. The disease is seen in the face, trunk, and scrotum usually. The special danger of squamous cancer is its early metastasis. Treatment is by surgery or radiation; the primary growth should be removed, and also the dangerous secondary foci. Radium tubes may also be implanted after operation. Growths on the scalp and forehead do not usually require removal of the glands. A number of cases are reported, with illustrations of the growths.

587. The Acute Post-operative Toxaemia of Hyperthyroidism.
J. ROGERS (*Surg., Gynecol. and Obstet.*, April, 1926, p. 567) discusses the treatment of the acute post-operative toxaemia of hyperthyroidism, than which there are few more dangerous conditions. In his experience it occurs most commonly in patients with marked exophthalmos, especially those who have previously had a pallid or pigmented skin, or who show a perceptible muscular atrophy in the hands and forearms; it is more prone to occur in those with firm rather than soft thyroids. In such cases the danger apparently arises rather from an absence of thyroid secretion than from an excess, and consequently Rogers advises the subcutaneous administration of a boiled aqueous extract of the thyroid, known as

"thyroid residue," in 20 to 30 minim doses every two hours, in the event of alarming symptoms arising during or immediately after operation. This appears to act by stimulating the terminal filaments of the vagus or parasympathetic portion of the involuntary nervous system, and therefore it does not increase the already alarmingly rapid cardiac action; while it intensifies the symptoms if administered to patients under medical treatment for severe hyperthyroidism, it appears to be beneficial in acute post-operative toxæmia. Notes of three cases are given in which its free administration averted a fatality or saved the patient from a very dangerous condition.

588. Treatment of Peritonsillar Abscess.

O. MAYER (*Wien. klin. Woch.*, April 29th, 1926, p. 508) describes two forms of peritonsillar abscess. The first points at the upper pole, and is most conveniently opened at Chiari's site by a horizontal incision from the mid-line at the base of the uvula; this incision should measure 2 cm. in length and depth; it extends towards the last upper molar. The tissues are much thickened, and care is necessary to avoid cutting the tonsillar artery or its branches. In such a case of damage to the tonsillar artery plugging with iodoform gauze failed to arrest hæmorrhage; Mayer performed an immediate enucleation and the bleeding ceased. This procedure causes collapse of the capsule with retraction of the wounded artery. The second form—namely, abscesses behind the lower half of the tonsil—may be recognized by the greater severity of the symptoms: dysphagia, tenesmus, persistent earache, and high fever. There is some paresis of the mandibular muscles and much swelling of the submaxillary and retromandibular glands. When the incision is made as described previously no pus appears. Mayer recommends enucleation under light ether anaesthesia, with the patient in a sitting position. If the abscess be not evacuated by enucleation at the right moment there is danger of the pus travelling downwards in the carotid sheath; it may even reach the mediastinum or cause erosion of the carotid. The abscess should be opened by an incision along the anterior border of the sterno-mastoid. Free hæmorrhage from the tonsillar capsule or from the incision may be arrested by compression of the carotid or of the tonsillar bed. If the carotid be eroded, ligature of the common carotid trunk may be necessary.

589. Chronic Non-specific Synovitis of the Knee-joint.

A. LÄWEN (*Zentralbl. f. Chir.*, April 3rd, 1926, p. 857), in 39 arthrotomies of the knee-joint, has often found that chronic synovitis resulted in fissural degeneration of the patellar hyaline cartilage and of the semilunar cartilages. He compares the inflammatory changes in the synovial membrane with those found in chronic peritonitis, and believes that many cases of dislocation of the semilunar cartilages, and of osteo-arthritis, originate from chronic arthritis. He therefore recommends that an exploratory arthrotomy should be made by a large anterior incision, preferably Payr's "S" incision. If the synovial membrane is thickened and adherent to the intercondylar fossa, or other bony surfaces, he excises redundant synovial masses and restores the normal outline of the synovial membrane by suturing the cut edges with fine catgut. He operates under strict hæmostasis; the tourniquet is removed after the suture of the cut edges of the synovial membrane, when a careful search for any bleeding points is made. He has excised the plica synovialis patellaris in nineteen cases.

590. Typhoid Abscess of the Breast.

P. O. SNOKE and J. L. GOFORTH (*Amer. Journ. Med. Sci.*, April, 1926, p. 555), who record a personal case, illustrate the rarity of typhoid abscess of the breast by the following statistics. Only four instances occurred among 1,626 cases of typhoid fever reported by Berg in 1835. Curschmann saw only two cases, one of which occurred in a male. Five cases were seen by Lendet in the course of twenty-five years. Madelung in 1917 found records of thirty cases, in only seven of which a bacteriological examination had been made. In three a pure culture of *B. typhosus* was found, in two others *Staphylococcus albus*, and in the other two no typhoid bacilli were present. The present case occurred in a negress, aged 18, who developed three post-lactation masses which probably represented periductal inflammation and may have afforded foci for the localization of typhoid bacilli. Subsequently a swelling developed in the right breast. No definite diagnosis could be made, and the breast was amputated. A large thick-walled abscess was found on section containing orange-coloured purulent material from which typhoid bacilli were grown. There was no evidence of glandular proliferation, tuberculosis, or syphilis. Histologically the picture was that of a chronic suppurative inflammatory process with abscess formation. Enlarged glands in the axillary fold proved to be periductal adenobromata, presumably of misplaced mammary tissue.

Therapeutics.

591. Insulin Treatment in Non-diabetics.

R. FEISSLY (*Presse Méd.*, February 13th, 1926, p. 196) has treated six patients with non-diabetic malnutrition and debility, previously resistant to remedial measures, by injections of insulin. He gave them two or three injections a day half an hour before meals rich in carbohydrates, commencing with 5 units of insulin at each injection and increasing as rapidly as possible to 60 units a day. He maintained this treatment for three to four weeks. He found that the weight curve rose very steeply with the commencement of treatment, there being an increase of nearly 9 lb. in two cases in three and four weeks respectively. The appetite improved markedly even in those who had suffered from anorexia previously, and the patients required food at night as well as during the day. He stresses the point that the carbohydrate ration should be much in excess of the amount theoretically sufficient to neutralize the insulin; if the carbohydrate was restricted to a theoretical sufficiency the classic phenomena of hypoglycæmia appeared—namely, trembling, sweating, weeping, and nervousness.

592. Harmlessness of Toxin-Antitoxin Injections.

W. H. PARK (*New York State Journ. Med.*, April 15th, 1926, p. 347) states that probably over two million injections of toxin-antitoxin have been given in New York State alone, and no disaster has occurred. Only three serious accidents, to his knowledge, have ever followed the use of toxin-antitoxin. The first happened many years ago in Dallas, Texas, where, owing to a mistake, a toxic preparation was used. As the result of this occurrence the biological manufacturing plants, at the suggestion of the Hygienic Laboratory, adopted rules which must prevent this accident ever occurring again. The second was an accident which occurred near Vienna in 1924 (*JOURNAL*, October 24th, 1925, p. 757) and was at first attributed to changes in the toxin-antitoxin. According to recent information, however, the fatalities were due to the fact that through a mistake diluted toxin was used instead of toxin-antitoxin. The third accident (*JOURNAL*, March 8th, 1924, p. 454), which had no fatal results, occurred from the use of toxin-antitoxin immediately after thawing the frozen product. The new standardized preparation of toxin-antitoxin used in the United States contains only one-thirtieth of the amount of toxin used in the first preparation and is said to be absolutely harmless when used after freezing and thawing.

593. Intravenous Chemotherapy in Gonorrhoea.

H. JAUSION and M. VAUCEL (*Presse Méd.*, February 13th, 1926, p. 193) report the successful treatment of gonorrhoea by chlorhydrate of diamino-methyl-acridine. Intravenous injections of 5 c.cm. of a 1 in 50 watery solution of this dye were given three times a week until a cure was obtained. In some cases there appeared a yellow coloration of the skin and a subinflammatory puffiness, which disappeared in ten to fifteen days. The shock of the injection was negligible in most cases; a few susceptible individuals showed slight syncope after the first injection, but subsequent treatment was always well borne. Ordinarily fifteen to eighteen seconds after the injection the patient experienced a burning sensation, constriction of the throat, congestion of the face, and warmth in the perineum; this reaction only lasted five to ten seconds, but there was sometimes a local urticaria at the site of injection. In a few cases towards the fifteenth day a cumulative toxic effect was noticed—slight nausea, cardiac irritability, and colouring of the skin. The dye is fluorescent, and exposure of a patient to strong sunlight soon after injection caused in forty-eight hours an erythema of the exposed area, and sometimes even a papular eruption on the covered parts. This photo-sensitiveness is said to be most marked during May and June, and may be prevented by the administration of 0.25 gram of resorcin. Elimination is by the urine, 10 cg. requiring forty-eight hours; but there is little practical risk of cumulative effect with injections every other day, as 60 per cent. of the dose is eliminated in the first two hours. Of the 165 cases treated there was apparent cure, judged by both clinical and laboratory tests, in 153. The smallest number of injections necessary was five (in 22 cases), and the most twenty-five to forty (in 8 cases). One patient, however, required fifty-four injections for the cure of a metatarsalgia that had resisted all other forms of treatment. The only gonorrhoeal complication that arose after treatment had been established was iritis, which was cured in less than a week by further injections, together with the local instillation of atropine. The authors add that the advantages of this method of treatment are that it is ambulatory, no irrigations are necessary, there are no complications except the possibility of iritis, the effect on the general health is excellent, and there is better disinfection of the genito-urinary system.

especially in the female, than by any other method. They believe that the best results will eventually be obtained by the combination of a suitable mordant with the dye. The mordant with which they have been most successful up to the present is chromo alum, which they combine with methyl-acridine, so as to get a 1 in 50 solution of the two products.

594. Iodized Oil in Bronchial Affections.

S. PRITCHARD, B. WHYTE, and J. K. M. GORDON (*Journ. Amer. Med. Assoc.*, April 10th, 1926, p. 1119) report upon the use of iodized oil in the diagnosis and treatment of bronchial affections. They used 40 per cent. metallic iodine with oil of poppy seeds so closely combined that no free iodine was present; the high iodine content rendered it opaque to x rays. By injecting the oil into the bronchi small bronchiectatic dilatations and enlargements were capable of detection radiographically. Three methods of introducing the oil were used: (1) supraglottic, in which 20 c.cm. of warmed oil was slowly syringed into the larynx under observation with a laryngeal mirror, the pharynx and the base of the tongue having been previously swabbed with a 10 per cent. cocaine solution; (2) transglottic, in which the tip of the cannula was passed through the glottis into the trachea; and (3) subglottic, in which the oil was injected directly into the trachea through a hollow curved needle passed through the crico-thyroid membrane after anaesthetizing the skin and subjacent tissues. The authors state that before injecting the oil 1 to 2 c.cm. of warmed 1 per cent. cocaine solution may be injected in order to anaesthetize the mucosa of the trachea and bronchi. The oil is directed into the right or left bronchus by inclining the patient to the desired side, and in order to fill the apical bronchi the patient must be placed on a tilting table with the affected side downwards, the distribution of the oil being determined by gravitation and the aspirating power of the lung. In over 600 injections no ill effects had to be recorded, and it was found that the supraglottic method was quite as satisfactory as the others, required less anaesthesia, and caused less anxiety to the patient. As a method of treatment this particular compound of iodized oil, by allowing the slow liberation of iodine, was found to be of very great value in chronic affections of the lower respiratory tract, but in acute affections or in pulmonary tuberculosis the authors hesitate to use it for either diagnostic or therapeutic purposes. The technique is not difficult, but it is added that negative results afford no diagnostic proof that bronchiectatic dilatations do not exist.

Dermatology.

595. Lichen Nitidus.

H. W. BARBER (*Brit. Journ. Derm. and Syph.*, April, 1926, p. 143) discusses the signs, histology, and treatment of lichen nitidus, and gives a brief historical survey of the literature of the disease. The essential lesion is a minute papule not larger than a pin's head, flat, globular, and slightly raised; it is formed by a granuloma just below the epidermis, which is thinned above it, giving it the characteristic glistening appearance. In many cases the eruption consists only of such papules, which remain discrete and unaccompanied by any changes in the surrounding skin, with a limited distribution on the penis, lower abdomen, groins, inner surfaces of the thighs, the bends of the wrists and forearms, and backs of the elbows. In some cases the eruption is more widespread and loses its primary papular appearance in certain regions, though on examination of the whole body areas will be found where the papules are discrete and typical of the simpler form of the disease. Such a diffuse eruption particularly involves the joint flexures, such as the antecubital and popliteal spaces, the extensor surfaces of the knees and elbows, the submammary region, the groins and thighs, while the palmar and dorsal surfaces of the hands and feet and the buccal mucous membrane may be affected. No tubercle bacilli have ever been demonstrated, and its cause is unknown; Barber regards it as a definite entity and not a tuberculide. Resorcin and salicylic acid externally, iodine internally, and fractional x-ray doses have all been followed by improvement; spontaneous disappearance has been recorded.

596. Pruritus.

G. THIBIERGE (*Journ. de Méd.*, April 10th, 1926, p. 229) discusses the clinical and therapeutic aspects of pruritus. The skin affections such as syphilis . . . Pruritus may exist with or . . . it is always a question which . . . the importance of ascertaining . . . which comes first. In cleanly people with long-continued pruritus, worse when in bed, it is essential to exclude

scabies, for in such patients the skin lesions may be very slight. Possibly the itching in parasitic diseases may be due to a toxin, and so come into line with the numerous toxic causes, such as uraemia, biliary affections, and endocrine inefficiency. Certain drugs, such as morphine, cocaine, chloral, and antipyrin, may cause pruritus; as also various foods, effervescent sweet wines, coffee, and tea. People of nervous temperament are especially predisposed. Acute . . . nite-toxic origin, and is not so . . . and chronic types. The cocaine . . . the feeling that some parasite is under his skin. Leukaemia sometimes induces troublesome pruritus, which can often be relieved by x rays. In the pruritus of the aged, often due to faulty urine elimination, relief usually follows a strict milk diet, with occasional doses of calomel and diuretics. Lotions should be warm and are better than ointments. A mixture of menthol, phenol, zinc oxide, and vaseline is useful. Cocaine externally is of little use as it is unabsorbed by the skin. Internally sedatives are advantageous, although in some cases tonics, such as glycerophosphates, are preferable. Attention to the diet is always essential, and a course of mineral waters or thermal baths in suitable cases is to be recommended.

597. Treatment of Infectious Skin Diseases.

H. H. YOUNG, JUSTINA H. HILL, and W. L. DENNY (*Arch. of Derm. and Syph.*, April, 1926, p. 465) have treated various infectious diseases of the skin by intravenous injection of mercurochrome-220 soluble, with the following results. High fever, occasionally marked gastro-intestinal disturbances, infrequently severe stomatitis, and rarely transient albuminuria, and casts might occur, but by beginning with small doses, such as 2 mg. per kilogram, and increasing gradually up to larger doses—5 mg. per kilogram—the patient could generally be given several injections without a marked reaction. Of 24 erysipelas patients so treated, 20 (83.3 per cent.) were cured; of 11 patients with boils or carbuncles, 10 were cured and 1 greatly improved; 4 cases of chancroidal ulceration all healed rapidly; of 36 patients with cellulitis and abscesses, 21 (58.3 per cent.) recovered promptly with no other treatment and 9 showed marked improvement; in 2 patients with gas gangrene the infection was eliminated; of 44 leprosy patients, 28 (63.5 per cent.) showed remarkable improvement. Good results were also obtained in cases of psoriasis, eczema, and syphilis. These results show that mercurochrome, administered intravenously, is a drug of great value in the treatment of infection of the skin with various streptococci, staphylococci, and bacilli, as well as in other types of infection.

598. Traumatic Psoriasis after Neosalvarsan.

P. H. VAN DER HOOG (*Nederl. Tijdschr. v. Geneesk.*, February 27th, 1926, p. 838) records the case of a woman, aged 27, who, after injection of neosalvarsan and mercury for a hard chancre, developed an arsenical erythema followed by psoriasis, from which she had never suffered before. Psoriasisform syphilis was excluded by the clinical picture, which showed the characteristic appearance of psoriasis after methodical scratching; whereas in psoriasisform syphilis purpura would have developed after this procedure. The diagnosis was also confirmed by histological examination. Similar cases of psoriasis following injections of salvarsan preparations have been recorded by Hesse, Pantrier, and Bouteller.

Obstetrics and Gynaecology.

599. Acute Post-partum Uterine Haemorrhage.

P. A. PETRIDIS (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, April, 1926, p. 221) reports a case of uterine inversion, which occurred in a primipara aged 27. Forceps delivery was necessary, but there was no perineal tear, and seventeen minutes after the birth of the child the placenta came away completely, though accompanied by considerable haemorrhage. Credé's method had been used very gently. The haemorrhage continued and gave rise to severe shock, which was unimproved by medicinal treatment. Vaginal examination showed the presence of a tumour, which was taken to be a fibroid. Vaginal tampons were inserted, but the haemorrhage continued, and it was not until a week later that a careful gynaecological examination revealed the presence of an inverted uterus, grey in colour, and suggesting the onset of gangrene. After prolonged treatment the uterus was restored to a healthy condition and replaced, and the patient subsequently became pregnant again, the child being born without a return of the inversion. Commenting on the case Petridis remarks that the cause of the inversion remains

obscure, as no traction on the cord or strong pressure on the uterus was exerted. The process of inversion continued progressively during the days after labour. It appeared that the anterior wall was first inverted, and that the rest of the uterus followed its descent. The slow reduction of the inversion by progressive vaginal tampons was probably due to decrease in size of the uterus after the relief of circulatory stasis and oedema. There was no constriction by the cervix, which was sufficiently large to permit the reduction of the inversion.

600. Pararectal Incision in Difficult Labour.

A. RIECK (*Zentralbl. f. Gynäk.*, March 27th, 1926, p. 773) reports the successful use of Schuchard's pararectal incision in difficult obstetric cases. The incision, which begins in the vagina about the junction of the upper and middle thirds and ends about the level of the tuber ischii, divides the sphincter vaginae and levator ani muscles. By this operation the length of the birth canal is diminished by approximately one-half and its axis becomes much less curved. Eight cases are mentioned in which Schuchard's incision was used. It rendered possible speedy termination of labour in four cases of pelvic and four of cephalic presentation in which labour had lasted several days. One case was that of a primipara in eclamptic coma with a temperature of 104°, whose child was born alive.

601. Conservative Treatment in Gynaecology.

ACCORDING to D. H. WESSELS (*Med. Journ. of South Africa*, March, 1926, p. 213), conservative treatment in gynaecology is often preferable to surgical operation, but while twenty years ago it was difficult to persuade patients to undergo an operation, they are now usually unwilling to adopt a conservative line of treatment. That enlargement of the uterus often occurs just before the menstrual period should be remembered when estimating the rate of development of a fibroid, and when dealing with atypical pregnancies or irregular haemorrhages. A pregnant uterus associated with irregular haemorrhages may, on examination, be found contracted and be mistaken for a myomatous uterus. The author gives details of a case of this kind in which hysterectomy was advised, but the diagnosis was corrected by a second examination when the uterus was fully relaxed, and a diagnosis of a four months' pregnancy could be established. Wessels considers myomectomy the operation of choice in treating fibroids during the child-bearing age, and has records of several full-term pregnancies after this operation, which in no case in his experience caused uterine rupture subsequently. He regards myomectomy as a more conservative measure than x-ray treatment. Haemorrhages due to fibrotic change of the uterus, whether associated with benign hypertrophy of the endometrium or not, are treated so satisfactorily by radium after a diagnostic curettage that hysterectomy is unnecessary. Discussing the ovary as the most frequent cause of unnecessary surgical intervention, he states that ovarian pain and tenderness are often due to inflammation elsewhere in the genital tract. He thinks that the flaccid and thin-walled Graafian follicle cysts do not require operation, as they often rupture spontaneously or on bimanual examination. In other cysts of the ovaries, unless they are malignant, it is frequently possible to shell out the cyst without sacrificing much of the ovarian tissue. Wessels gives details of a case of bilateral dermoid cysts in an unmarried girl; the cysts were shelled out from both ovaries, and the girl subsequently married and bore three children. The author considers that the operation of salpingectomy for the cure of a gonococcal pus tube is not only an unnecessary procedure, but also perniculous, and he cites a case in which such an operation resulted in death subsequently, owing to abdominal adhesions. In many cases the pus in such tubes has been shown to be sterile, and in time the condition would clear up spontaneously.

602. Primary Syphilis of the Cervix.

R. S. CRON (*Amer. Journ. Obstet. and Gynecol.*, March, 1926, p. 378) reports two cases of chancre of the cervix, and discusses the apparent rarity of this lesion. In the course of the pelvic examination of some 4,000 women only six patients with primary syphilitic lesions of the genitalia were discovered; in two cases the infection was localized in the vaginal portion of the cervix. Cron believes that the apparent rarity of cervical chancre can be accounted for by the lack of symptoms, the rapid involution, and the absence of scarring. He suggests that routine visual examination of the cervix, especially in newly infected syphilitic women, will demonstrate a higher percentage of primary lesions. He adds that a negative Wassermann reaction is usually found during the primary stage and does not exclude syphilis.

Pathology.

603. Production of Antibodies by Artificial Pneumothorax.

T. VEBER (*Ci. R. Soc. de Biologie*, March 5th, 1926, p. 502) has estimated the antibody content of the blood and of the pleural fluid in tuberculous patients at various points during artificial pneumothorax treatment. The complement fixation test was used, with Calmette-Massol's technique and Boquet's methylic antigen. All patients giving a positive Wassermann reaction were excluded. The results showed that there was a marked rise in the titre of the blood during the characteristic crisis (fever, thoracic pain, and dyspnoea) which commonly precedes a pleural effusion; this was followed by a marked fall in the titre after the effusion, provided that the general state of the patients improved. The antibody titre of the pleural fluid always corresponded to that of the blood. In patients who had remained well for a long time after the effusion antibodies were absent both from the pleural fluid and from the blood. Since tubercle bacilli, either in an intact or in a broken-down condition, are present in pleural effusions, and since an antigen capable of fixing complement in the presence of a tubercle antiserum can likewise be demonstrated, the author infers that the sudden increase in the titre of the blood immediately preceding the development of a pleural effusion is due to the absorption into the circulation of tuberculous antigenic material through the pleura.

604. Action of Histamine.

J. H. BURN and H. H. DALE (*Journ. of Physiol.*, April 23rd, 1926, p. 185) have studied the vaso-dilator action of histamine, the substance supposed to be responsible for the vascular features of "shock." In the cat histamine causes a fall of blood pressure followed by a rise (secondary or pressor phase of histamine action), but after the suprarenal glands are extirpated this secondary effect does not occur. It is therefore concluded that the secondary phase is due to an output of adrenaline. This is corroborated by the following facts. If, before the injection of histamine, ergotamine (which antagonizes adrenaline) is injected, then only a fall of blood pressure is produced. The physiological converse of this is that very small doses of adrenaline, after an evanescent rise of blood pressure, produce a fall of it. This fall is attributed to the production of histamine, largely in the lungs. The authors conclude that the secondary pressor effect of histamine is due to accelerated output of adrenaline, and that the secondary depressor effect of adrenaline is due to the liberation of a histamine-like substance. The significance of these facts is discussed in relation to the balanced chemical control of capillary tone. O. INGHLEY (*ibid.*, p. 282) believes that histamine shock is best explained by venous constriction. He finds that histamine in low concentrations constricts veins but not arteries. This constriction leads to a passive dilatation of the capillaries.

605. Cardiac Changes Produced by Cod-Liver Oil.

E. AGDUHR (*Acta Paediatrica*, March 6th, 1926, p. 319) reports that important organic changes, such as atrophy, degeneration, necrosis, and haemorrhages, were caused in white mice by the addition of 0.1 c.c.m. per day per animal of cod-liver oil to their basal diet. These changes specially affected the heart. In the cardiac muscle cells there usually appeared pigment atrophy, sarcocytosis, and vacuolous, albuminous, and waxy degeneration. Many muscle cells were destroyed and disappeared, the cardiac muscle being transformed into connective tissue. This change was more pronounced in the muscles of the ventricles, particularly in the outer walls of the right ventricle. When the changes were farther advanced small haemorrhages usually appeared in the cardiac muscles. On a basal diet inferior in vitamins and nutritive value excrescences developed in the heart, subendocardially, interstitially, or on the endocardium, probably after previous injury to the endocardium. They were most common in the auricles, but were also met with in the ventricles, in some cases being large enough to impede the blood flow. Associated with these severer cardiac changes were oedema of the lungs, subcutaneous oedema, and exophthalmos. The author finds that cats, dogs, and calves are even more adversely affected by cod-liver oil than mice, and raises the question whether cod-liver oil given to children over a relatively long period may not lay the morphological foundation for future cardiac disease. He quotes Melfaby's warning against giving large doses of cod-liver oil (*JOURNAL*, May 24th, 1924, p. 895) since tachycardia and cardiac discomfort may result. Agduhr believes that the organic changes in his experiments were due to poisonous substances ordinarily present in cod-liver oil, which could be removed without affecting the vitamin content of the oil. This is forming the subject of further investigation.

EPITOMÉ OF CURRENT MEDICAL LITERATURE.

Medicine.

805. The Initial Site of Pulmonary Tuberculosis.

P. DOTTI (*R. Morgagni*, February 28th, 1926, p. 265) has examined the case sheets of 2,253 patients suffering from tuberculosis in Bologna between 1920 and 1924 and has classified them according to the degree of anatomical involvement of the lung. Patients in any stage of the disease who showed purely unilateral lesions were placed in group 1; those with bilateral disease, but with one lung more affected than the other, were placed in group 2; and patients with bilateral disease of equal extent in the two lungs were placed in group 3. Patients in the first group formed 34 per cent. of the total number; the lesion was in the left lung in 58 per cent., in the right lung in 42 per cent. of these. In group 2 the left lung was affected more severely than the right in 59 per cent. of 982 patients; the right lung more than the left in 41 per cent. The third group contained 485 patients; in these the lesions were of equal extent on the two sides. Combining the first two groups, it appears that of 1,768 patients, representing 78 per cent. of the total number examined, 772, or 44 per cent., were affected exclusively or more severely on the right side, and 996, or 56 per cent., on the left side. The author, therefore, concludes that tuberculosis begins more often on the left side than on the right. The reasons for this are to be found in the poorer ventilation of the left lung; in the less adequate blood supply, which leads to stasis and the consequent retention of gaseous and organized products; in its smaller size; and in its compression by the aorta. All these factors, he thinks, render the left lung a more favourable ground for attack by the tubercle bacillus than the right.

807. Pneumothorax and Pulmonary Abscess in Pertussis.

W. C. A. STEFFEN (*Arch. of Ped.*, January, 1926, p. 50) reports two cases of pertussis, one of which was complicated by pneumothorax in a girl aged 7, and the other by pulmonary abscess in a girl aged 5; both recovered. Only two previous cases of pneumothorax in pertussis have been recorded—by Malinowski in 1885 and Gelmo in 1860 respectively; and only one example of pulmonary abscess in pertussis is on record, which was described by Northrup in 1883. In view of the relative frequency with which a rupture of the lung into the mediastinum occurs, with its resultant subcutaneous emphysema, it is surprising that not more cases of pneumothorax have been recorded. Gelmo's patient had an extensive subcutaneous emphysema, and at the necropsy a left-sided pneumothorax and consolidation of the upper lobe were found. Steffen maintains that pulmonary abscess in pertussis is more frequent than the reported cases indicate, as instances of non-tuberculous cavities of obscure etiology are often encountered in children.

808. A Diagnostic Sign in Facial Paralysis.

A. RADOVICI (*Presse Méd.*, April 10th, 1926, p. 453), considering the difficulty that sometimes arises in distinguishing between peripheral and central facial paralysis, draws attention to a new diagnostic sign. He finds that when the palm of the hand, especially the thenar eminence, is irritated by a needle a reflex muscular contraction can be observed at the point of the chin. The persistence or exaggeration of this reflex on the affected side is in favour of a central lesion. The absence of the reflex on the affected side with presence on the sound side indicates a peripheral lesion. The absence of the reflex on both sides is of no diagnostic significance since this may occur in normal individuals. The presence of the reflex on both sides in a patient with facial paralysis suggests a central lesion. The author gives brief details of 25 patients where his observation was tested. In 10 cases of peripheral paralysis the reflex was constantly absent on the affected side; in 11 out of 15 cases of central paralysis the reflex was present on the affected side.

809. Eruptions due to Sanocrysin.

J. NOGUER MORÉ (*Arz. Médica*, February, 1926, p. 29), who records four illustrative cases, states that the rashes caused by sanocrysin have features common to eruptions due to other causes, such as salvarsan, but present certain peculiarities. The appearance of the eruption depends on several factors. In some cases the eruption is an index of the toxicity of the product, while in others it points to idiosyncrasy on

the part of the patient. Moré describes four varieties of sanocrysin eruptions—namely, scarlatiniform, morbilliform, urticarial, and lichenoid types. The urticarial and lichenoid types he regards as the final stages of the scarlatiniform type. The course of the eruption is as follows: after a prodromal stage which may be absent, characterized by intense itching and localized in different situations, but chiefly on the back of the forearms and wrists or outer side of the legs, there appear hyperaemic miliary or lenticular puncta, which are discrete at first, but later become confluent, forming patches on the elbows, knees, and elsewhere. The temperature is about 100.4°, and the patient complains of headache and prostration. In eight or ten days' time, before the eruption has faded, fine or coarse desquamation appears, and in fifteen to twenty days everything has disappeared. As the eruption fades, the itching, headache, and photophobia recur, the urine diminishes in amount, and an oedematous infiltration appears, being most marked on the forearms and legs, leaving the face unaffected, and lasting for eight days. The prognosis of these eruptions is generally good, and their appearance does not contraindicate the continuance of sanocrysin treatment.

810. Hysterical Paralysis of the Palate following Diphtheria.

G. BOENNINGHAUS (*Deut. med. Woch.*, February 19th, 1926, p. 322) states that though it is a familiar fact that palatal palsy is not an infrequent sequel of diphtheria, it is not so well known that after recovery from the organic paralysis children may in rare cases show a functional palsy due to a mere neglect of use of the no longer paralysed palate. It does not seem to be recognized that a functional palsy of this kind may take place in adults and recur periodically, as in the following case reported by Boenninghaus. The patient was a woman, aged 25, who since an attack of diphtheria two and a half years previously used to have recurrent attacks of nasal voice every two or three months, lasting for about eight days and then suddenly disappearing. The nasal twang was absent during singing and there was no regurgitation.

811. Erysipeloid in Man.

J. V. KLAUDER (*Journ. Amer. Med. Assoc.*, February 20th, 1926, p. 536), who records two illustrative cases, states that erysiploid, which received its name from Rosenbach in 1884, was first described by Tilbury Fox in 1873. The salient clinical features are as follows. The disease is most frequent from May to September. The infection can always be traced to contact with dead animal matter or to crab bites or contact with crabs. The incubation period is from one to five days. A distinctive feature of the erythema is its purplish-red colour. The disease is confined almost exclusively to the hands, and rarely progresses above the wrists. The surface of the involved parts remains smooth. The subjective symptoms are sensations of burning, pricking, itching, and pain. A relapse of the erythema is not infrequent. German observers hold that erysiploid and swine erysipelas are identical, erysiploid, in their opinion, being a mild form of swine erysipelas. The causal organisms of the two diseases are likewise regarded as identical, differing only in virulence. The symptoms of swine erysipelas in man are those of erysiploid in an aggravated form. The swelling is much greater, so that the fingers are frequently immobilized. The itching, burning, and pain are considerable. Lymphangitis and glandular involvement are frequent, and the disease is sometimes fatal.

812. Weil's Disease in Holland.

J. ENNEKING (*Nederl. Tijdschr. v. Geneesk.*, March 13th, 1926, p. 1063) refers to the cases reported by Goudsmit, Hammer, and Wolff, and Schöffner and Ruys (*Epitome*, October 10th, 1925, para. 283), and records the fourth case of Weil's disease that has occurred in Holland. The patient was a man, aged 32, in whom the diagnosis of Weil's disease was suggested by well marked jaundice, fever, petechiae, epistaxis, and blood in the urine. His serum caused agglutination of a strain of *Leptospira icterohaemorrhagiae* in a dilution of 1 in 250 on the seventh day of disease and three days later in a dilution of 1 in 10,000. Death occurred on the same day, and the autopsy showed haemorrhages in the various organs. A guinea-pig inoculated with the patient's urine died in ten days' time with typical symptoms of Weil's disease. The patient had probably been infected by rats which infested the place in which he worked.

613. Prophylaxis and Treatment of Measles.

J. A. MUÑOYENO (*Arch. de med., cir. y esp.*, March 20th, 1926, p. 550) states that the difficulty in obtaining convalescents' serum for the prevention of measles has been obviated by using the whole blood of the fathers or brothers of children exposed to measles. The technique is simple. Blood is withdrawn with aseptic precautions from a vein in the forearm into a syringe containing 2 to 3 c.cm. of a sterilized 10 per cent. sodium citrate solution to prevent coagulation. An intramuscular injection in one or two regions is given at once. In the case of convalescents' serum the dose is 1 c.cm. for each year, or 1/2 c.cm. for each six months. If the blood of brothers or fathers who have had measles some time previously is used, the dose should be increased three times. If it is desired to prevent the disease entirely, the injection should be given before the sixth day of the incubation period, but if attenuation is aimed at with permanent immunization the injection should be given later. This form of prophylaxis should be employed in all cases in which it is expected that measles may assume a malignant character, such as in scrofulous and rickety children and in those convalescent from a severe illness, especially of the respiratory system. Therapeutically the method is indicated in all cases of measles with severe respiratory complications. In such cases convalescents' serum is best, but if it is not available, the whole blood of the fathers or brothers who have had measles should be used after a clinical and biological examination of the donor has been made. The amount of blood to be injected is three times that required in the case of convalescent serum, and if the attack of measles has occurred a long time previously it should be four times as much.

614. Atypical Typhoid Infections.

A. LANDAU and M. FEGIN (*Arch. Intern. Med.*, January 15th, 1926, p. 32) record six illustrative cases, in patients aged from 27 to 60, of typhoid infection in various localizations entirely devoid of the clinical symptoms of abdominal typhoid and probably without its characteristic abdominal changes. They maintain that the existence of typhoid bacteraemia and a positive Widal reaction in so high a dilution as 1 in 400 or 1 in 800, together with a high temperature, is not always an absolute proof of abdominal typhoid, as such a syndrome may be observed in other localizations of typhoid infection, especially of the liver and gall bladder. These states of typhoid infection, although in some ways similar to typhoid fever, differ from it in (a) the presence of leucocytosis with neutrophilia, (b) the absence of rose spots, and (c) the absence of changes in the lymphatic system of the alimentary tract. Leucopenia with neutropenia, which forms one of the most characteristic symptoms of abdominal typhoid, probably does not depend on the biological quality of the typhoid bacillus, but on its secondary seat in the lymphatic system of the alimentary tract.

Surgery.

615. Obstruction of Small Intestine.

J. McKENTY (*Canadian Med. Assoc. Journ.*, March, 1926, p. 260) discusses the diagnosis and treatment of obstruction of the small intestine in adults, based upon a study of 95 cases. He considers that the high mortality is due to delay in operating, which in primary cases is the result of doubt as to diagnosis owing to inadequate knowledge of the early symptoms, which are scarcely mentioned in the textbooks. His observations show that pain, vomiting, and absolute constipation unresponsive to enemata warrant a diagnosis of obstruction, the clinical picture of primary acute obstruction during the first twenty-four hours consisting only of peristaltic pain, vomiting, and constipation, with a soft flaccid abdomen and rarely a mild degree of shock. During the second day slight abdominal distension occurred in 25 per cent. of the cases and an accelerated pulse in 30 per cent.; while during the third day the vomiting becomes stercoraceous, the pulse more rapid, and the distension more marked. In obstruction secondary to peritonitis the symptoms appear as an exaggeration or recurrence of those of the pre-existing peritonitis; unduly persistent "gas pains," recurrence of vomiting on the third or later post-operative day, and negative results after enemata, are diagnostic points. In the early stage of primary obstruction a release operation will effect a cure in 90 per cent. of cases; in the late stages with symptoms of severe toxæmia drainage of the proximal loop by enterostomy is essential. McKenty concludes that, while improved therapeutic methods and the more frequent use of enterostomy in the secondary and late primary cases will cause some decrease in mortality, any marked decrease can only come from earlier diagnosis and operation.

616. Tumours caused by Oil Injections.

R. MOUGNEAU and L. MAGIMEL (*Journ. de Méd. de Bordeaux et du Sud-Ouest*, March 25th, 1926, p. 257) report the case of a woman, aged 60, who had five firm painless tumours, ranging in size from that of a chestnut to that of a hazel-nut, on the outer surface of the middle third of the thigh. These tumours appeared two months after the injection of camphorated mineral oil during an attack of influenza. Each tumour was firmly adherent to the fascia lata and one was attached to and moved with the subjacent muscle. The tumours were of cartilaginous hardness, and consisted chiefly of fully developed fibrous tissue which appeared to invade the adjacent adipose tissue. In certain areas there were traces of granulation tissue containing lymphocytes, giant cells, and a few epithelioid cells. No trace of mineral oil could be found. The muscle fibres adherent to one of the tumours had been invaded by bands of fully developed connective tissue. SABRAZES (*Ibid.*, p. 258) reports two similar cases, in which pseudo-tumours of the abdominal wall appeared after injections of camphorated mineral oil. In some parts the tissue surrounding the oily deposits resembled that of an epitheliomatous metastasis; in other parts, giant cells, lymphocytes, and plasmocytes, such as are found surrounding a foreign body, were present. Sabrazes considers that these tumours cannot be regarded as true epitheliomata.

617. Surgical Treatment of Bronchial Asthma.

F. ERKES (*Zentralbl. f. Chir.*, March 20th, 1926, p. 718) finds in the scanty records of cervical sympathectomy for the relief of bronchial asthma that the operation was performed on the left side in the majority of cases. In a few instances, resection was performed on the right side, after failure of a previous resection of the left sympathetic cord. Hitherto no test to indicate which side should be selected for operation has been described by any writer, except that Hesse found in cases of cardiac asthma that signs of irritation of the branches of the cervical sympathetic occurred more frequently on the left side, indicating it as the site for operation. Hesse also states that in cases of the so-called "asthma cardiaca dextra" the indications of cervical sympathetic irritation and pain are entirely or predominantly found on the right side; this would appear to indicate resection of the right cervical sympathetic. Erkes records the case of a workman, aged 36, whose illness commenced in 1917 after exposure to cold while on active service. At first the attacks occurred at intervals of about four weeks, and each attack lasted for about an hour. They grew more severe and frequent, until by 1920 they recurred every eight or ten days, and each attack lasted four or five days. The patient was incapacitated for six months, being confined to bed during the attacks, which were accompanied by a sensation of strangulation. The pupils were usually equally dilated during the attacks, but occasionally the right pupil only was affected. Medicinal and x-ray treatment failed to give relief. The right cervical sympathetic from the superior to the inferior ganglion was resected by von Flörcken's method and the wound healed by first intention. After the operation the attacks were less frequent and of shorter duration. Histologically the ganglion cells showed no appreciable changes and the nerve fibres and connective tissue were apparently normal. Four months later the patient reported that there had been no severe recurrence; he was in good health, and fit for work.

618. Estimation of the Date of a Fracture.

O. ANDREI (*La Chirurgia degli Organi di Movimento*, February, 1926, p. 254) thinks that it is possible to determine the age of a fracture by radiography, and cites an experience of 140 cases of fracture of different durations. He bases his estimations on the opacity, volume, and delimitation of the callus, on the characters of the line of fracture, and on the reconstituted bony tissue. In simple fractures of the shaft without displacement of the fragments the first change noted is a blunting of the edges and of the bony spicules, which shows about the end of the second week. Callus begins to appear between the sixteenth and twentieth days; it is clearly delimited at the third or fourth month, and reaches the opacity of normal bone at the eighth or tenth month. In the first year the callus shows no lamellar structure. The line of fracture disappears between the sixth and eighth months to become more opaque later, in the second year. In fractures with displacement the callus does not become delimited until later, about the sixth or seventh month, and is not reduced so readily as in simple fracture without displacement. In fractures of the fingers, blunting of the edges is observed as early as the first week, and callus appears as a delicate white cloud between the second and third weeks; it becomes clearly defined at the end of the fourth month, and between the sixth and seventh months it reaches the opacity of normal bone.

619. Chronic Abscess of the Tibia.

AUVRAY (*Dull. et Mém. Soc. Nat. de Chir.*, March 20th, 1926, p. 321) records a case of chronic abscess in a patient, aged 24, who had received a kick on the lower end of the tibia some years previously. The pain lasted only a few hours and there was no bruising. Six months later there was an acute exacerbation of pain which compelled the patient to rest. Since that time there had been intervals of freedom from all trouble, alternating with attacks of pain. Radiograms taken at different times demonstrated no bony lesion. Two years later, when seen by Auvray, there was some swelling round the ankle, but the skin appeared normal. On palpation over the tibia there was a well marked spot of localized tenderness near the lower epiphysis; pressure here caused acute pain. The diagnosis was then made of a localized abscess of the bone, and this was confirmed by radiographic examination. At the operation the bone was opened and a chronic abscess with thick pus was found in the lower end of the tibia. The pus was sterile and gave no growth on culture. The condition appeared to be a chronic osteomyelitis, probably originating from the kick. The patient had some boils at that time, and it is suggested that the infection may have arisen from this source.

620. Extraction of Needles and Fish-Hooks.

O. SUSANI (*Zentralbl. f. Chir.*, March 27th, 1926, p. 791) describes a simple and easy method of extracting needles and fish-hooks if less than 2 mm. in diameter and more than 3 mm. in length. The method is inapplicable when there is evidence of active infection, or when the foreign body is close to easily injured structures, such as large blood vessels or nerves. After a preliminary x-ray examination to determine the position of the foreign body, a 2 per cent. novocain-adrenaline solution is injected; a Record hypodermic needle of suitable calibre and fitted with a pear-shaped or conical metal plug, which serves as a handle, is thrust with aseptic precautions through a layer of sterile gauze into the skin and with the assistance of the fluorescent screen is entered in the axis of the foreign body, which is engaged by the needle-point. With a little manipulation the foreign body is made to enter the lumen of the needle, and the needle is then withdrawn with the foreign body in its lumen. In the case of fish-hooks and other barbed foreign bodies a larger needle is guided to engage the barb; a small incision may then be made and the extraction completed with forceps. The author has removed needles from the knee-joint with complete success; in one case the needle was broken off at the border of the patella, and in the second case it was broken and lying free in the joint. Both patients recovered full and painless movement of their knee-joints.

Therapeutics.**621. Administration of Adrenaline.**

B. L. VELÁZQUEZ (*Arch. de med., cir. y esp.*, March 27th, 1926, p. 585) states that administration of adrenaline gives rise to a series of reactions by which its efficacy can be estimated—namely, hyperglycaemia, glycosuria, rise of blood pressure, and change in the pulse rate. The most constant reactions are the changes in glycaemia and in the blood pressure. Administration of adrenaline by the mouth is accompanied by hyperglycaemia but not by any obvious change in the blood pressure, which justifies the hypothesis that the drug is conveyed to the liver, where it is destroyed. Hypodermic administration of adrenaline causes considerable retardation and diminution of its action, the proportion being 1 to 4 as compared with the intravenous route. Intramuscular injection is less efficacious still, its activity being 1 to 6 or 1 to 8 compared with the intravenous route. Rectal administration gives rise to a glycaemic rate which does not exceed or is even lower than that obtained by the gastric route, while the blood pressure rates are slightly above those obtained from administration of adrenaline by the mouth. In contrast with the intravenous route the activity of absorption of adrenaline by the rectal route is 1 to 20 or 1 to 25.

622. Ephedrine in Bronchial Asthma.

H. E. MACDERMOT (*Canadian Med. Assoc. Journ.*, April, 1926, p. 422) reports the results obtained from the use of ephedrine for a period of three months in a group of twenty cases of severe and recurrent bronchial asthma in patients aged from 14 to 60. He found that this alkaloid produced well marked antispasmodic effects, which lasted longer than those of adrenaline, and that the treatment might be repeated safely during a prolonged period. In some cases 25 mg. was found a sufficient dose, while 50 mg. caused sensations of quivering and nervousness, with some headache, thirst, and

giddiness; other patients required a dose of 50 mg. In most cases relief was obtained in from two to five minutes after swallowing a capsule of the remedy, with a feeling of relaxation in the chest, and in some cases a notable diminution in the mass of râles. The effect came more rapidly, as a rule, when the alkaloid was taken on an empty stomach. Many patients obtained an entire night of comfort after a single dose of ephedrine, or during the day were able to take exercise without distress. Protection appeared to last for about six to eight hours; little or no change in the blood pressure was observed. MacDermot recommends that the initial dose should be 25 mg.; this may be increased if required.

623. Ether in the Treatment of Suppurative Otitis Media.

G. B. MCAULIFFE (*Med. Journ. and Record*, April 21st, 1926, p. 503) recommends the use of ether in treating suppurating conditions of the middle ear. After cleansing the ear with a solution of boric acid it is partly dried and then filled with ether, the patient remaining recumbent until the ether has evaporated. This treatment is given twice a day. The patient is said to experience the same sensation as that given by hydrogen peroxide, and the method is described as being easy for home treatment. In the majority of cases it was found to be very beneficial and no ill effects were encountered. It is not applicable in cases of chronic mastoiditis, and is without value when the perforation in the drum is insufficiently large to allow passage of the ether. Short details are given of sixteen cases, and the author refers to Watchhouse's article on the use of ether in the peritoneal cavity and the bladder (*JOURNAL*, February 6th, 1915, p. 233).

624. Sanocrysin Treatment of Tuberculosis.

F. R. DE PARTEARKOYO (*Arch. de med., cir. y esp.*, March 6th, 1926, p. 433) reviews the literature, and records his observations on cases of pulmonary tuberculosis treated in the Guadarrama Sanatorium by sanocrysin. His conclusions are as follows: (1) If employed with caution sanocrysin does not usually give rise to any bad effects. (2) It does not appear to have any bactericidal action. (3) It seems to be principally indicated in recent cases with effusion. In fibrotic cases its action is nil. (4) The doses should be small at first (10 cc.) and gradually increased to a gram or more. The injections should be given at first every third or fourth day and at the end of the course every tenth day. (5) In order to form an exact estimate of the therapeutic value of the drug, it should be given, not at the beginning of the disease, but after some improvement has been obtained by a rest cure and the condition has become stationary. Otherwise sanocrysin might be credited with the disappearance of fever, diminution of expectoration, and improvement in the auscultatory and radiological findings, which are really due not to the drug but to hygienic treatment. (6) While sanocrysin is of some value in the cases mentioned, it is not indispensable in the treatment of pulmonary tuberculosis.

625. Hexylresorcinol.

H. M. N. WYNNE (*Minnesota Med.*, April, 1926, p. 156) reports his experience in the use of hexylresorcinol in urinary tract infections in women. He recommends its administration by gelatin capsules containing a 25 per cent. solution in olive oil, one being taken directly after meals three times a day for three days, and gradually increasing up to four capsules three times a day by about the eighth or tenth day. Of three cases of chronic *B. coli* infection treated by courses of from 200 to 400 capsules one showed but little improvement, while the other two obtained complete relief of symptoms and sterilization of the urinary tract. Cecal infections appeared to be more susceptible to the treatment than the bacillary, and clinically the drug was found to have a distinctly antiseptic action in the urine of patients suffering from either infection. Wynne adds that it is important to commence with small doses, increasing them gradually and continuing the full doses over a considerable period of time, during which alkalis should be avoided and the fluid intake regulated to allow of sufficient concentration of the drug in the urine.

626. Dichloramine-T in the Treatment of Wounds.

D. S. ADAMS (*Boston Med. and Surg. Journ.*, April 22nd, 1926, p. 737) reports his experience of using dichloramine-T in clean and septic wounds for nearly seven years. He adds to 25 grams of crystalline dichloramine-T enough chlorocresol to make 500 grams by weight, and he has found this 5 per cent. solution adequate for all purposes. The mixture was placed in 4-oz. brown bottles, and proved stable if kept cool and in the dark. Before its use the affected parts were shaved, cleansed with benzine, and 70 per cent. iodine applied. After excision of any foreign matter and the devitalized soft tissues the affected parts were thoroughly covered with dichloramine-T, and partial, or complete, skin closure effected. In

probably infected wounds, such as those due to street accidents, the deeper parts were packed with gauze strips saturated with dichloramine-T, and hot saline or saturated boric acid dressings were applied. The first dressings usually followed after forty-eight hours, the packs being removed and fresh dichloramine-T sprayed over the wound or applied to the surfaces on cotton swabs. Adams found that in head injuries dichloramine-T might safely be applied to dural and subdural structures; in abdominal injuries its use is not advised, nor for burnt surfaces, nor in suppuration of the pleura or peritoneum. He concludes that by this method a simple, uniform technique of wound treatment is easily obtained with a minimal expense, and a rapid formation of healing surfaces. The earlier dressings are associated with an unpleasant burning sensation which lasts for a few minutes, but is compensated by the absence of toxic symptoms. Favourable results were obtained in such bone conditions as osteomyelitis and compound fractures, and there was a total absence of infection with gas-forming bacilli.

Disease in Childhood.

627. Pneumothorax in Young Children.

A. MONCRIEFF (*Brit. Journ. Child. Dis.*, January-March, 1926, p. 37), who records a case in a male infant aged 1 year 10 months, states that the occurrence of pneumothorax in babies or young children is comparatively uncommon. He points out that though many of the recently recorded cases seem to have been tuberculous in origin, tuberculosis, especially in young children, is not a common cause of pneumothorax. In his own case the negative Pirquet reaction and favourable issue suggested that the case was not tuberculous but was probably caused by the rupture of a subpleural emphysematous vesicle in the course of a bronchopneumonic process in the right lung. The absence of any pus in the pleural cavity was against rupture of a subpleural abscess, which is the commonly accepted cause in post-pneumonic cases.

628. Nephrolithiasis in Children.

S. SIMONS (*Nederl. Tijdschr. v. Geneesk.*, March 27th, 1926, p. 1290), who records two cases, in a girl aged 5 and a boy aged 9 respectively, states that since 1900 only two examples of renal calculus and two of stone in the bladder have been met with in children at the Amsterdam University clinic for internal diseases. In Italy and Hungary, on the other hand, renal calculus in children is much less rare. Although the diagnosis can only be made with certainty by x-ray examination, as was done in Simons's cases, the possibility of nephrolithiasis should be considered in cases of renal haemorrhage in children for which no obvious causes can be found. Both Simons's patients were given 30 grams of glycerin a day mixed with equal parts of water. In the boy a stone consisting of calcium carbonate, and measuring 9 by 6 mm., was rapidly expelled. In the girl, however, in whom the stone, according to the skiagram, was much larger, the treatment had no effect, and the associated pyelitis was treated in the ordinary way. Although glycerin is not always of avail, it serves to expel small stones and thus helps to prevent the formation of large calculi.

629. Infantile Otitis Media.

DANA W. DRURY (*Boston Med. and Surg. Journ.*, January 21st, 1926, p. 96) has analysed the characters of otitis media as it occurs in very young babies. Otitis is favoured in infants by the fact that the tympanic cleft is filled with mucus and fluid, and both are excellent media for the growth of pathogenic bacteria. The upper part of the cleft is comparatively wide and there tends to be a large collection of inflammatory products in the attic region. In addition to this the cleft is incompletely divided into a number of small cavities by septa of mucous membrane. The Eustachian tube is very short and wide, its musculature is very flabby and ill developed, and it provides an excellent path for infection. Thus the middle ear in infants is very prone to be infected, and drainage is difficult owing to the anatomical nature of the cleft. It is often a matter of difficulty to localize the trouble in a small baby, but the ears of a child in pain should be examined. The drumhead is horizontal, the meatus often swollen, and a red engorged membrane may be covered and hidden by a layer of desquamated cells, making the examination difficult. There are usually signs such as tenderness, injection, and bulging, but any of these may be absent. Often there is a protruding white opaque membrane, and incision releases a quantity of muco-pus, indicating a low-grade infection. The temperature is usually raised in the evening but normal in the morning. Incision of the membrane is the correct

treatment and may have to be repeated. Persistence or frequent recurrence of the discharge points to a naso-pharyngeal focus of infection, and adenoids should be suspected; if present they should be removed at once. In infants the tendency is to antral and mastoid involvement rather than to intracranial or labyrinthine trouble. Once this is evident the antrum should be opened and drained, but enough time may be allowed for a protective zone to form. In certain cases there is formation of an abscess in the antrum without any infection of the middle-ear cleft. The best sign of mastoid infection is flattening out or sagging of the posterior wall of the external meatus.

630. Amoebic Dysentery in Children.

J. M. PARDO (*La Med. Ibera*, February 26th, 1926, p. 245, and *Arch. de med., cir. y esp.*, February 27th, 1926, p. 398), who records two cases in a brother and sister, aged 2 years and 9 months respectively, emphasizes the intensity of the intestinal symptoms in contrast with the low degree of fever. The urine in both cases showed a large quantity of urates. The heart always remained in a satisfactory condition. During the course of the disease a state of dehydration set in resembling uraemia owing to its being associated with oliguria and restlessness, but was readily overcome by hydrotherapy and ingestion of water. In the treatment of amoebic dysentery in children the dose of emetine should be gradually increased until 1/2 cg. per kilo of body weight is reached. The work of Beurnier, Clapier, and Marcoux induced Pardo to associate stovarsol with emetine in doses of 0.3 cg. daily with satisfactory results.

Ophthalmology.

631. Metastatic Intraocular Mycosis.

F. H. VERHOEFF (*Arch. of Ophthalmol.*, May, 1926, p. 225) records a case of unilateral intraocular mycosis derived by metastasis from an undiscovered systemic focus, with hepatic and endocardial involvement. A man, aged 60, who was an inspector of cars which had contained cattle, complained of lassitude, weakness in the right hand, and fever; he later developed a metastatic purulent right endophthalmitis necessitating enucleation. He had chronic mitral disease, probably due to subacute bacterial endocarditis, with slight hepatic enlargement, and a small sore on the right shin was excised subsequently. The Wassermann and Widal tests were negative and blood cultures remained sterile. The ocular infection being confined to the interior of the eye was obviously metastatic in origin, and the persistent fever, enlarged liver, and endocarditis indicated the presence of other foci, though the portal of entry of the organism and the site of the primary focus could not be discovered. The micro-organisms, found only in the subretinal exudate, were closely related to the actinomyces group since they produced abscesses and consisted of filaments which formed granules and peripheral clubs, but they differed in that the filaments were more delicate, unbranched, and Gram-negative; they were also not acid-fast. Following enucleation of the eye the fever, enlarged liver, and endocarditis persisted, in spite of treatment, till death five months after the onset of the first symptoms. Although such ocular involvement is exceedingly rare Verhoeff considers it is possible that systemic infection of a milder type without ocular involvement may not infrequently occur and escape recognition because no lesions accessible for bacteriological examination are produced.

632. Charting the Visual Field.

M. U. TRONCOSO (*Brit. Journ. Ophthalmol.*, May, 1926, p. 280) advocates the adoption of a new method of recording the area of the visual field with a view to simplifying the present elaborate procedure. As mapped now, the findings in the perimeter have to be inverted twice; this method leads to confusion and misunderstanding, and is the outcome of a faulty mental habit violating the anatomical rule which requires the subject to be considered as standing in front of the observer. He points out how much easier it would be to follow this anatomical rule and consider the visual cones of the patient projected into the space in front of the observer—the right field in front of the right eye and the left in front of the left eye—recording the fields as they are found in the arc of the perimeter with only one inversion instead of two. This method does not involve any change in instruments except that the campimeter should be made of cloth so that pins may be inserted, and marking the limits and defects in the field on the side facing the operator. It would be advantageous also to standardize the notation of the meridians in the charts, which at present is confusing. Troncoso claims that as the result of these changes it will be easier to under-

stand and record the monocular and binocular fields of fixation than is at present the case after the inversion necessary for transferring them to the position of the observer's eye. Similarly, abnormalities in mobility of the eye will be rendered less difficult to define when considered in the standard anatomical position without reversing the findings.

633. Intraorbital Anaesthesia.

M. D. ICOVE (*Amer. Journ. Ophthalmol.*, April, 1926, p. 260) describes the technique and applications of intraorbital anaesthesia by the perineural injection of a 4 per cent. solution of novocain about the area of the ciliary ganglion in order to block the sensory nerves of the cornea, sclera, and iris. The injection is made through the skin at the junction of the lower and outer border of the orbit between the external and inferior recti, the needle being directed slightly upward and inward (for about 5 cm.) to avoid striking the floor of the orbit, and the entire amount of the novocain is injected posteriorly. Ample time must be allowed for absorption to take place, the best time to operate being about half an hour later. No toxic effects have been observed in over a thousand injections of novocain in amounts varying from one-half to 4 c.cm. From his own experience Icove advocates its use in operations for cataract, glaucoma, enucleation, and when giving painful subconjunctival injections such as of mercury.

Obstetrics and Gynaecology.

634. Vaginal Hernia.

L. M. MILES (*Surg., Gynecol. and Obstet.*, April, 1926, p. 482) reports two new cases of vaginal hernia and discusses under the inclusive term "pelvic hernia" all hernias through the pelvic floor, subclassifying them as perineal, pudendal, or vaginal (anterior or posterior) according to the point of egress. Nine cases of vaginal hernia previously reported in the literature are considered. While they may be congenital the majority are acquired, following the trauma of pregnancy or child-bearing. Hernias between the rectum and vagina usually develop gradually; of those reported only two appeared suddenly, and only one showed signs of strangulation. Symptoms are more marked in the anterior variety than in the posterior, incapacity for work owing to the inconvenience of the protruding mass being the chief complaint rather than pain. The diagnosis from rectocele and cystocele constitutes the chief difficulty, there being no peritoneal sac in these latter. Since the internal ring is large these hernias disappear in the recumbent position, only to reappear in the erect posture or on straining or coughing, and replacement is accompanied by gurgling from the contained coils of intestine. The best method of treatment is by a perineal operation with excision of the sac and repair of the perineum combined with an abdominal operation to obliterate the cul-de-sac.

635. Spontaneous Birth of the Transversely Placed Head.

R. BRÜHL (*Zentralbl. f. Gynäk.*, March 13th, 1926, p. 646) records in detail the labour of a 2-para, aged 25, whose pelvis was somewhat flattened and had a true conjugate of 9.25 cm.; the previous labour had terminated spontaneously at seven and a half months. The head was delivered with the sagittal suture in the transverse diameter of the outlet (this diameter being of normal size) with the left arm behind and the right in front. Uterine contractions were forcible throughout labour, which lasted twenty-six hours; the child weighed 3.5 kg. and was 53 cm. in length. That the foetal head should pass through the pelvis with its long axis persistently in the transverse diameter appears not to be excessively rare; in the German records Brühl has found 22 such cases of vertex presentation, 4 of face presentation, and 23 of brow presentation. The etiological factors favouring such a mechanism of birth are not clear; many cases have been first labours, pelvic contraction has not commonly been present, the foetuses have been of very large as well as of very small dimensions, but as a rule the patients have been multiparae with flaccid soft parts at the pelvic outlet. According to Heinrichs 1 in 10 of brow presentations is characterized by persistence of the sagittal suture in the transverse plane.

636. Unusual Varieties of Extrauterine Pregnancy.

A. SCHWARTZ (*Paris Méd.*, March 27th, 1926, p. 297) reports some atypical forms of ectopic gestation. One patient complained of frequent copious uterine haemorrhages, persisting for one or two days, and recurring after a few days. In the intervals a large tumour could be felt to the right of the uterus; after a haemorrhage it disappeared. A diagnosis of

ectopic pregnancy was confirmed at operation. There was a right tubal pregnancy situated in the ampulla, the tube was dilated and permitted the blood to escape into the uterine cavity. In another case the patient complained of pain and metrorrhagia, preceded by amenorrhoea persisting for one month. The pain was particularly severe at the moment of defaecation. While under observation the patient had a severe haemorrhage from the anus. Median laparotomy was performed and a large tubal pregnancy was found attached to a coil of small intestine and closely adherent over a large area to the lower part of the sigmoid where it had perforated. The right ovary and tube were removed, the adhesions were separated with difficulty, and the sigmoido-rectal perforation sutured. A year afterwards the patient had a normal confinement. In a third case, the patient, previously quite regular in menstruating, had gone nine days beyond the usual time. This was followed by small daily haemorrhages. There was a fluctuating tumour to the right of the uterus as large as a foetal head. Laparotomy disclosed a tubo-ovarian pregnancy, almost filling the true pelvis. There was no intraperitoneal haemorrhage, but on puncturing the cyst 400 grams of almost pure blood was evacuated. The right adnexa were removed and the cyst wall sutured. The ectopic pregnancy had developed in a tubo-ovarian cyst. A fourth case was that of a patient operated on by the author in 1923 for a left ectopic pregnancy. In 1925 there was amenorrhoea for twelve or fifteen days followed by slight pain and uterine haemorrhage for eight days, when signs of collapse occurred followed by sudden recovery. The uterine cavity was so dilated that Lévy-Solal diagnosed very early uterine pregnancy. Under anaesthesia nothing abnormal was found in the pelvis. The uterus was cautiously curetted. Recurrent pain and haemorrhage necessitated laparotomy, and an ovum as large as a pigeon's egg, containing an embryo 12 mm. in length, was found with its membranes solidly adherent to the upper part of the rectum and neighbouring peritoneum—hence the absence of any pelvic tumour. This was a case of abdominal or tubo-abdominal pregnancy complicating an ordinary uterine pregnancy. The patient made a complete recovery. It is remarkable that in three of the above cases there was no trace of intraperitoneal haemorrhage.

637. Intrauterine Transplantation of Ovary.

R. B. P. MONSON (*Med. Journ. of Australia*, February 27th, 1926, p. 229) discusses intrauterine transplantation of the ovary and its clinical applications. He has found that the ovary can be successfully transplanted into the cavity of the uterus of the rabbit provided that its blood supply is preserved intact. Failing this, it was found that the transplanted ovary completely disappeared and definite uterine changes occurred, the body becoming flaccid, cylindrical, and elongated even to twice its normal length, and surrounded by dense deposits of fat with a change in colour to pale yellow. Monson refers to the results obtained by Tuffier and Estes in the human subject, the former opening the uterus on its posterior wall after previous dilatation of the cervical canal with tents for twelve hours, and then suturing the ovary into the uterine cavity so that one-third of it projects into the uterus. Estes adopts the method of suturing the ovary into the uterine cornu. Menstruation continued in all the twenty-nine cases operated upon by Tuffier, and one gave birth to a living child at term. Of twenty-seven cases reported by Estes, all but one continued to menstruate, while six became pregnant and four carried two pregnancies to a successful termination. No mortality has so far been recorded, and the operation appears to be justifiable in suitable cases when double salpingectomy is unavoidable and the patients wish to retain the possibility of child-bearing.

638. Diet in the Pre-eclamptic State.

V. J. HARDING and H. B. VAN WYCK (*Journ. Obstet. and Gynaecol. of the British Empire*, 1926, Spring Number, p. 17) have investigated the effect of various diets in patients showing evidence of the pre-eclamptic state as indicated by oedema, high blood pressure, headache, and blurring of vision. They find that protein or fat even in excess produces no ill effects, but by strictly limiting the intake of sodium chloride they were able in all cases to avoid the occurrence of convulsions. They agree, therefore, with the view recently expressed by de Wesselow and Wyatt that there is no necessity to restrict protein intake in the majority of pre-eclampsics. They advocate that the patient should be put to bed and given salt-free food until salt excretion in the urine reaches and remains at a minimum of 2 to 3 grams a day. The oedema becomes much diminished, and then 3 grams of salt, which is sufficient to maintain equilibrium, is added to the daily diet. It is said, therefore, that ordinary hospital or home diets can be used in the treatment of pre-eclampsia, provided they are salt-free. The albuminuria does not always disappear completely. Violent purgation

and forced intake of fluids are unnecessary forms of treatment. The authors are inclined to consider the oedema and nephrosis of the pre-eclamptic state as symptomatic of generalized vascular disturbance. They find that accompanying the progressive hydraemia of pregnancy demonstrated by Plass and Bogert's estimation of the plasma proteins there is a coincident increase (maximum about the seventh month) in the blood chloride concentration. The inclusion of one week in four on a salt-free diet is suggested as a measure which may be employed in the pre-natal clinic with the object of avoiding eclampsia and pre-eclampsia.

619. Anterior Abdominal Hysterotomy.

P. OGIZU (*Surg., Gynecol. and Obstet.*, April, 1926, p. 523) discusses the indications for anterior abdominal hysterotomy for the interruption of pregnancy and sterilization. He describes his technique, which he claims fulfils all the requirements of the ideal operation, since it is simple, can be performed at any time during the pregnancy, entails a minimum loss of blood, secures complete sterilization, and is capable of performance under any form of anaesthesia within half an hour. Through a mid-abdominal incision the uterus is opened anteriorly, and after delivery of the embryo and placenta 1 c.cm. of pituitrin is injected directly into its musculature and the wound closed by two continuous catgut sutures. One tube is then clamped at its isthmus portion and picked up so that a knuckle is formed, under the apex of which a silk ligature is passed and tied first over one limb and then over the other; the apex is then cut off and both raw surfaces cauterized. The same procedure is then repeated on the other tube. By this method the anastomosing circulation between the uterine vessels and the ovary is not interrupted. Ogizu considers that the operation is indicated for women suffering from chronic debilitating disease and in cases where a continuation of the pregnancy would endanger the patient's life. Such conditions are: (1) pulmonary tuberculosis accompanied by fever, rapid pulse, sweats, and loss of weight; (2) such cardiac diseases as aortic regurgitation and mitral disease with attacks of decompensation, and in auricular fibrillation and myocardial degenerations due to chronic infections; (3) chronic nephritis and hypertension; and (4) recurrent toxæmia, complicated diabetes, certain nervous and mental diseases such as chorea, such blood diseases as pernicious anaemia and leukaemia, and severe thyroid toxæmia. He finds that patients stand the operation well and recover rapidly.

Pathology.

610. Anaerobic Bacteria in Appendicitis.

M. WEINBERG, C. RENARD, and J. DAVESNE (*C. R. Soc. de Biologie*, April 9th, 1926, p. 813) have studied the microbic flora of the inflamed appendix, particularly the anaerobic bacilli of the gas gangrene group. Of these *B. perfringens* was much the commonest, being present in about 33 per cent. of cases; occasionally *B. sporogenes* was found, and *B. fallax* has been recovered recently on two occasions. In the course of an investigation into eight cases of appendicitis the authors isolated *B. histolyticus* twice and *V. septique* twice; in one case these two organisms were associated. In the first case—acute appendicitis and periappendicular abscess—the two organisms were present together with an anaerobic streptobacillus, an anaerobic Gram-positive bacillus forming zoogloae in liquid media, and *B. coli*. The strain of *B. histolyticus* was highly toxic to rabbits. In the second case—acute appendicitis during influenza—*B. coli*, a staphylococcus, and *V. septique* were isolated. In the third case—putrid gangrenous appendicitis in a child aged 3—an enterococcus, *B. pyocyaneus*, and *B. histolyticus* were found; the last two organisms were very pathogenic for guinea-pigs. From these results and from the work of other authors it is clear that the pathogenic anaerobes of the gas gangrene group are frequently found in acute appendicitis; the proportions in which each is present have yet to be worked out. The authors consider that these organisms are concerned in the etiology of the disease. In favour of this is the success that has attended the administration of polyvalent anti-gangrenous serum, advocated by Weinberg eight years ago. They believe that when the bacteriology of the inflamed appendix is fully known, the serum treatment of appendicitis should be even more valuable than at present.

651. The Cause of Acute Polymorphic Erythema.

C. LEVADITI, S. NICOLAU, and P. POINCELOUX (*Presse Méd.*, March 17th, 1926, p. 340) describe the isolation of an organism which they regard as the specific cause of acute polymorphic erythema. In March, 1925, one of the authors became suddenly ill with a septicæmic disease characterized by

three successive eruptions on the skin of macules, papules, and small nodules, accompanied each time by a fall in the temperature; there were also ing. the smaller joints, the spleen was enlarged, and there was severe pharyngeal pain. Convalescence began on the twelfth day, but the joints remained painful for a fortnight or more afterwards. Two blood cultures were taken, and the contents of a papule examined. In each case an organism was grown which they describe as being a non-capsulated, non-sporing, Gram-negative bacillus, 2 to 3 μ long by 0.5 μ broad, growing in chains, and showing marked pleomorphism. This was especially noticeable in artificial cultures, in which cocci and fusiform bacilli appeared. Growth was best in serum or ascitic broth to which a small fragment of rabbit testicle had been added; large flocculi formed on the walls of the tube, but the medium itself remained clear. On blood agar very small dew-drop colonies were seen. The organism is a facultative anaerobe; it was destroyed by heat at 60° C. in half an hour; it formed no toxin, and was found to be virulent to rabbits, guinea-pigs, mice, and monkeys. Injected intratesticularly into rabbits it gave rise to an orchitis followed by general peritonitis. Injected intravenously it might give rise to arthritis or to an erythematous eruption on the skin. Immunity was easily established. The authors consider that this organism is probably responsible for the polymorphic erythema and for erythema nodosum.

652. The Relation between Malta Fever and Infectious Abortion of Cattle.

G. FAVILLI (*Lo Sperimentale*, April, 1926, p. 41) contributes to the vexed question of the relation between Malta fever and infectious abortion of cattle. In 1924 and 1925 there was an epidemic of Malta fever in Florence and in other parts of Italy, where the incidence of this disease is normally very low. Many of the cases were traced to infection from goats, but in several others the method of infection remained undetermined. The author collected a number of strains of *B. melitensis* from human beings and made a comparative study of them with *B. abortus*. Neither morphologically, culturally, nor biochemically could any difference be made out between the two organisms. Their pathogenicity to laboratory animals was likewise similar. The subcutaneous injection into guinea-pigs of 1/4 to 1/2 c.cm. of a suspension of either organism, made by rubbing up a forty-eight hour culture in 5 c.cm. of saline, proved fatal in about a week: at autopsy the organisms were recovered in pure culture from the local abscess, the liver, spleen, and bile. In the hands of other workers, however, the pathogenicity of these organisms to guinea-pigs has proved very low. Whether these results of Favilli's are to be attributed to an increase in virulence is doubtful. Agglutinating serums were prepared by the injection of rabbits with six strains of *B. abortus* and five strains of *B. melitensis*. Cross-agglutination completely failed to distinguish between the two organisms; nor was the absorption test any more successful. The effect of heating the serums to 65° C. was tried, since this has proved of value in the hands of Fical and Alessandrini in distinguishing between the specific and group agglutinins. But the sole effect of the heating was to lower the titre about one-half; both organisms were agglutinated equally at the lower level. The author concludes that *B. melitensis* and *B. abortus* must be regarded as two varieties of one bacterial species, differing only in their adaptation to different animal hosts.

653. The Oxygen Consumption of Atrophied Muscles.

A. E. BERYL HARDING (*Journ. Path. and Bact.*, April, 1926, p. 189) has compared the oxygen consumption of an atrophied quadriceps extensor muscle in rabbits with that of the same muscle in the sound leg. It was found that whereas the average difference between the two legs of normal rabbits was 43.5 c.mm. of oxygen per 100 grams of muscle a minute; that between the normal and the atrophied legs of the experimental animals was as much as 405 c.mm., the oxygen consumption being greater on the atrophied side. Six rabbits in which a streptococcal arthritis of the knee had been artificially produced were taken, and their left legs put up in plaster for three weeks. Determinations made at the end of this time showed that the oxygen consumption of the muscles of the normal and experimental legs was approximately equal. It would appear, therefore, that a muscle which is undergoing atrophy as the result of arthritis consumes more oxygen than a healthy muscle, but that if it is immobilized this extra oxygen consumption is prevented. The author suggests that there are two different kinds of muscular atrophy; in one the muscle receives an abnormal number of impulses from the joint leading to an increased katabolism and associated with an increased oxygen consumption; the other, a pure disuse atrophy, in which the afferent stimuli are reduced and the oxygen consumption is not increased.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

634. Paraplegia and Hodgkin's Disease.

F. PARKES WEBER (*International Clinics*, 1926, vol. i, p. 127) has collected details of twenty cases of Hodgkin's disease complicated by paraplegia, in which the *post-mortem* findings included tumours invading the spinal canal, syringomyelia, a band of cellular pachymeningitis interna, parenchymatous changes in the spinal cord, and tuberculosis. He raises the question whether deep x-ray treatment may give rise to transverse degenerative changes in the cord, with paraplegic symptoms, in the same way that the extensive use of x-ray treatment in mammary cancer may cause pulmonary fibrosis. The tumour-like growth present in Hodgkin's disease may also, he suggests, have a tendency to become malignant, a "Hodgkin's sarcoma" arising from a "Hodgkin's granuloma." The author reports a case in which a mediastinal tumour infiltrated the sternum, lungs, pericardium, and some of the ribs: the first evidence of the growth was found in a rib, and was regarded as sarcomatous or syphilitic, but the latter possibility was almost certainly excluded. A year and a half later the mediastinum was found to be extensively involved, and the lymphatic glands in the right axilla and on the left side of the neck were infiltrated. The blood count was not far removed from the normal. The anaemia and weakness increased, there was general cutaneous pruritus—a common symptom of Hodgkin's disease—and a swinging type of pyrexia. Death followed, due to the pressure of the tumour, which was found to have a structure resembling that of the growth in Hodgkin's disease. The author considers that such a malignant progress in Hodgkin's disease would afford a possible explanation of the paraplegia which sometimes appears.

645. Poisoning following the Oral Administration of Bismuth Subnitrate.

W. H. RESNIK (*Bull. Johns Hopkins Hosp.*, May, 1926, p. 323) reports a case of bismuth poisoning in a woman suffering from diabetes mellitus. Before admission to hospital she had been given in a fortnight about 5 to 7 oz. of bismuth subnitrate by the mouth. The symptoms comprised a bluish-black discoloration of the gums, which were swollen and inflamed; a similar discoloration of the tongue, most noticeable at the apex of the papillae and arranged in vertical striations along the lateral margins; a patchy, diffuse discoloration of the buccal mucosa; swelling and tenderness of the parotid glands; a moderate anaemia, the erythrocytes being 3,100,000 per c.mm., the haemoglobin 40 per cent., and the leucocytes 9,000 per c.mm.; and basophilic stippling of the red cells. The clinical picture, in fact, closely resembled lead poisoning. Bismuth was detected in the urine. Recovery followed the withdrawal of the salt. In discussing the features of bismuth poisoning the author states that the metal is excreted by the salivary and buccal glands, by the kidneys, and by the large intestine; hence the main lesions are stomatitis, nephritis, and colitis. When given by subcutaneous or intravenous injection in treatment of granulating wounds, of chronic suppurating sinuses, and of syphilis, the appearance of the first symptoms is generally within a fortnight of the commencement of treatment. Poisoning after the oral administration of bismuth subnitrate is apparently very uncommon.

636. Erythema Infectiosum.

T. P. HERRICK (*Amer. Journ. Dis. Child.*, April, 1926, p. 486) records 74 cases of erythema infectiosum. The evidence indicates that the disease is a distinct entity, is infectious, and results in the establishment of a specific immunity. The distinguishing features of the disease are its occurrence in epidemics, the lack of constitutional symptoms, the lack of any features distinctive of the other exanthems, the long course and characteristic progression of the rash, its evanescence at all stages, and particularly the irregular but brilliant outlines seen on the arms and legs in the third stage and in the recurrences. There are no prodromal symptoms. The first sign is usually a dusky flush, which appears on the cheeks. While distinctly outlined, the rash on the face has a slightly irregular edge and is definitely raised, as a rule. Frequently this first stage is overlooked, the first sign noticed being the second stage of generalized involvement. The generalized rash is usually well marked and slightly papular on the buttocks. The upper part of the arms also usually shows a papular rash. The trunk may be extensively involved with

a rash which is definitely papular, but often there are only a comparatively few faint macules. When the rash is not well marked the existence of any disease at this stage could easily be doubted. The second stage lasts from several days to a week, and passes gradually into the third stage, when the rash is limited to the arms and legs, and the outlines persist for another week or longer. The rash on the lower part of the arms may be the only manifestation of the disease noticed, and the appearance there when typical can scarcely be confused with any other disease. The rash starts on the back of the forearm, just above the wrist, and in the early stages cannot with absolute certainty be distinguished from sunburn. After a day or two it spreads farther towards the sides and up to the elbow, clear areas appear in the centre, and the outline is more irregular and more distinctly marked off from the surrounding skin. The rash spreads peripherally, and small clear areas appear in the centre, which increase in size and coalesce, thus giving rise to the bright red irregular outlines typical of this stage. By the end of a week the back of the arms will be clear, except around the elbow and near the wrist, and the irregular outlines will have spread over the sides of the forearm to meet on the flexor surface. These outlines were described by one mother as "lakes and rivers on a map"; they are the most distinctive features of the disease. No treatment is indicated. Isolation and quarantine might limit the spread of the disease, but the lack of serious symptoms or sequelae makes such a course unnecessary.

647. Narcolepsy as a Post-encephalitic Syndrome.

W. G. SPILLER (*Journ. Amer. Med. Assoc.*, March 6th, 1926, p. 673) states that since Géléneau first described narcolepsy in 1880 the recognition of this disorder as a distinct entity has been much disputed. By some it has been considered a symptom-complex occurring with epilepsy or hysteria. Redlich has recorded cases in which epidemic encephalitis was followed by short attacks of sleep, occurring several times daily, and refers to other examples in the literature. Spiller now reports three cases of narcolepsy in males aged 28, 22, and 15 respectively, in none of whom was there a clear connexion with epidemic encephalitis, though in one there was a history of an attack of influenza and diplopia, and in two the sleep at night was interrupted, suggesting the inversion of normal rhythm frequently observed in epidemic encephalitis. Spiller concludes that though it would be assuming too much to assert that narcolepsy is always a post-encephalitic syndrome, it may occasionally be a sequel of epidemic encephalitis.

Surgery.

648. Displacements of the Semilunar Cartilages.

P. LE BRETON and R. M. CLEARY (*Med. Journ. and Record*, May 5th, 1926, p. 576) consider the diagnosis and treatment of displacements of the semilunar cartilages, based on a survey of fifteen cases of removal. The account of the symptoms given by the patient is important, and, while locking is typical when present, inability fully to extend the knee is the most positive sign, though this is usually absent in recurring attacks. In the prone position there is sharply localized tenderness over the internal cartilage in front of the internal lateral ligament over the joint line an inch and a quarter to the inner side of the lower end of the patella. An enlarged retropatellar fat pad may simulate the condition, but the catch is slighter, with creaking beneath the patella and a distinct doughy thickening at the sides of the bone. A negative x-ray report eliminates chronic arthritis, and instability due to lax ligaments can be ruled out by comparing both knees. If the case is seen soon after the accident and the patient is walking on a flexed knee the cartilage may be reduced by flexing the leg on the thigh to about 45 degrees below full extension with the patient lying on his back. The leg is then rotated inwards and abducted and then suddenly extended while the inward rotation is maintained. Weight bearing may be allowed except in a marked case with first displacement, a Thomas heel helping to maintain abduction and inward rotation and so guarding against recurrence. For frequent displacements removal is necessary; the authors prefer the method of Sir Robert Jones. They state that the prognosis is excellent provided no arthritis, joint irritation, or lax ligaments are present, and they emphasize the fact that the method does not involve a stiff joint.

649. Cerebral Thrombosis following Ligature of the External Carotid Artery.

H. HERFARTH (*Zentralbl. f. Chir.*, May 1st, 1926, p. 1106) records three fatal cases of cerebral thrombosis occurring within a year after ligature of the external carotid as a preliminary to operations for epithelioma of the tongue. In the first patient left hemiplegia supervened sixteen days after the operation, and the patient died four days later. The external carotid had been ligatured as usual above the origin of the superior thyroid artery; a secondary thrombus filled the lumen below the ligature as far as the superior thyroid; a portion of this thrombus had broken away and had been carried to the middle cerebral artery. The internal carotid contained no clot. The mortality of this complication has been estimated at 1.54 per cent. The author observes that it is most important to use absolutely aseptic ligatures in this operation, such as Perthes's strips of fascia.

650. Vesical Lesions due to Urotropine.

O. GRAGERT (*Zentralbl. f. Gynäk.*, May 1st, 1926, p. 1195) observes that while urotropine has an undeniably powerful bactericidal action when given in acid solutions, it is very doubtful whether formaldehyde is evolved in the genito-urinary tract when the drug is given by the mouth or injected intravenously. When a 40 per cent. urotropine solution is given by the latter route, it is probable that any resultant improvement is due to the powerful diuretic action of the drug flushing out the bladder. The author describes three cases in which haematuria and severe vesical tenesmus followed the administration of urotropine. A woman who had already a *B. coli* cystitis was submitted to a supravaginal hysterectomy and right oophorectomy for myomata. The next day a dose of 10 c.cm. of urotropine was given intravenously. Immediately afterwards severe tenesmus with haematuria and excessive diuresis occurred. The bladder could scarcely hold 10 c.cm. of urine and the patient was obliged to urinate every ten minutes. Morphine gave but temporary relief. Haematuria ceased on the third day, but tenesmus and dysuria persisted for a week, in spite of irrigation with boric lotion. The second patient, a primipara, aged 31, after a difficult forceps delivery, had retention persisting for several days. Intravenous injection of 5 c.cm. of urotropine was followed by severe tenesmus and haematuria, necessitating irrigation of the bladder and prolonged sedative treatment. The third patient, who had had eclampsia during a confinement three years previously, had suffered subsequently from persistent pain in the right loin. The urine contained vesical epithelium, relatively few leucocytes, and no bacteria. Early right pyelitis was diagnosed, and the patient received 0.5 gram of urotropine by the mouth thrice daily; after twenty-four hours, when she had taken only 1.5 grams, she suddenly had severe tenesmus and haematuria and was obliged to urinate every five or ten minutes. This was relieved by atropine and local treatment. A cystoscopic examination showed many submucous haemorrhages. The urine flowing from the ureters was clear and free from blood and bacteria. Tests for tubercle bacilli were all negative. It is suggested that in one or more of these cases there was an angioneurosis or an idiosyncrasy for urotropine.

651. Prolapse of Rectum in the Male.

U. MAES and J. D. RIVES (*Surg., Gynecol. and Obstet.*, May, 1926, p. 594) describe a plastic operation on the levatores ani and pelvic fascia for complete prolapse of the rectum in adults, and give notes of three cases. Their procedure is based on the assumption that the cause of the defect is the presence of an abnormally long cul-de-sac, as suggested by Quénu and Moschcowitz, together with relaxation of the lateral ligaments, the levator muscles, and the sphincter ani. In the lithotomy position, after reduction of the prolapse, an inverted Y incision, with the arms extending round the anus, is made to expose the external sphincter, which is then freed from the central tendon of the perineum by cutting across the ano-bulbar raphe. The anterior quadrant of the sphincter is excised and the muscle sutured end-to-end. The levator ani is exposed by deepening the incision, and its median margins are separated by blunt dissection. With a guiding finger in the rectum its anterior and lateral walls are cleared by blunt dissection as far as the lateral ligaments. The prostate and seminal vesicles are pushed forward and any reflection of peritoneum carefully pushed up until the prostate is exposed in front and the adventitia of the rectum behind. The lateral wall of the space is now formed by the superior surface of the levator ani covered by the pelvic fascia, and, commencing at the apex, sutures are introduced to approximate the levator muscles and suspend the rectum, several transverse stitches being taken across the lateral and anterior aspects of the rectal walls. With three or four sutures the levatores are approximated and the rectum suspended, closing the depth of the cul-de-sac. A last suture

approximates the free margin without picking up the rectum, so that the anus is thrown backward to produce the normal angulation of the canal. The authors state that the procedure is not difficult, is without shock, and can be performed under spinal or local anaesthesia. They consider that it offers a satisfactory technique for cases free from complications and in which the prolapse is not extreme.

Therapeutics.

652. Calcium in Ovarian Insufficiency.

A. CRAINICIANU (*Presse Méd.*, May 1st, 1926, p. 545), as the result of careful research into the conditions underlying ovarian insufficiency, has found that the administration of calcium is particularly effective. He recommends the daily administration by the mouth of between 90 and 120 grains of calcium lactate in cachets, each containing about 20 grains. The treatment should be continued for ten days, and, if necessary, should be repeated after an interval of a few days. The total duration of treatment varied, but on the average amounted to about fifteen to twenty days. He reports that very satisfactory results followed the use of this salt in ovarian insufficiency. Alphandary has obtained equally good results by intravenous injections, but the present author prefers the oral route as being easier and equally satisfactory. He finds that even in still stronger doses than those recommended calcium was well tolerated by his patients and produced no digestive trouble. The constipation usually present with ovarian insufficiency was dealt with simultaneously. The results of treatment were found to be permanent. Crainicianu discusses the production of ovarian insufficiency, both congenital and acquired, and relates it to a loss of tone, associated with sympathetic or parasympathetic disorders. He gives the details of five cases to illustrate the employment of calcium lactate after hysterectomy and in the treatment of amenorrhoea.

653. Treatment of Infantile Eczema.

E. FEER (*Rev. Méd. de la Suisse Romande*, March 10th, 1926, p. 137) divides the causes of infantile eczema into two classes—namely, predisposing and exciting. He describes two forms of the disease: (1) Generalized eczema, seen chiefly in young infants, is usually characterized by a seborrhoeic eczema, fatty crusts, and intertrigo. It often appears in infants with severe digestive disorders and diarrhoea. The intertrigo may suggest a syphilitic lesion. Among the more severe forms of this group must be included cases of desquamating erythrodermia. (2) Eczema of the scalp, often extending to the cheeks, is more common in older infants. Typically this form may be mistaken for impetigo, or the latter may be implanted upon it. The first point in treatment is to correct errors of diet; overfeeding should be stopped in fat infants. Breast-fed infants should have four or five feeds a day, one or two of which may be replaced by malted soup, buttermilk, or farinaceous soups. At 4 to 5 months fruit and vegetables may be given. Hand-fed children should have their ration of cow's milk cut down to 400, 300, or even 200 grams a day. With the milk farinaceous food, oatmeal, fruit, and vegetables may be given. In place of whole milk skimmed milk or buttermilk may be substituted. The diet should be so regulated that a fat infant should gain no weight over a long period, and if very fat should lose 1 or 2 kilograms. When the diet has been well regulated and not excessive it should not be cut down. For external application olive oil and cold cream are recommended. In papular eczema zinc oxide 25 per cent. and talc powder 75 per cent. are applied after the cold cream; for pruritus, 1/4 to 1/2 per cent. of thyroid or menthol in alcohol, painted on freely, or 2 to 3 per cent. of anaesthesine in powder form. For papular eczema and pruritus Feer advises equal parts of zinc oxide, glycerin, and talc powder up to 25 grams with alcohol and distilled water, of each 12.5 grams, a dusting powder being used after the application. When sleep is disturbed, chloral 0.1 to 0.2 cc. is indicated. To prevent scratching, the hands should be bandaged. In eczema of the head a dressing of boric vaseline, not impermeable, should be applied and renewed daily; in two to four days the crusts should come off easily; they should not be pulled off for fear of causing hyperpyrexia, convulsions, or even sudden death. When the condition beneath appears moist, several layers of gauze soaked in a 1 in 10 solution of alum acetate, covered with cotton-wool, not impermeable, and renewed three to five times a day. When the inflammation and discharge have diminished, a paste of zinc oxide, talc, lanoline, and vaseline (of each 25 grams) should be applied, covered by a mask with openings for the eyes, nose, and mouth. The addition of 1 to 5 per cent. of lenigallol often diminishes discharge, and of 3 to 10 per cent. of tumentol eases pruritus. In certain cases of

moist eczema painting with 1 to 2 per cent. of silver nitrate before the application of the paste aids the cure. This method is also applicable in cases of intertrigo. The author has found coal-tar a most valuable remedy in cases of dry or slightly moist eczema. It is contraindicated in suppurating conditions. It should be painted on with a camel-hair brush, allowed to dry for a moment, then powdered thickly over with zinc oxide and talc powder, and covered with a porous dressing. The tar dressing will separate after a few days; portions may have to be helped off with olive oil. Occasionally there may be some oozing, when the author uses naphthalene 50 grains, zinc oxide and talc powder, of each 25 grams. When peeling commences he advocates zinc oxide and bismuth subnitrate in ointment preparations. Most cases should be cured in two to eight weeks. In chronic intractable eczemas arsenic should be exhibited in the form of Fowler's solution, 1 or 2 drops daily; alkaline waters are also of value.

Laryngology and Otology.

654. Tumour of the Auditory Nerve.

G. ZANETTI (*Arch. Ital. di Otol., Rinol. e Laringol.*, February, 1926, p. 92) describes a case of a woman, aged 75, who had a tumour of the right auditory nerve. It was the size of a small nut, appeared to be almost pedunculated, and sprang from the region of the internal auditory meatus, being lightly attached to the facial nerve and the pons. The structure of the brain did not show any appreciable change. A wedge-shaped piece of the cranium was removed, including the internal meatus and the tumour. The tumour, which had a clear-cut fibrous capsule, consisted of compact fibrillary fibrous tissue with numerous blood vessels; the latter were present to such an extent that the author describes the tumour as a fibro-angioma. He adds that it is usually very difficult to detect any true nerve tissue in these tumours, but it certainly occurs in some. The tumour may develop within the lumen of the internal auditory meatus, or it may spring from the free extracanalicular portion of the nerve; it arises from the sheath of the nerve and has a very wide area of attachment. In the present case there was no dilatation of the internal meatus, though this may occur to a marked extent. In life attention is drawn to these tumours by unilateral symptoms implicating the seventh and both parts of the eighth nerve.

655. Lymphoid Tumours of the Nasopharynx.

BARRET DE NAZARIS (*Rev. de Laryngol., d'Otol. et de Rhinol.*, February, 1926, p. 71) thinks that the rarity of any reference in the literature to lymphoid tumours in the nasopharynx is due to incomplete pathological examination. Lymphomas are hyperplastic tumours characterized by masses of lymphoid cells in the meshes of a distinct reticulum. They may be part of a disease of the whole lymphoid system, but Torretta and Forrer suggest an infective origin, though bacteriological investigations have so far proved inconclusive. The section shows a uniform appearance of lymphoid cells in compact mass, the traces of normal glandular structure having been lost; on higher magnification a very delicate stroma is distinguished, including a number of endothelial cells. The lymphoid cells consist of lymphoblasts and lymphocytes; macrophages are present, and their abundant and clear cytoplasm contains droplets of chromatin due to the digestion of cells of the tumour. The lymphoid cells sometimes pass into the circulatory system, but they never give rise to metastases. The disease is rarely seen in its early stages, and the first obvious signs are respiratory difficulties, deafness, or swelling of the carotid region. The orifices most frequently attacked are the choanae, the tubal orifices, and the communication between the nasopharynx and the oropharynx. Nasal respiration is quickly suppressed and Eustachian obstruction is an early symptom. Slight epistaxis and swelling of the glands of the neck appear early. On rhinoscopy the tumour is seen to consist of a smooth rose or violet coloured mass, soft to the probe, and moving with the palate; the whole of the nasopharynx is filled with an enormous mass of adenoid-like growth, with a doubtful site of attachment. The disease progresses rapidly in the whole of the neck and mediastinum, in a few months. In a child between an early lymphoma filled, this difficulty does not exist. Fibroma of the nasopharynx is unlikely after 25; it is smoother, harder, and gives rise to serious haemorrhages. Epitheliomas are generally smaller, they bleed, and are ulcerated. Lymphomas are most easily confused with sarcomas of the pharynx, but in the latter there is no trace of invasion of the glands. Surgical intervention leads only to generalized hyperplastic degenera-

tion. MacBride claims to have cured two cases with arsenic. Temporary amelioration follows diathermo-coagulation or electrolysis. Radium and x rays are not very practicable owing to the scattered and diverse nature of the growth. Short wave-length radiations result in the rapid destruction of the nasopharyngeal tumour at first, but new glandular tumours develop with great rapidity and bring about an early fatal termination.

656. Chordoma of the Cervical Vertebrae.

W. S. SYME and D. F. CAPPELL (*Journ. of Laryngol. and Otol.*, April, 1926, p. 209) describe a case of a man of 59 who, two months previous to admission to hospital, had suffered from shooting pains in the neck when he moved his head from side to side. Pain was succeeded by stiffness of the neck, which was later accompanied by difficulty in swallowing and defective articulation. A tumour was found in the posterior wall of the pharynx extending up into the nasopharynx and down into the laryngopharynx. It was situated behind the pharyngeal wall, but there was no ulceration of the mucosa. The growth was exposed through an incision carried from the tip of the mastoid process downwards along the anterior border of the sterno-mastoid muscle. It was free from the pharyngeal wall, but was firmly attached to the vertebral column and was found to be invading the body of the third vertebra and adjacent portions of the second and fourth vertebrae, from which it was separated with difficulty. The deep part was curetted and the diathermy button applied. The patient made an uneventful recovery, but was readmitted to hospital six months later with recurrence in the site of the original growth. The growth was now ill defined and widespread, reaching up to the base of the skull and downwards to the fifth cervical vertebra, with numerous lateral extensions into the prevertebral muscles. It was removed as far as possible and the diathermy button again employed over the cavity, but the patient developed septic pneumonia and died three days later. The body of the third cervical vertebra was so much destroyed that only a thin shell of bone separated the growth from the spinal canal; there was, however, no evidence of any invasion of the spinal canal or meninges or of pressure on the cord. There was invasion of the second and fourth cervical vertebrae, and of the retropharyngeal tissues overlying the fifth and first. The brain substance was found to be healthy. Histologically the growth proved to be a cellular malignant tumour with broad strands of epithelial cells many layers deep, resting on a delicate connective tissue core, and solid alveoli of epithelial cells resting on a rather dense fibrous stroma. In the border areas of stroma which comprised the capsule of the tumour there were small cord-like structures closely resembling notochord in the earlier developmental forms in lower animals. The tumour cells presented very varying characters in different parts of the growth, but their general character was in conformity with their origin from notochordal remnants, reproducing the various stages in the ontogeny of the notochord. The authors have not seen any account of this feature in the previously published cases of chordoma. In the BRITISH MEDICAL JOURNAL of May 22nd, 1926 (p. 852), a case of sacrococcygeal chordoma was recorded by Mr. A. Richardson and Mr. A. L. Taylor of Leeds. The patient recovered after operation, but it was considered probable that recurrence would take place.

Obstetrics and Gynaecology.

657. Suprapubic Transperitoneal Caesarean Section.

A. BRINDEAU (*Presse méd.*, March 10th, 1926, p. 305) claims the following advantages for this method over the ordinary Caesarean section: (1) The skin incision need not be so long. (2) The haemorrhage is less severe. (3) The operative shock is less. (4) Cicatrization of the uterine wound involves a zone which remains in a state of rest, whereas in ordinary Caesarean section the sutures are applied to the body of the uterus, which contracts vigorously for the first few days after delivery, and tend to cut through the uterine tissues. This does not occur when the lower uterine segment is sutured. (5) In case of infection of the peritoneum there is a greater likelihood of the infection being limited to the pelvic peritoneum. (6) Post-operative intestinal obstruction and adhesions to the intestine or great omentum hardly ever occur. On the other hand, the drawbacks of the low operation are as follows: (1) The operation takes a little more time and is distinctly more difficult than the ordinary method. (2) The delivery of the child is somewhat difficult and may require the application of forceps. The results of the operation are satisfactory. Of 1,200 cases collected by Marassy the mortality was only 3 per cent. The method is chiefly indicated in pelvic deformities and in haemorrhage due to placenta praevia.

658. Adenoma of the Cervix Uteri.

ACCORDING TO E. DOUAY and A. SOÏMARU (*Gynéc. et Obstét.*, 1926, xxiii, 4, p. 245), it is important to remember that adenoma of the cervix uteri, although a benign epithelial tumour, not infrequently becomes malignant. When this is suspected care should be taken to remove a fragment for examination from the hardest and most readily bleeding portion. Most commonly adenoma of the cervix is found between the ages of 30 and 50 years, but it may occur after the menopause. It is not an inflammatory lesion and there is little evidence that precurrent inflammatory conditions have an important etiological relation with it. The histological lesions common to all its forms consist in hyperplasia of the cervical glands with intraglandular epithelial vegetations and penetration of the glandular cul-de-sac within the neighbouring connecting tissue. Mitotic figures are never seen. Macroscopically in about four-fifths of the cases there is diffuse adenoma, with a regularly hypertrophied cervix, dark red, firm, and elastic. The other or partial forms are localized vegetating adenoma, adenomatous polypus developing within the cervical canal, and cystic adenoma which in the early stages resembles Naboth's ovoids. The symptoms have an insidious onset with vague lumbosacral pain. A glairy discharge is invariably present and may be very abundant; it is transparent, but may have a rosy or amber tinge. To palpation the tumour appears firm, elastic, and granular. Purulent discharge is not present except after secondary infection. Adenoma of the cervix does not bleed readily; the occurrence of slight haemorrhage after coitus or medical examination is suggestive of carcinomatous metaplasia, and should lead to microscopical examination of a carefully excised fragment. In treatment the application of antiseptics is useless if not harmful; the effects of carbonic acid snow, radium, and diathermy are not permanent. The authors recommend complete destruction by caustic or cautery, or amputation of the cervix.

659. Diagnosis of Disease of the Urinary Tract in Women.

T. J. MCBEE (*Med. Journ. and Record*, February 17th, 1926, p. 242) states that the close anatomical and physiological relations between the urinary tract and the reproductive organs in the female warrant an examination of both systems when disease is suspected in either. A large percentage of what are termed "female troubles" in girls and young women are urological conditions or urological and gynaecological conditions combined. Investigation of a case of this kind should therefore include a careful study of the clinical history, complete physical examination, and the investigation, both macroscopical and microscopical, of the urine. The presence of blood in the urine demands a further examination by means of the cystoscope, if possible while blood is still present, and the functional ability of each kidney should be ascertained. Cystitis rarely, if ever, occurs as a primary infection, so that symptomatic treatment is useless unless the primary focus is also dealt with. Primary cystitis is unaccompanied by any rise in temperature. Catheterization followed by chills and fever is due to a previous existing pyelonephritis. McBee considers stricture of the ureters to be one of the most common lesions occurring in the female abdomen and advises their dilatation; from this treatment he has had many good results, large "tumour masses" being found to disappear following the dilatation. Tuberculosis of the urinary tract in a woman should always be suspected when the bladder is intolerant of warm bland fluids, if the urine is persistently acid, or if the bladder capacity is reduced to four ounces or less, if one half of the trigone is more involved than the other, or if there are obstinate ulcers on the bladder wall or marked distension of the ureteral orifices. Similarly, persistent pyaemia in a woman between 15 and 40 years of age with no pathogenic organisms detectable by ordinary methods should give rise to suspicion of tuberculosis; the urine should be examined repeatedly for tubercle bacilli and guinea-pigs be injected. Renal tuberculosis alone gives rise to practically no symptoms.

Pathology.

660. A Microscopical Precipitation Test for Syphilis.

B. S. KLINE and A. M. YOUNG (*Journ. Amer. Med. Assoc.*, March 27th, 1926, p. 928) give a preliminary report of a microscopic slide precipitation test for syphilis which they recommend on the grounds of economy of apparatus, simplicity, easier reading of results, and less serum required than in other tests. The results obtained by this micro-method were found to run parallel with those of the ordinary routine Kahn and Wassermann tests. Glass slides are washed with soap, well rinsed in water, placed in 95 per

cent. alcohol for a short time, dried and flamed. Four paraffin rings are made on the slides. The antigen is diluted and titrated as in the Kahn test; it should be used quickly, since some antigens lose their value after fifteen minutes, though most remain good for three-quarters of an hour. The serums are prepared as for the Wassermann test and heated for one hour at 56° C. Into each paraffin ring 0.05 c.c.m. of undiluted serum is placed and then 0.015 c.c.m. of Kahn's antigen dilution; the mixture is rapidly stirred, and a specially devised cover is placed over the slides to prevent evaporation. After ten minutes the first slide is removed and rocked and rotated by hand for about a minute. The reading is made under a 16 mm. objective with a 10 or 12.5 ocular, the light being cut out as in the examination of a urinary deposit. The result is expressed according to the size of the clumps formed. It is suggested that the test should be controlled by using various antigens. The authors believe that this test will be found of special value when only small quantities of serum are available, and in emergency blood transfusions for excluding syphilis in the donor.

661. The Intracutaneous Method of Testing for the Virulence of Diphtheria Bacilli.

M. KALNYKOWA and M. GLUSMANN (*Centrabl. f. Bakt.*, May 5th, 1926, p. 308) report on the modification of the intracutaneous method of testing the virulence of diphtheria bacilli described by Havens and Powell. This modification consists in using the original mixed culture obtained from the patient, instead of purifying it before injection. The culture is inoculated intracutaneously into two guinea-pigs, one of which has been given a dose of immune serum some time previously; the reaction in the two animals is compared. A positive reaction is denoted by infiltration at the site of injection in the non-immunized guinea-pig, followed after three days by a typical necrosis; in the immunized guinea-pig there is no lesion at all. If organisms are present in the culture capable of giving rise to suppuration an abscess forms in both animals alike, but it is not followed by the typical necrosis unless virulent diphtheria bacilli are present also, and then only the non-immunized guinea-pig is affected. The authors plant the primary culture on inspissated horse serum, wash the growth off with saline, and standardize the suspension to 500 or 1,000 million organisms, depending on the number of diphtheria bacilli present microscopically. Of this suspension 0.2 c.c.m. is injected intracutaneously into the shaved skin. The reaction can generally be read in twenty-four hours, and always within seventy-two hours. By this method they have examined in all 177 cultures, comparing the microscopical with the virulence tests. Of 60 microscopically positive cultures 4 proved to be avirulent; of 10 microscopically doubtful positives all proved to be virulent; of 13 doubtful negatives 2 were virulent; and of 86 definite negatives none were virulent. Since at least four to six tests can be made on a single guinea-pig it is clear that a considerable saving of time and money is obtained. It should be of special value in the testing of bacilli isolated from carriers.

662. The Prognostic Value of Lymphocytosis in the Sputum of Tuberculous Patients.

N. SANTANGELO (*Il Morgagni*, May 9th, 1926, p. 577) has examined the sputum, in many instances repeatedly, of 70 patients suffering from pulmonary tuberculosis. The extent of the disease was gauged by clinical examination, by radiography of the chest, and by bacteriological examination of the sputum. Films of the sputum were prepared and stained by the May-Grünwald-Giemsa method; cell counts were then made and the proportion of lymphocytes estimated. Of the 70 patients 50 were over 18 years of age. Of these the ones that showed progressive increase of the local lesion and a bad general condition contained less than 5 per cent. of lymphocytes in their sputum. On the other hand, those patients whose local and general condition was not deteriorating contained from 6 to 21 per cent. of lymphocytes. Patients who were becoming worse showed a progressive fall in the lymphocyte content of their sputum. The remaining 20 patients were under 18 years of age. The same observations were made, but the proportion of lymphocytes was considerably higher than in adults. The cases that were doing badly had a lymphocyte content of 10 to 12 per cent.; the cases that were doing well had a lymphocyte content of 12 to 23 per cent. Eight patients with combined tuberculous and syphilitic were found to have a much higher lymphocytosis than was warranted by the gravity of their condition. The author disclaims any diagnostic value for the test, but considers it useful for prognosis. The higher the proportion of lymphocytes in the sputum, and the greater the rise in the lymphocyte curve, the better is the outlook. Conversely a low proportion and a falling curve are of grave prognosis.

